

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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

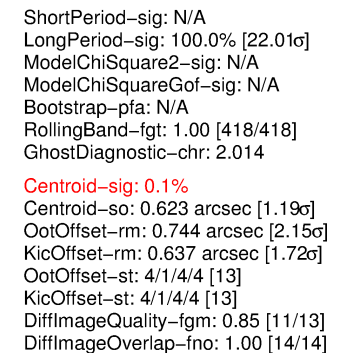
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

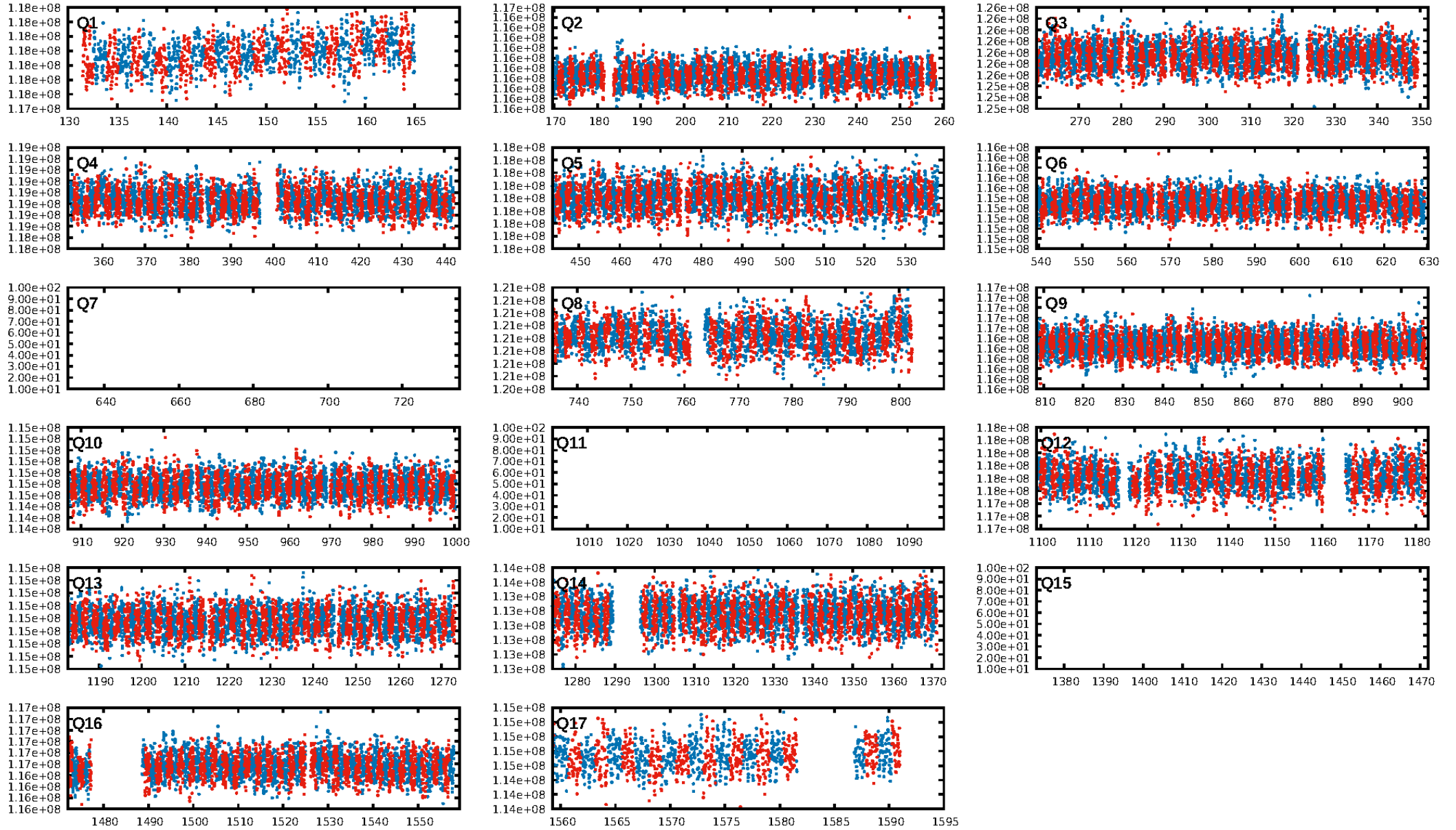
Ephemeris Match Information For 009910533-01

No Significant Match Found

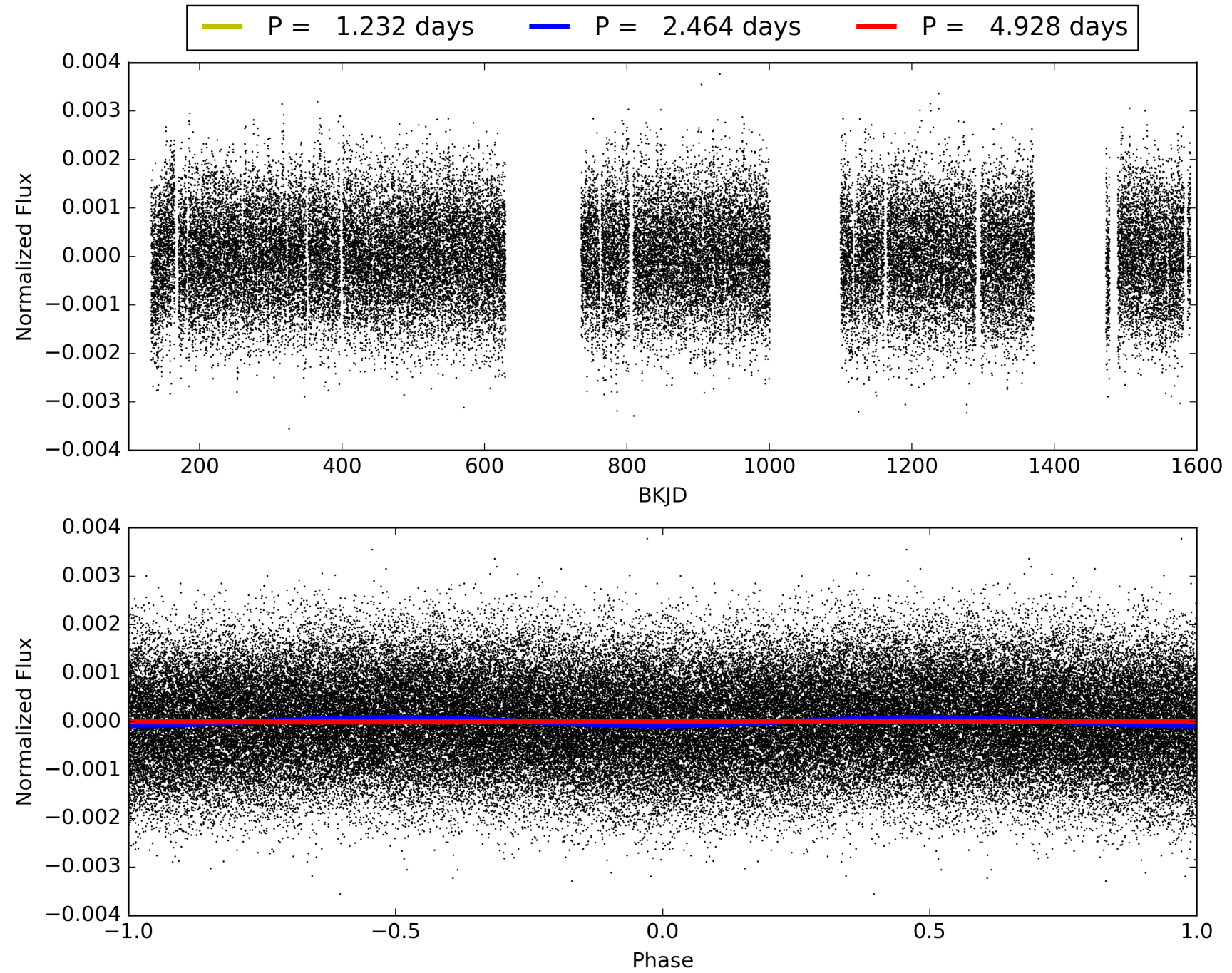
KIC: 9910533 Candidate: 1 of 10 Period: 2.464 d



TCE 009910533-01, PDC Light Curves

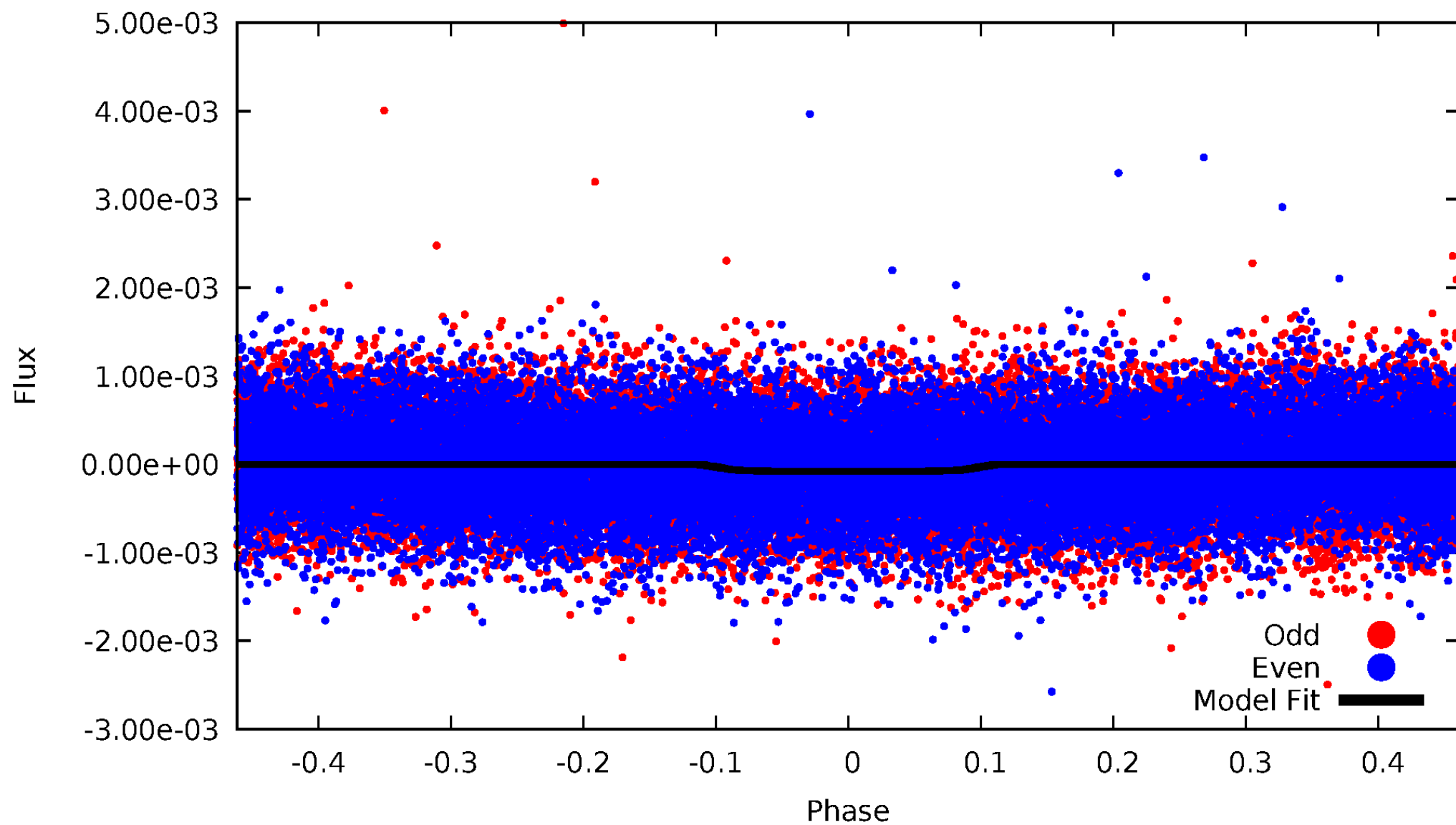


TCE 009910533-01



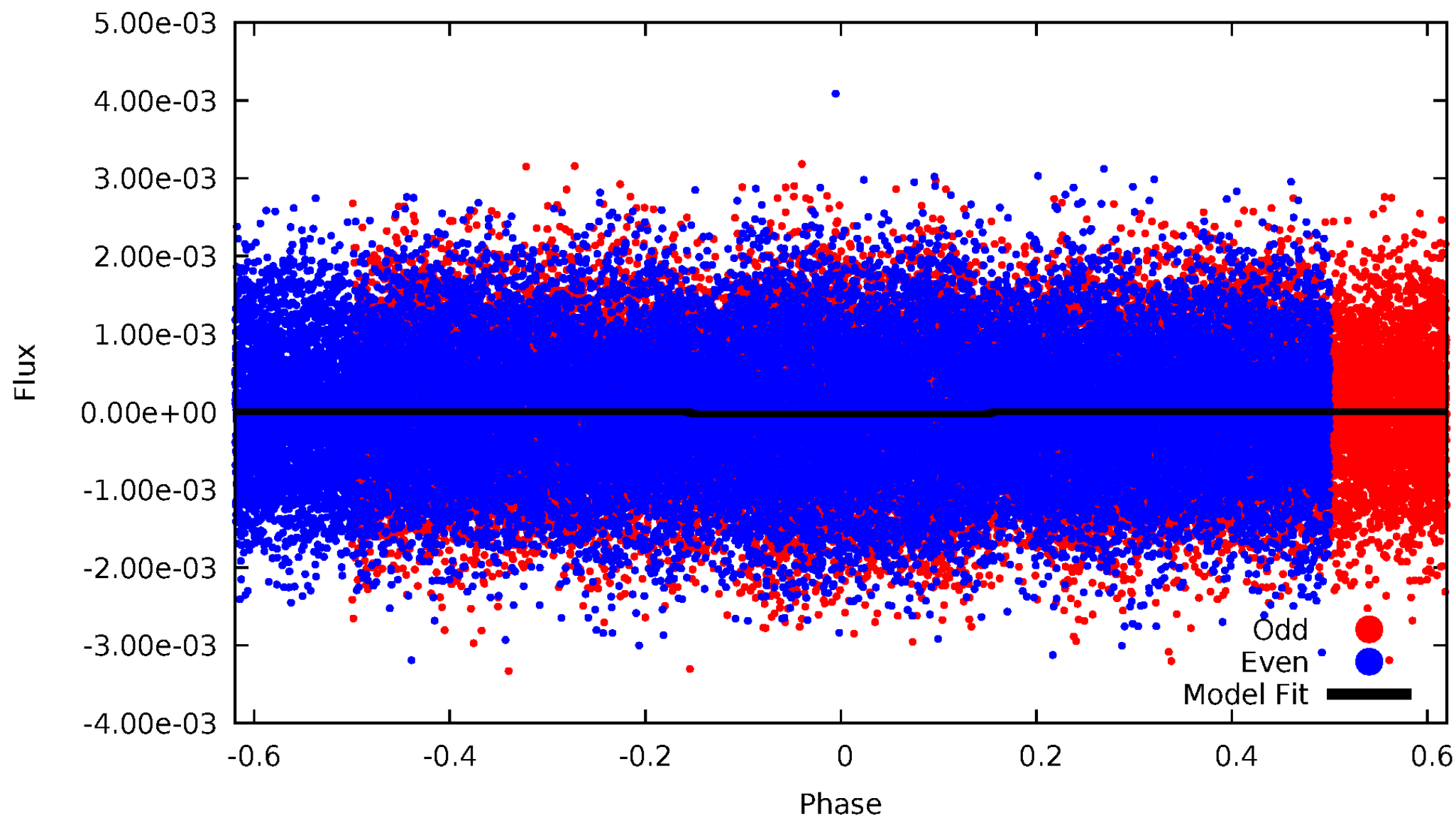
DV Odd/Even

TCE 009910533-01



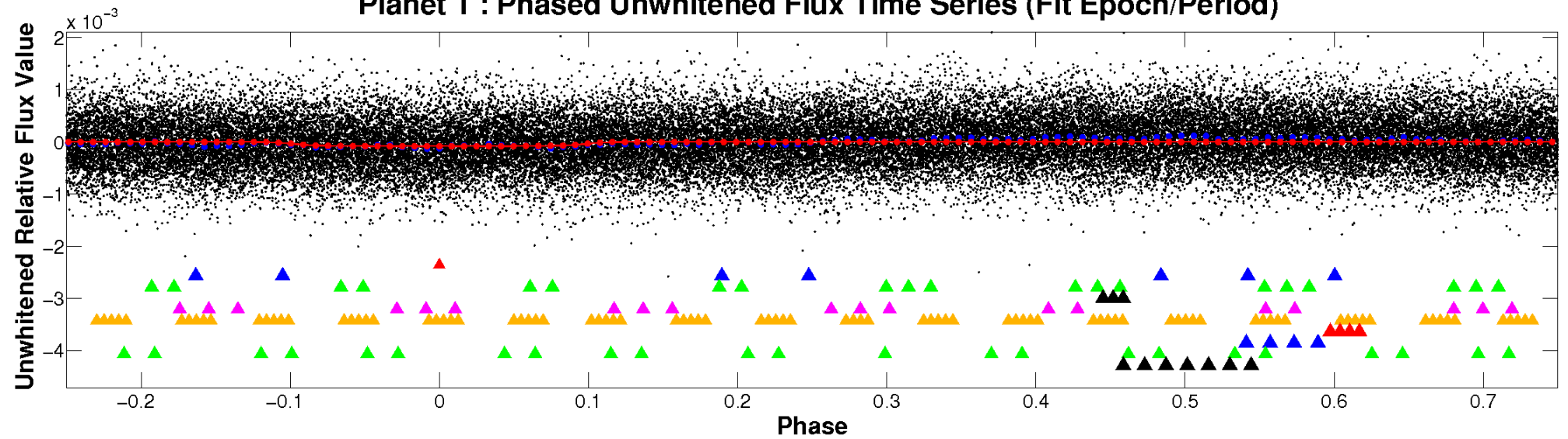
ALT Odd/Even

TCE 009910533-01

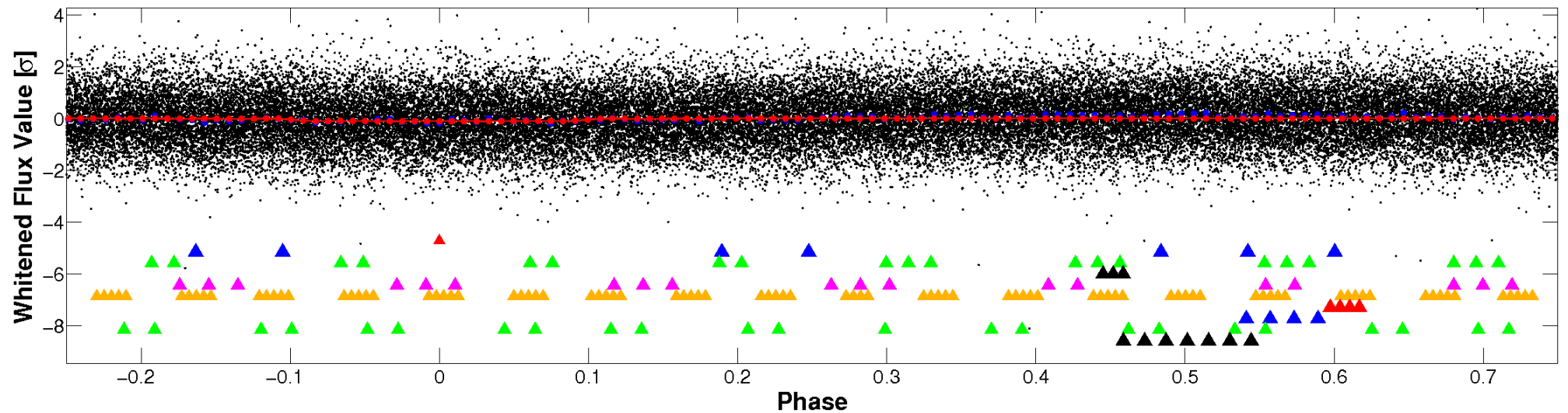


Non-Whitened Vs. Whitened Light Curve

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

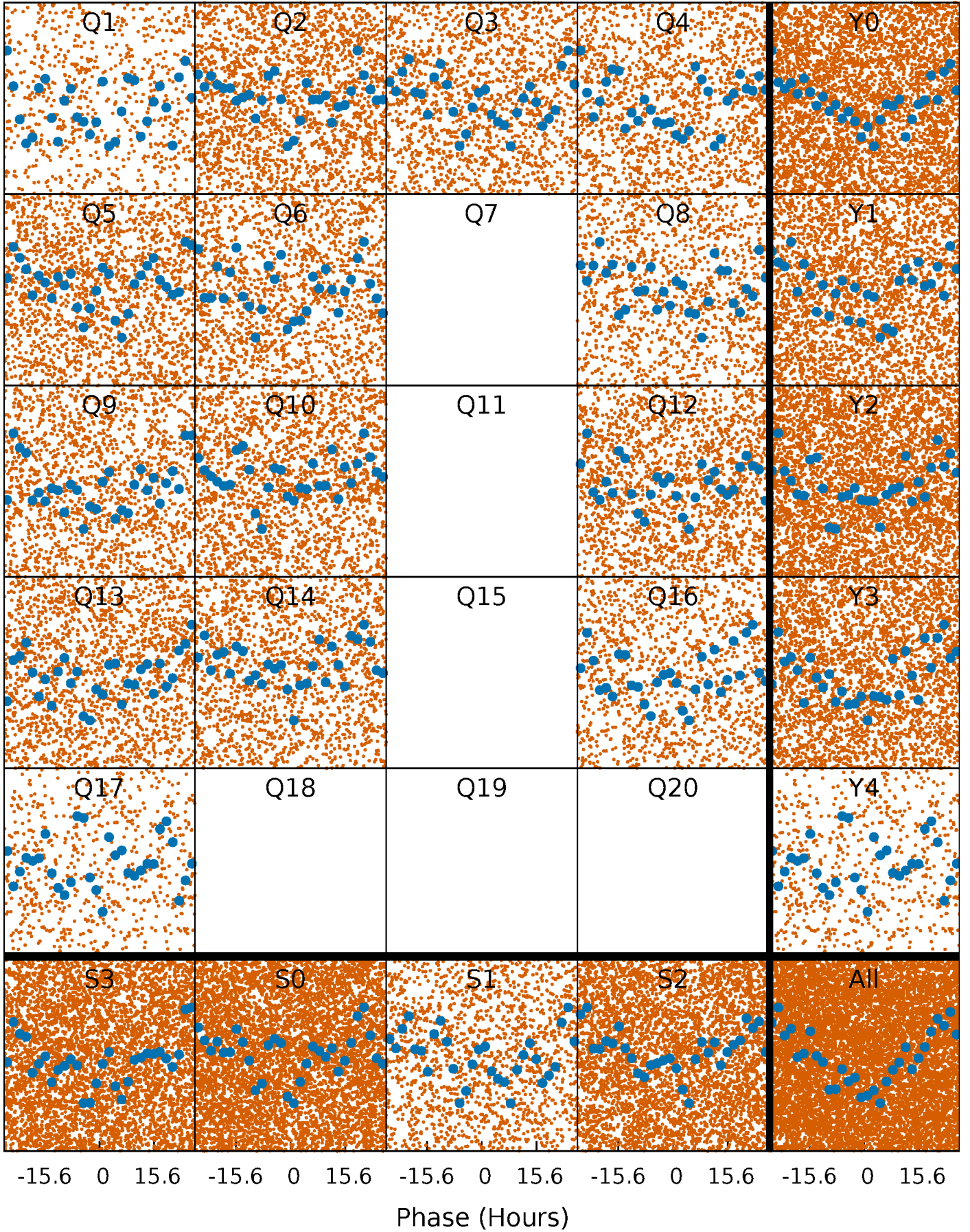


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



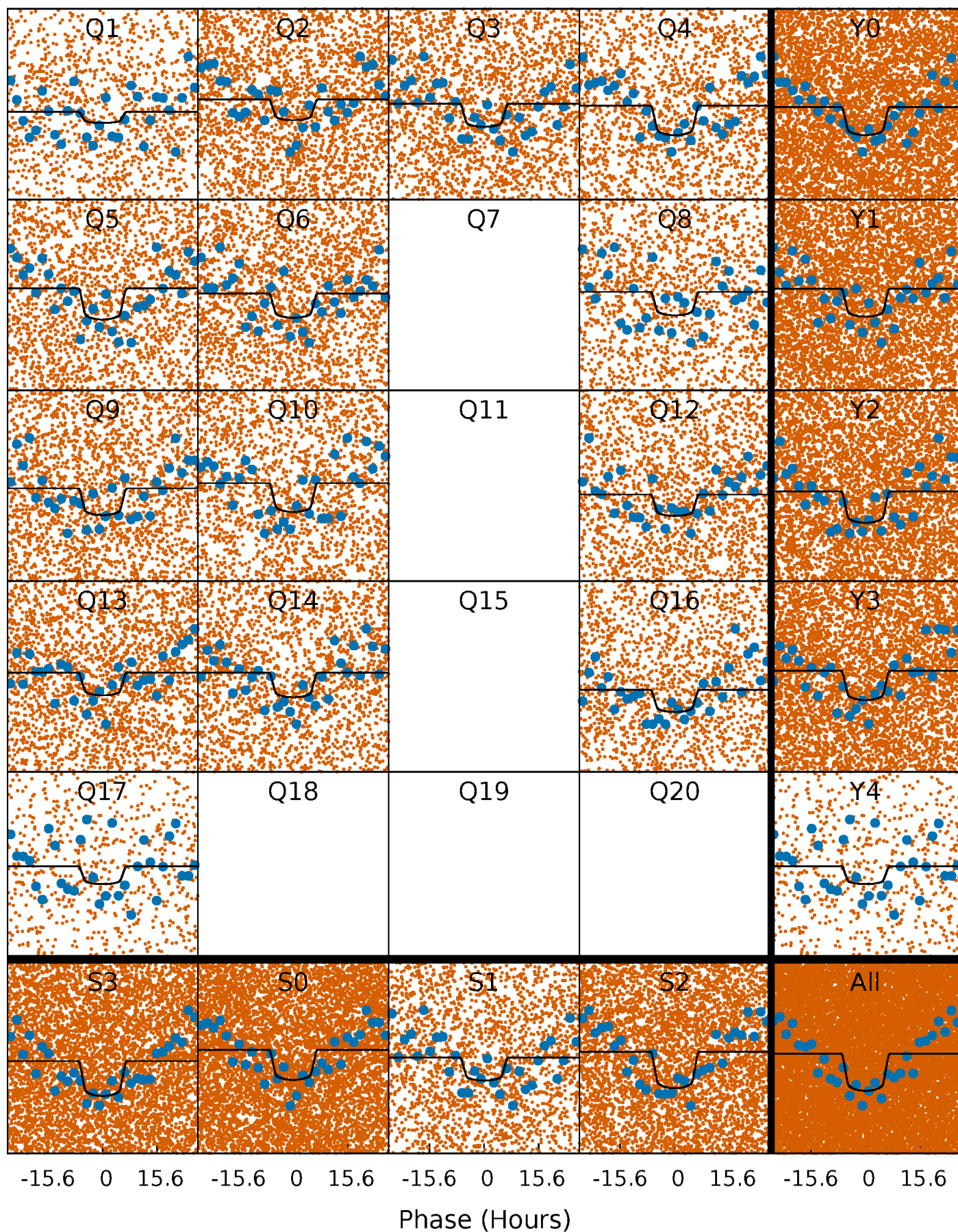
PDC Quarter-Phased Transit Curves

TCE 009910533-01 P= 2.464185 Days $T_0=132.020325$ (BKJD)



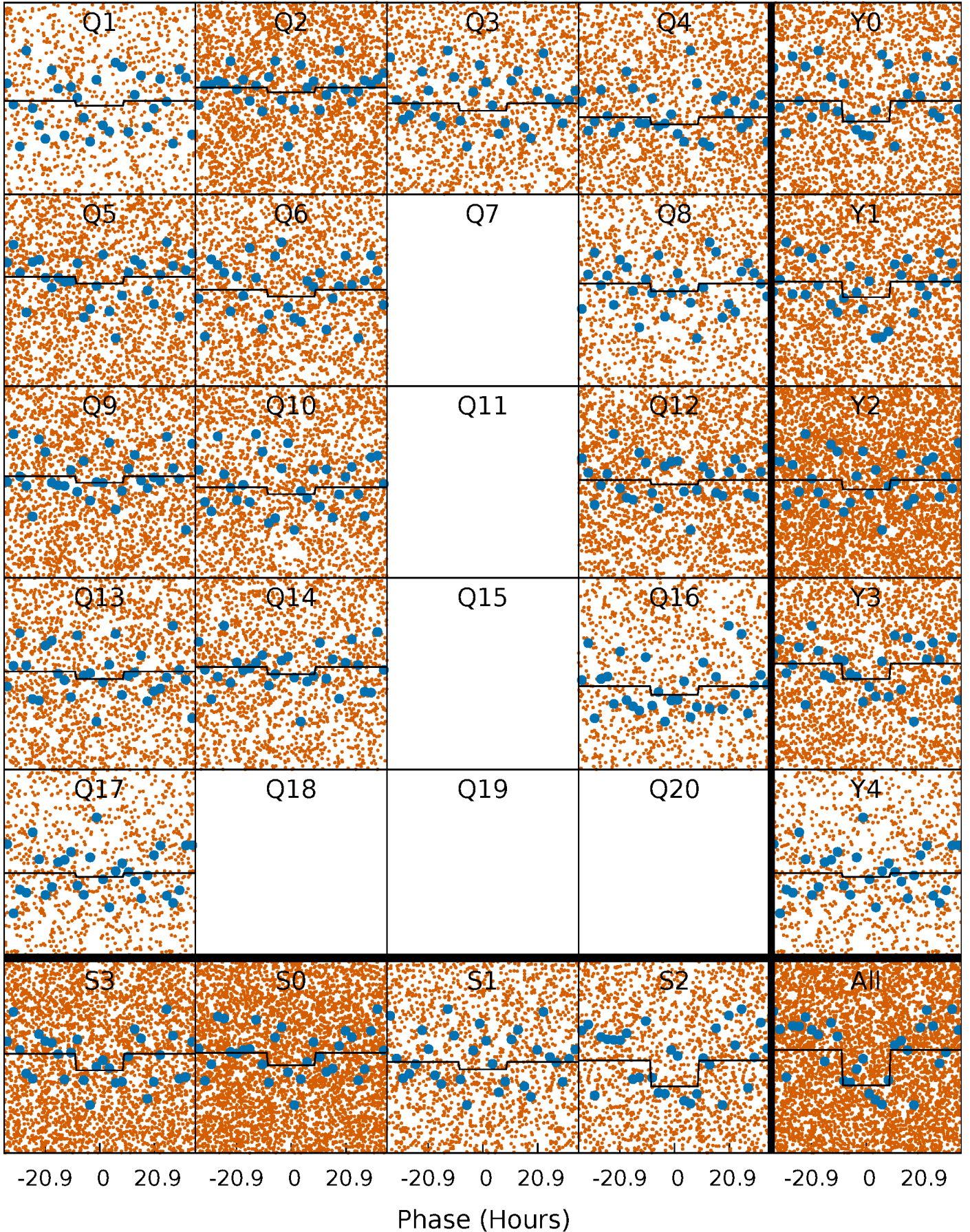
DV Quarter-Phased Transit Curves

TCE 009910533-01 P= 2.464185 Days $T_0=132.020325$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

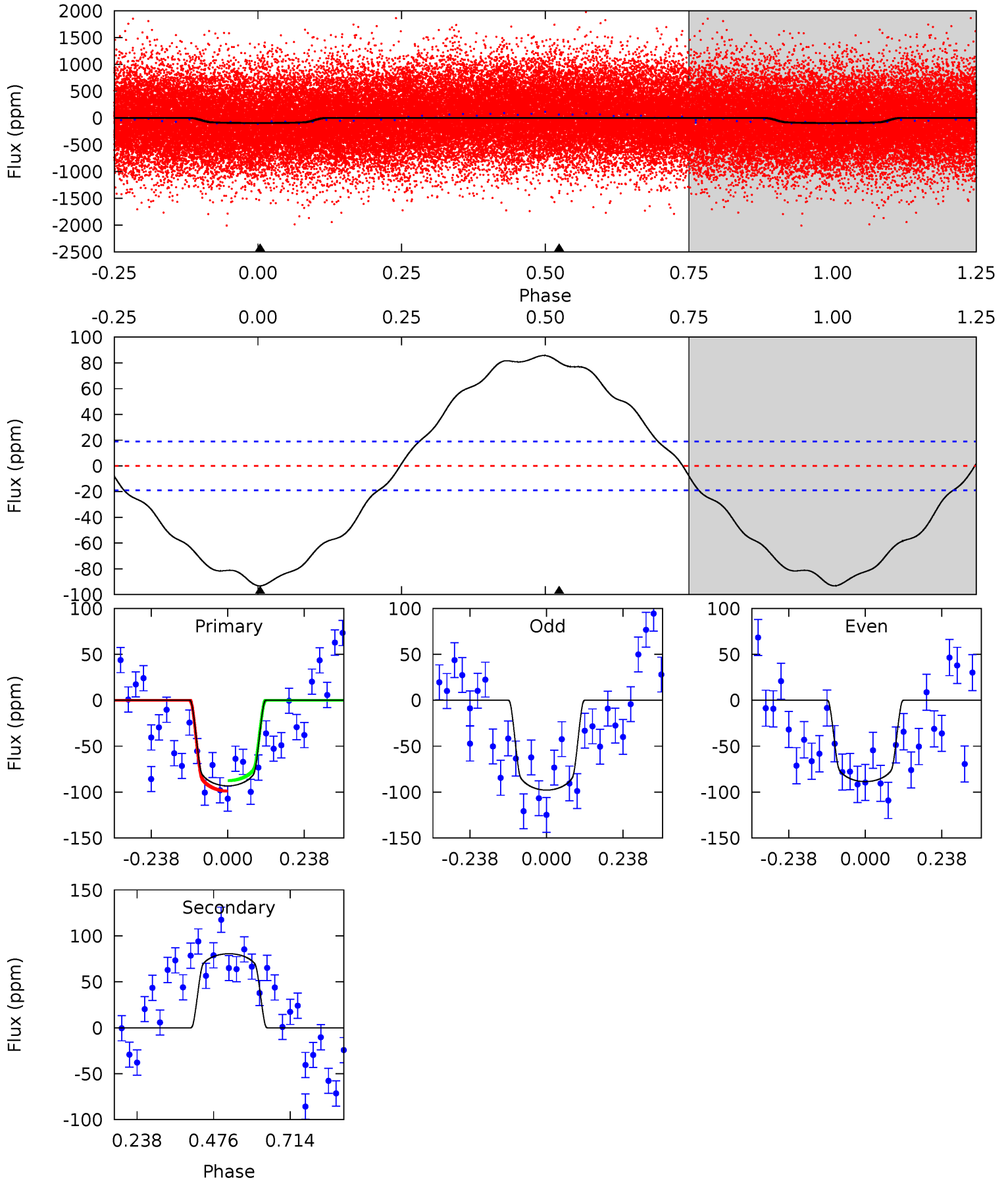
TCE 009910533-01 P= 2.463811 Days $T_0=132.083102$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-01, P = 2.464185 Days, E = 129.556140 Days

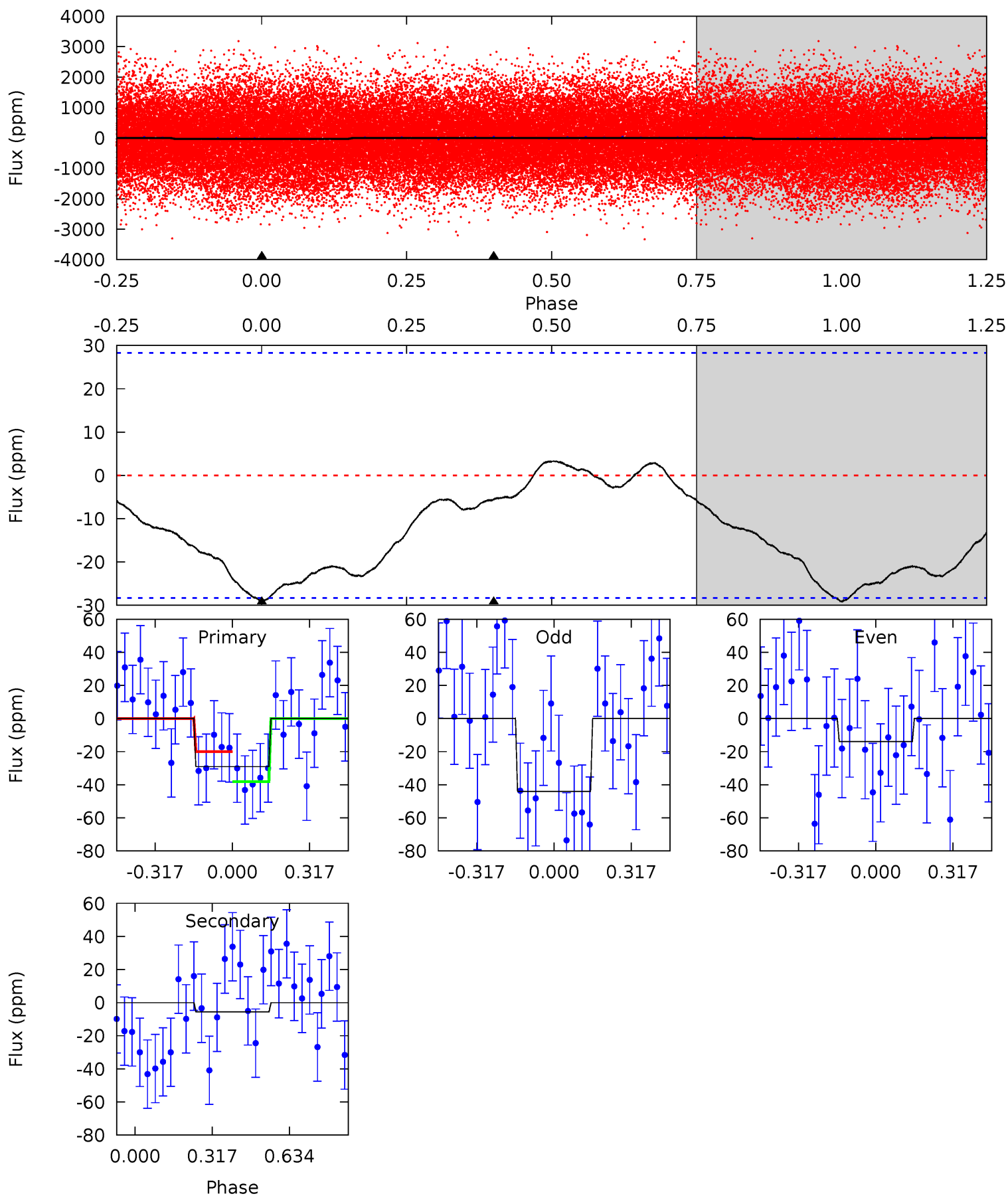
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	-18.6	0	0	4.38	1.18	3.60	21.6	21.6	-18.6	-18.6	1.07	0.99	0.48	1.32



Alt Model-Shift Uniqueness Test

009910533-01, P = 2.463811 Days, E = 129.619291 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.44	0.84	0	0	4.32	1.00	0.45	4.44	4.44	0.84	0.84	2.26	0.87	0.10	1.32



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	81 ± 4	$3.30^{+0.66}_{-0.79}$	4183^{+367}_{-506}	-7858^{+424}_{-404}	$-8.511^{+2.501}_{-5.583}$
Alt.	-6 ± 7	$1.72^{+0.37}_{-0.43}$	4205^{+332}_{-513}	5256^{+1319}_{-9486}	$2.211^{+3.482}_{-2.543}$

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

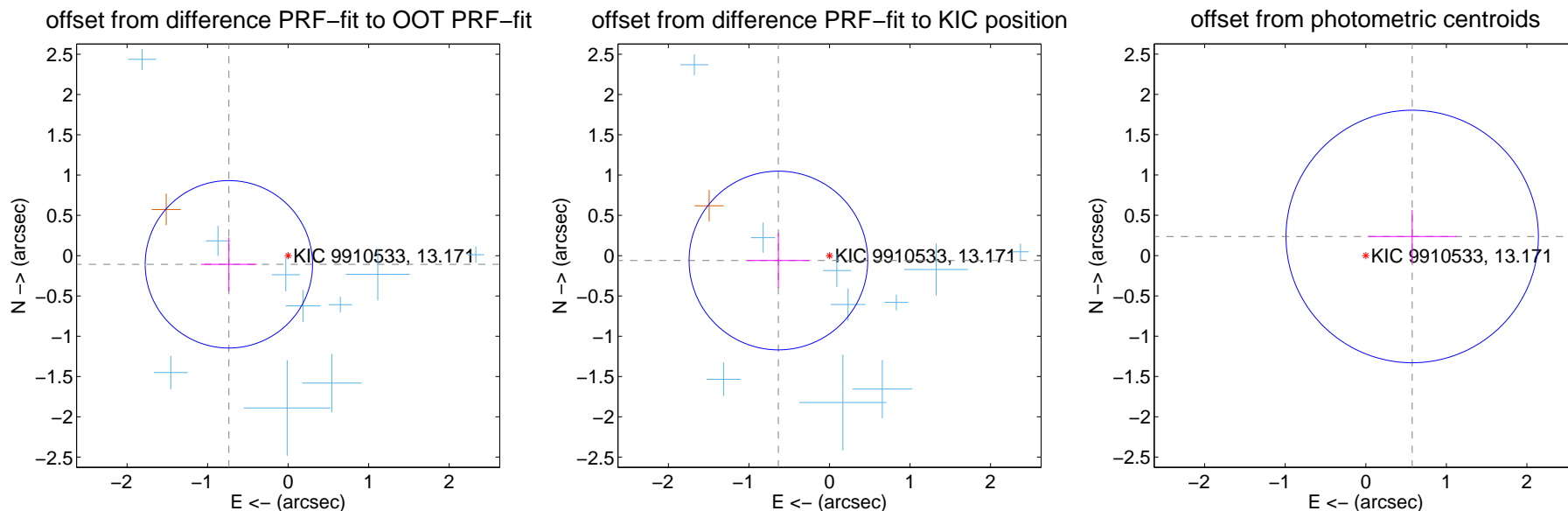
DV Centroid Data

Supplemental centroid analysis for 009910533-01. Kepler magnitude: 13.17. Transit SNR 10.04

There are 11 quarters with good PRF difference image offsets

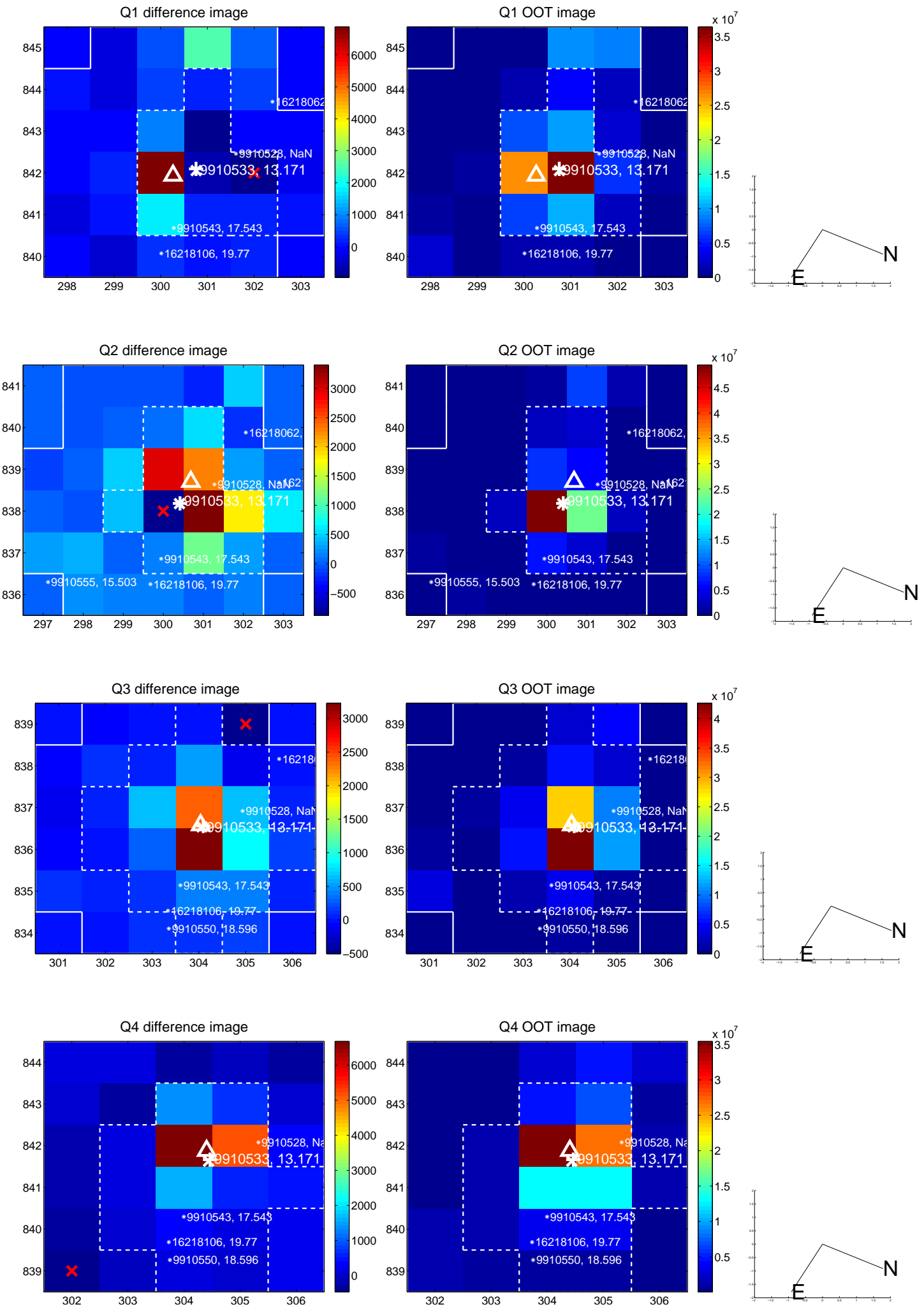
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.744 ± 0.346	2.15	0.736 ± 0.347	-0.107 ± 0.335
PRF-fit source offset from KIC position	0.637 ± 0.370	1.72	0.634 ± 0.384	-0.060 ± 0.341
photometric centroid source offset	0.62 ± 0.52	1.19	-0.58 ± 0.55	0.24 ± 0.33

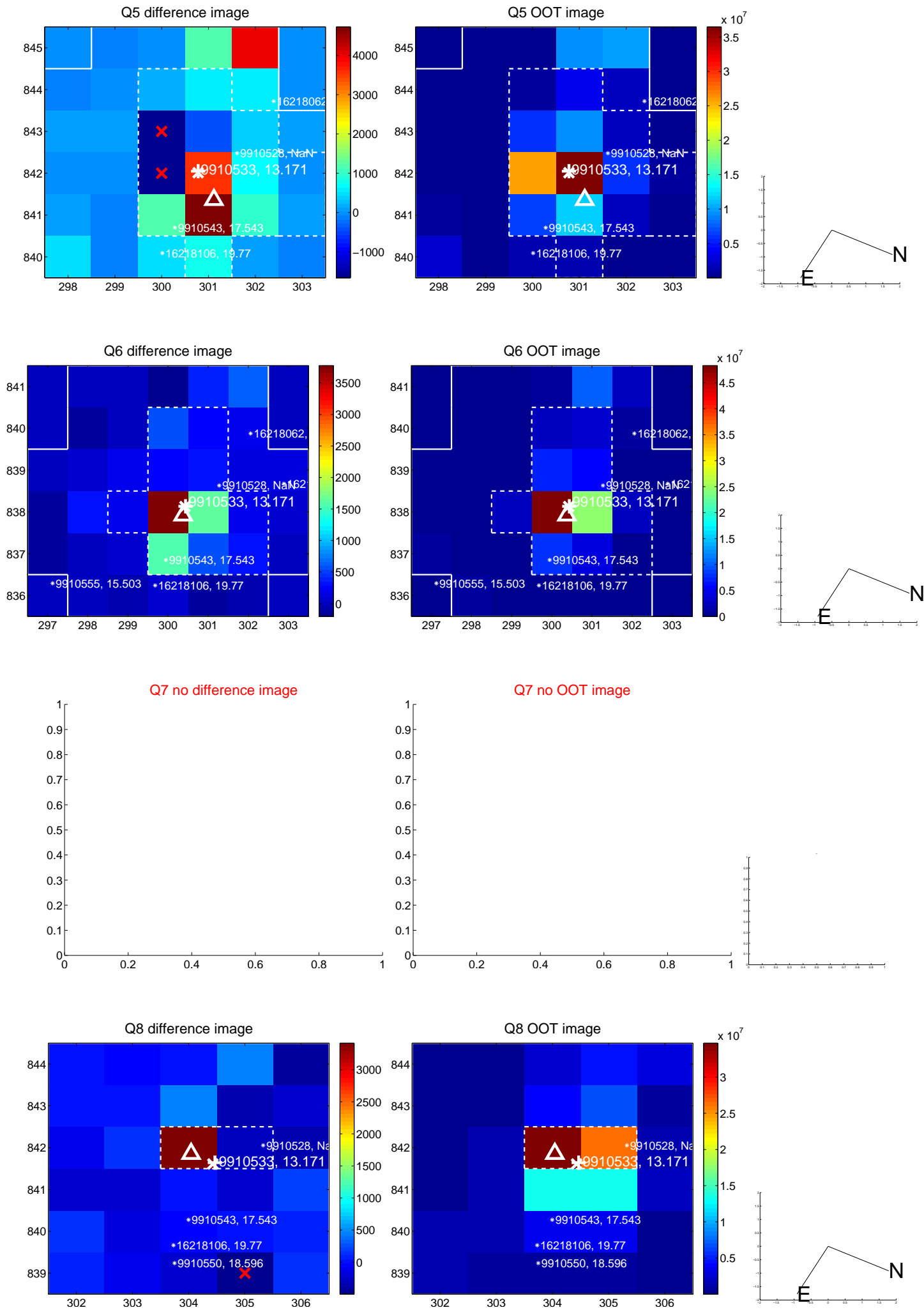


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

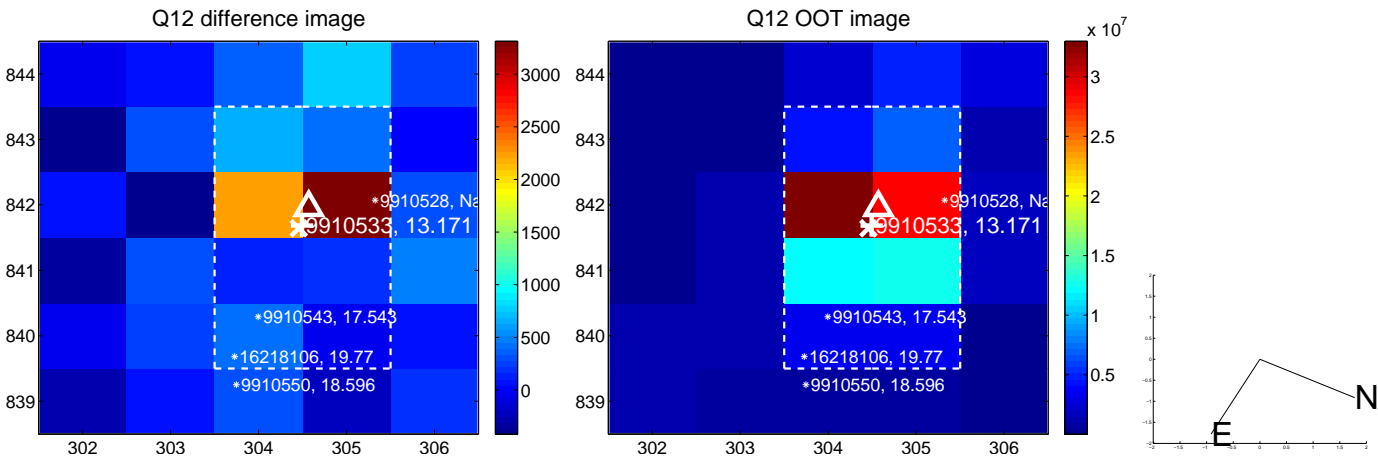
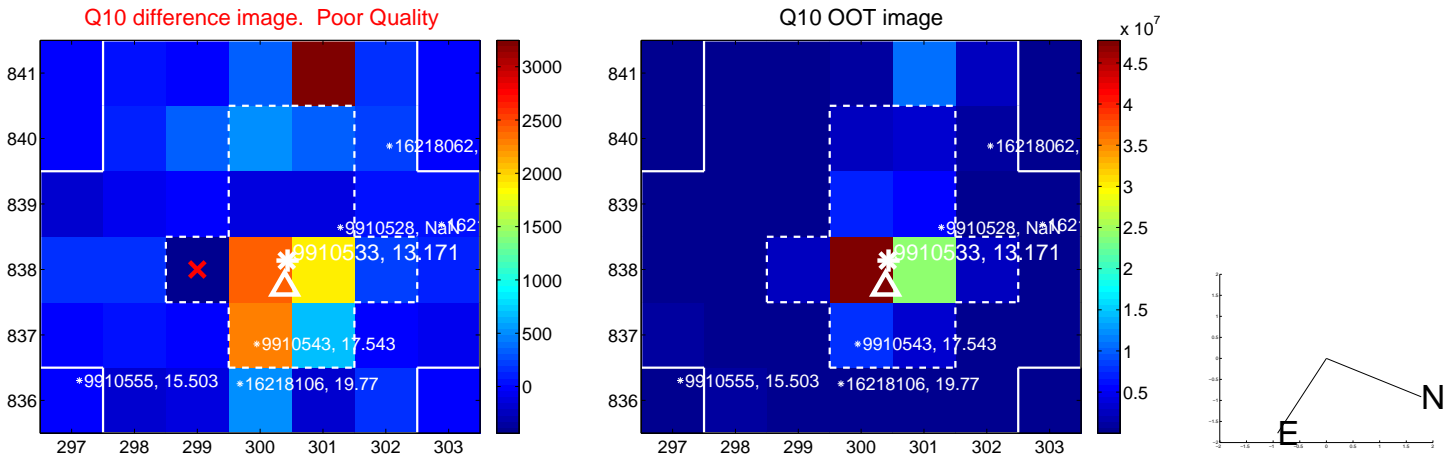
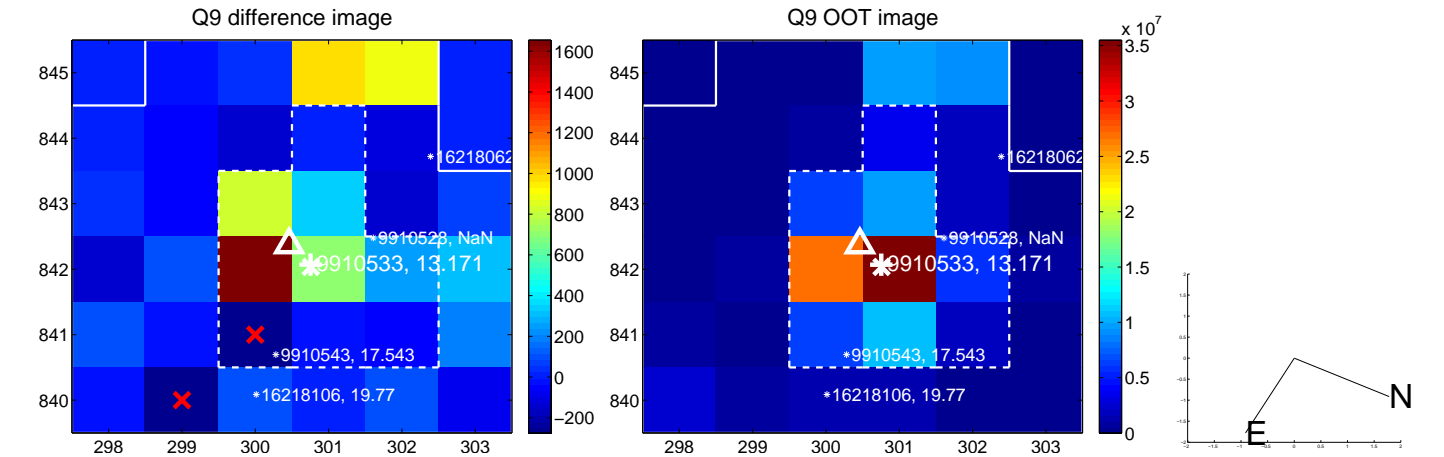
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



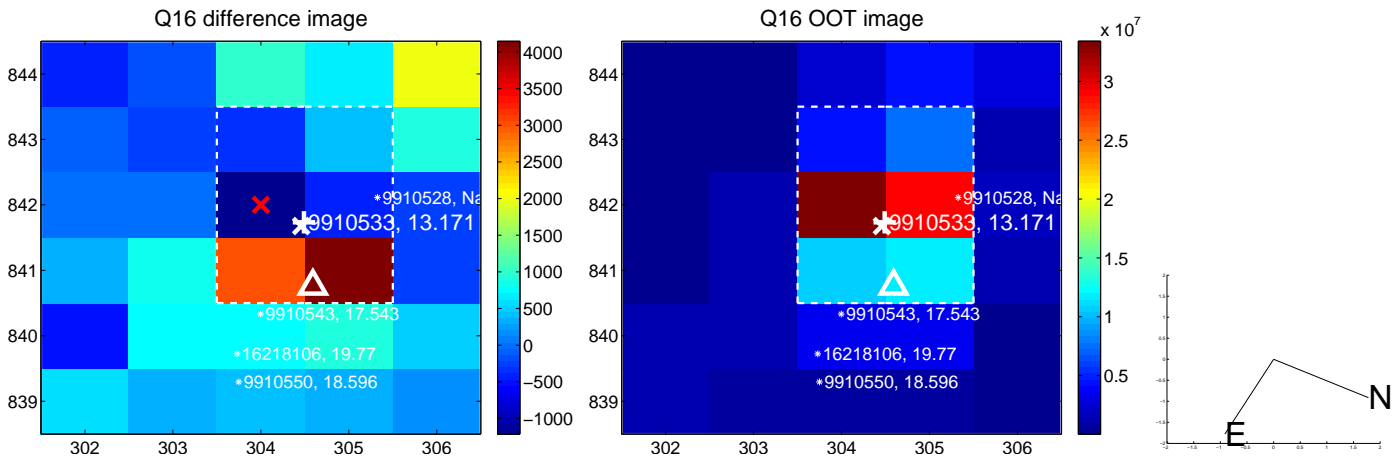
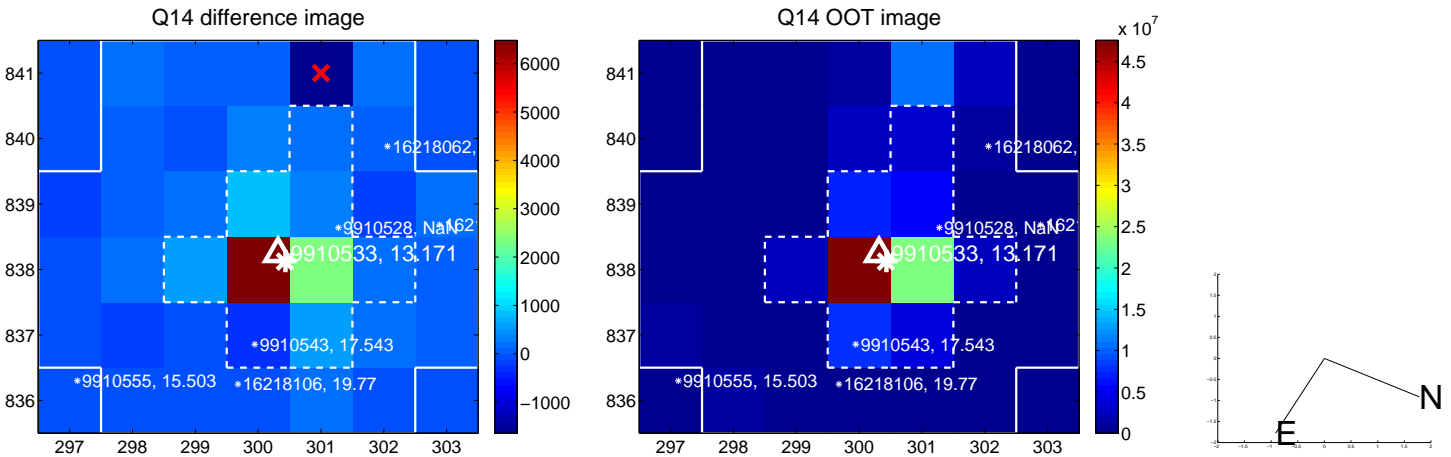
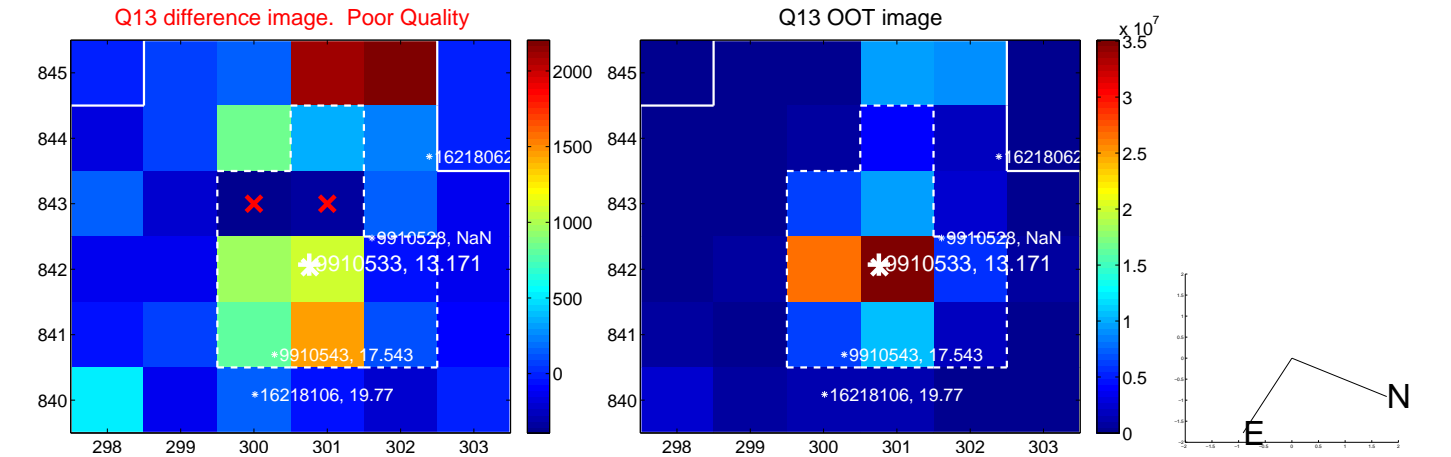
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



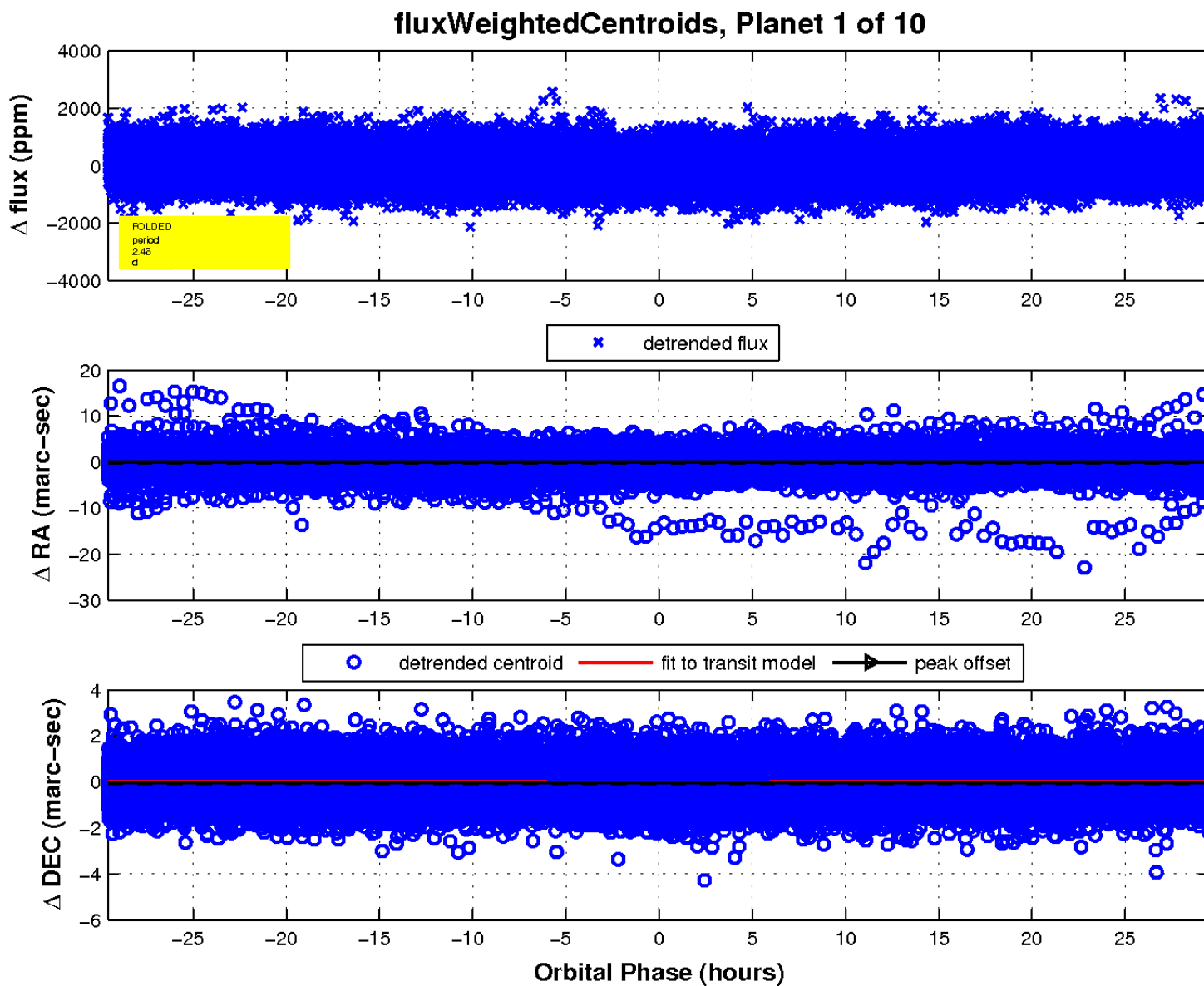
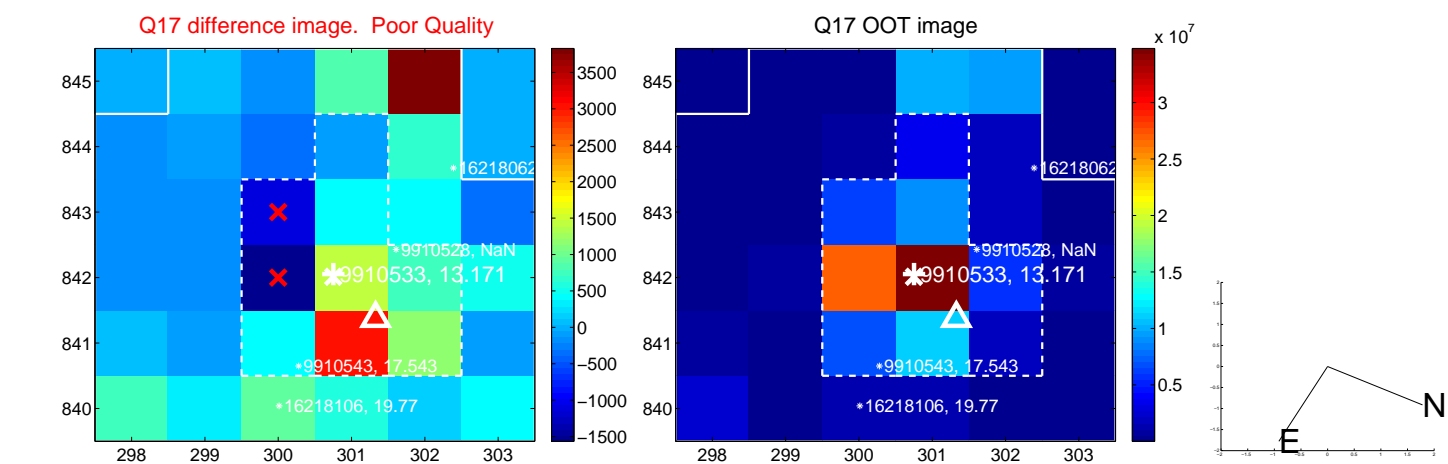
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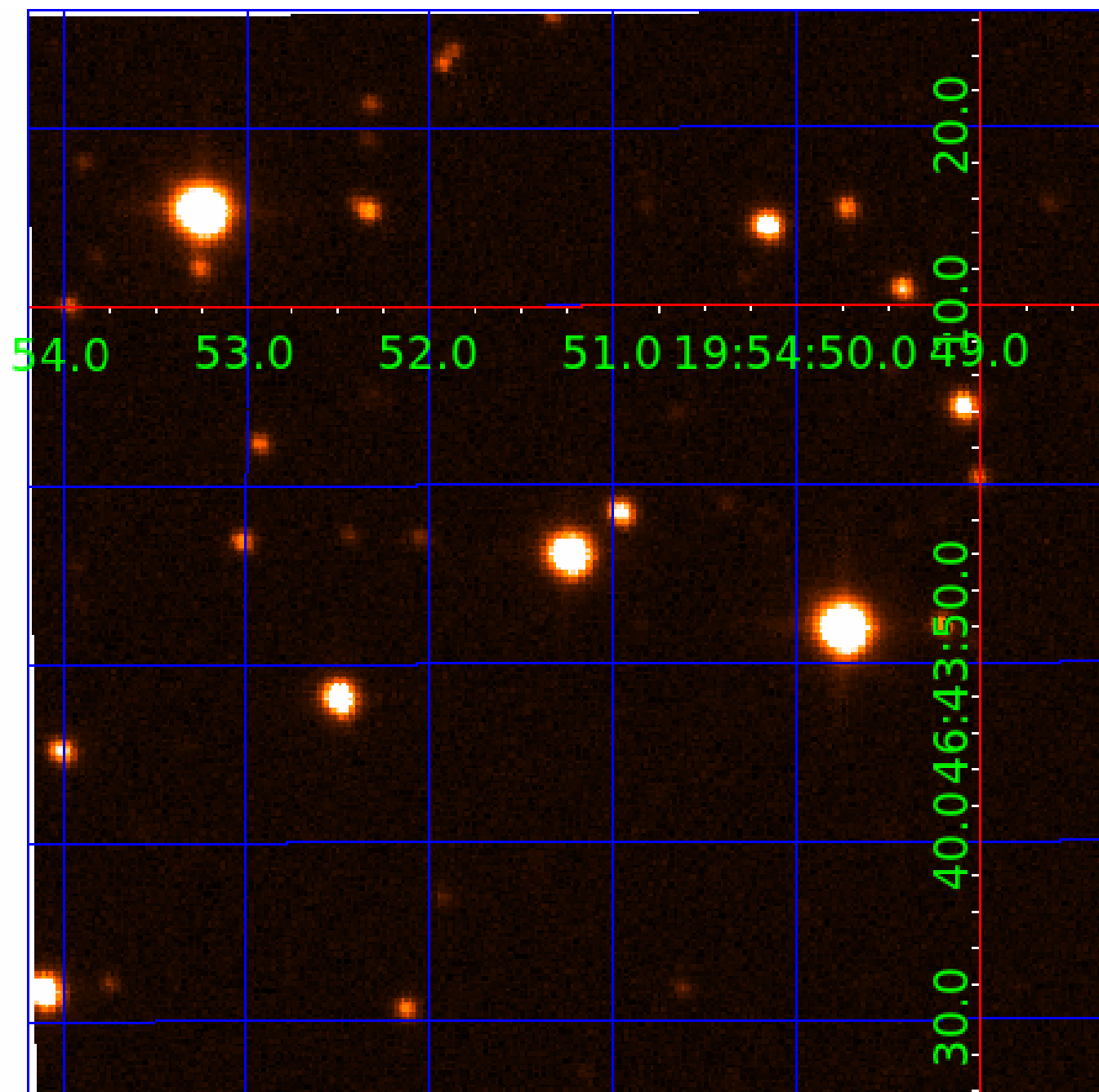


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

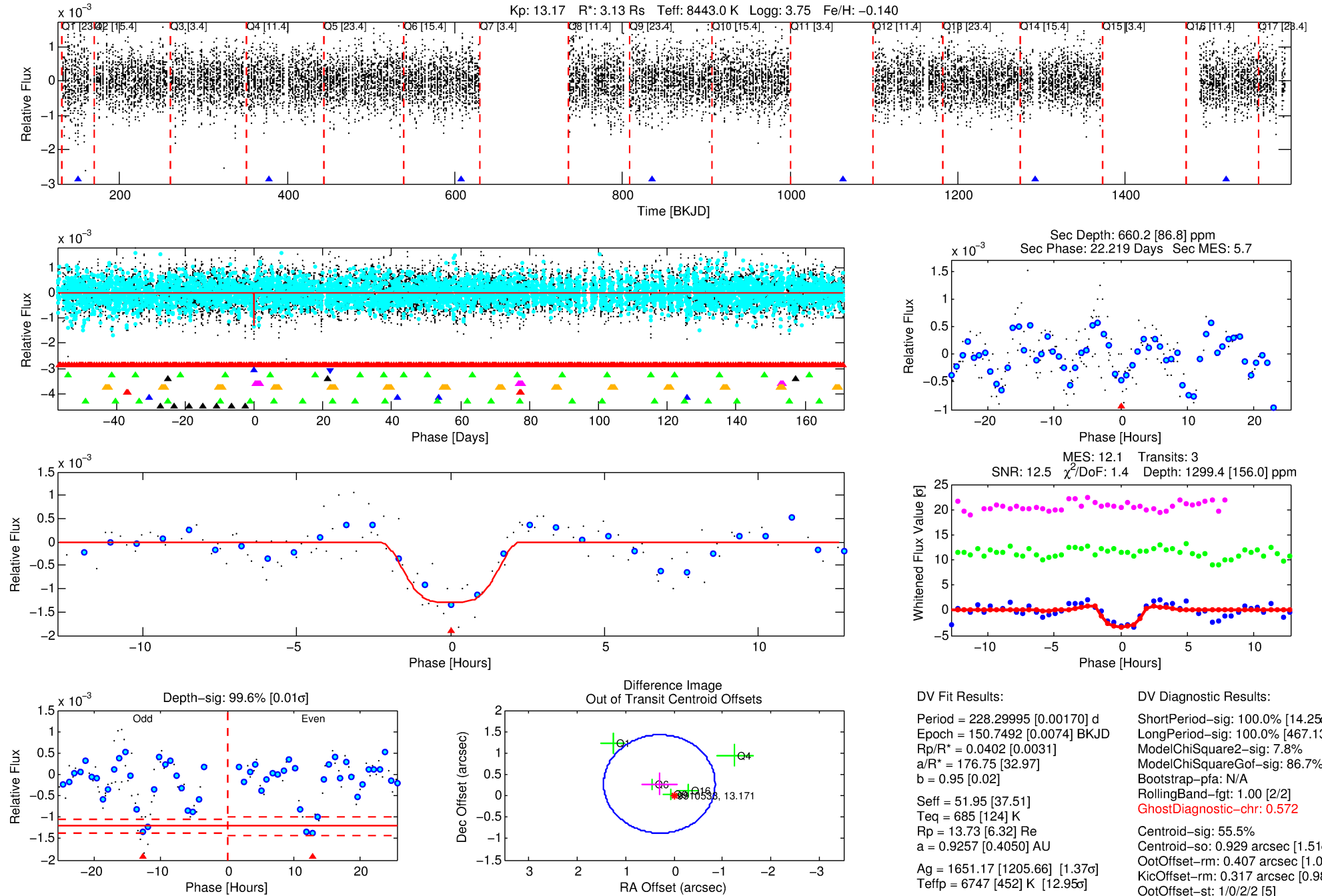
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-02

No Significant Match Found

DV One-Page Summary

KIC: 9910533 Candidate: 2 of 10 Period: 228.300 d



DV Fit Results:

Period = 228.29995 [0.00170] d
Epoch = 150.7492 [0.0074] BKJD
Rp/R* = 0.0402 [0.0031]
a/R* = 176.75 [32.97]
b = 0.95 [0.02]
Seff = 51.95 [37.51]
Teq = 685 [124] K
Rp = 13.73 [6.32] Re
a = 0.9257 [0.4050] AU
Ag = 1651.17 [1205.66] [1.37 σ]
Teffp = 6747 [452] K [12.95 σ]

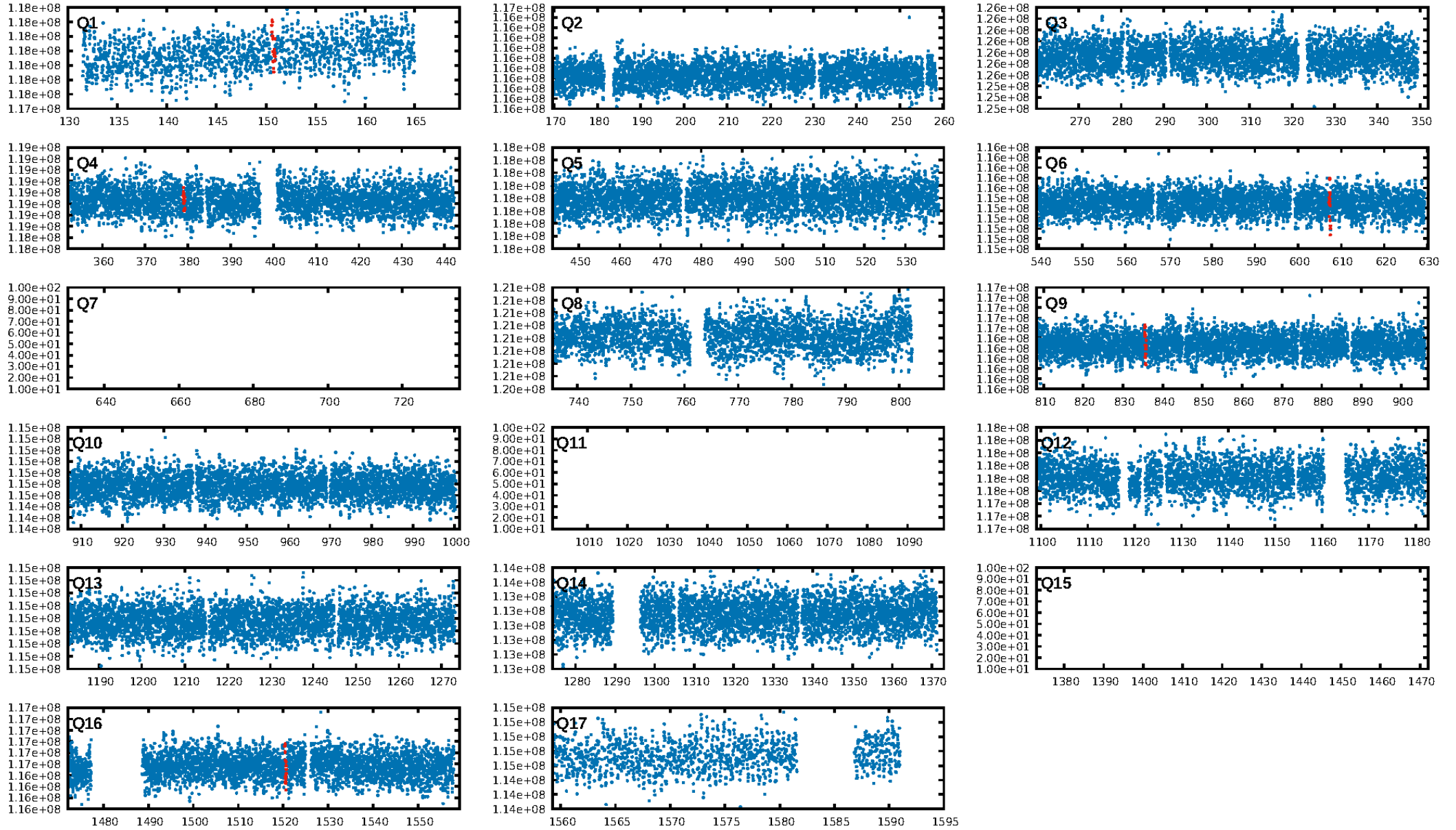
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.25 σ]
LongPeriod-sig: 100.0% [467.13 σ]
ModelChiSquare2-sig: 7.8%
ModelChiSquareGof-sig: 86.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.572
Centroid-sig: 55.5%
Centroid-so: 0.929 arcsec [1.51 σ]
OotOffset-rm: 0.407 arcsec [1.06 σ]
KicOffset-rm: 0.317 arcsec [0.98 σ]
OotOffset-st: 1/0/2/2 [5]
KicOffset-st: 1/0/2/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.60 [3/5]

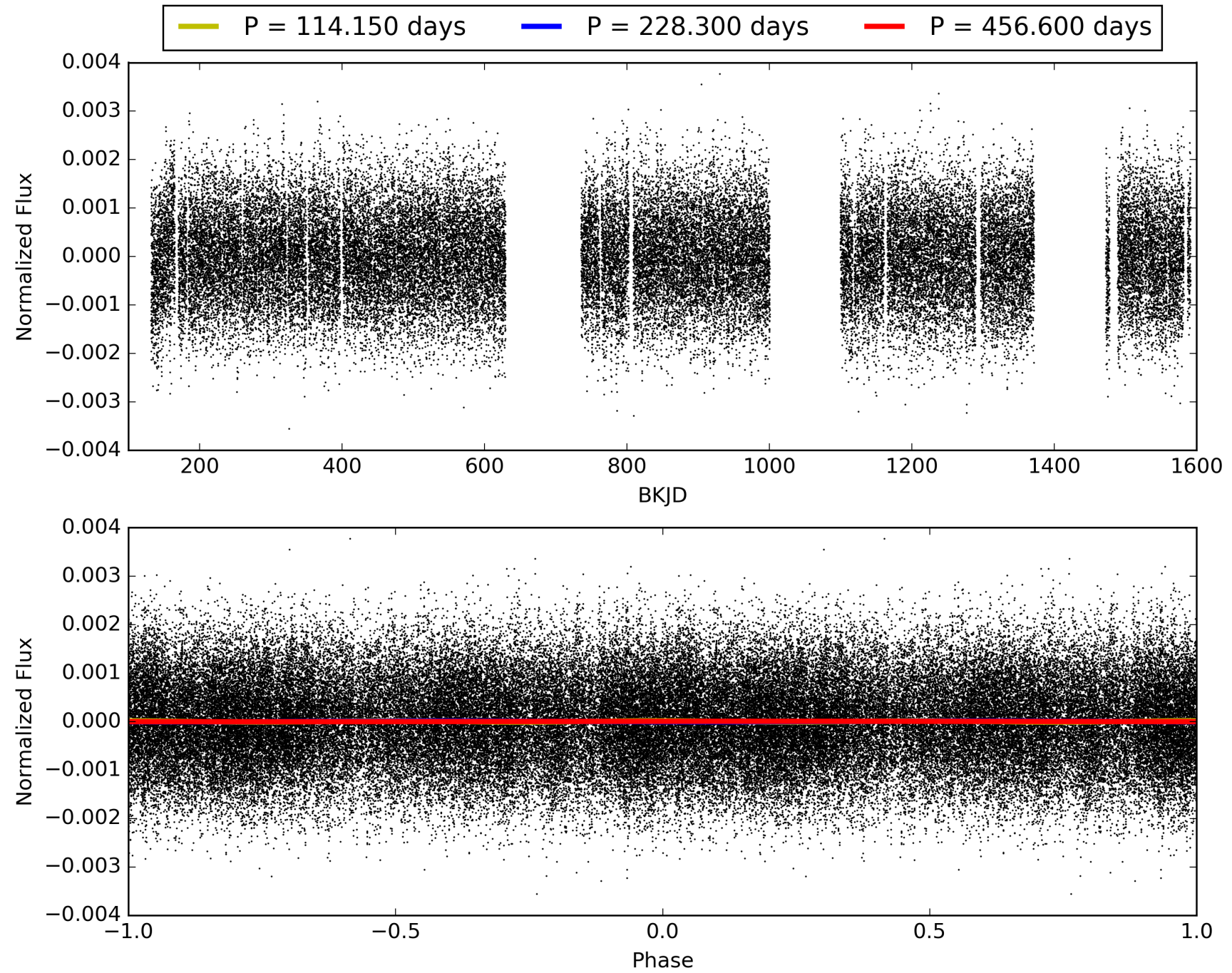
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009910533-02, PDC Light Curves

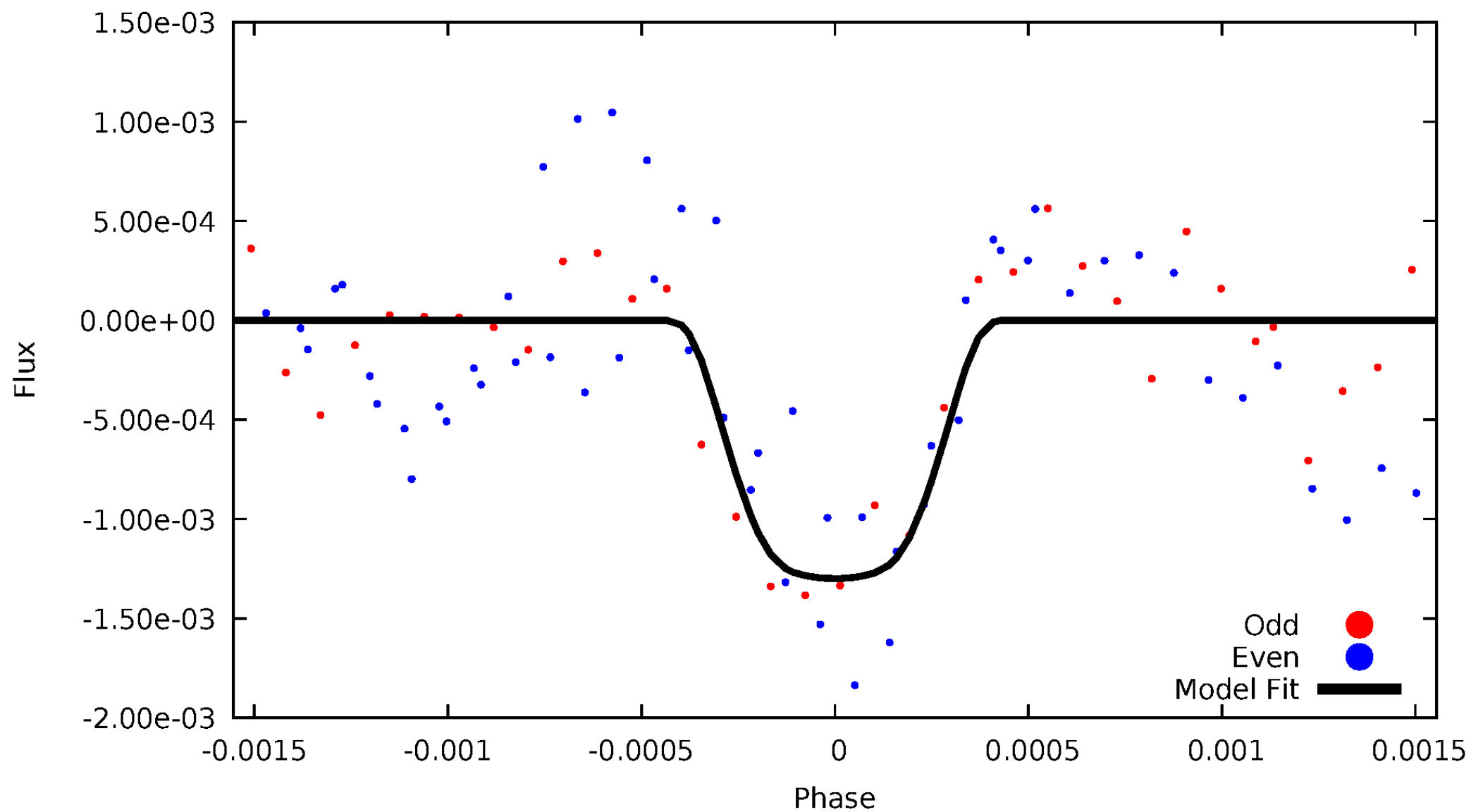


TCE 009910533-02



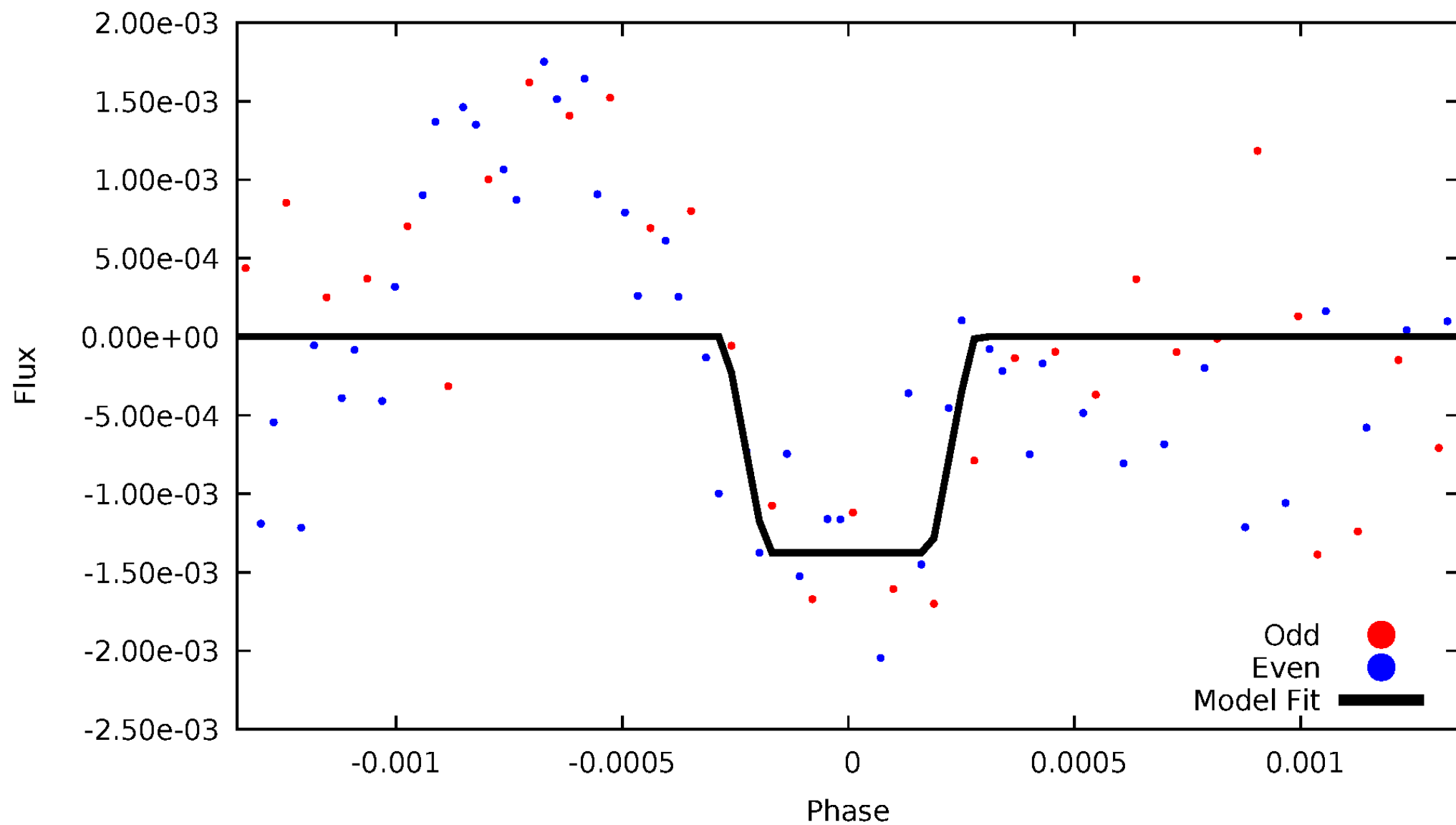
DV Odd/Even

TCE 009910533-02



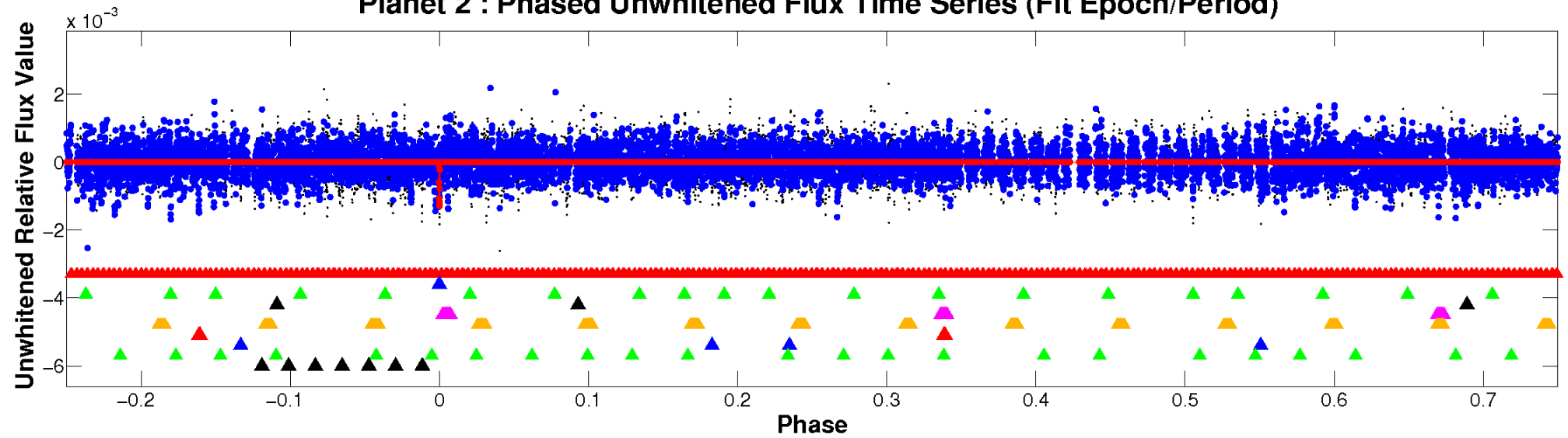
ALT Odd/Even

TCE 009910533-02

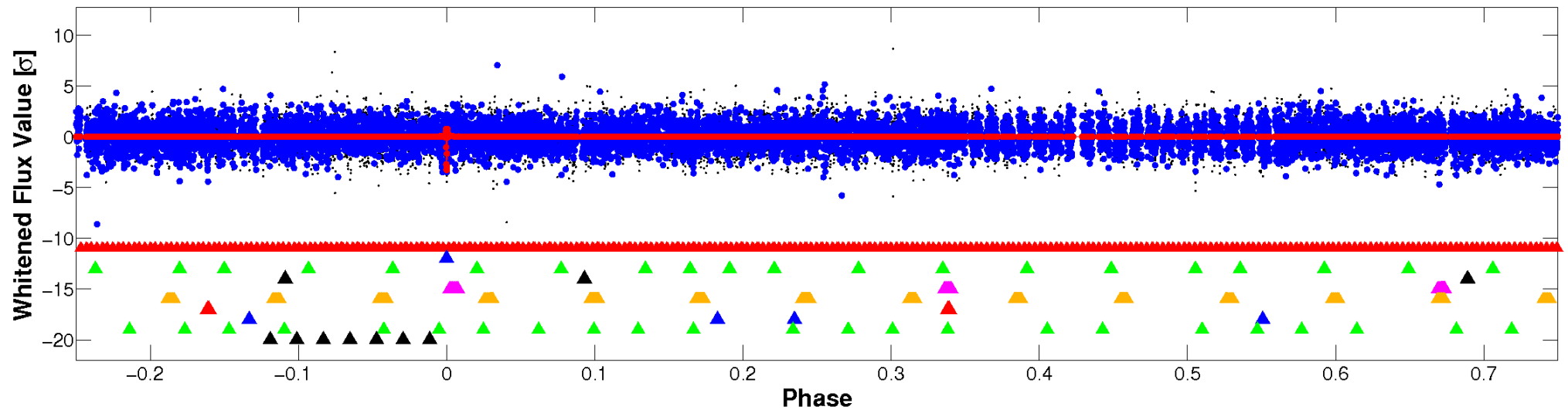


Non-Whitened Vs. Whitened Light Curve

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

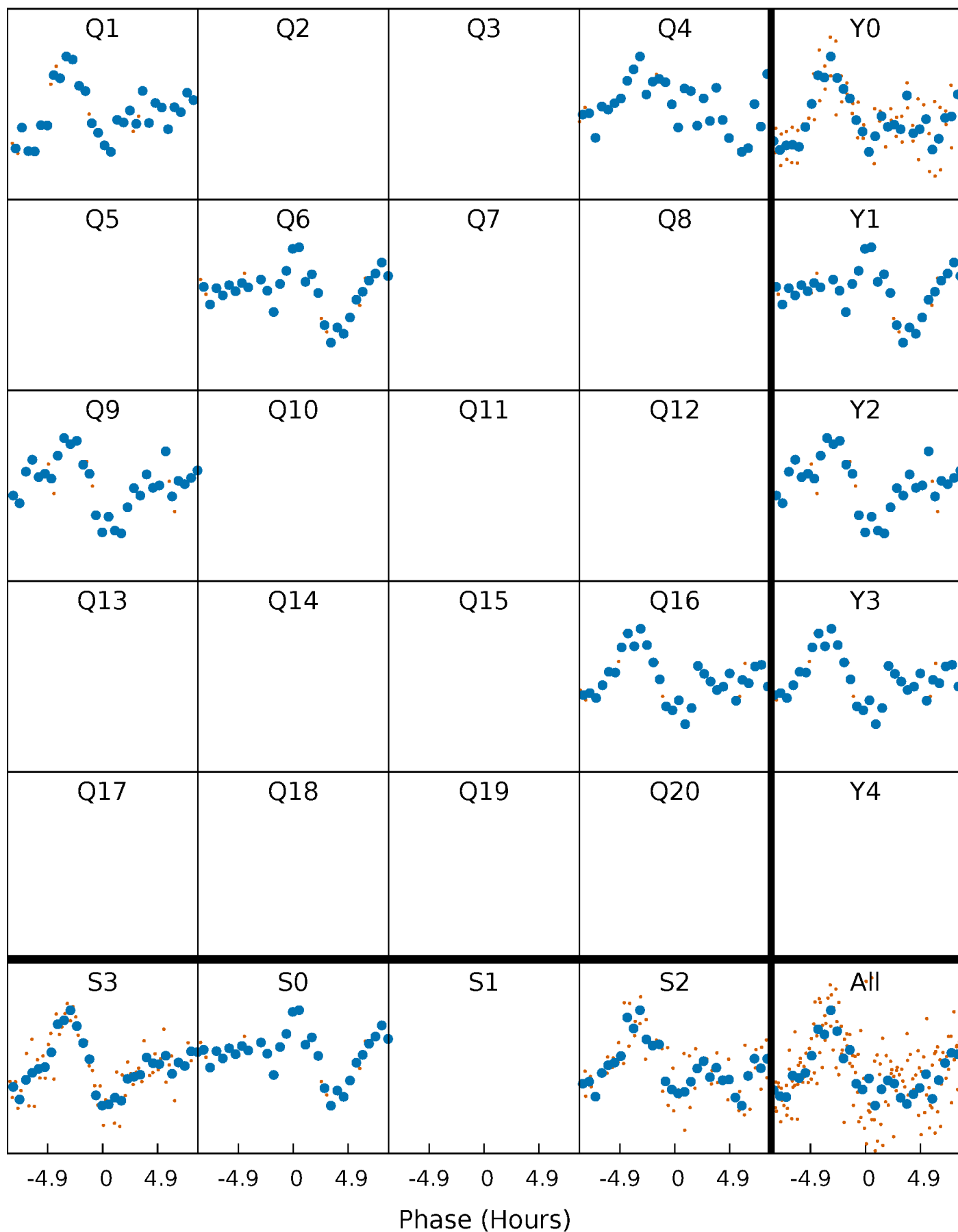


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



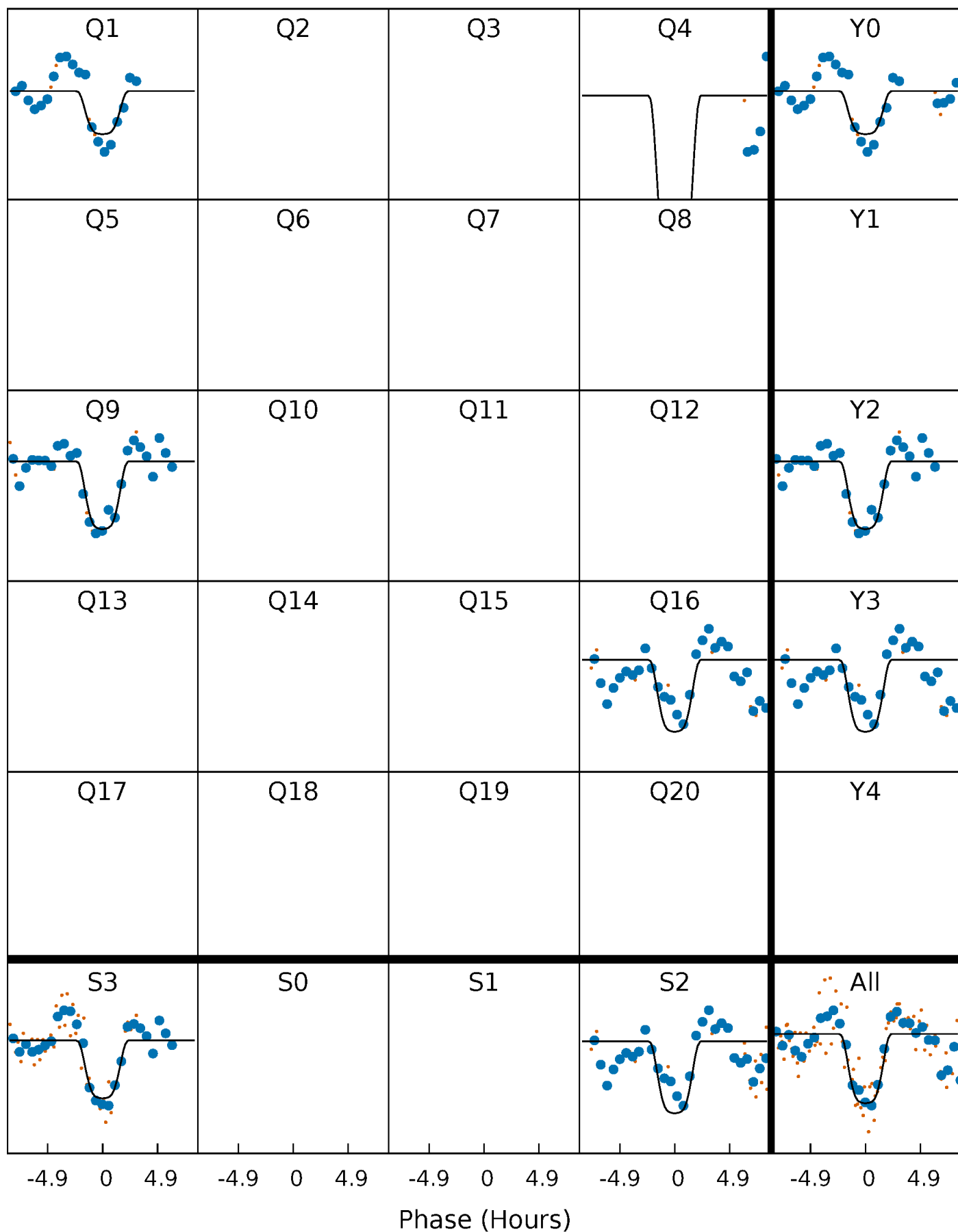
PDC Quarter-Phased Transit Curves

TCE 009910533-02 $P=228.299950$ Days $T_0=150.749210$ (BKJD)



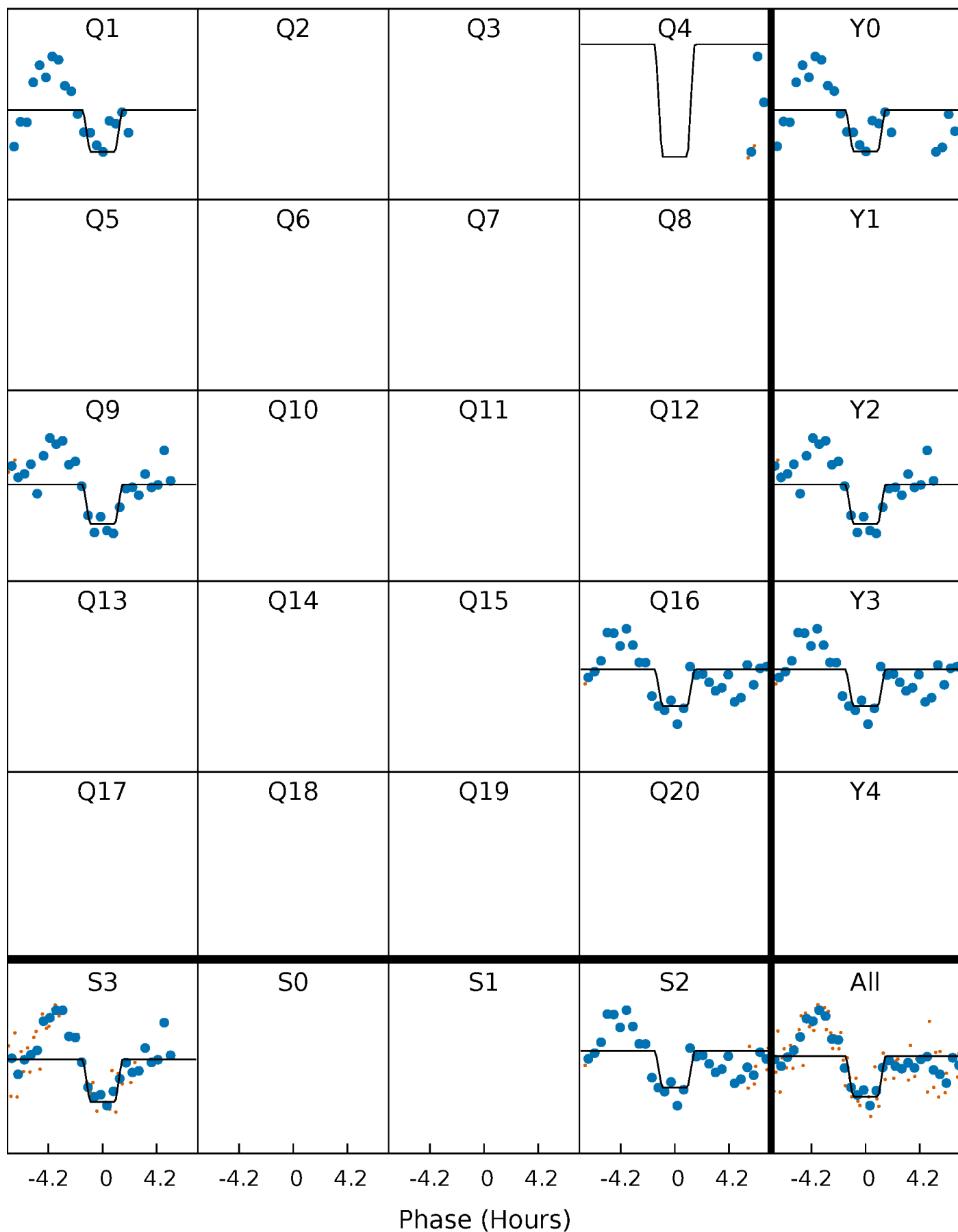
DV Quarter-Phased Transit Curves

TCE 009910533-02 $P=228.299950$ Days $T_0=150.749210$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

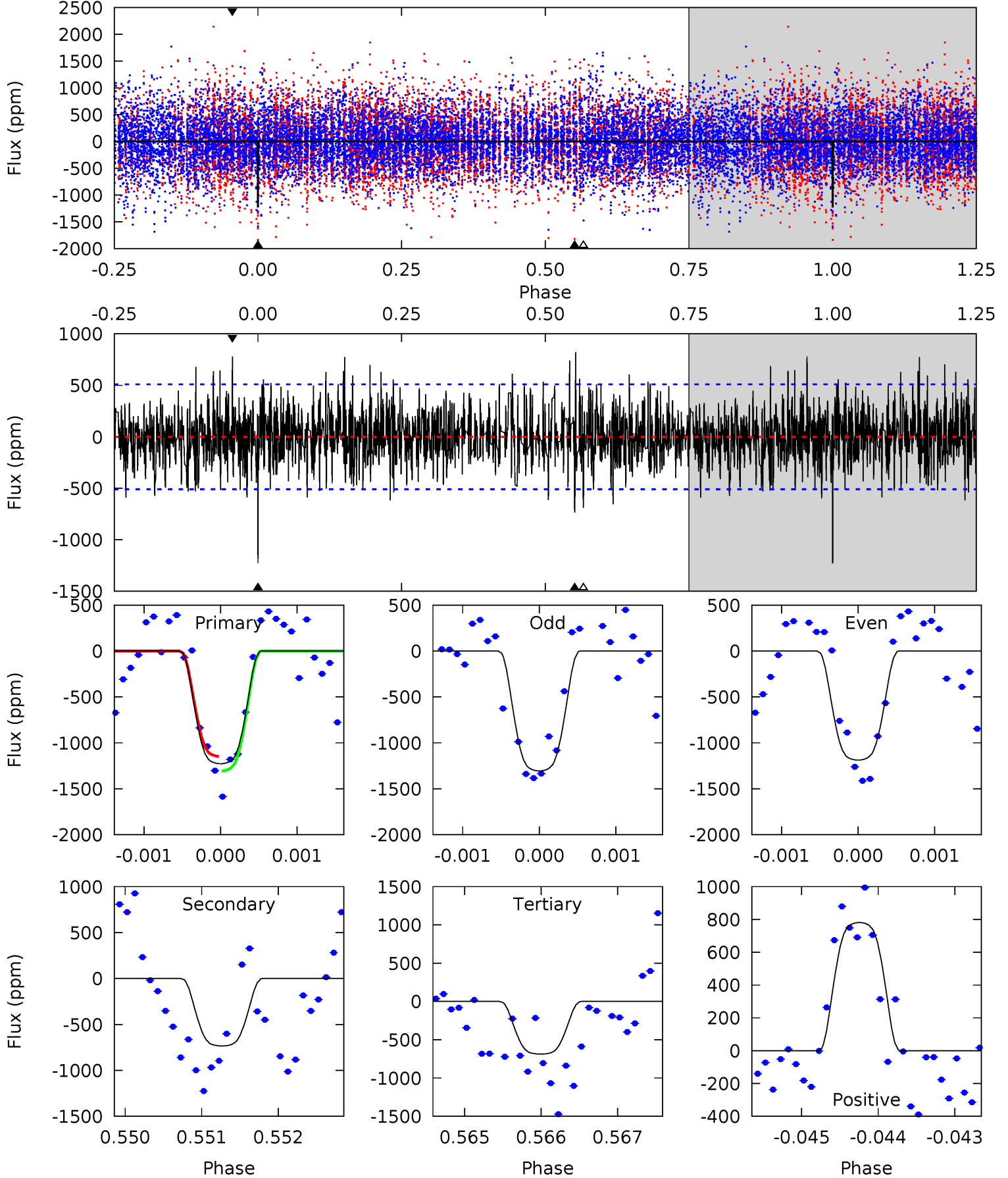
TCE 009910533-02 P=228.299583 Days $T_0=150.771482$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-02, P = 228.299950 Days, E = 150.749210 Days

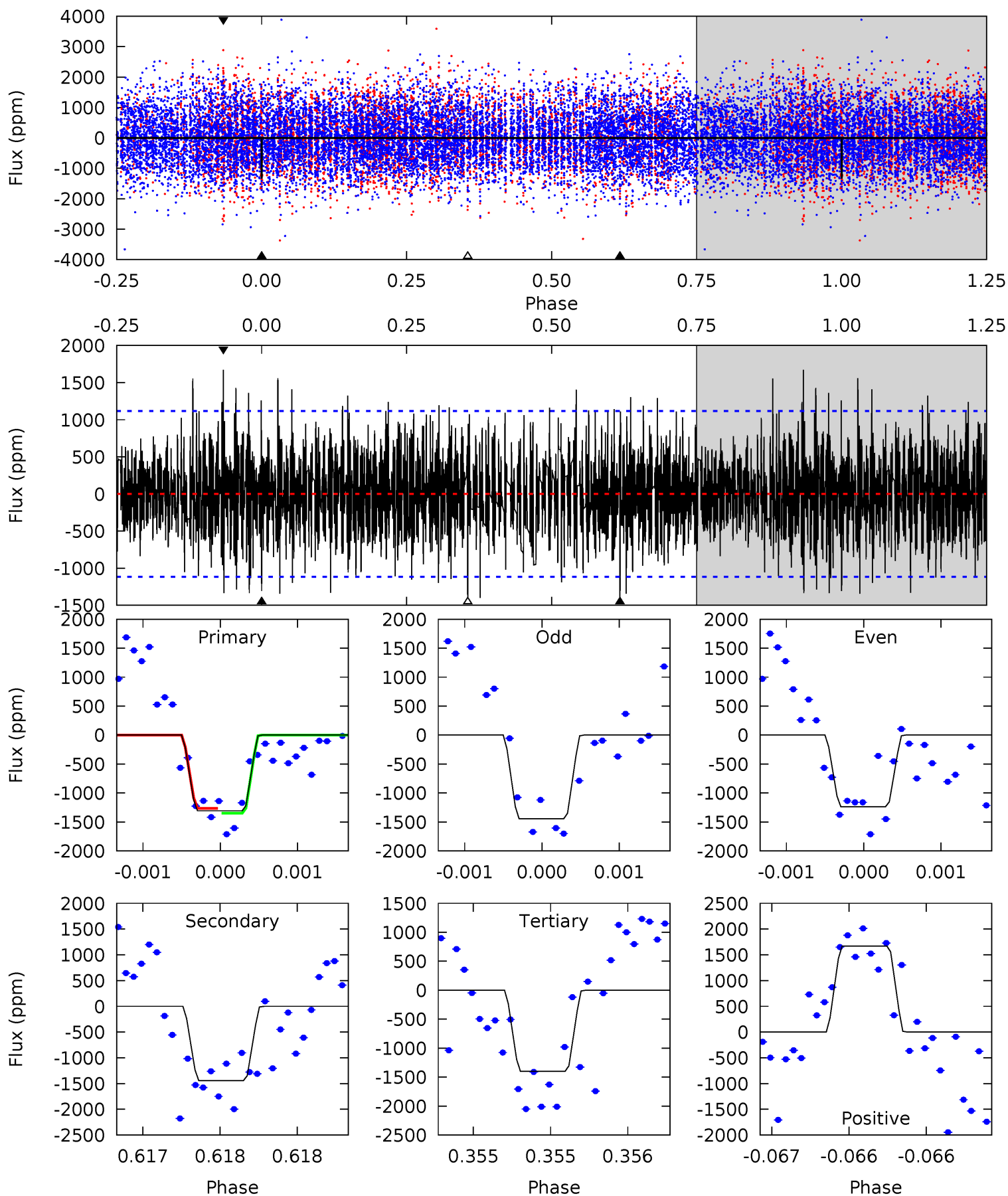
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	7.92	7.41	8.42	5.49	3.35	2.28	5.82	4.81	0.51	-0.50	0.60	0.94	0.40	0.85



Alt Model-Shift Uniqueness Test

009910533-02, P = 228.299583 Days, E = 150.771482 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.50	7.17	6.96	8.30	5.55	3.45	2.35	-0.46	-1.80	0.22	-1.13	0.50	0.90	0.54	0.20



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-735 ± 93	$13.18^{+2.60}_{-2.99}$	931^{+77}_{-101}	6648^{+442}_{-381}	2018^{+1278}_{-629}
Alt.	-1443 ± 201	$11.99^{+2.58}_{-2.91}$	925^{+82}_{-115}	8484^{+783}_{-664}	4796^{+3044}_{-1583}

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

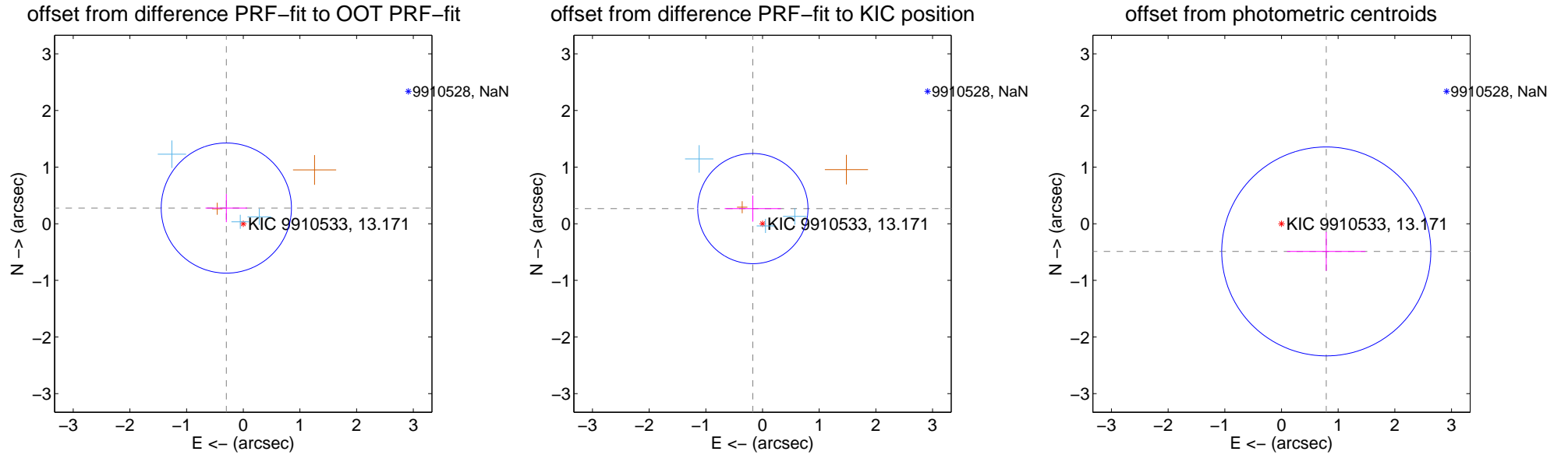
DV Centroid Data

Supplemental centroid analysis for 009910533-02. Kepler magnitude: 13.17. Transit SNR 12.51

There are 3 quarters with good PRF difference image offsets

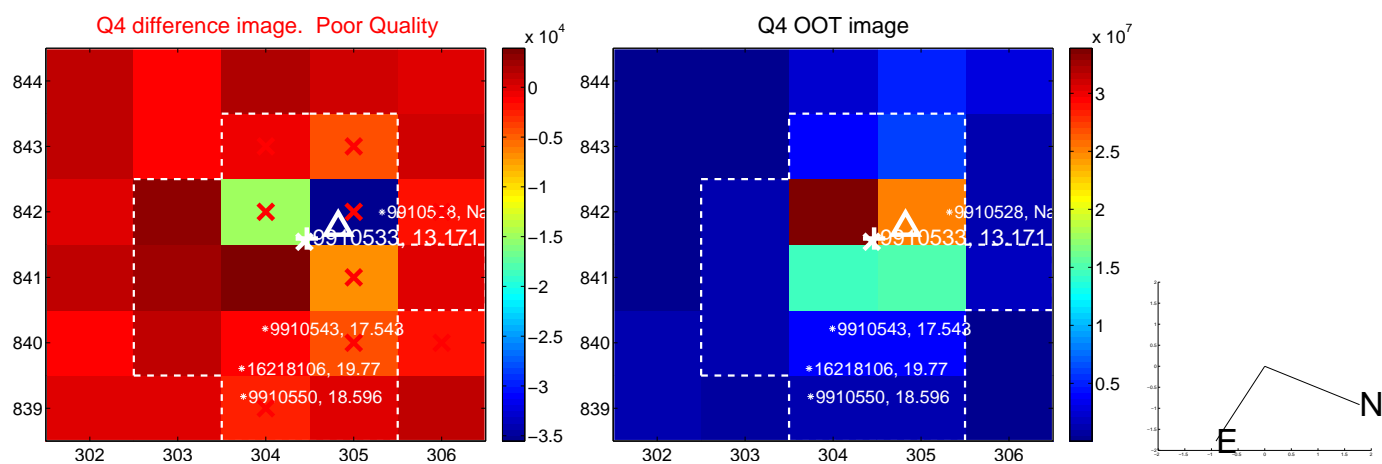
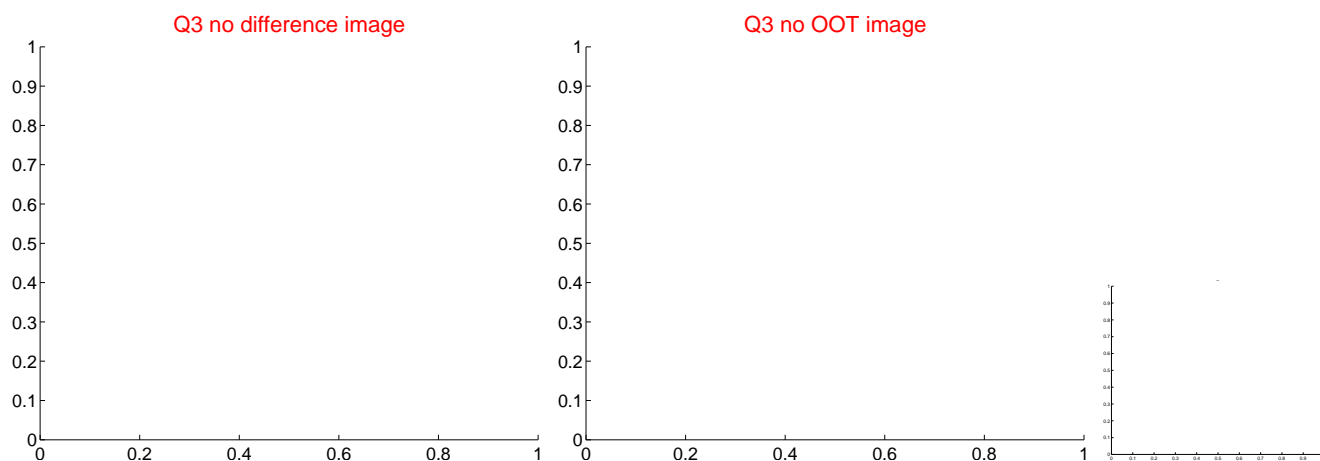
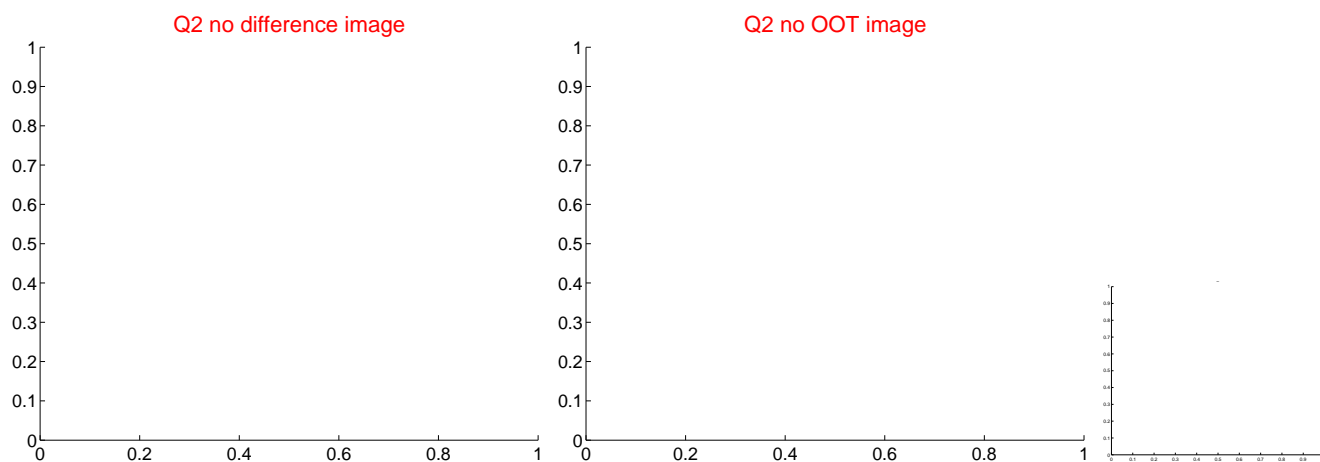
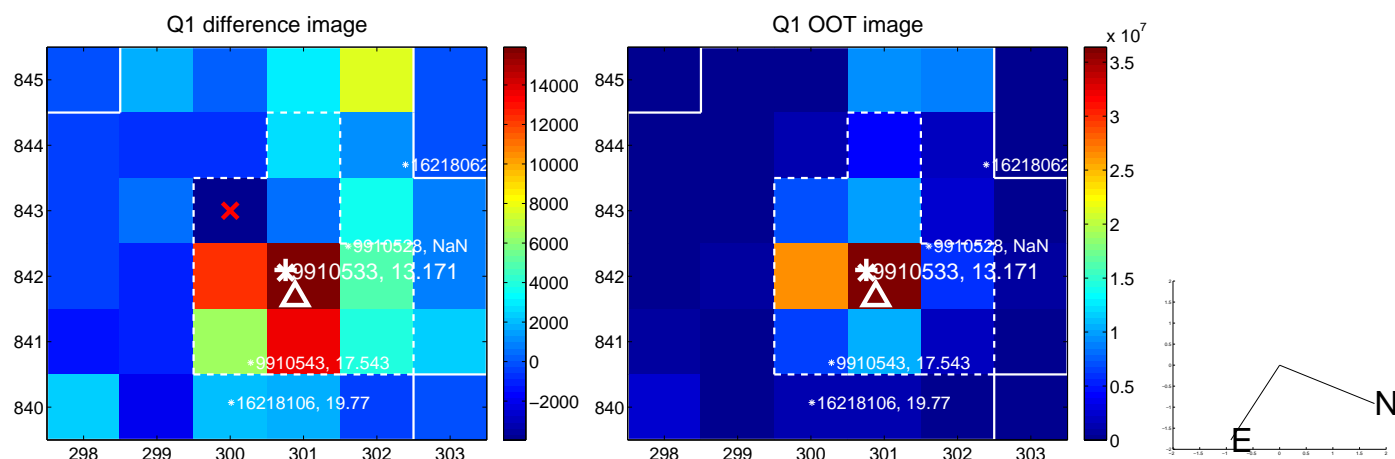
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.407 ± 0.383	1.06	0.299 ± 0.367	0.277 ± 0.249
PRF-fit source offset from KIC position	0.317 ± 0.324	0.98	0.170 ± 0.497	0.268 ± 0.230
photometric centroid source offset	0.93 ± 0.61	1.51	-0.79 ± 0.69	-0.49 ± 0.34



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

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



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

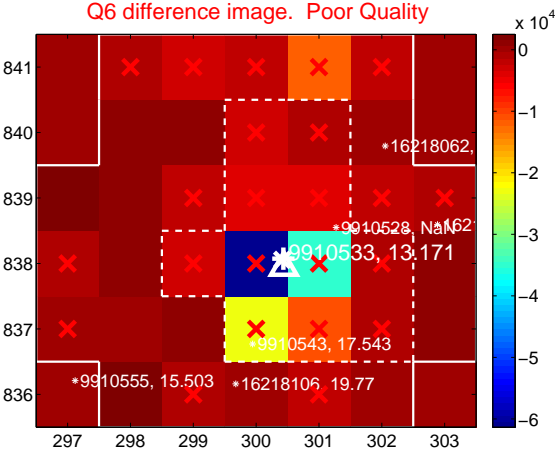
Q5 no difference image



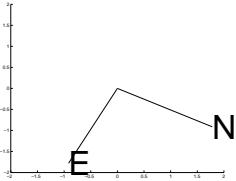
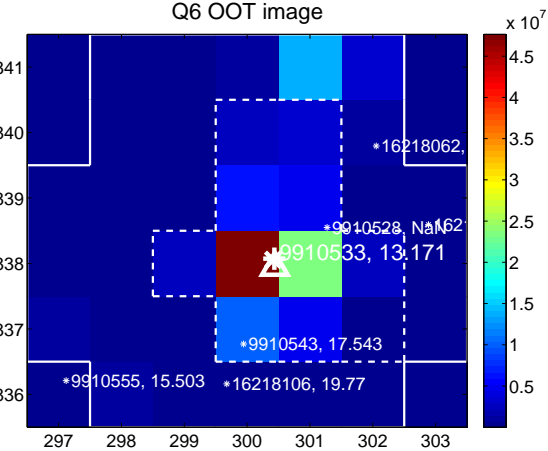
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



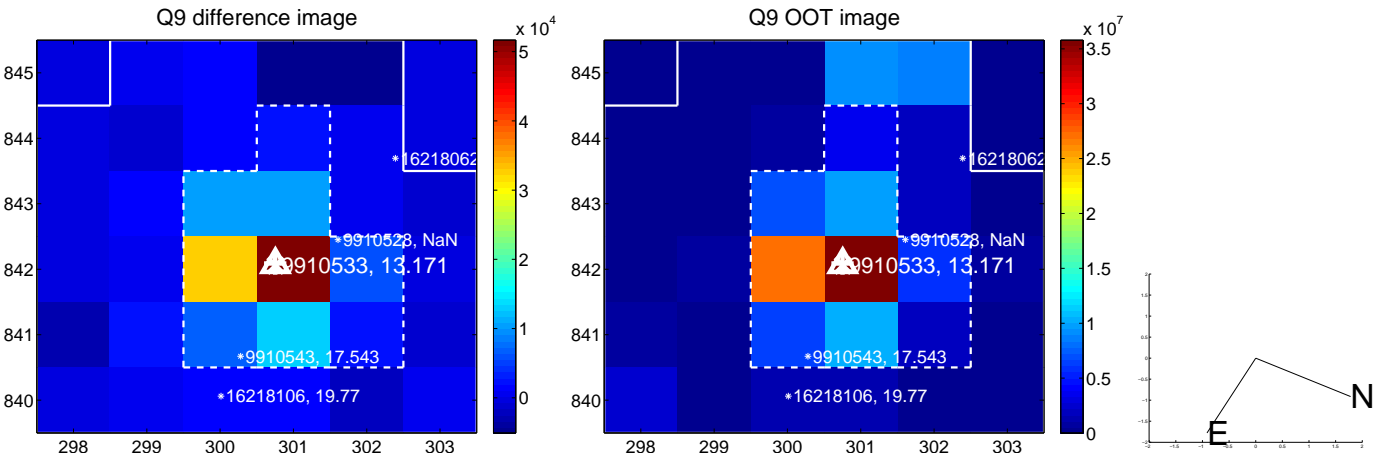
Q8 no difference image



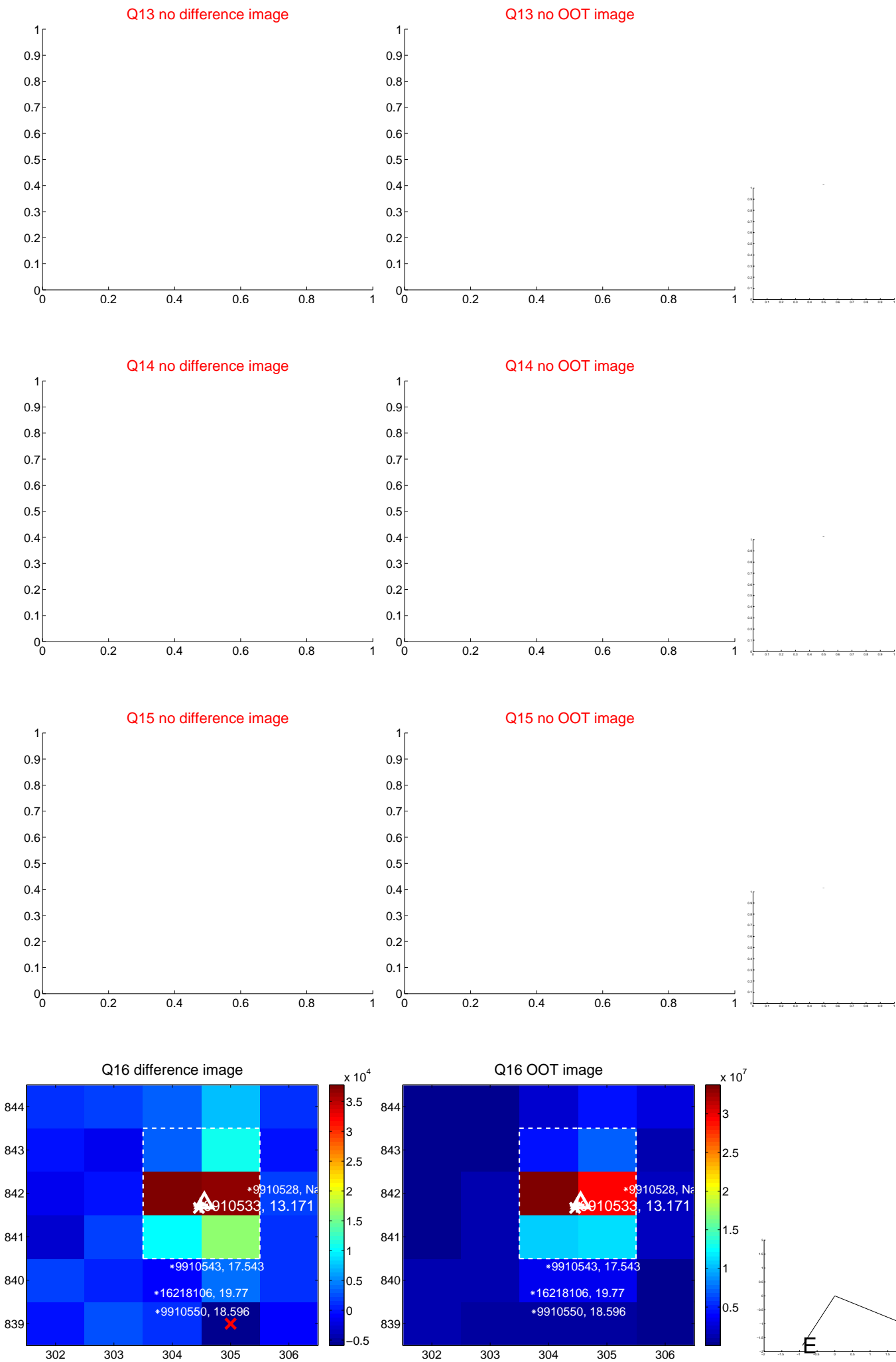
Q8 no OOT image



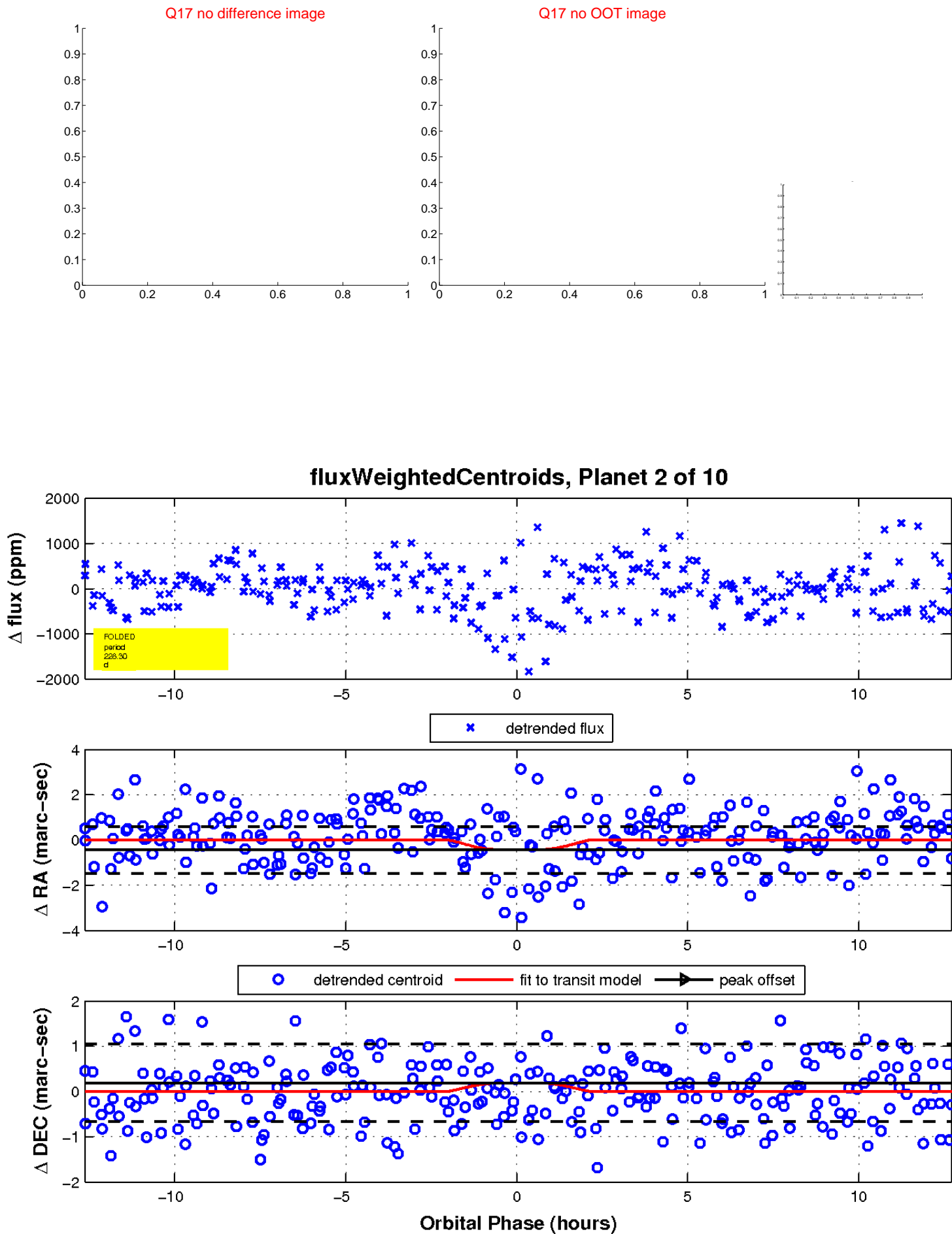
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

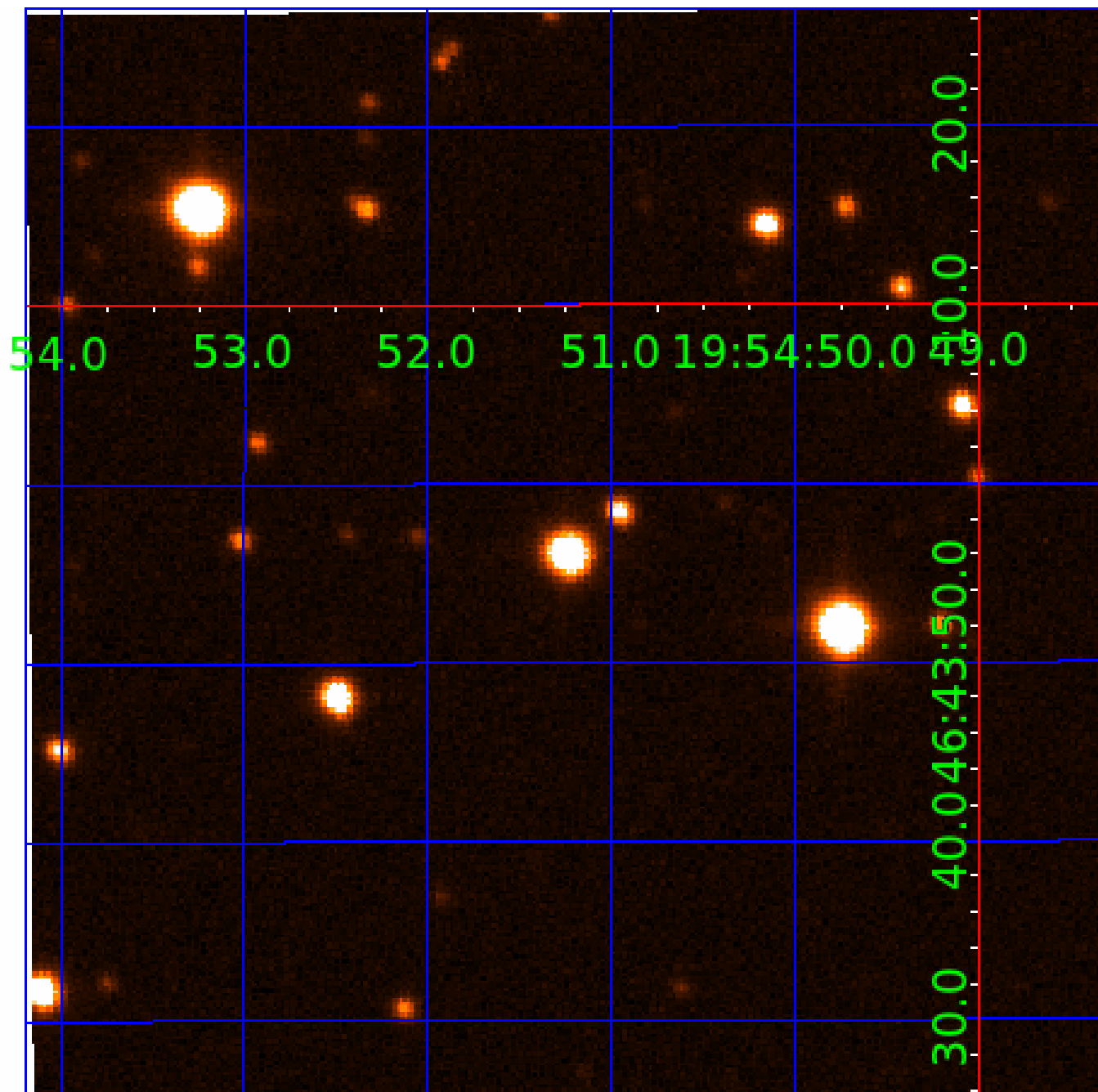


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

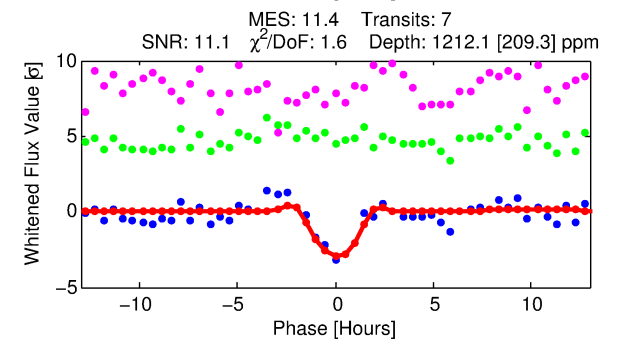
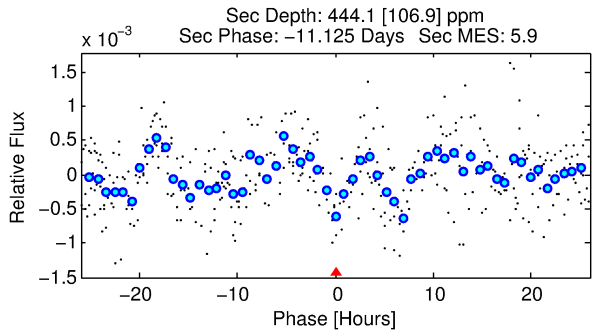
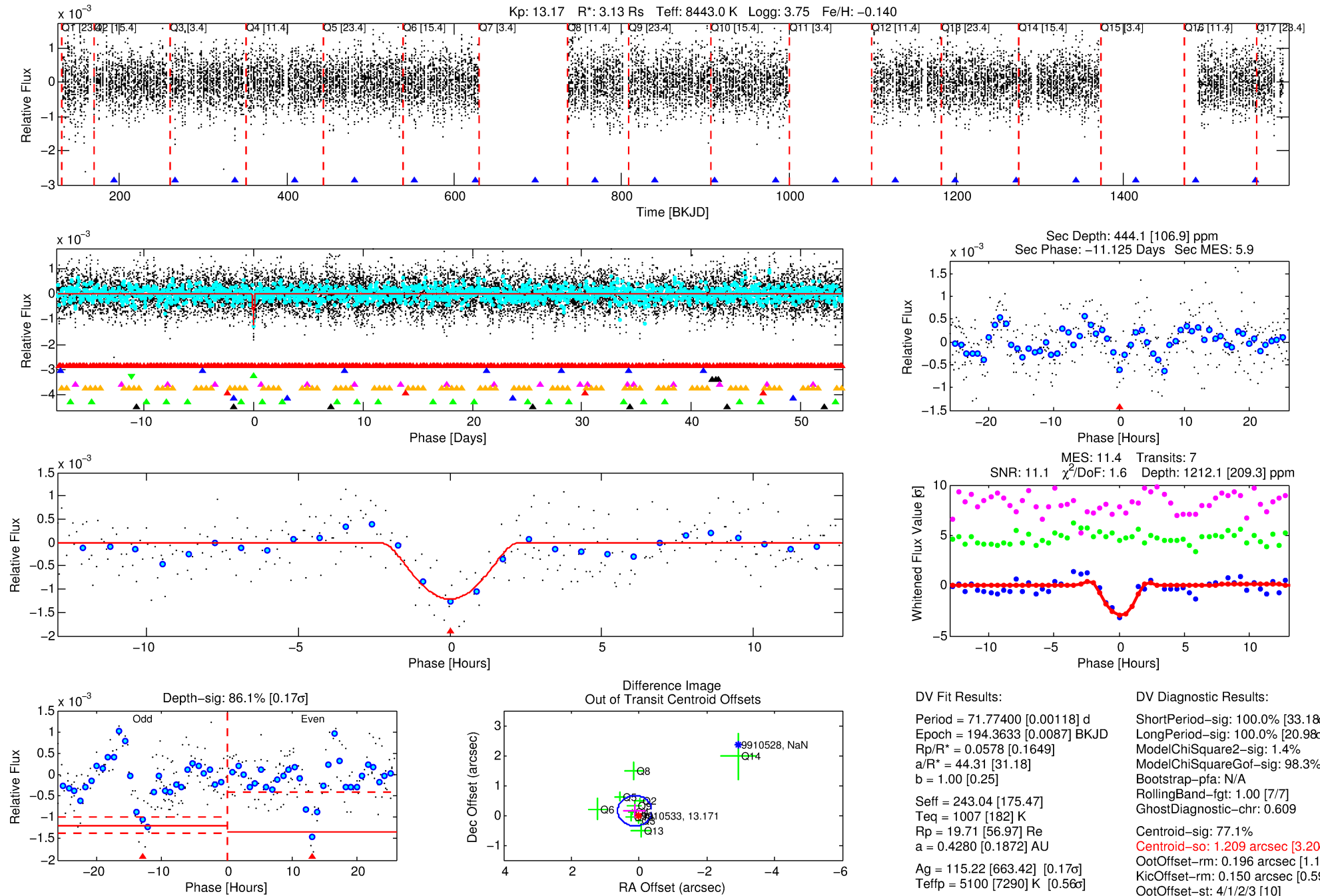
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-03

No Significant Match Found

DV One-Page Summary

KIC: 9910533 Candidate: 3 of 10 Period: 71.774 d



DV Fit Results:

Period = 71.77400 [0.00118] d
Epoch = 194.3633 [0.0087] BKJD
Rp/R* = 0.0578 [0.1649]
a/R* = 44.31 [31.18]
b = 1.00 [0.25]
Seff = 243.04 [175.47]
Teff = 1007 [182] K
Rp = 19.71 [56.97] Re
a = 0.4280 [0.1872] AU
Ag = 115.22 [663.42] [0.17 σ]
Teffp = 5100 [7290] K [0.56 σ]

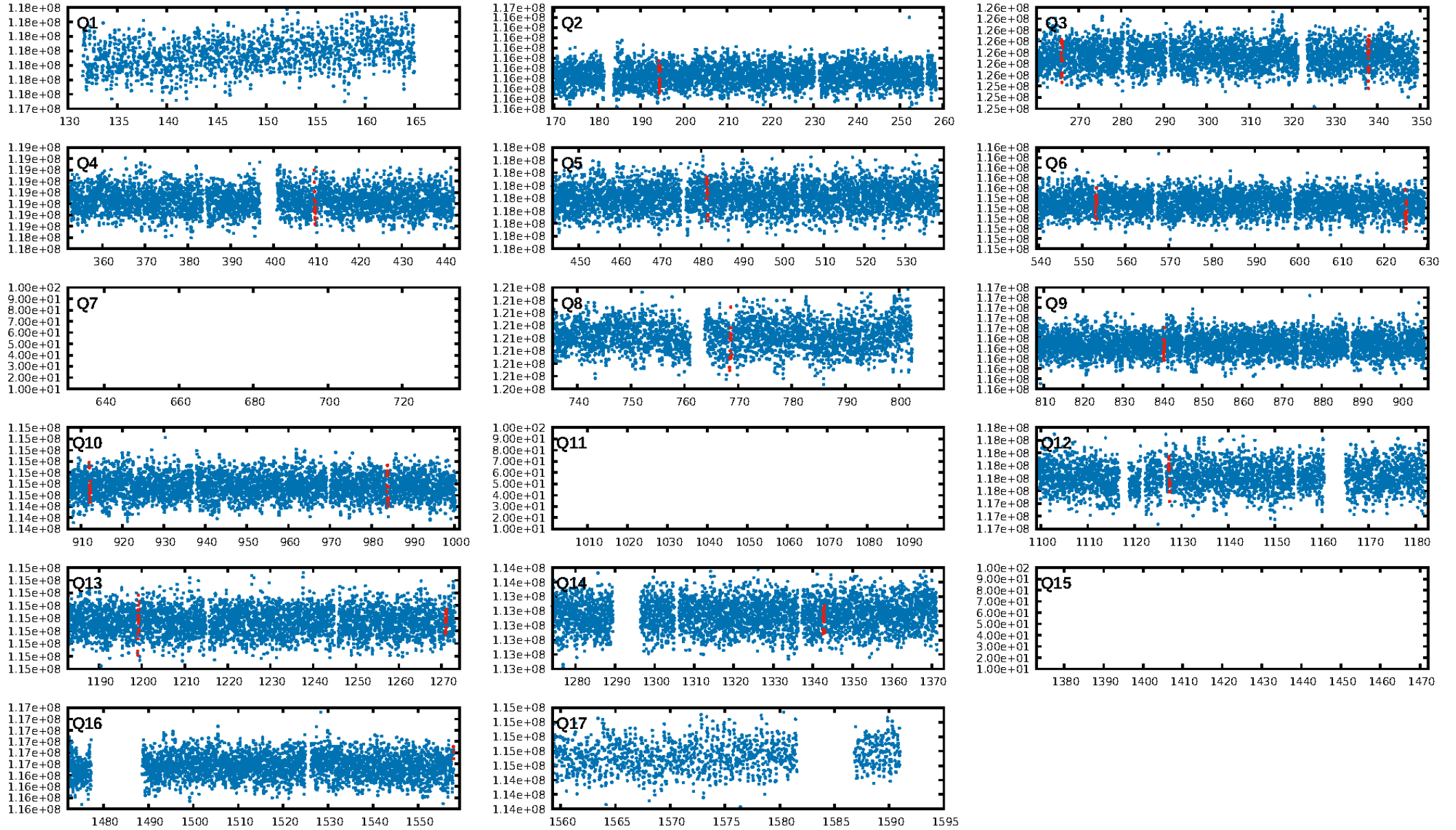
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.18 σ]
LongPeriod-sig: 100.0% [20.98 σ]
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.609
Centroid-sig: 77.1%
Centroid-so: 1.209 arcsec [3.20 σ]
OotOffset-rm: 0.196 arcsec [1.16 σ]
KicOffset-rm: 0.150 arcsec [0.59 σ]
OotOffset-st: 4/1/2/3 [10]
KicOffset-st: 4/1/2/3 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 0.70 [7/10]

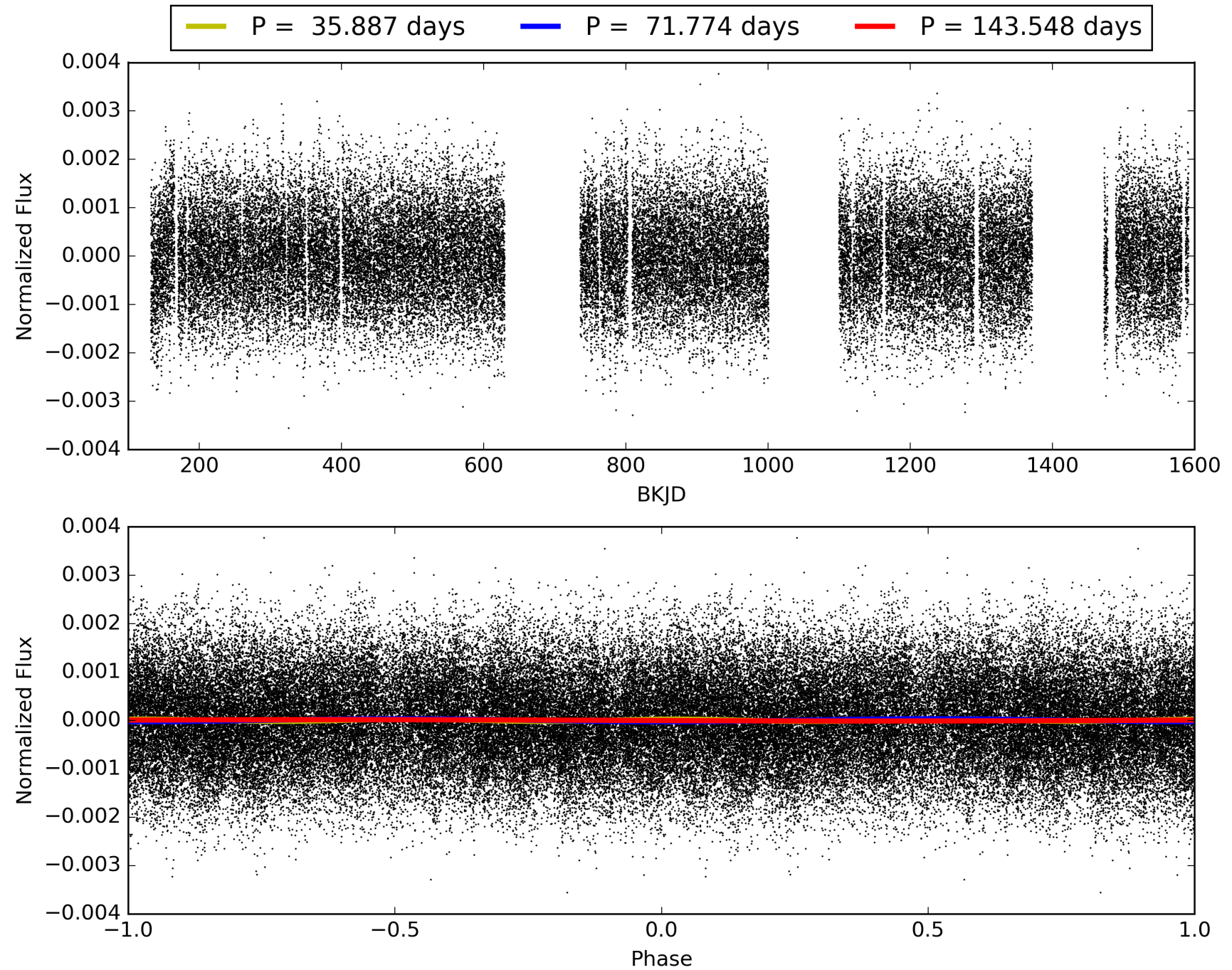
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:30:38 Z

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

TCE 009910533-03, PDC Light Curves

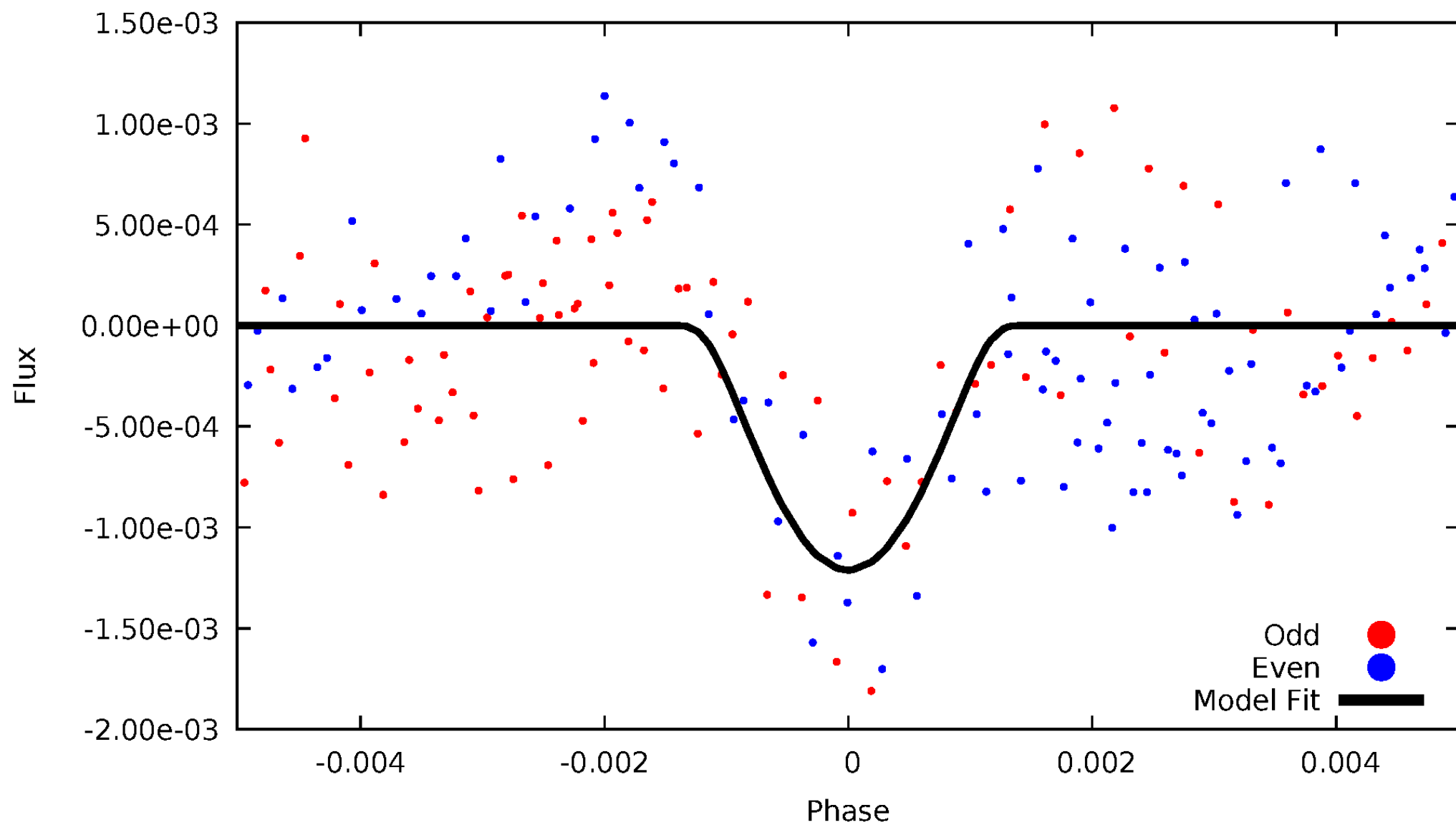


TCE 009910533-03



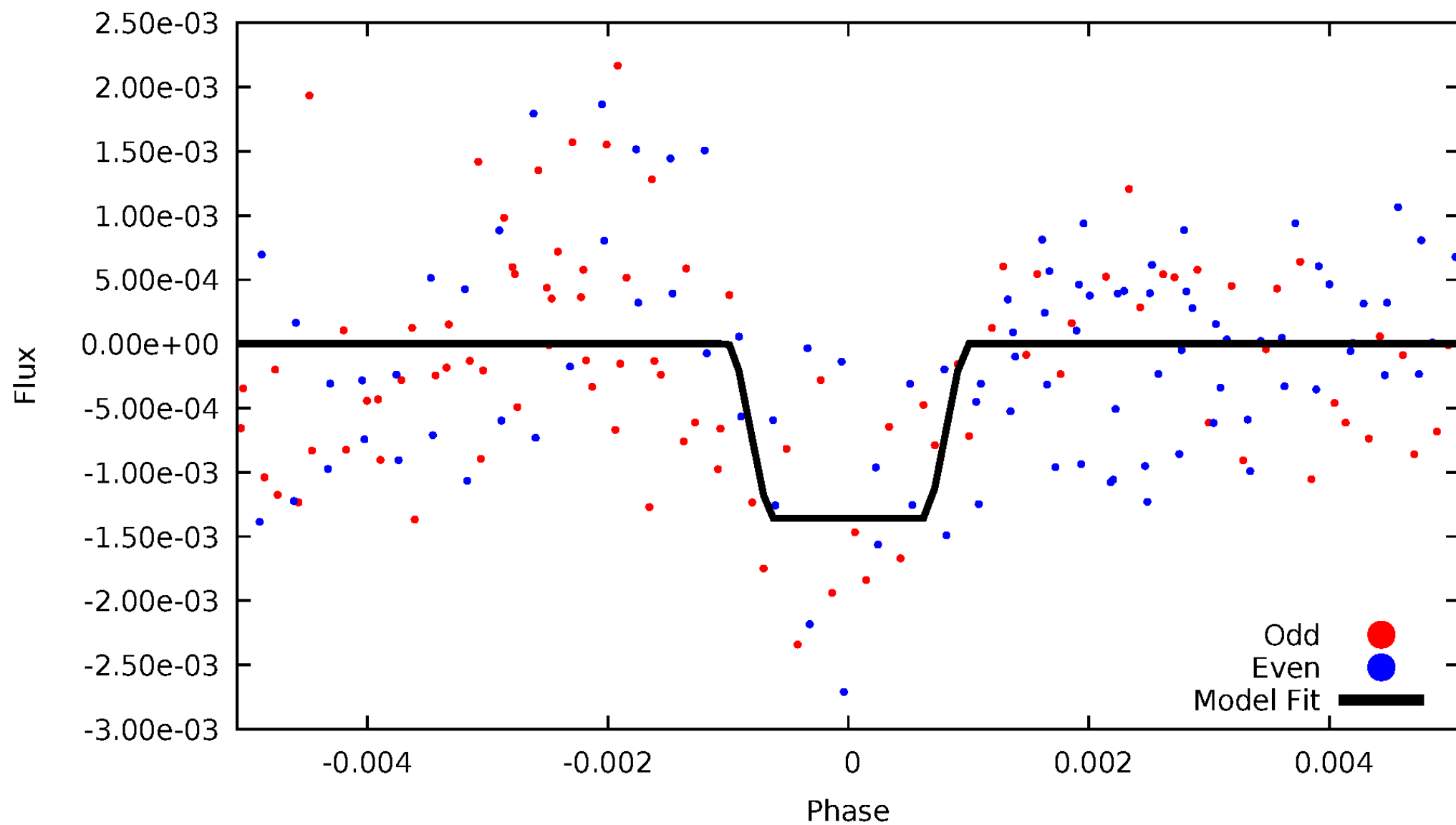
DV Odd/Even

TCE 009910533-03



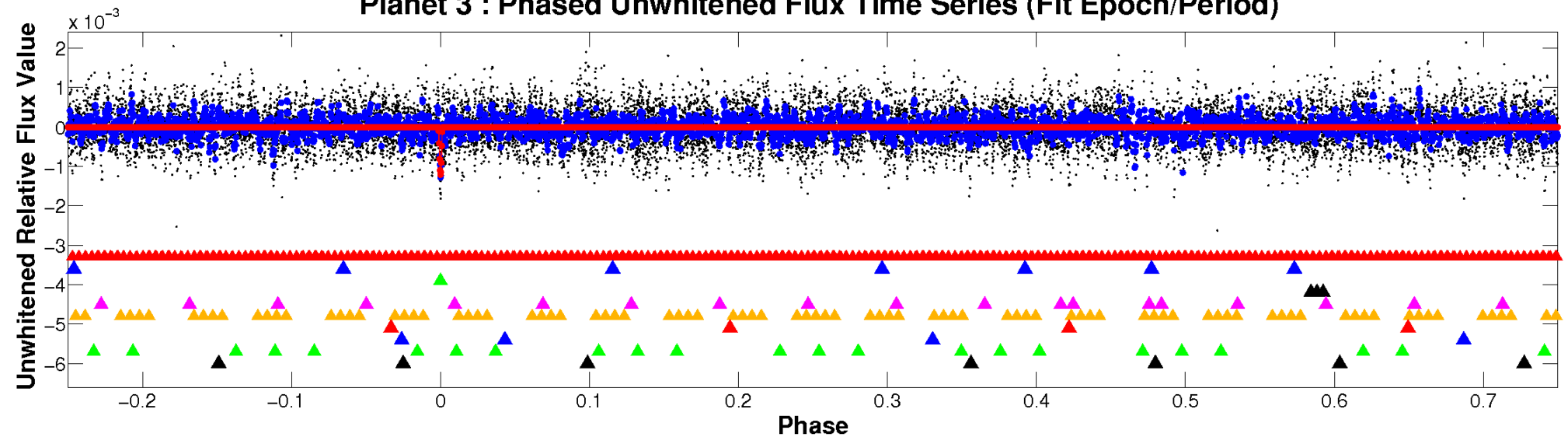
ALT Odd/Even

TCE 009910533-03

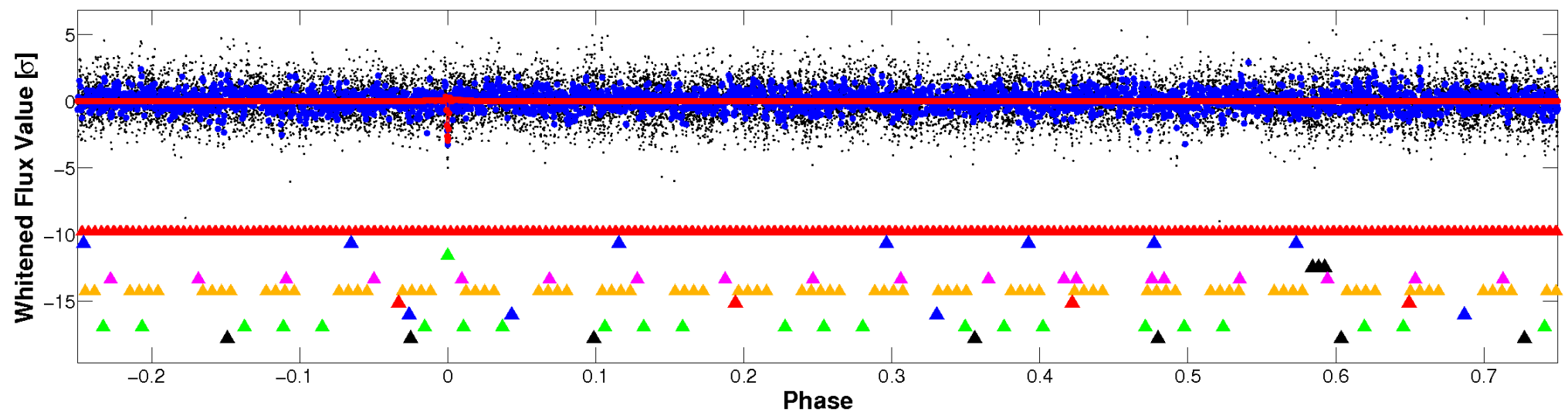


Non-Whitened Vs. Whitened Light Curve

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

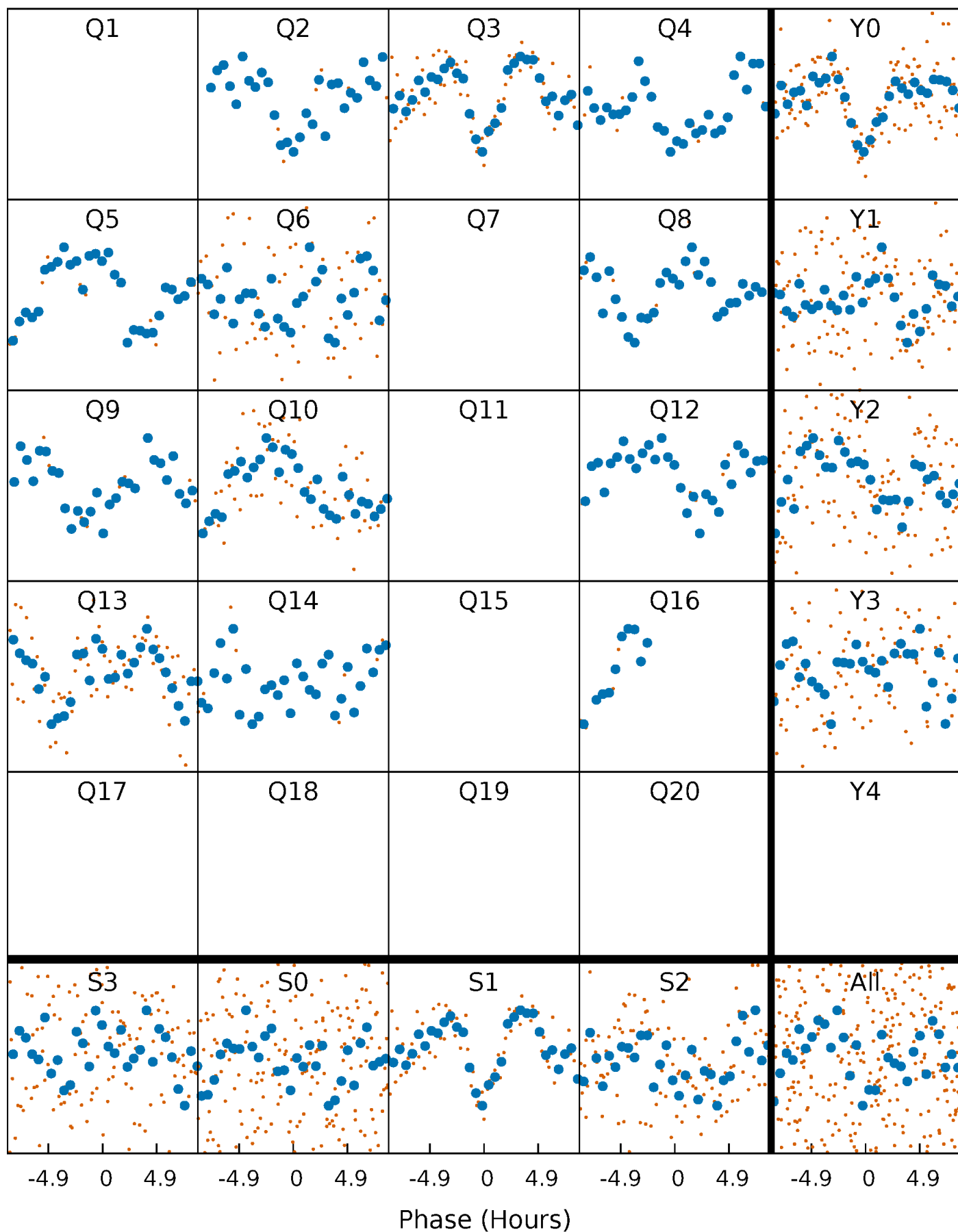


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



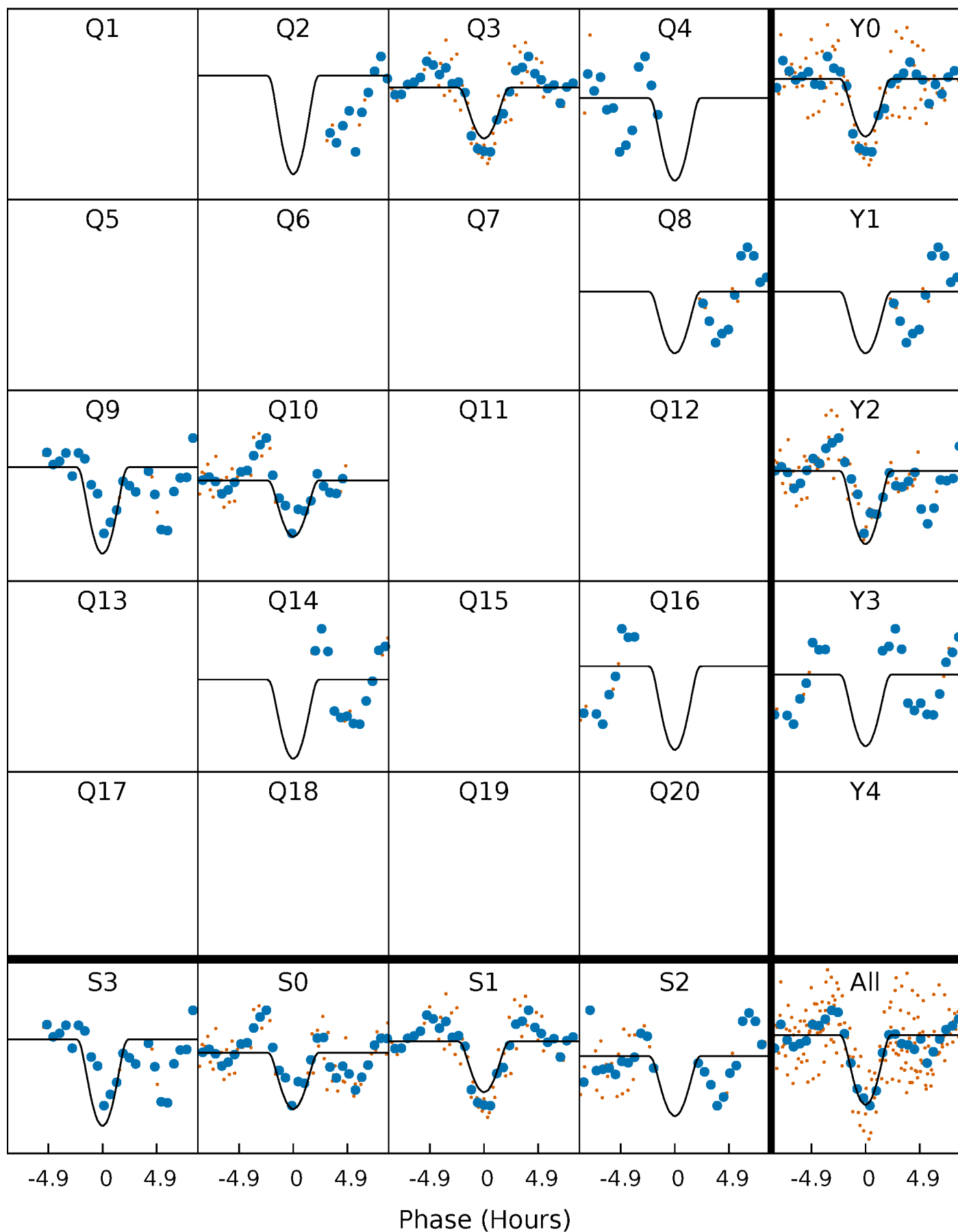
PDC Quarter-Phased Transit Curves

TCE 009910533-03 P= 71.773998 Days $T_0=194.363263$ (BKJD)



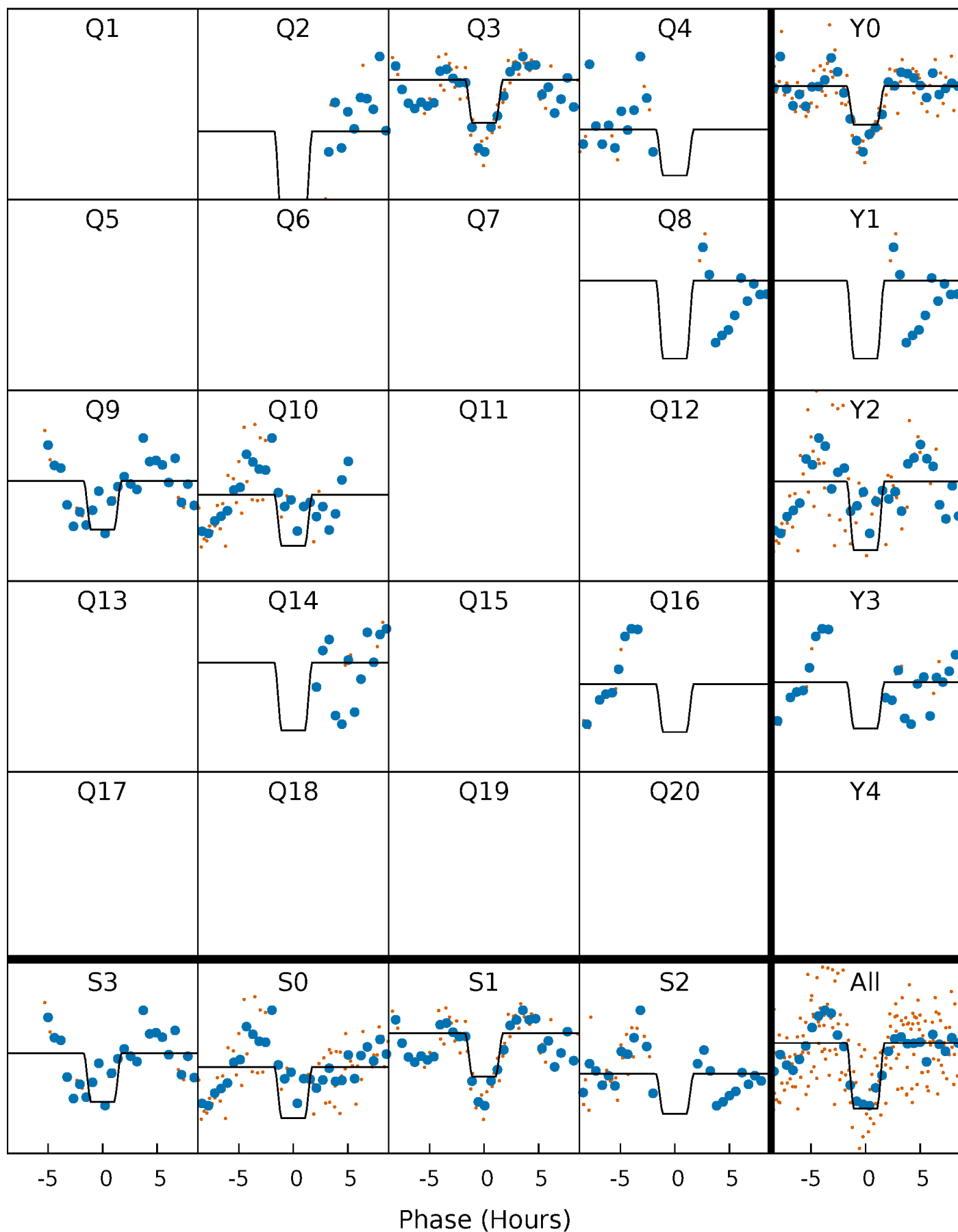
DV Quarter-Phased Transit Curves

TCE 009910533-03 P= 71.773998 Days $T_0=194.363263$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

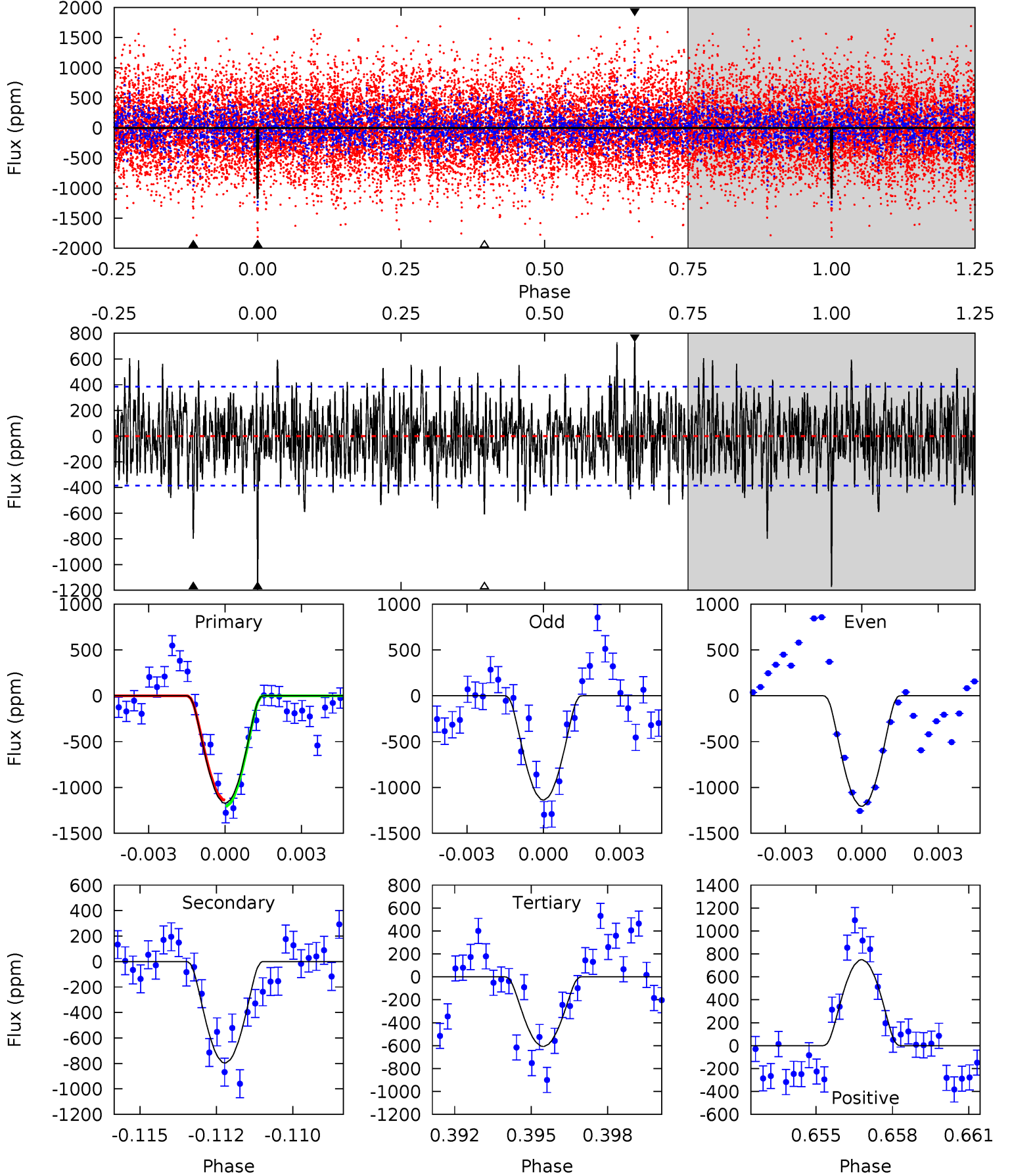
TCE 009910533-03 P= 71.773444 Days $T_0=194.366583$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-03, P = 71.773998 Days, E = 122.589265 Days

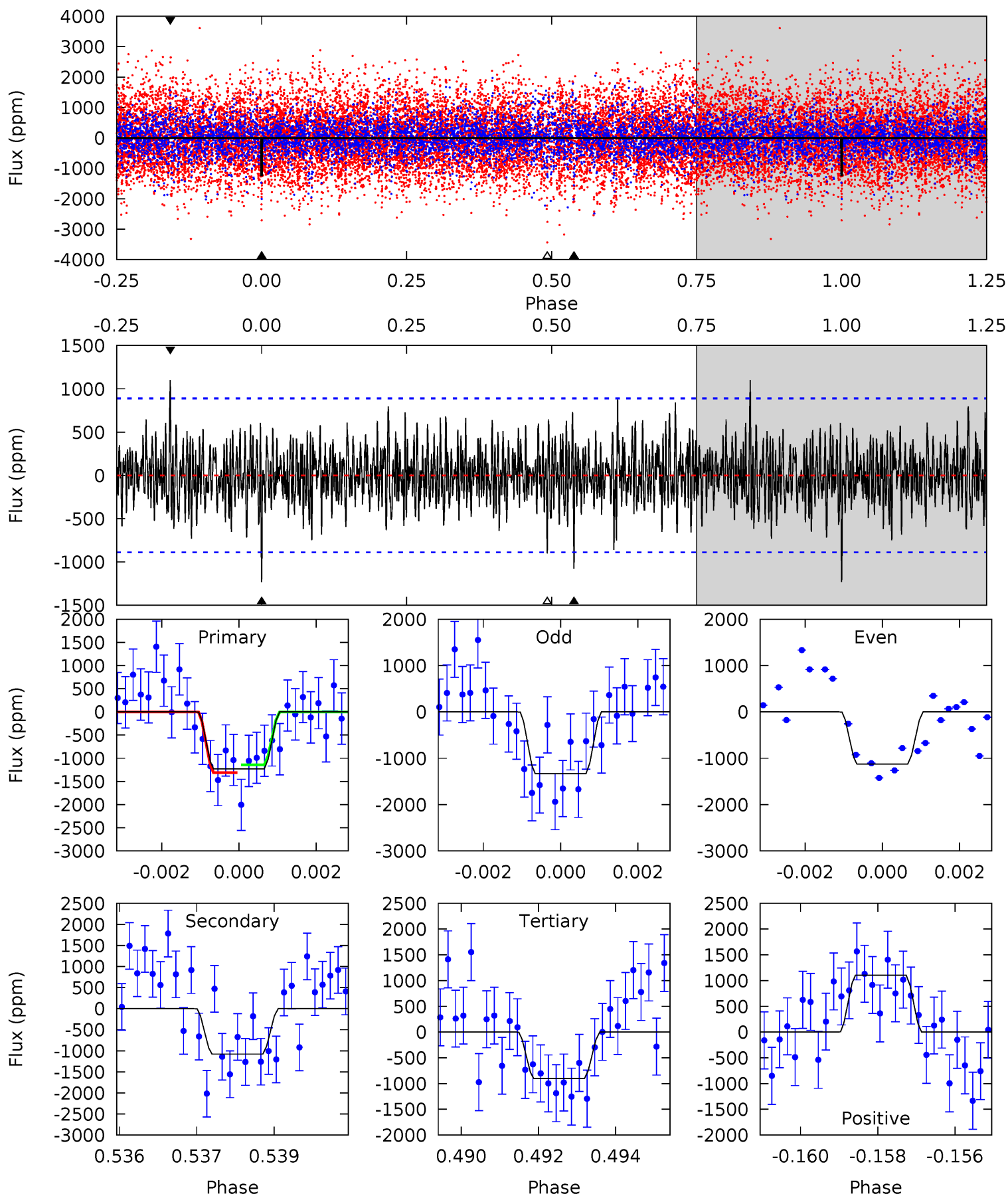
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	10.9	8.32	10.3	5.27	3.00	2.75	7.73	5.79	2.59	0.65	0.48	0.65	0.39	0.48



Alt Model-Shift Uniqueness Test

009910533-03, P = 71.773444 Days, E = 122.593139 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.40	6.48	5.41	6.62	5.34	3.11	1.60	1.98	0.78	1.06	-0.14	0.62	0.93	0.47	0.51



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-797 ± 73	$44.44^{+44.50}_{-31.53}$	1368^{+118}_{-169}	3948^{+2669}_{-745}	42^{+440}_{-31}
Alt.	-1078 ± 166	$39.69^{+40.97}_{-27.98}$	1357^{+121}_{-148}	4344^{+3621}_{-936}	67^{+801}_{-50}

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 $A_{obs} \gg 1.0$

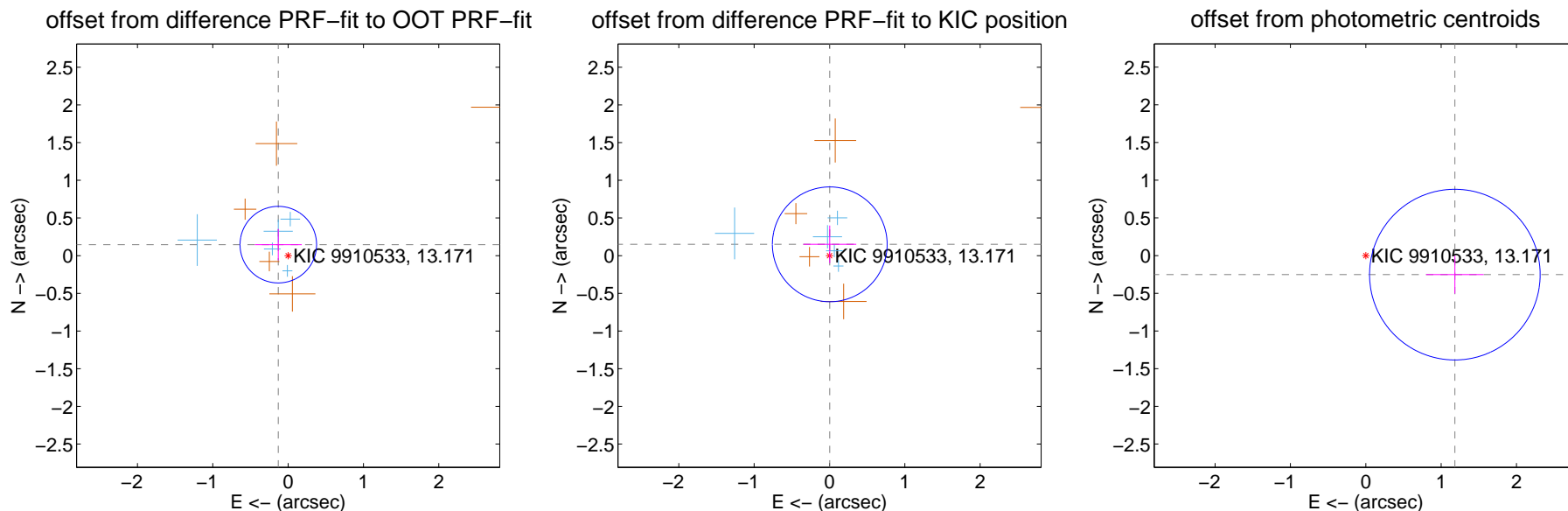
DV Centroid Data

Supplemental centroid analysis for 009910533-03. Kepler magnitude: 13.17. Transit SNR 11.12

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.196 ± 0.169	1.16	0.130 ± 0.311	0.146 ± 0.208
PRF-fit source offset from KIC position	0.150 ± 0.254	0.59	-0.004 ± 0.352	0.150 ± 0.249
photometric centroid source offset	1.21 ± 0.38	3.20	-1.18 ± 0.38	-0.25 ± 0.25



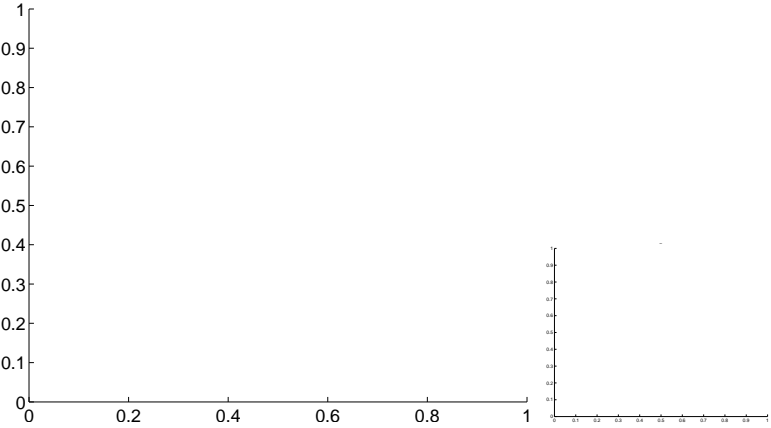
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

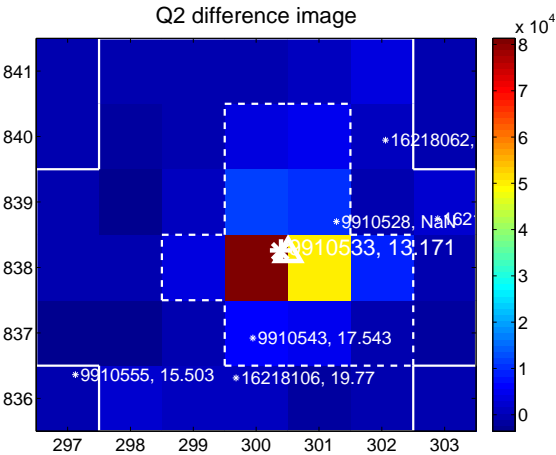
Q1 no difference image



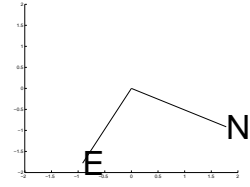
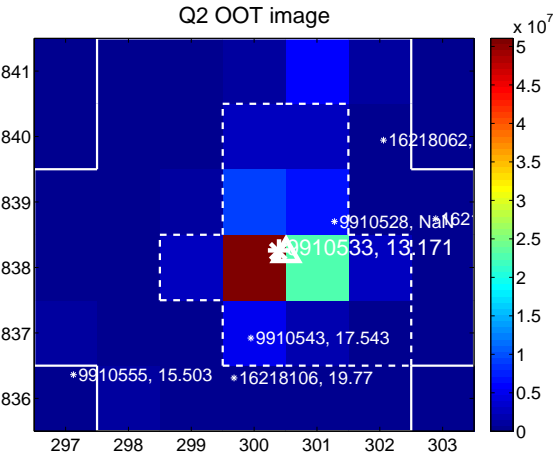
Q1 no OOT image



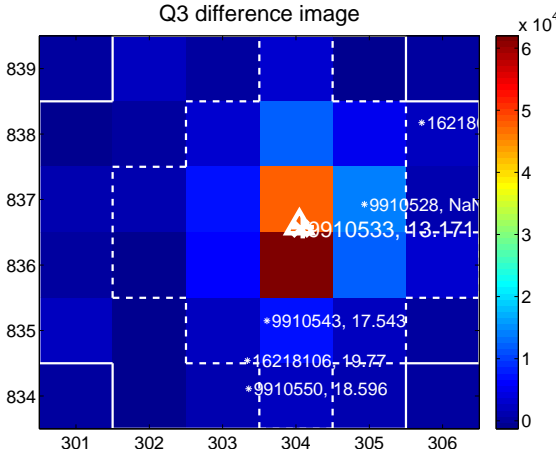
Q2 difference image



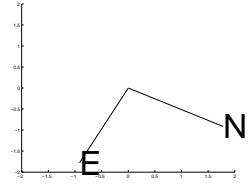
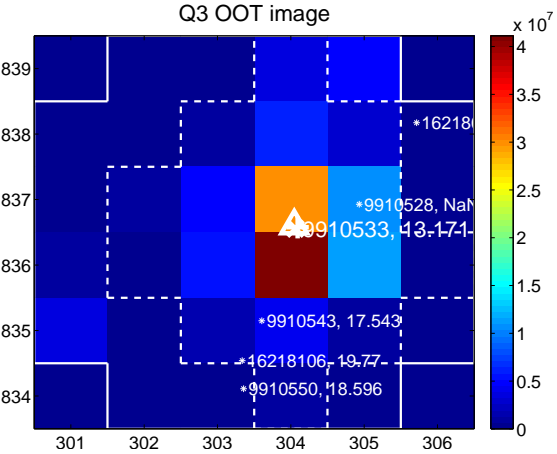
Q2 OOT image



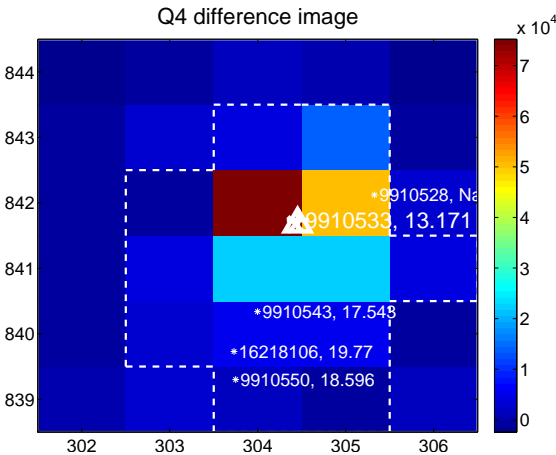
Q3 difference image



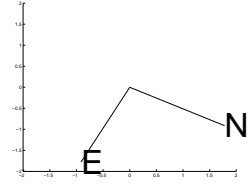
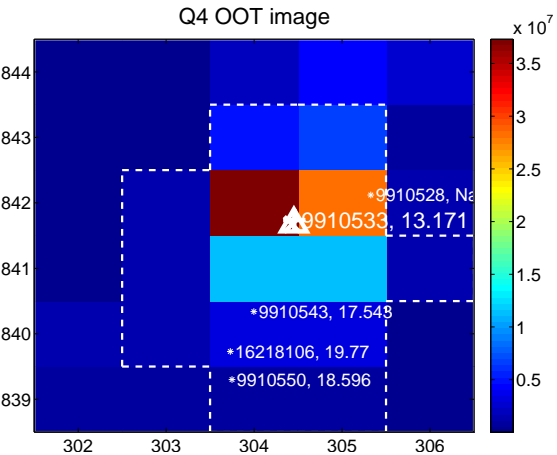
Q3 OOT image



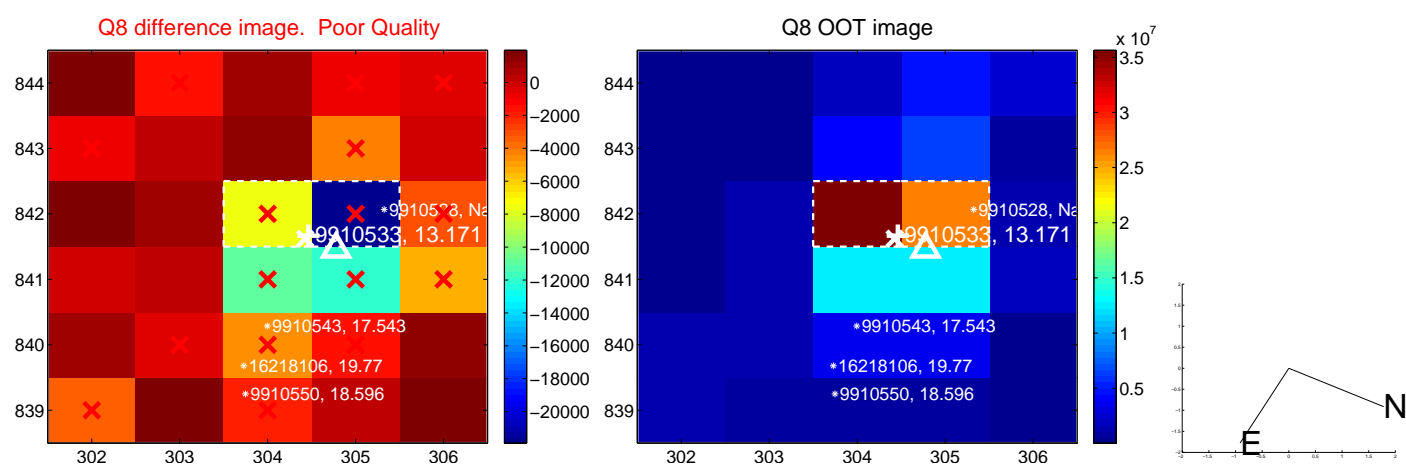
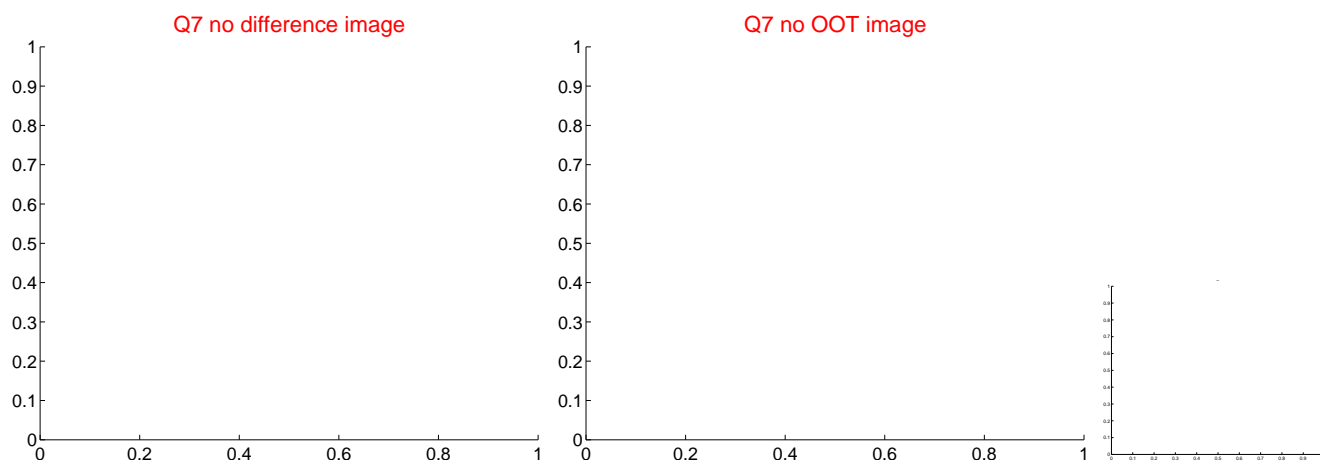
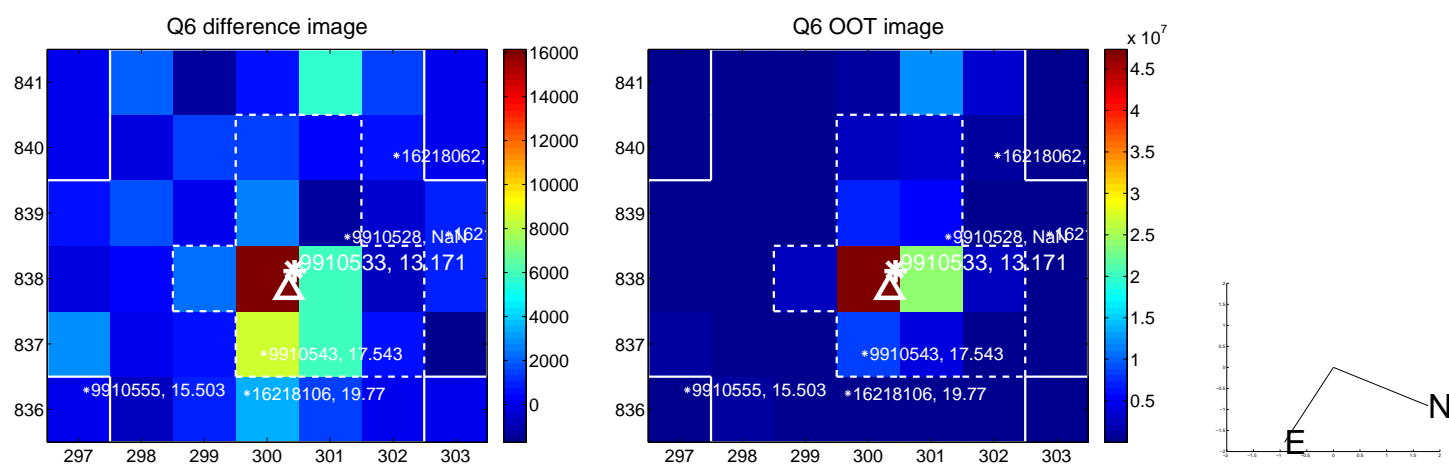
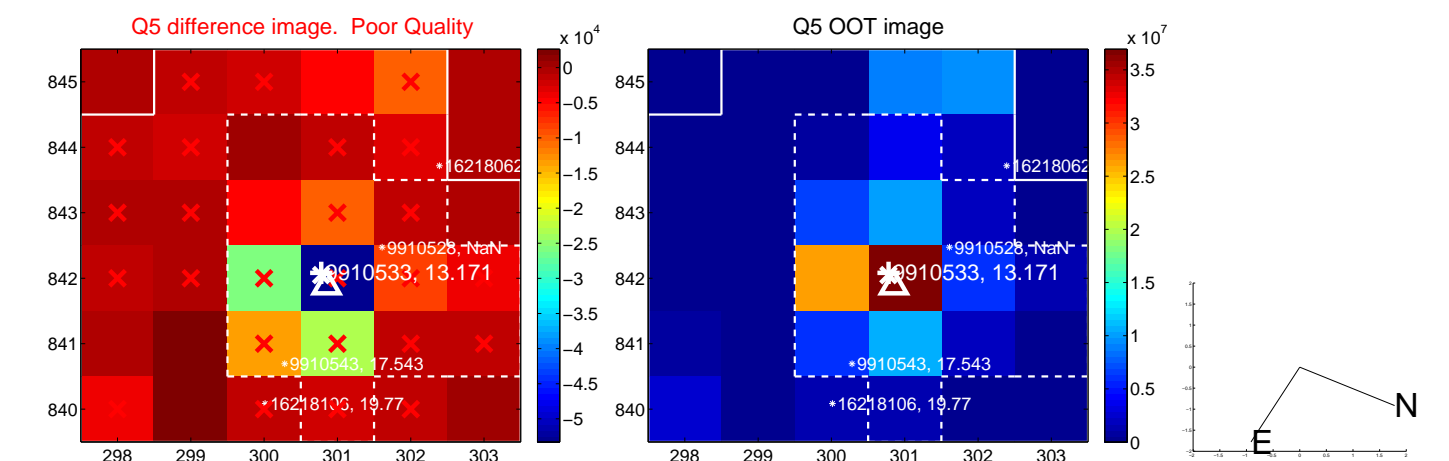
Q4 difference image



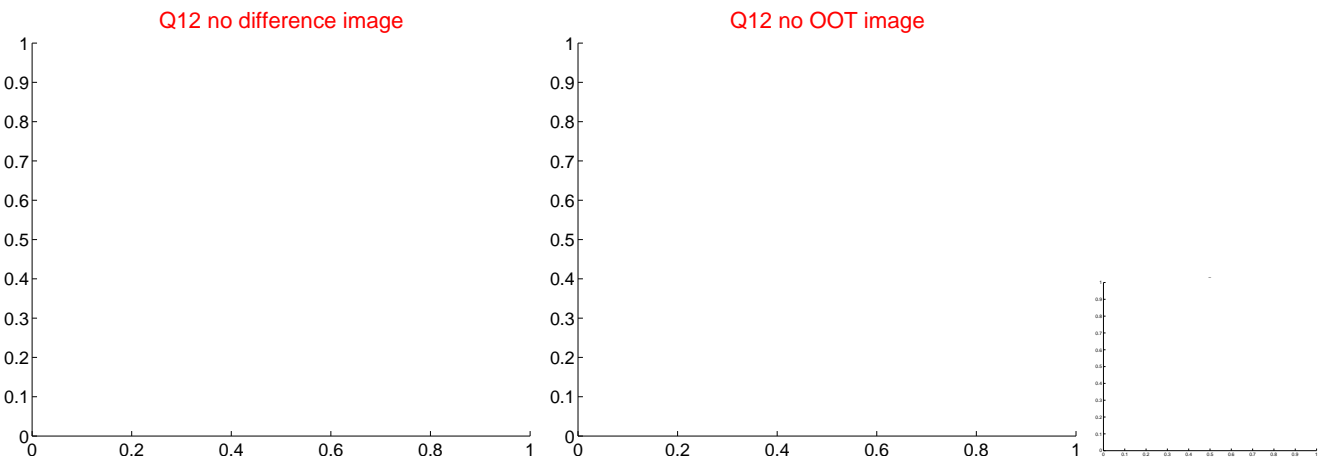
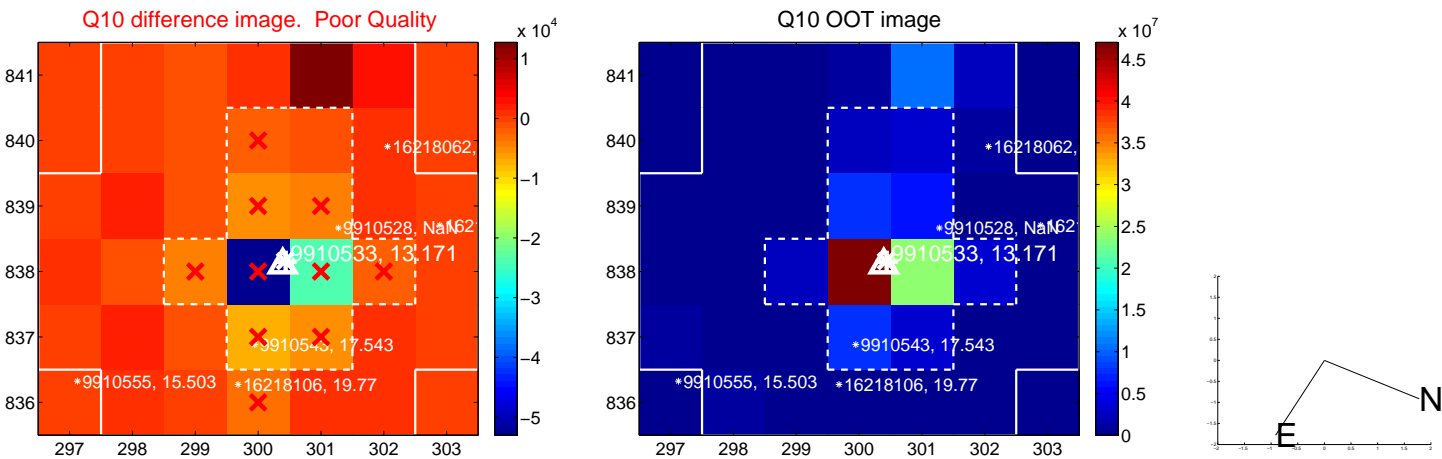
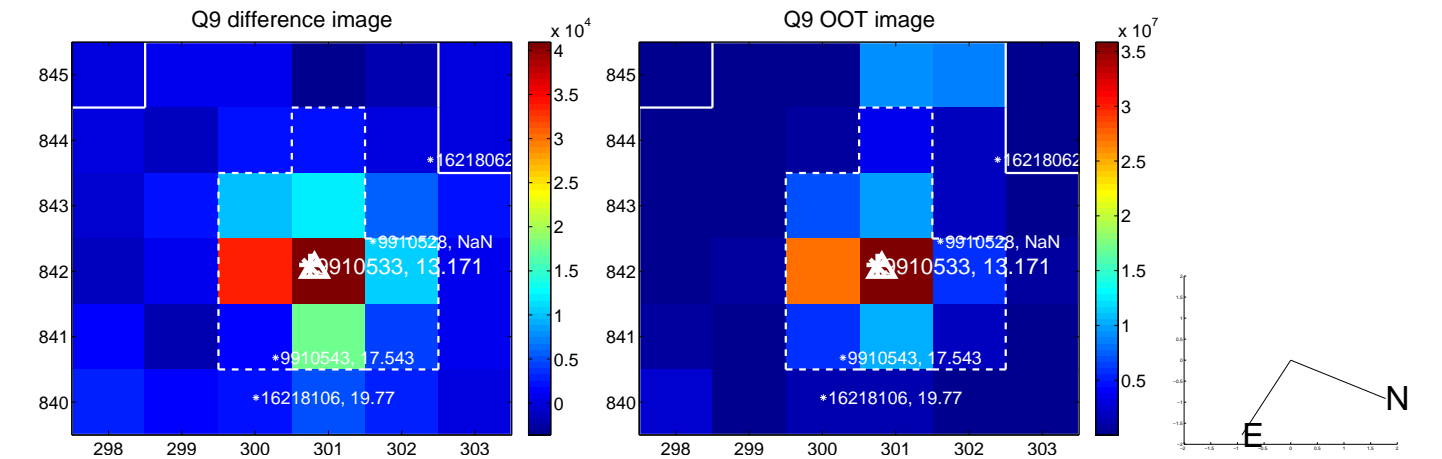
Q4 OOT image



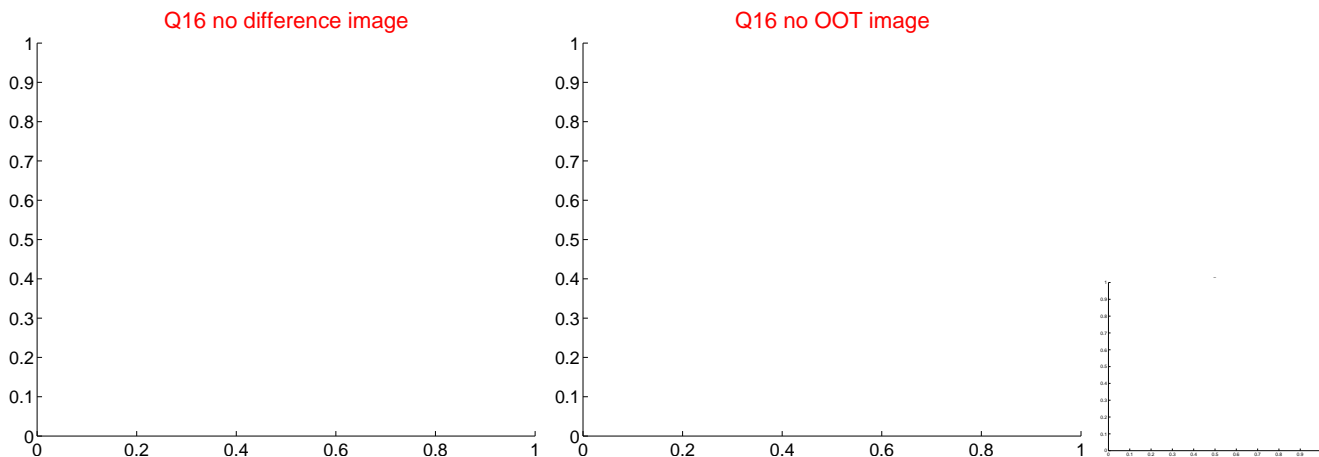
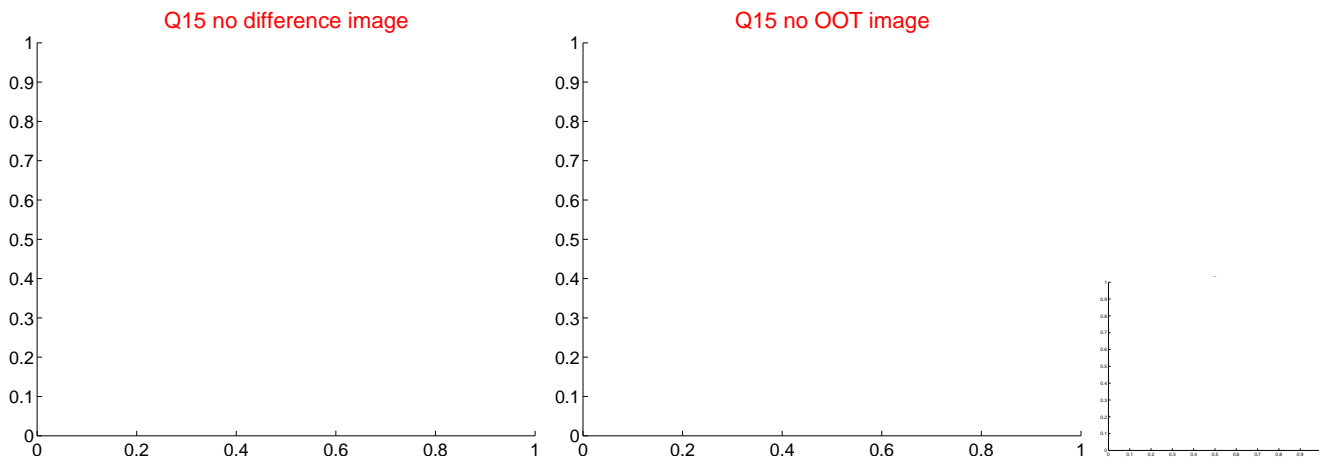
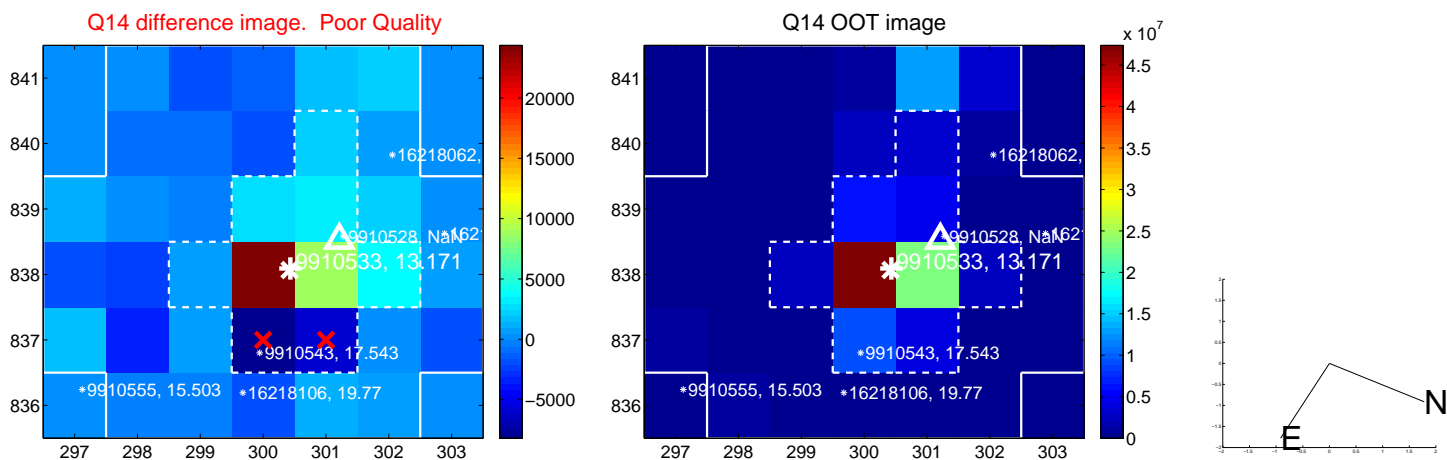
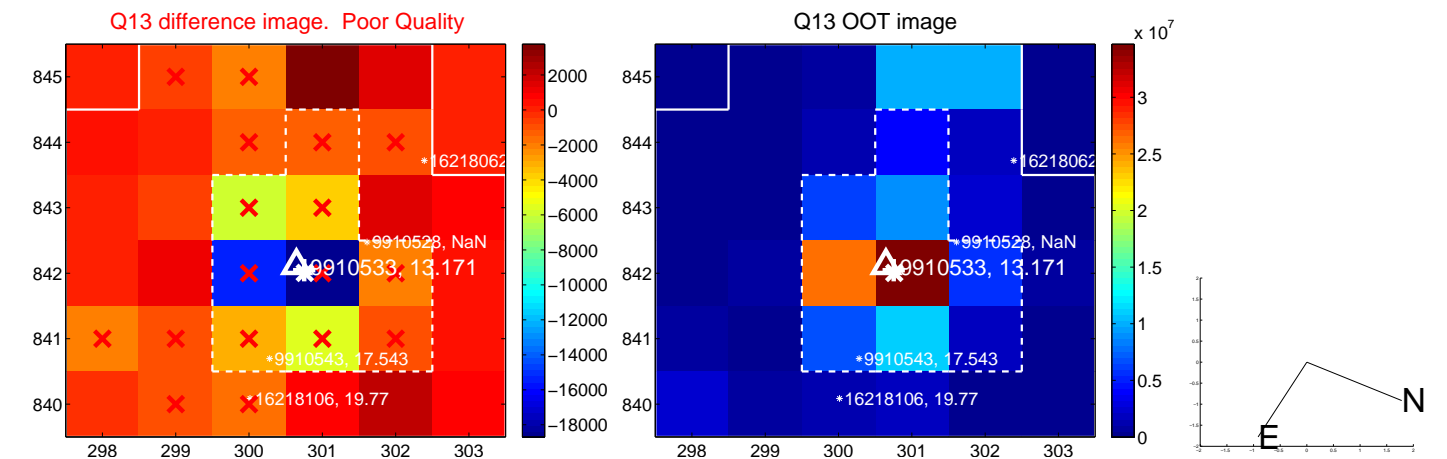
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



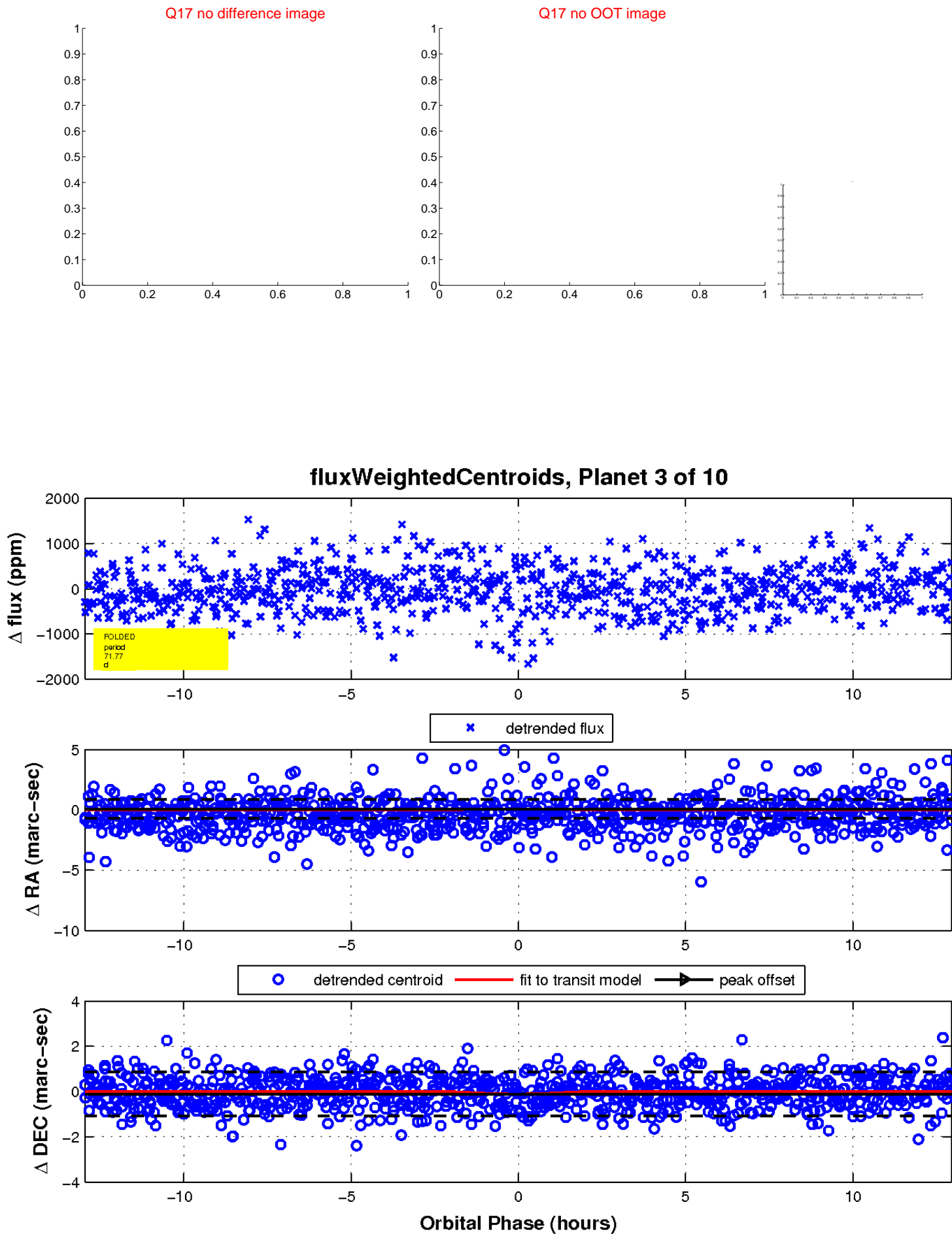
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

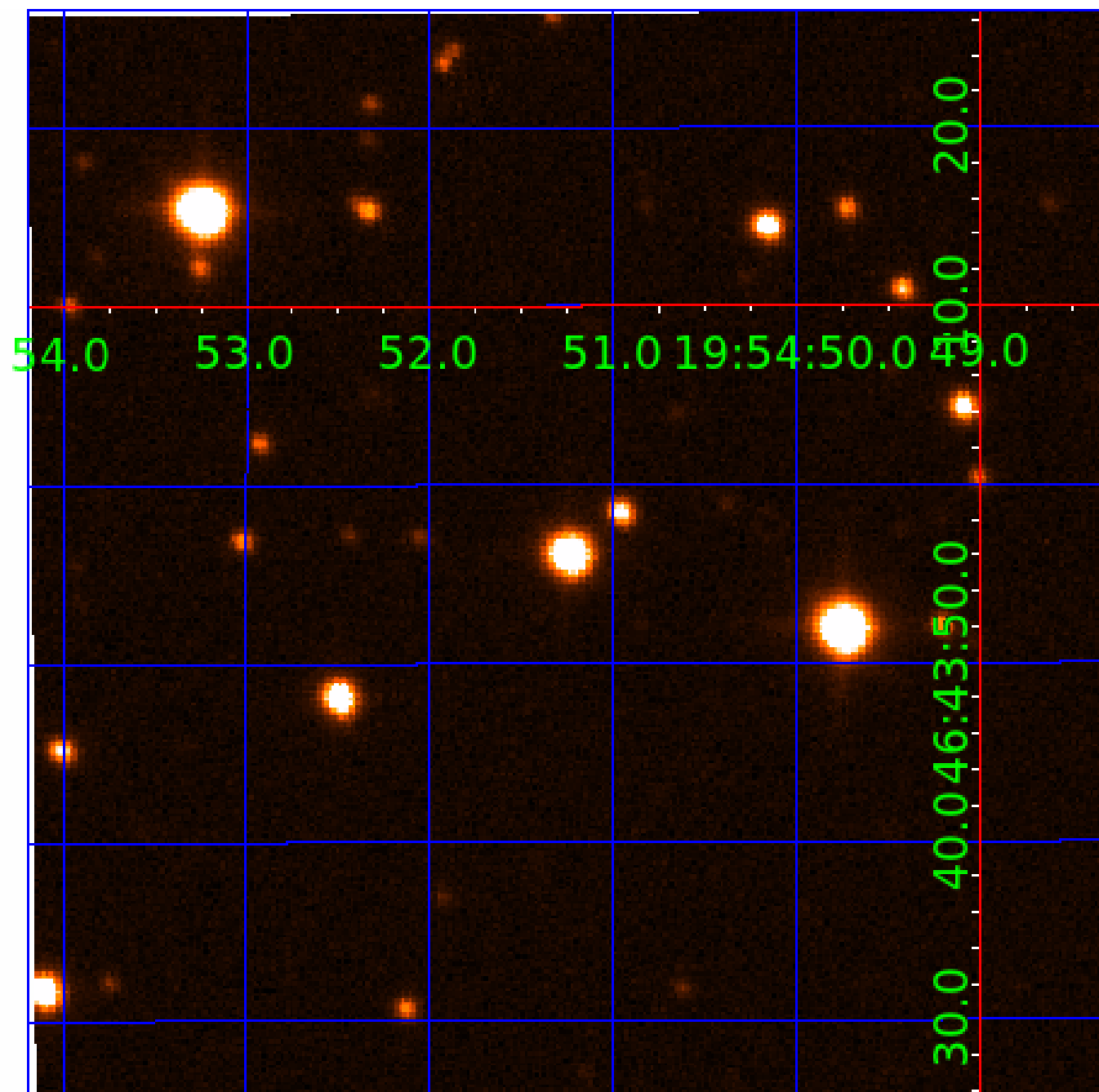


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

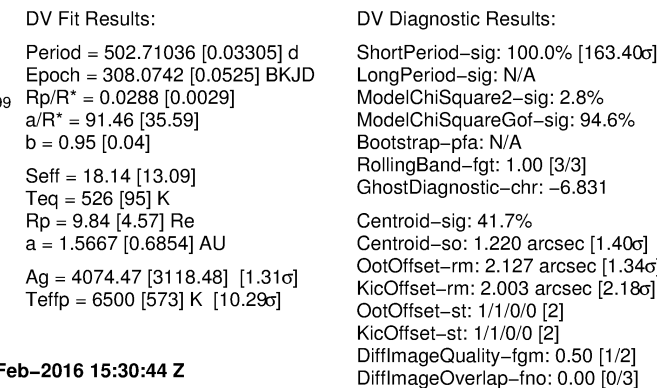
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

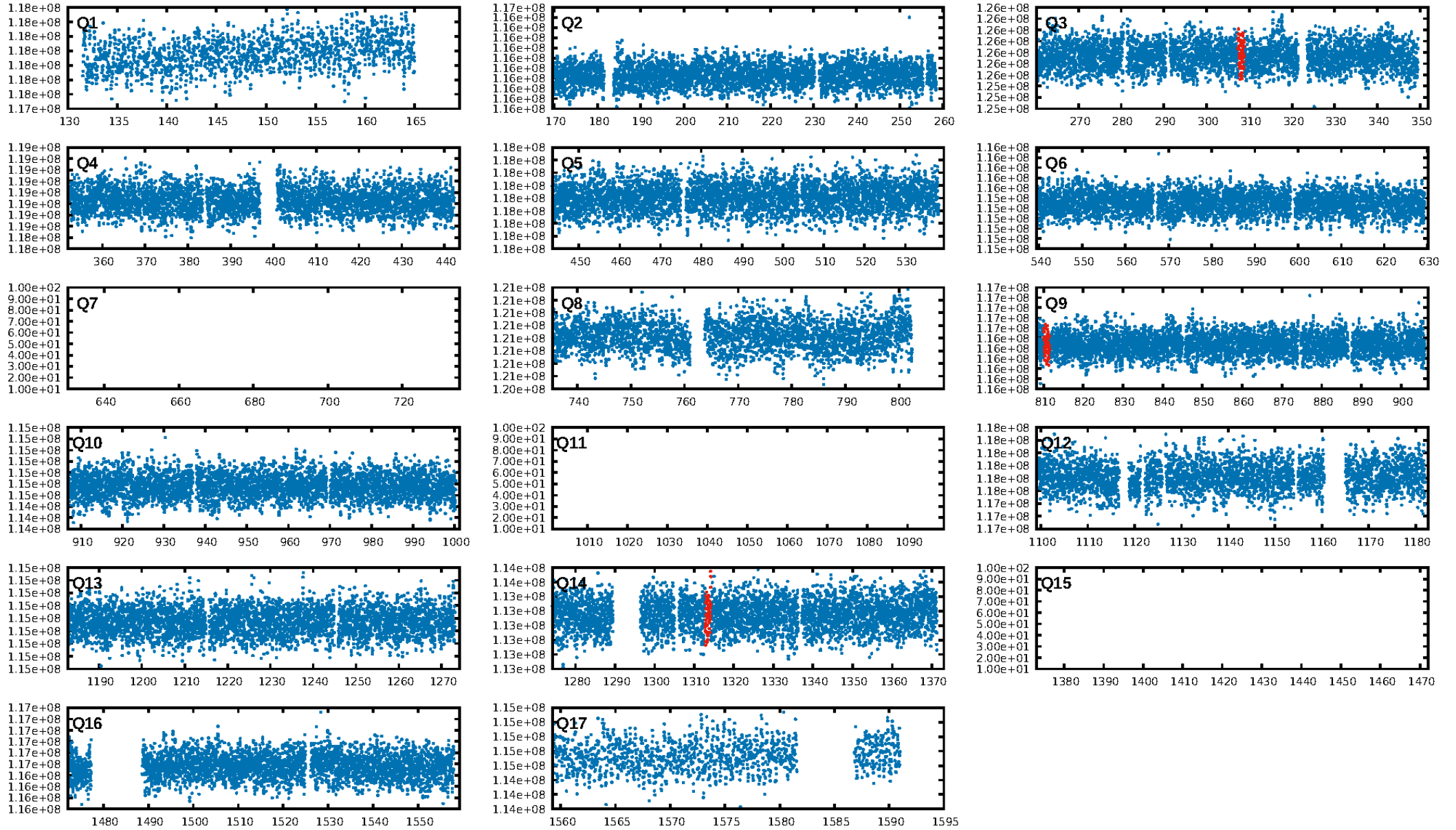
Ephemeris Match Information For 009910533-04

No Significant Match Found

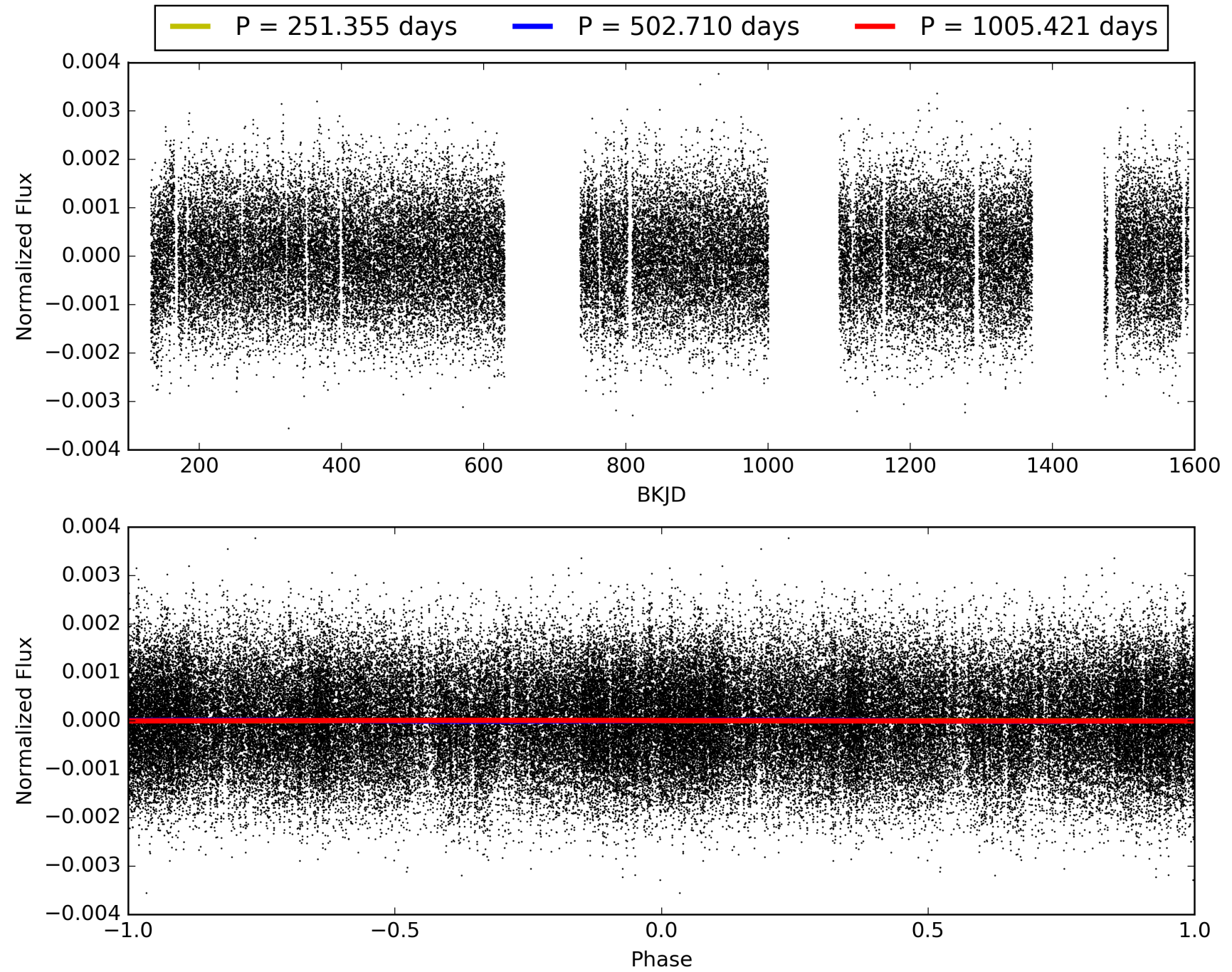
KIC: 9910533 Candidate: 4 of 10 Period: 502.710 d



TCE 009910533-04, PDC Light Curves

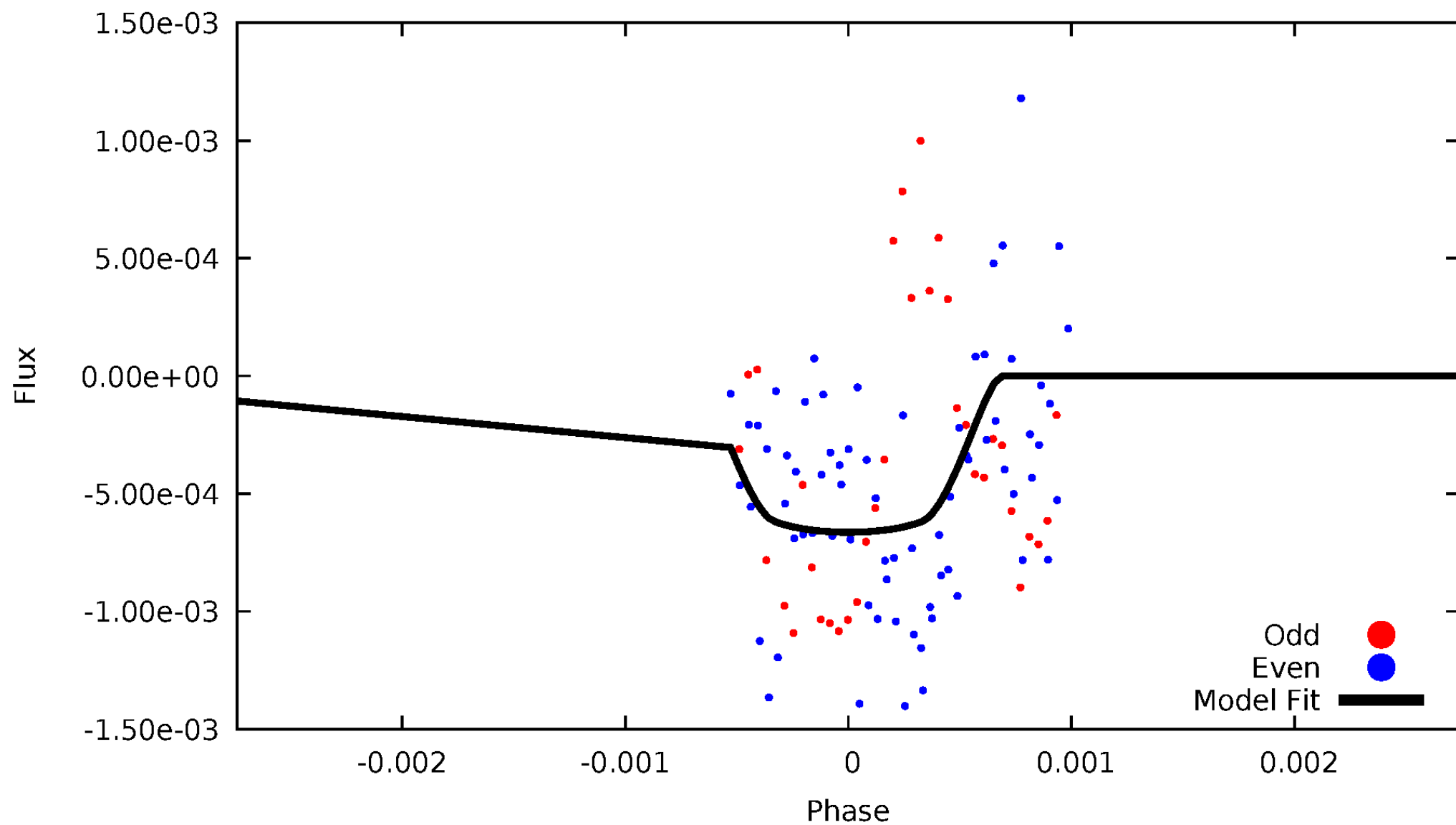


TCE 009910533-04



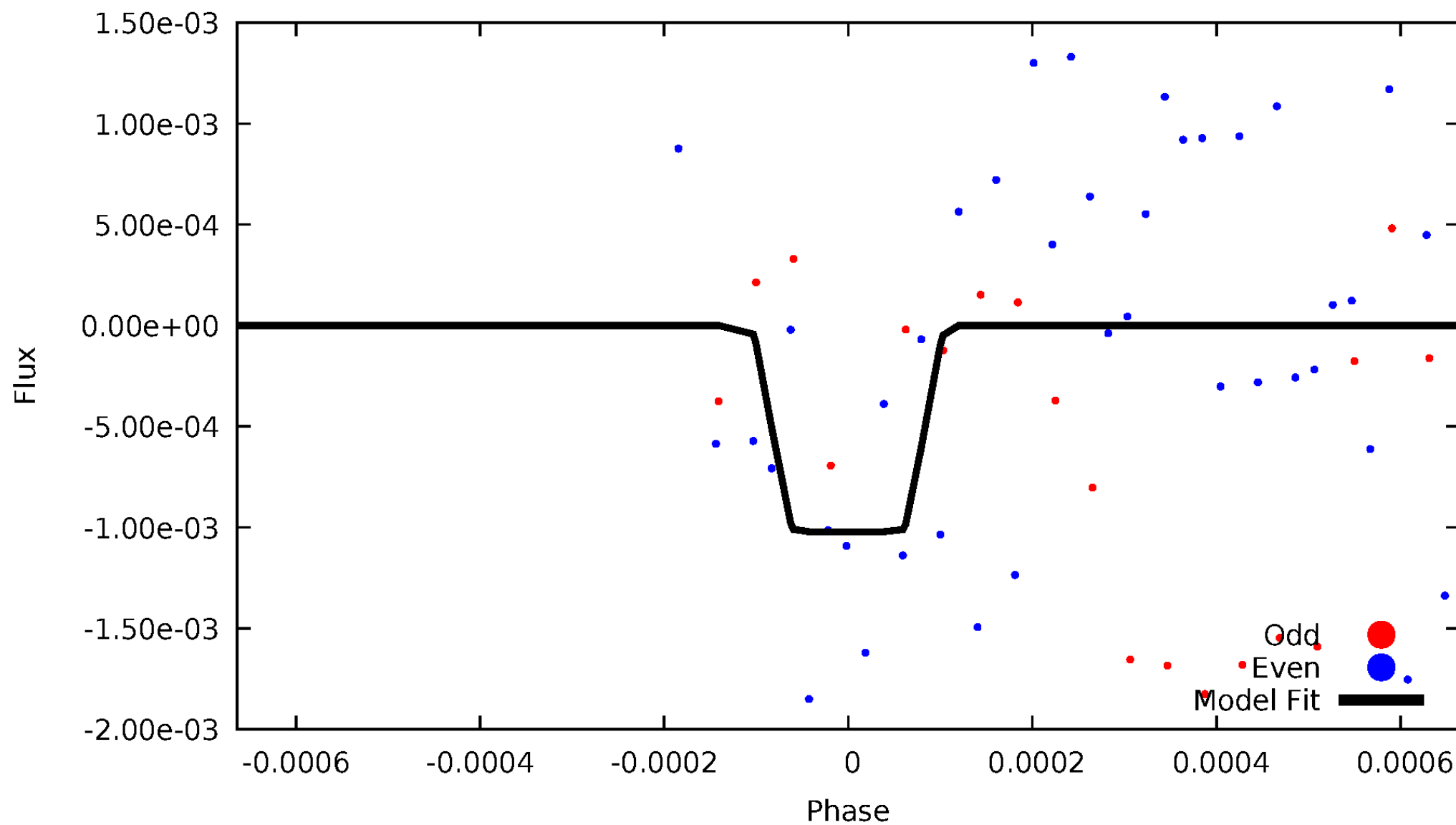
DV Odd/Even

TCE 009910533-04



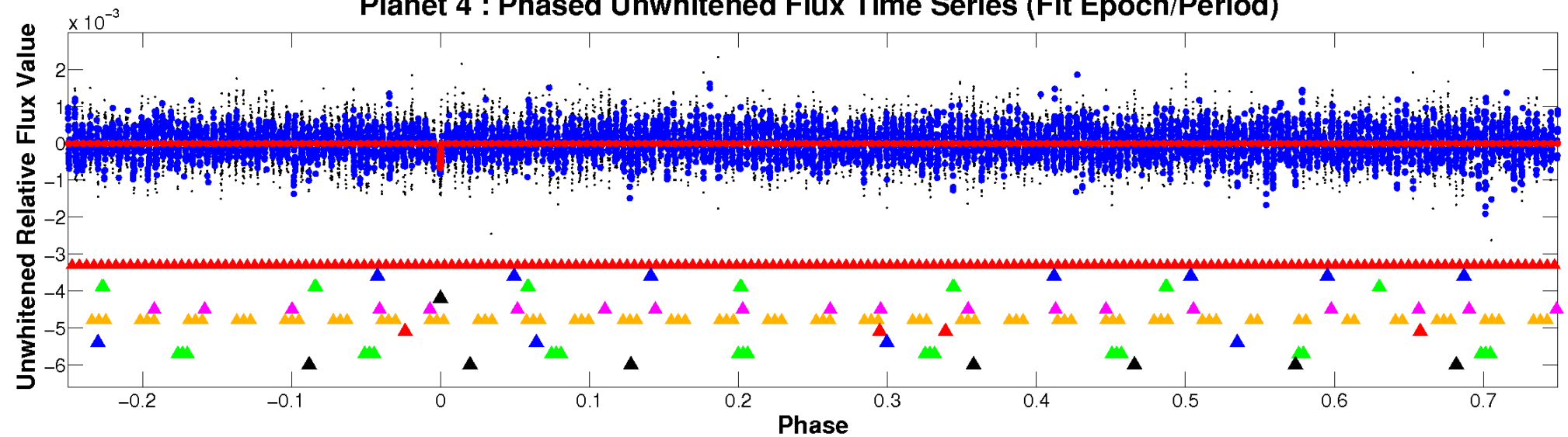
ALT Odd/Even

TCE 009910533-04

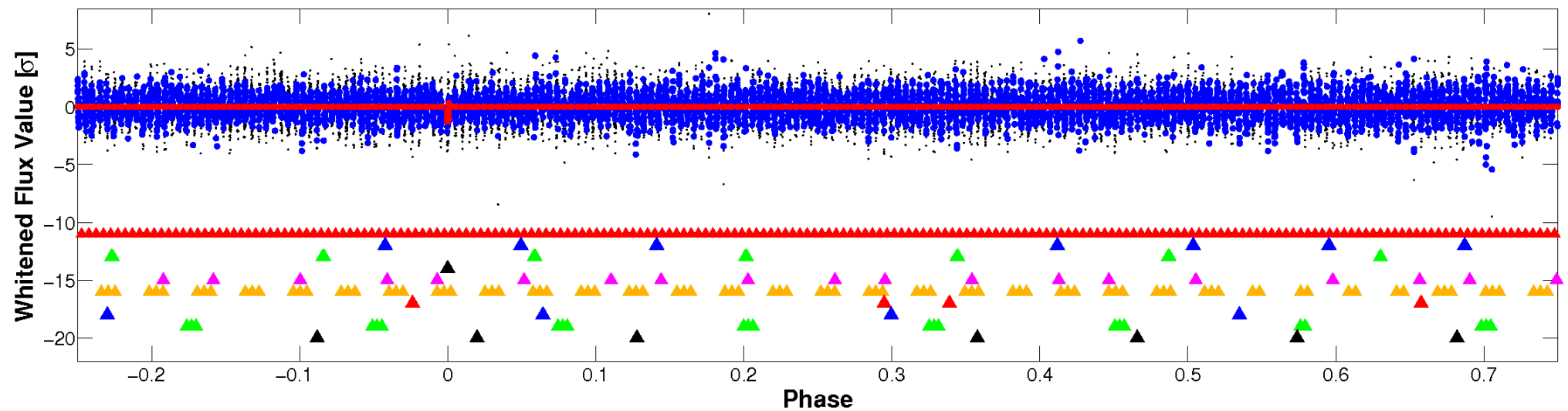


Non-Whitened Vs. Whitened Light Curve

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

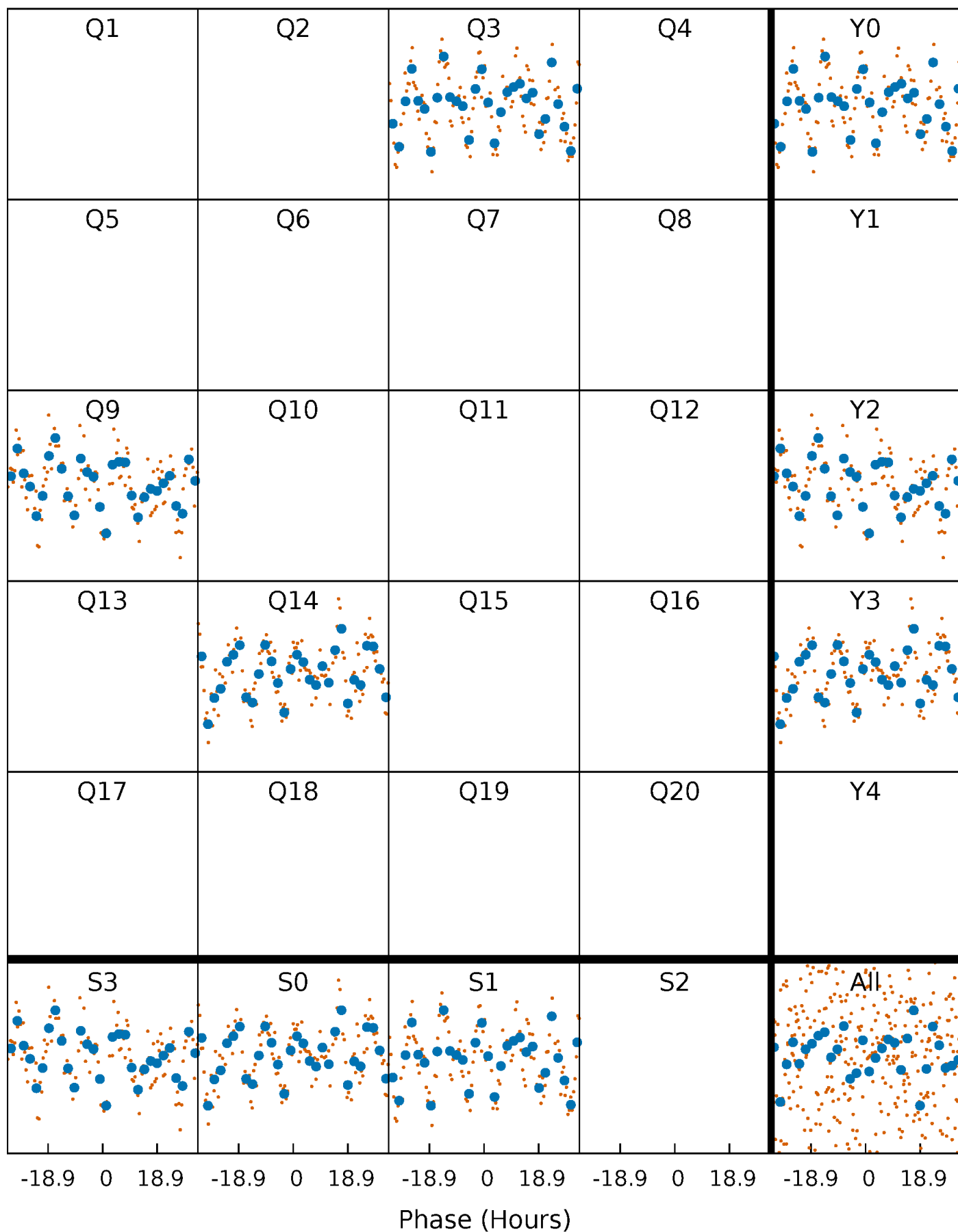


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



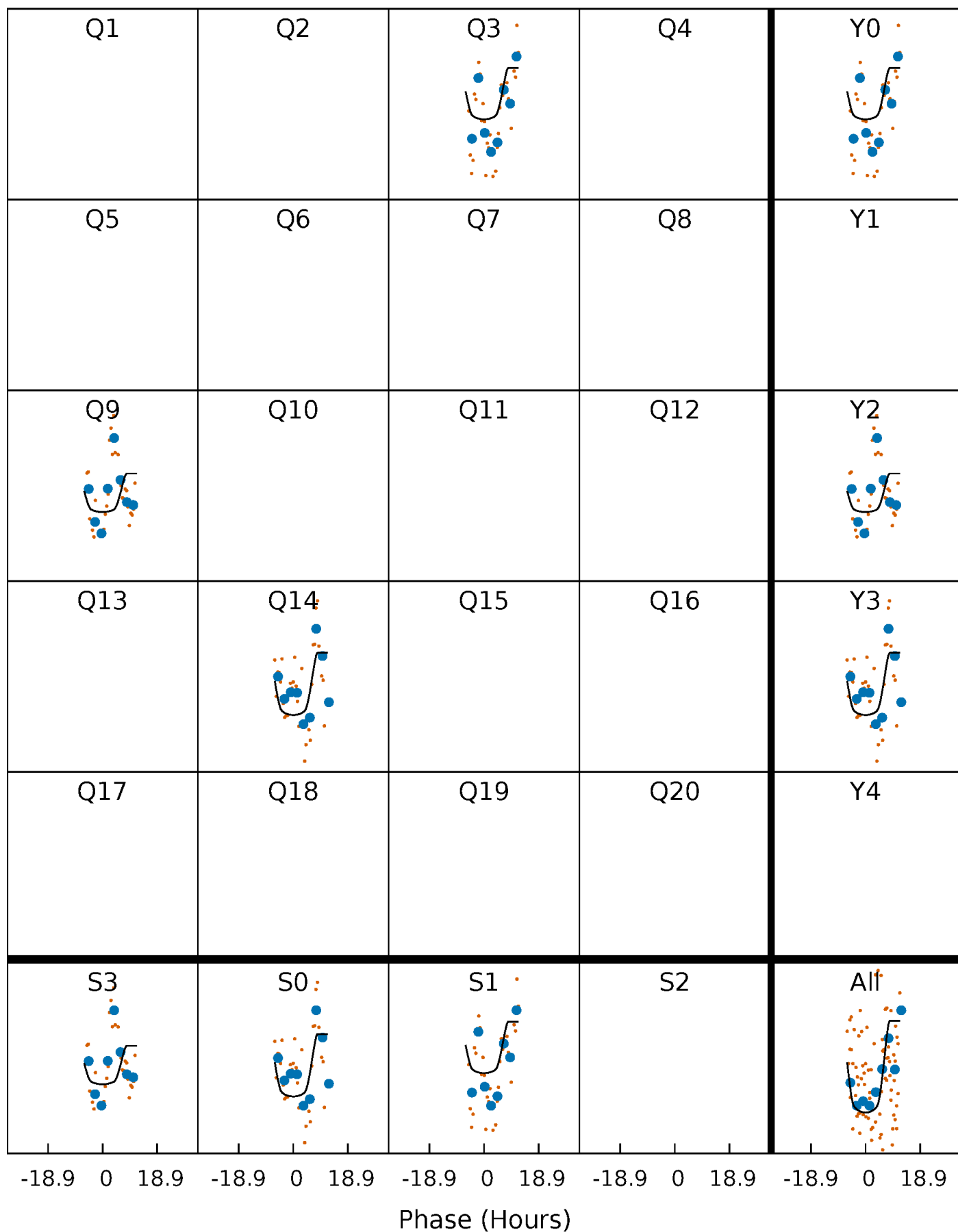
PDC Quarter-Phased Transit Curves

TCE 009910533-04 P=502.710362 Days $T_0=308.074203$ (BKJD)



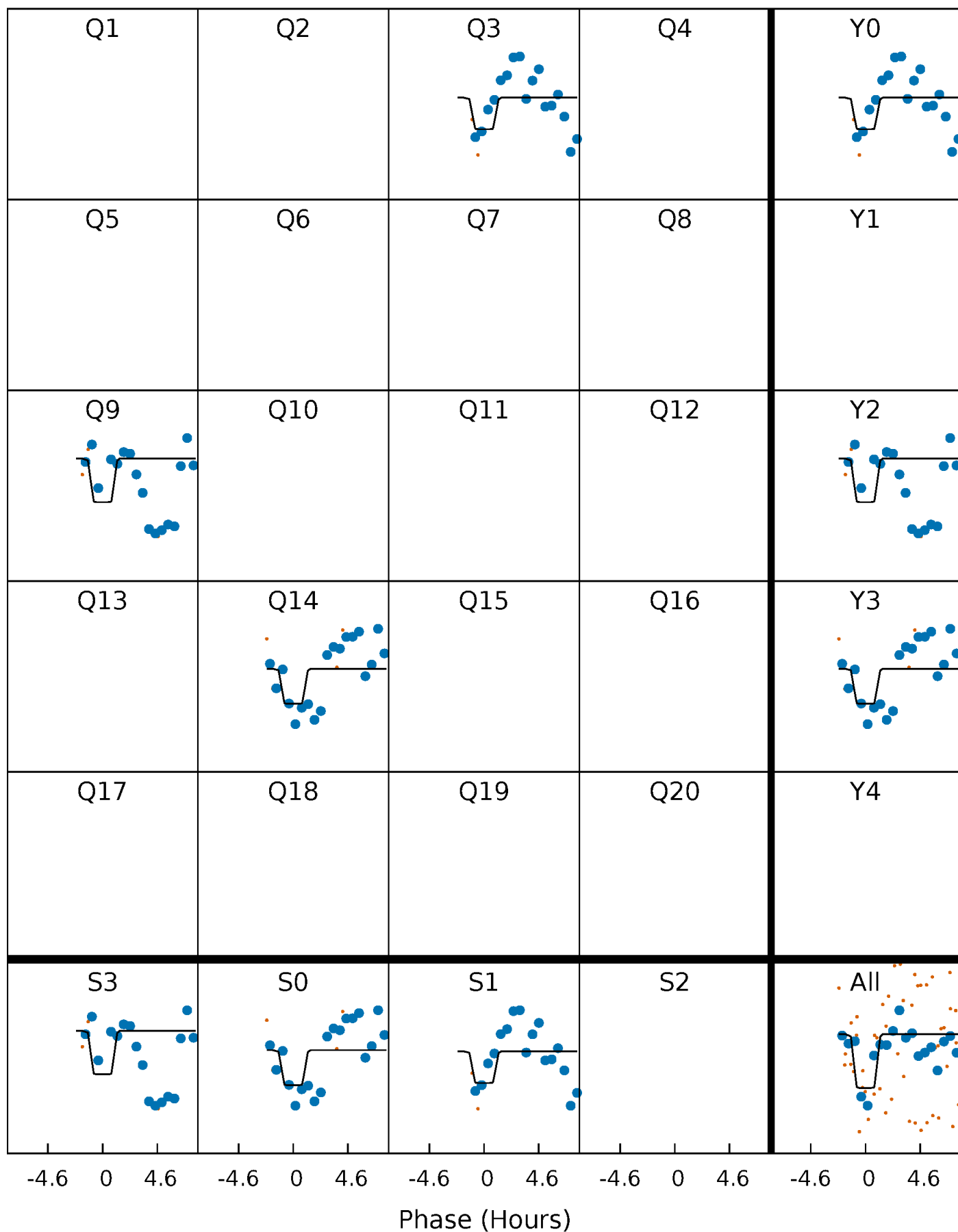
DV Quarter-Phased Transit Curves

TCE 009910533-04 P=502.710362 Days $T_0=308.074203$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

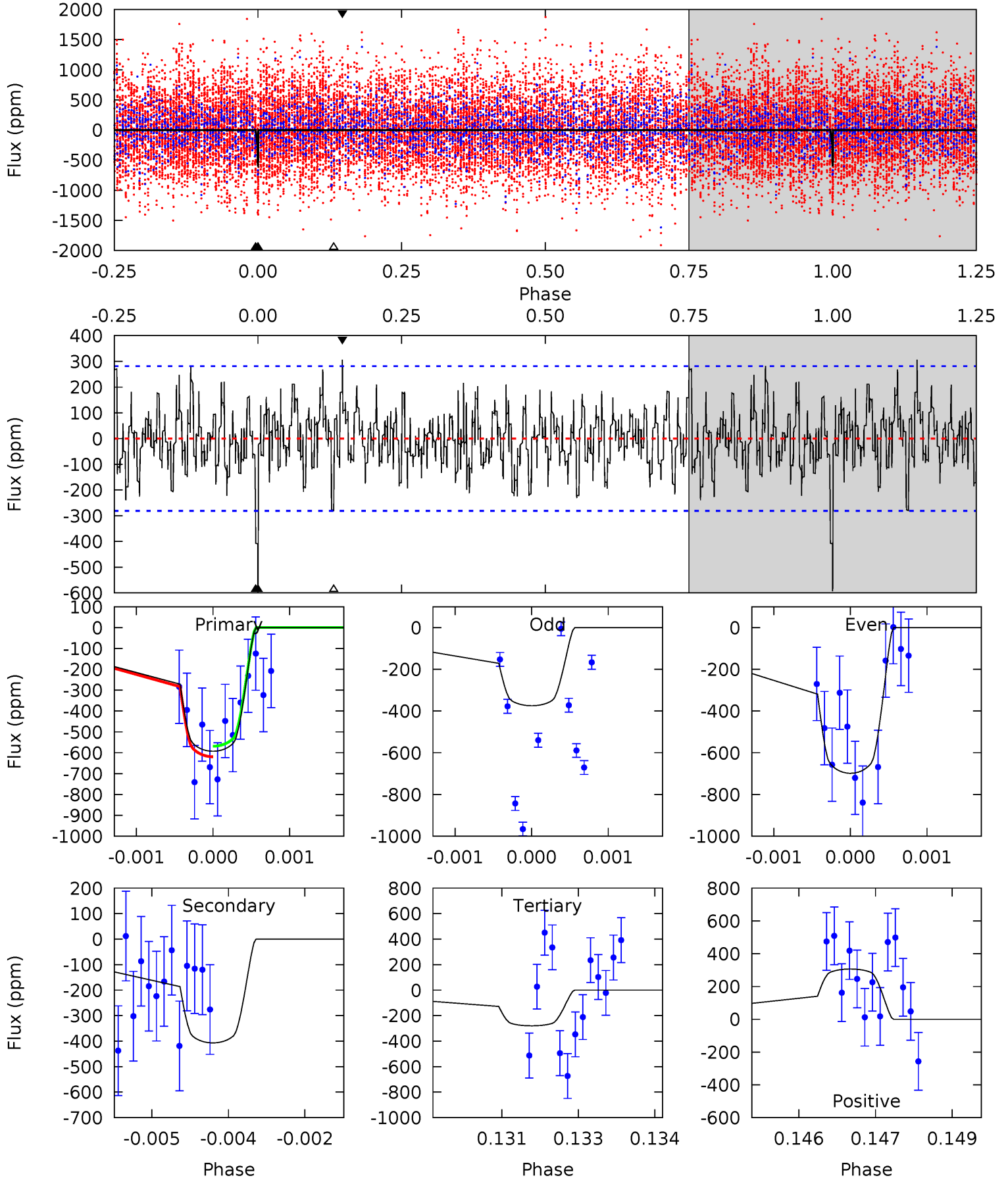
TCE 009910533-04 P=502.713254 Days $T_0=307.896108$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-04, P = 502.710362 Days, E = 308.074203 Days

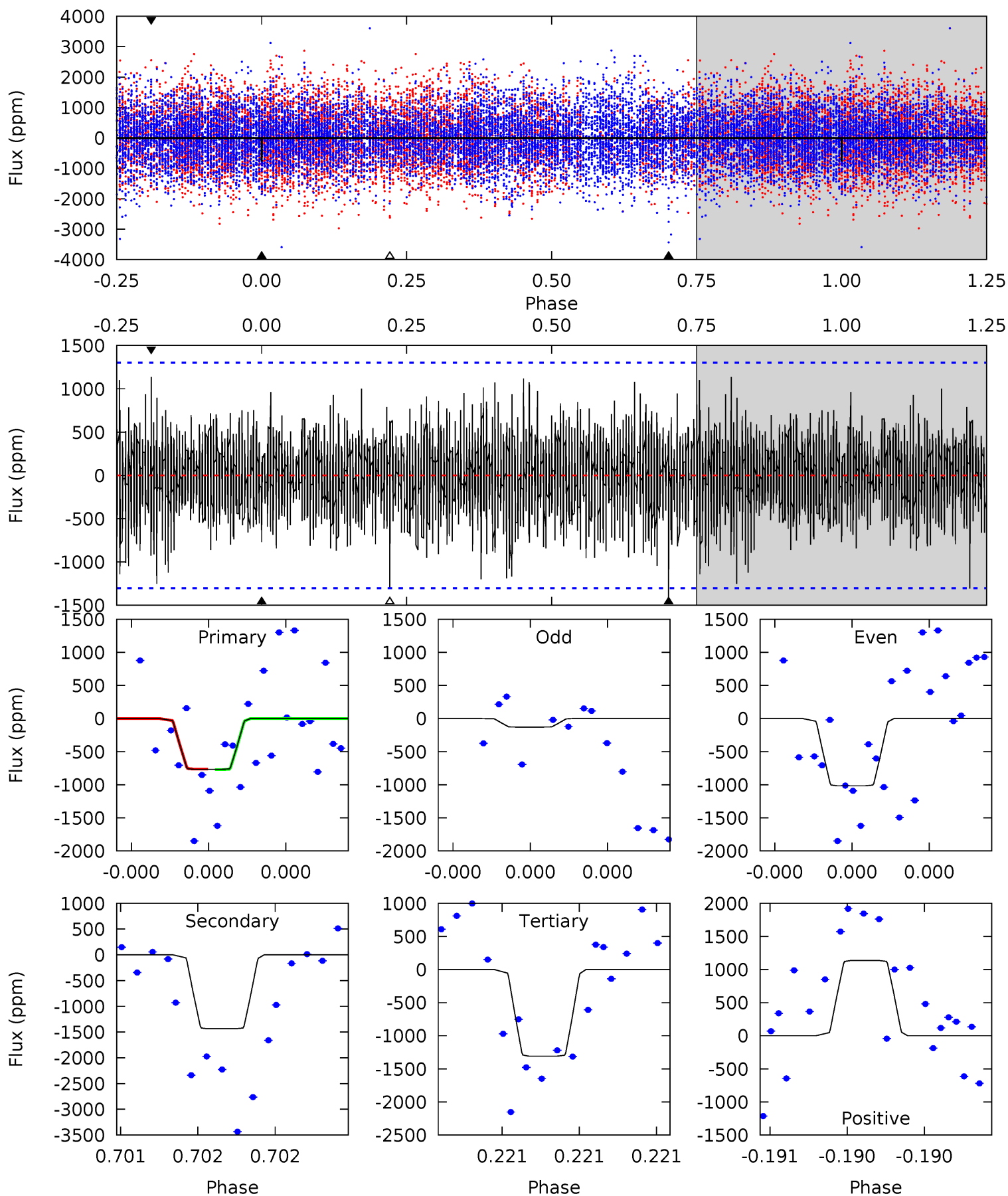
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	7.84	5.39	5.91	5.41	3.23	1.85	6.03	5.51	2.45	1.93	2.89	1.06	0.34	0.48



Alt Model-Shift Uniqueness Test

009910533-04, P = 502.713254 Days, E = 307.896108 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.37	6.30	5.74	4.98	5.71	3.69	1.54	-2.37	-1.61	0.57	1.32	1.76	0.72	0.44	0.02



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-407 ± 52	$9.20^{+2.20}_{-2.34}$	714^{+63}_{-89}	6813^{+550}_{-435}	6401^{+4782}_{-2110}
Alt.	-1437 ± 228	$10.32^{+2.19}_{-2.58}$	714^{+61}_{-90}	9388^{+1017}_{-820}	18781^{+13489}_{-6606}

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

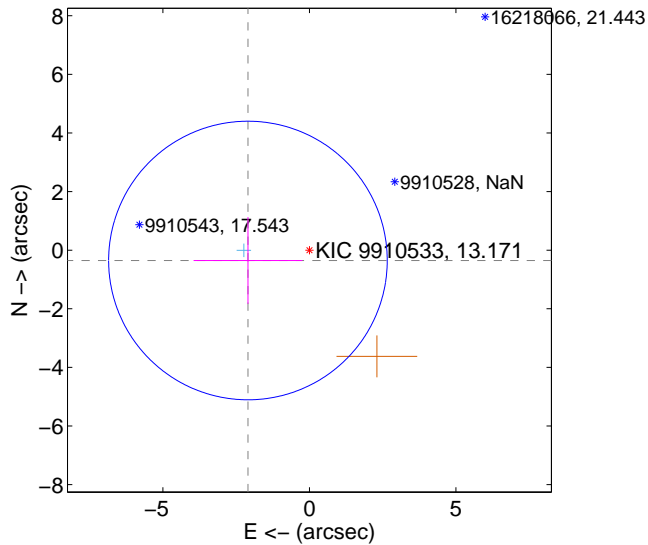
Supplemental centroid analysis for 009910533-04. Kepler magnitude: 13.17. Transit SNR 9.44

There are 1 quarters with good PRF difference image offsets

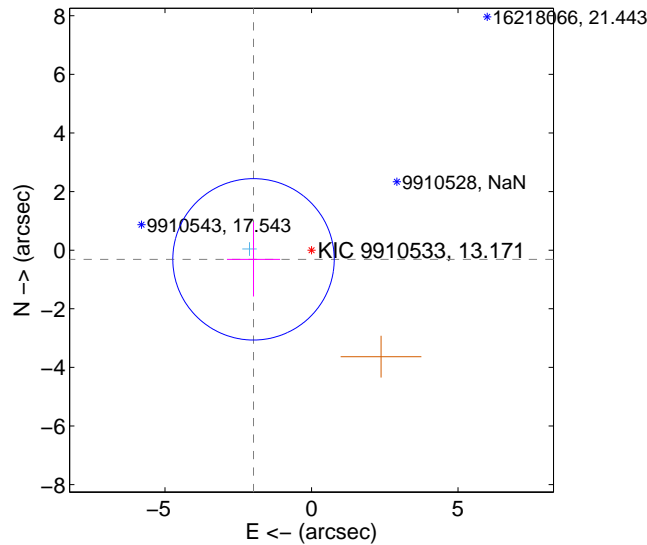
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.127 ± 1.584	1.34	2.098 ± 1.855	-0.353 ± 1.479
PRF-fit source offset from KIC position	2.003 ± 0.918	2.18	1.979 ± 0.907	-0.313 ± 1.266
photometric centroid source offset	1.22 ± 0.87	1.40	-0.99 ± 1.00	-0.71 ± 0.56

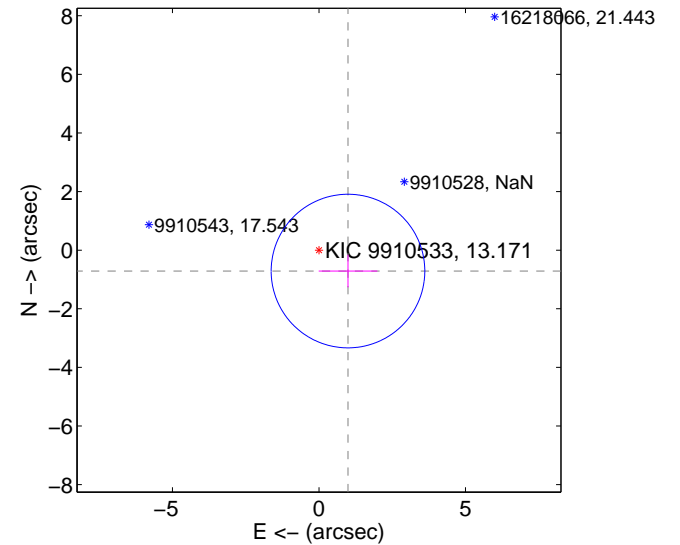
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

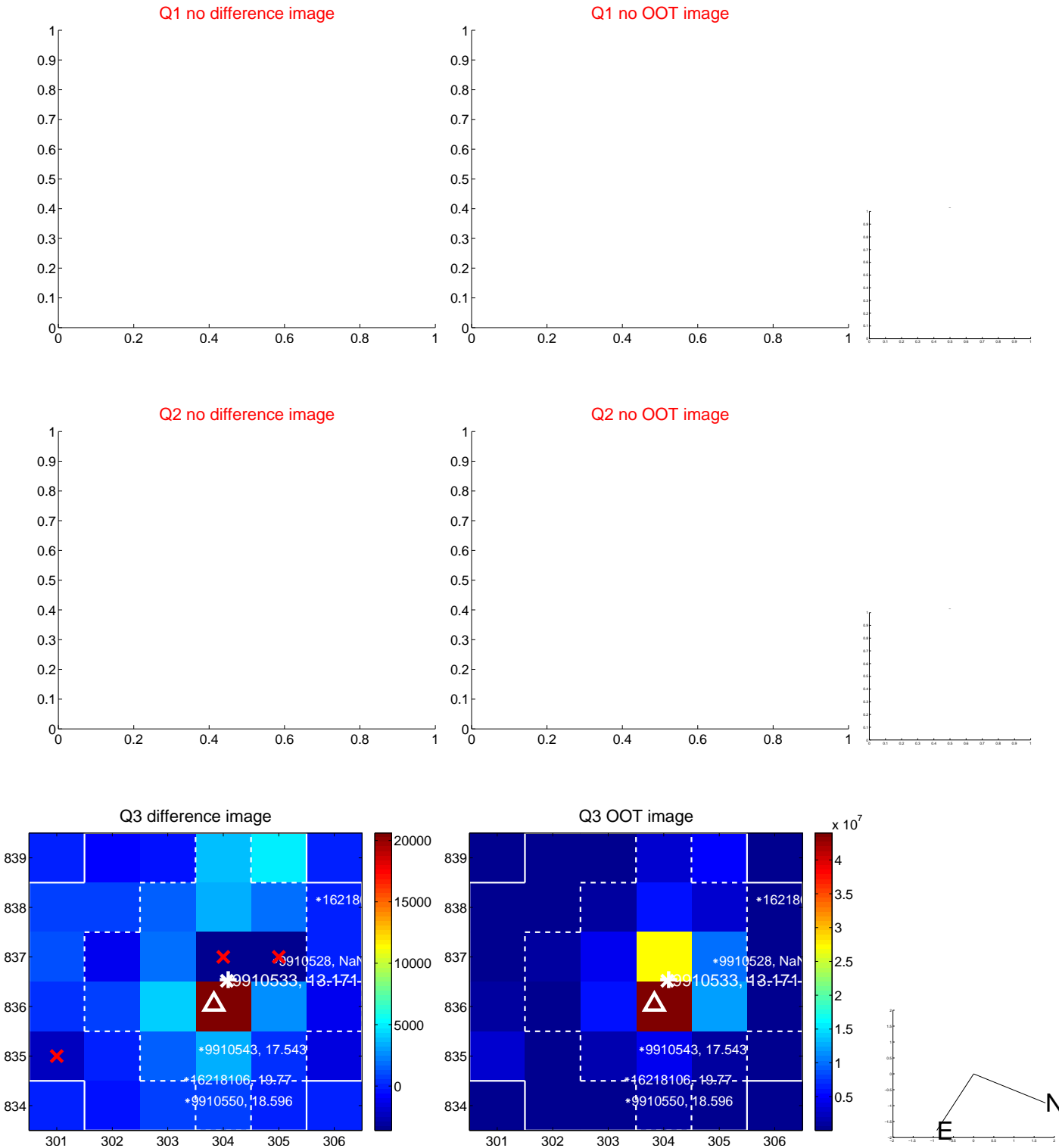


offset from photometric centroids



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

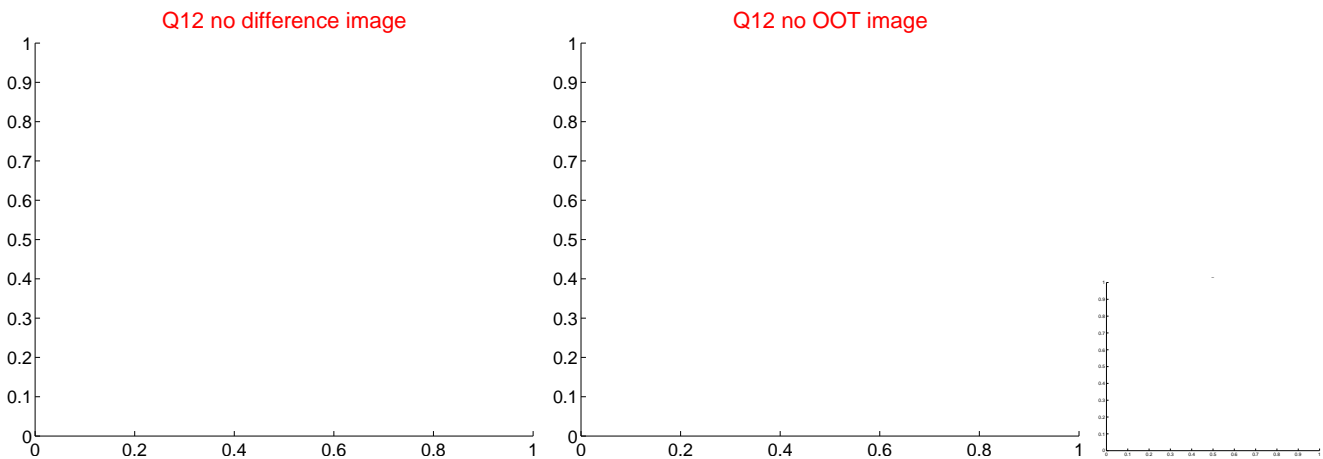
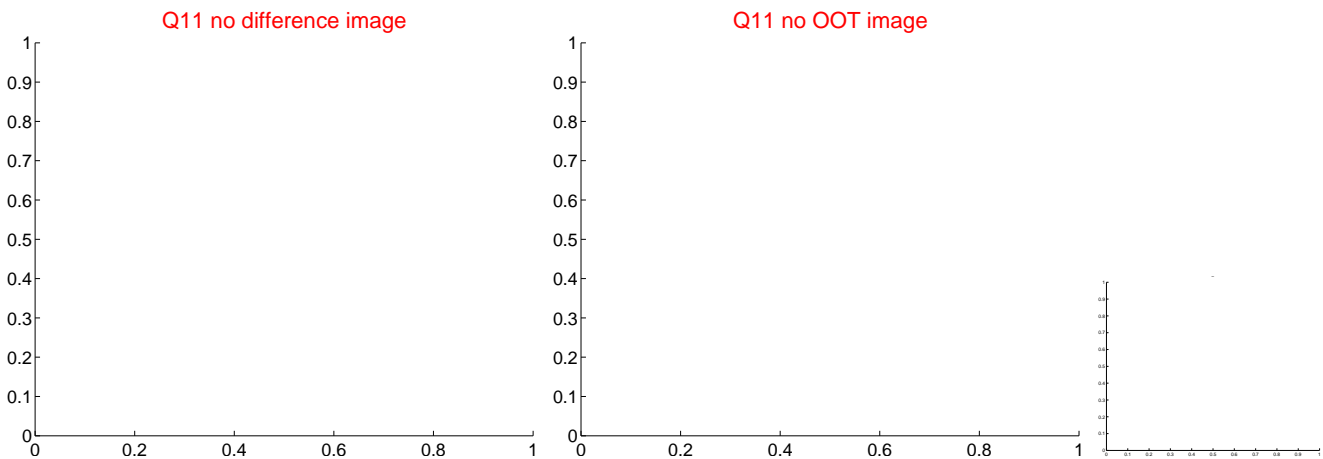
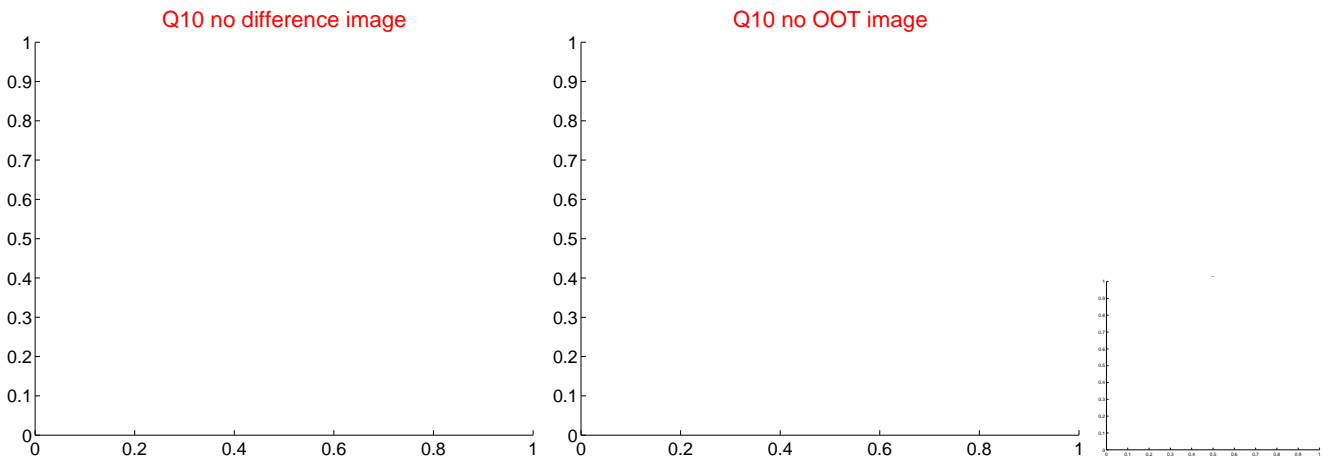
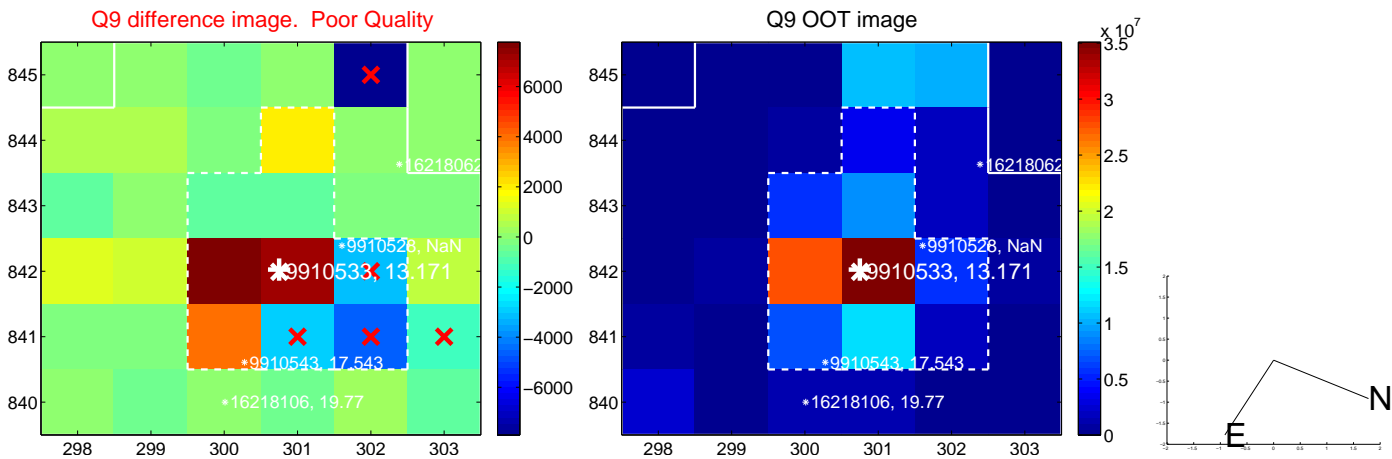
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



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.

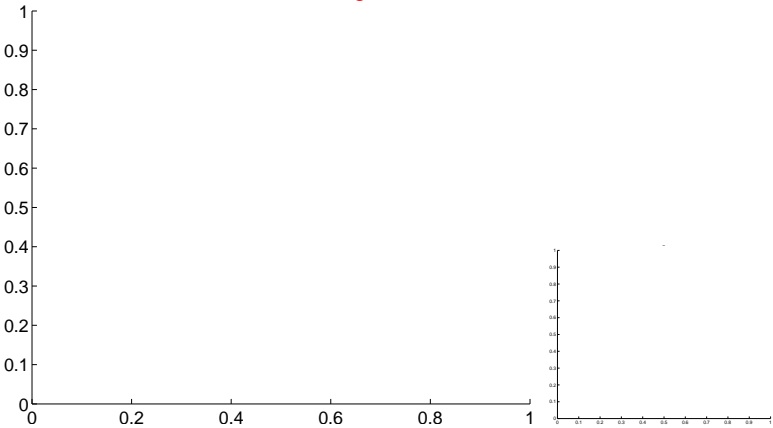


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

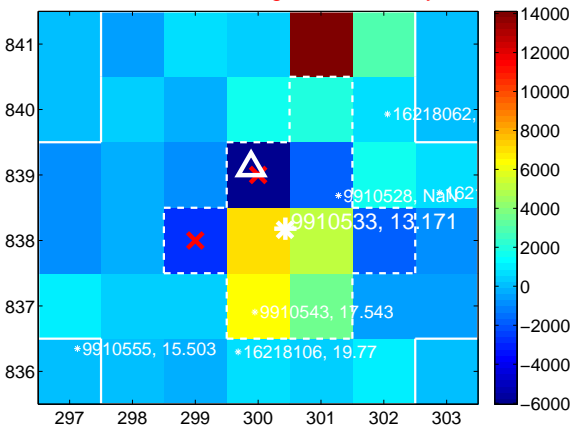
Q13 no difference image



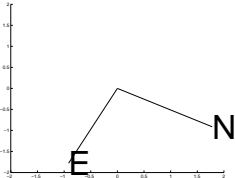
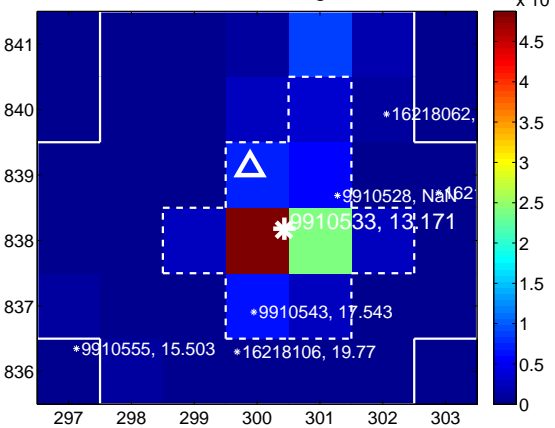
Q13 no OOT image



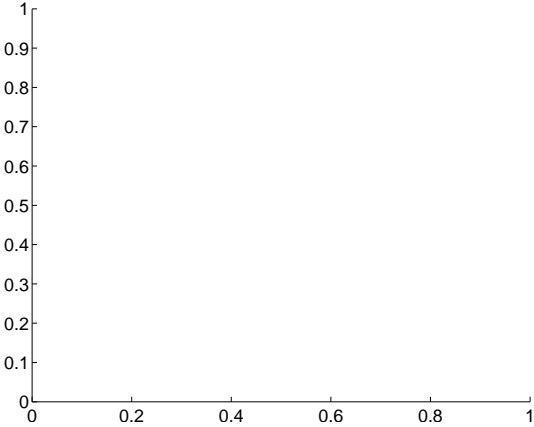
Q14 difference image. Poor Quality



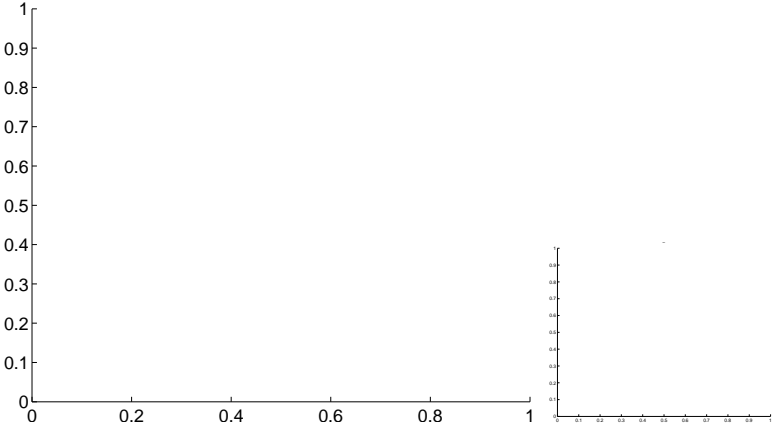
Q14 OOT image



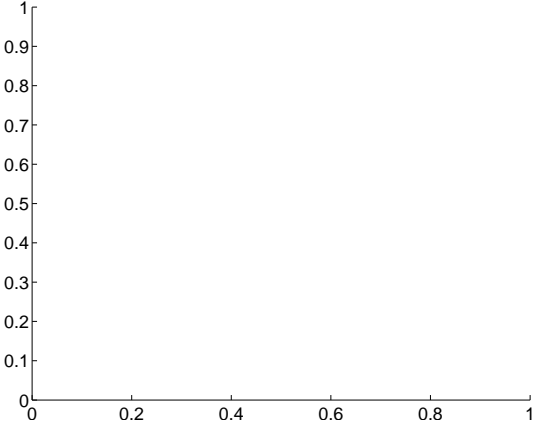
Q15 no difference image



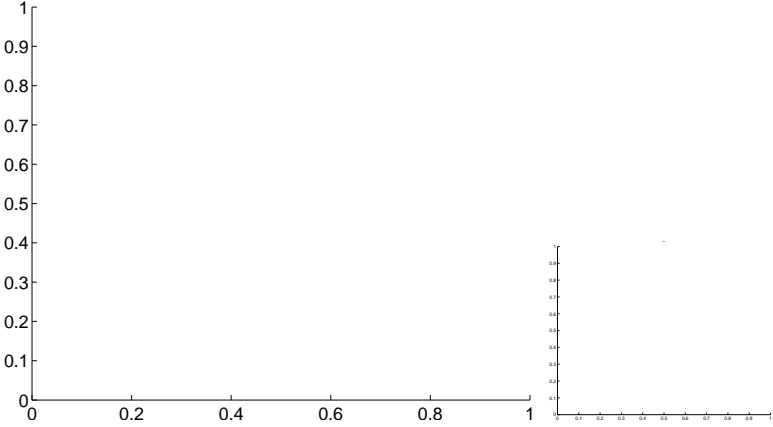
Q15 no OOT image



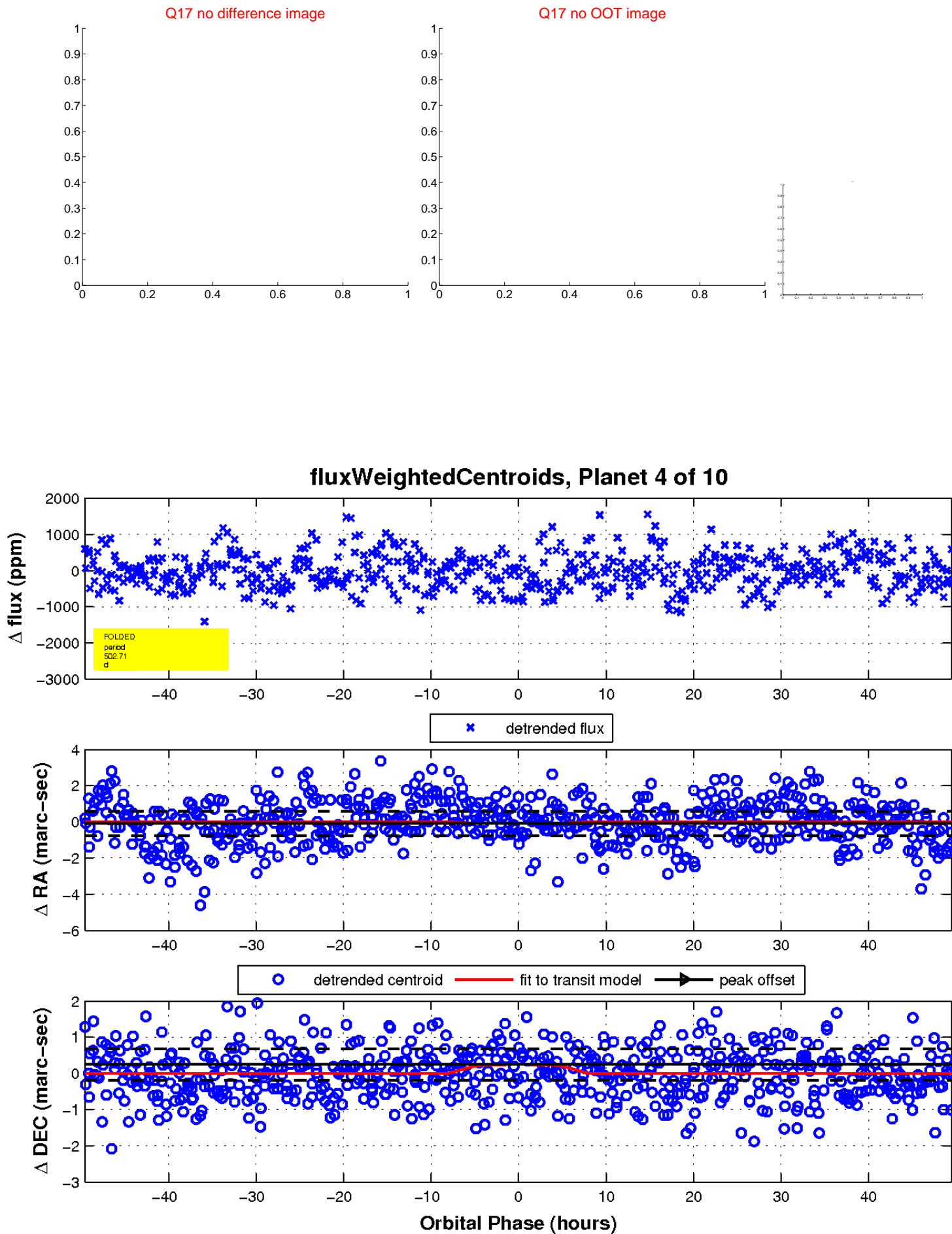
Q16 no difference image



Q16 no OOT image

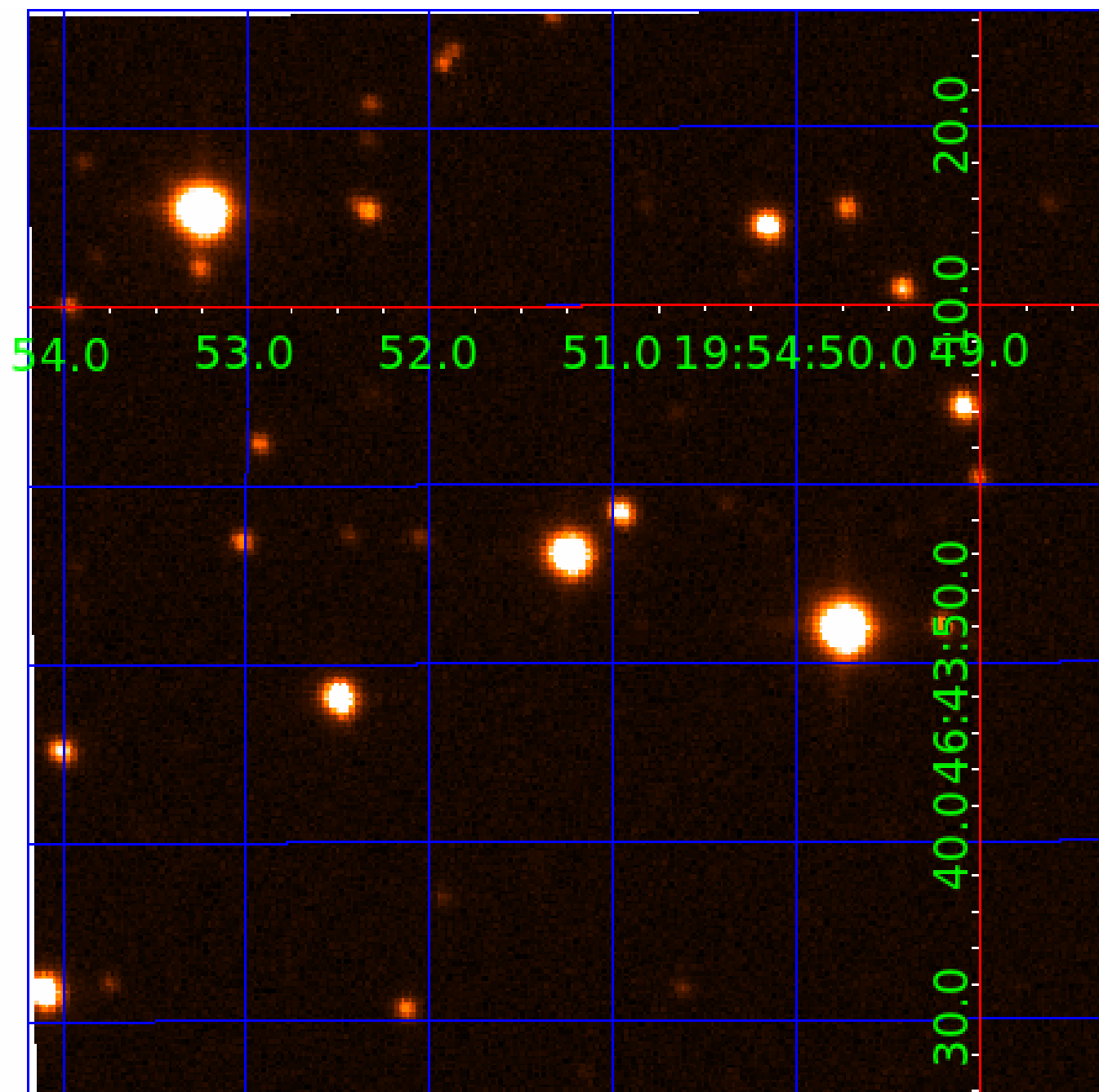


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

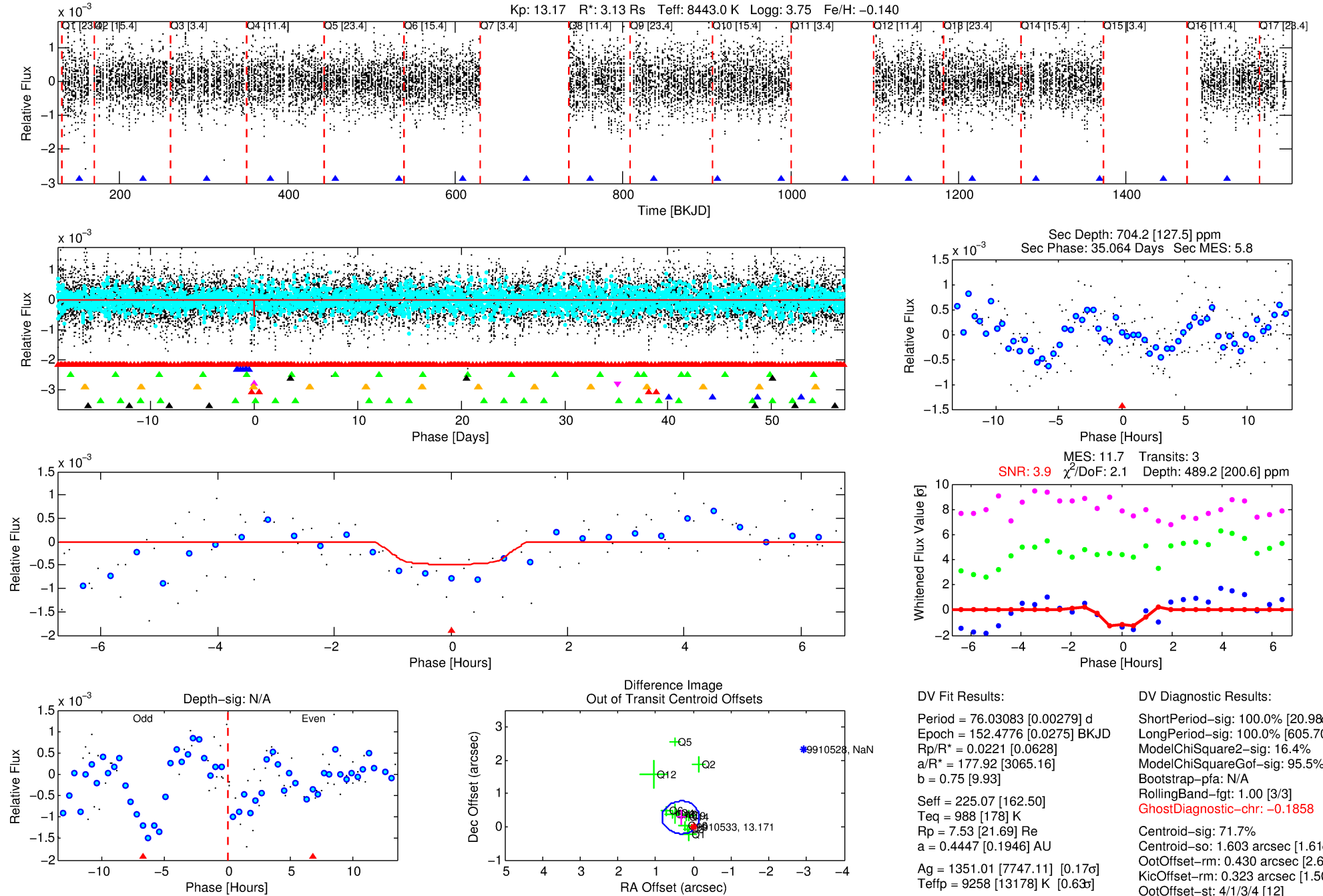
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-05

No Significant Match Found

DV One-Page Summary

KIC: 9910533 Candidate: 5 of 10 Period: 76.031 d



DV Fit Results:

Period = 76.03083 [0.00279] d
Epoch = 152.4776 [0.0275] BKJD
Rp/R* = 0.0221 [0.0628]
a/R* = 177.92 [3065.16]
b = 0.75 [9.93]
Seff = 225.07 [162.50]
Teff = 988 [178] K
Rp = 7.53 [21.69] Re
a = 0.4447 [0.1946] AU
Ag = 1351.01 [7747.11] [0.17] σ
Teffp = 9258 [13178] K [0.63] σ

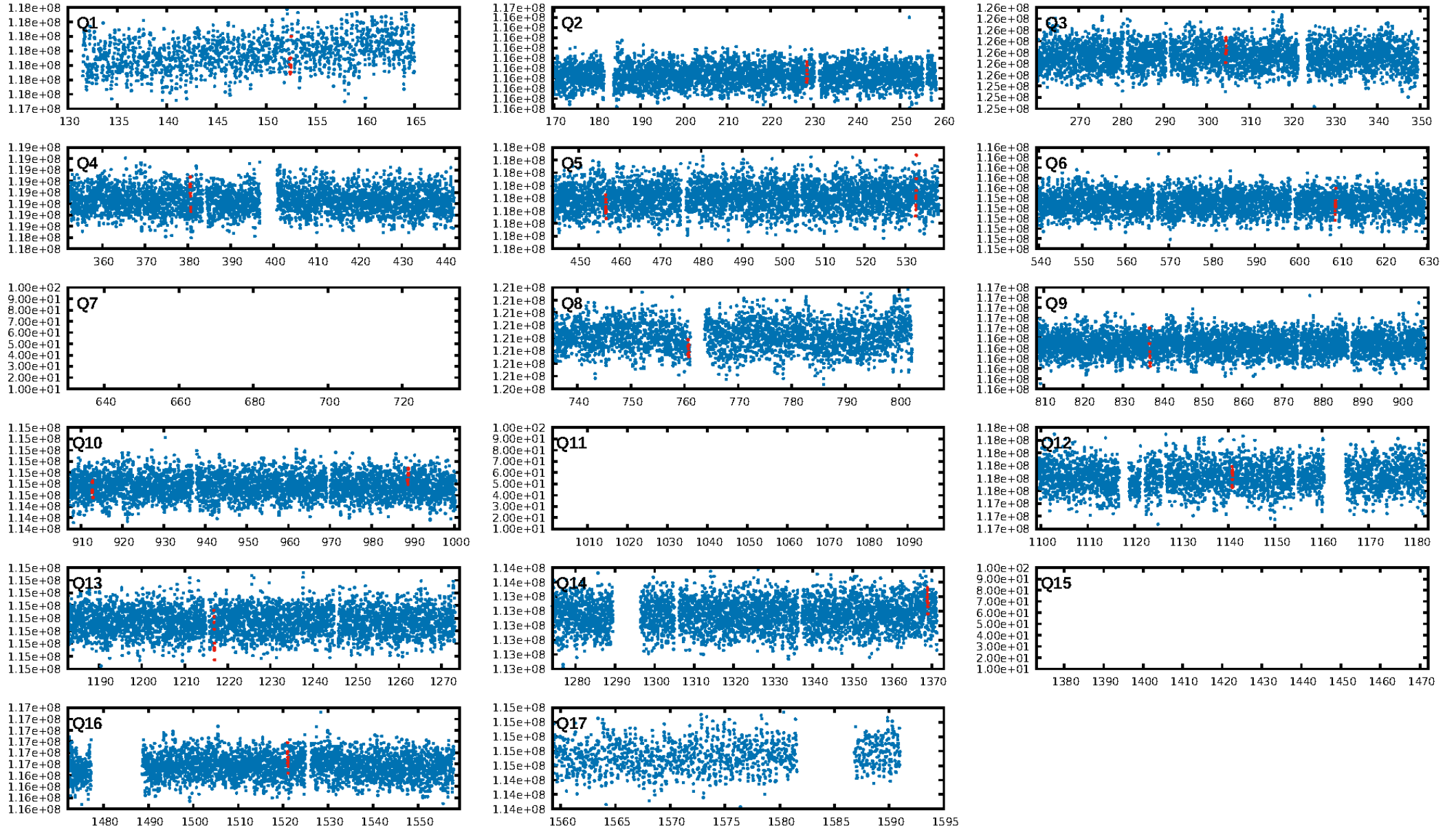
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.98] σ
LongPeriod-sig: 100.0% [605.70] σ
ModelChiSquare2-sig: 16.4%
ModelChiSquareGof-sig: 95.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.1858
Centroid-sig: 71.7%
Centroid-so: 1.603 arcsec [1.61] σ
OotOffset-rm: 0.430 arcsec [2.63] σ
KicOffset-rm: 0.323 arcsec [1.50] σ
OotOffset-st: 4/1/3/4 [12]
KicOffset-st: 4/1/3/4 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 0.31 [4/13]

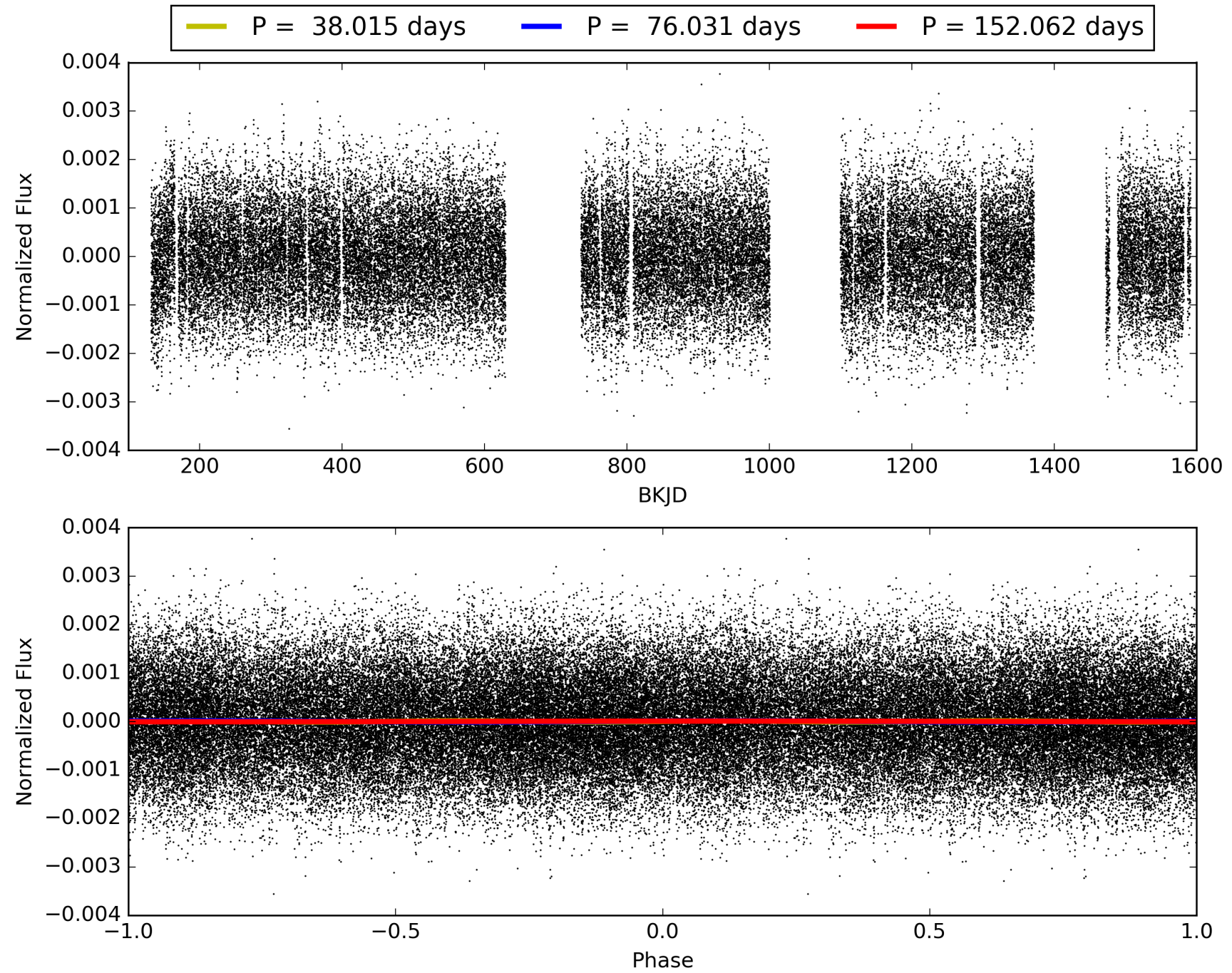
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:30:48 Z

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

TCE 009910533-05, PDC Light Curves

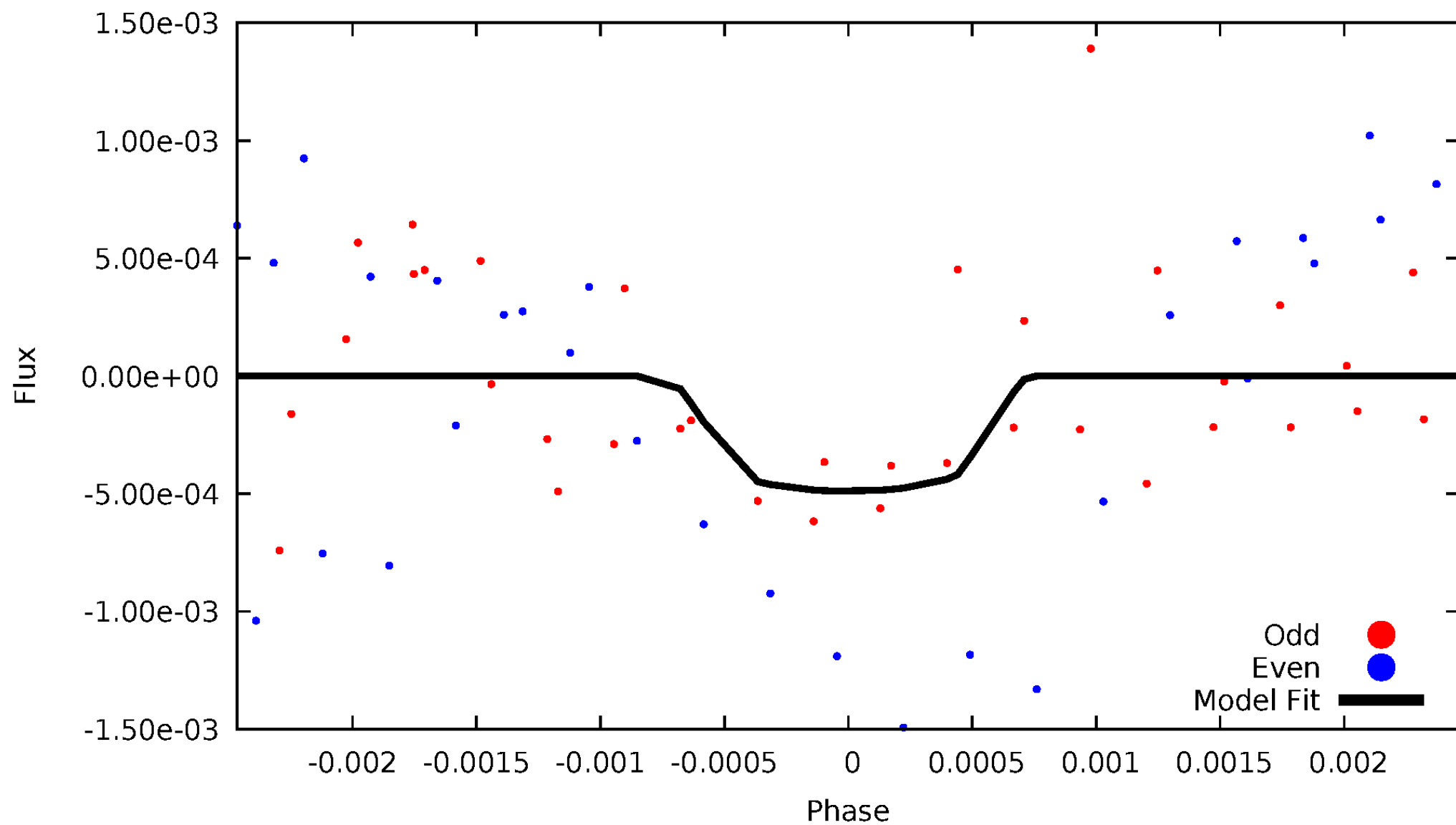


TCE 009910533-05



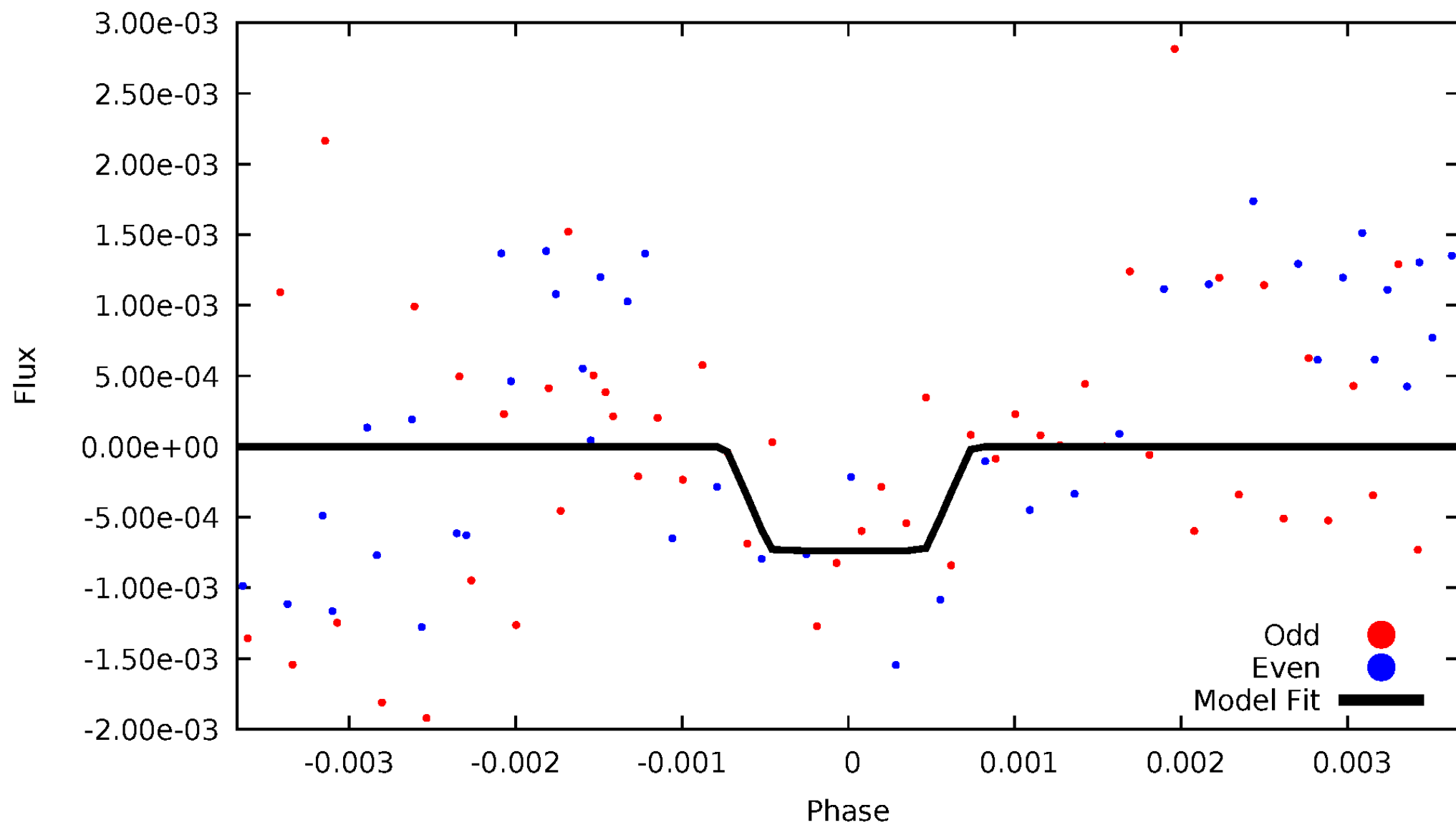
DV Odd/Even

TCE 009910533-05



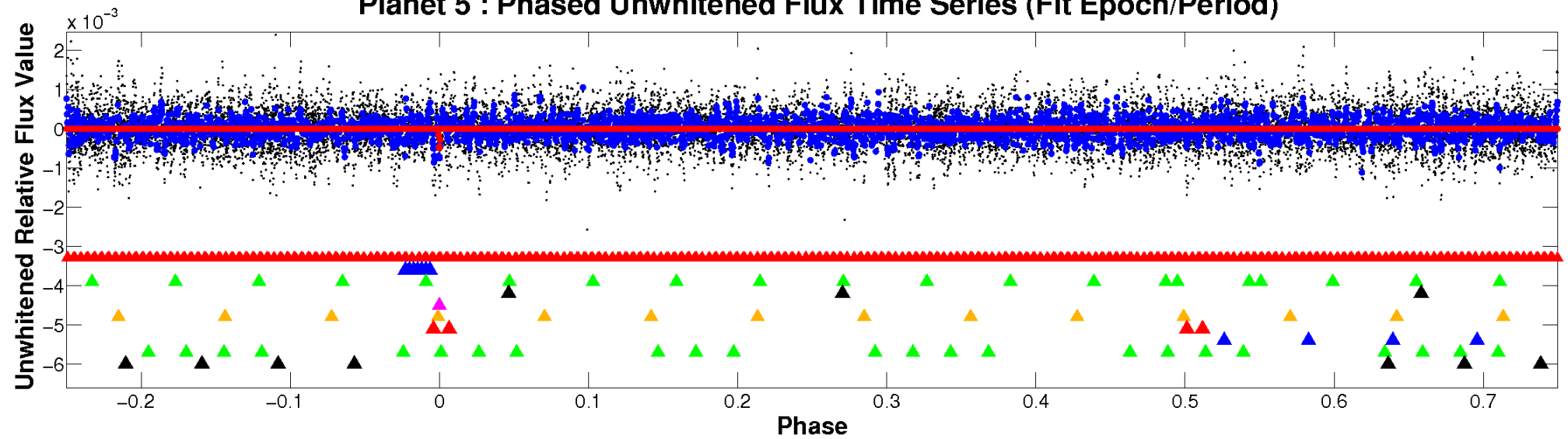
ALT Odd/Even

TCE 009910533-05

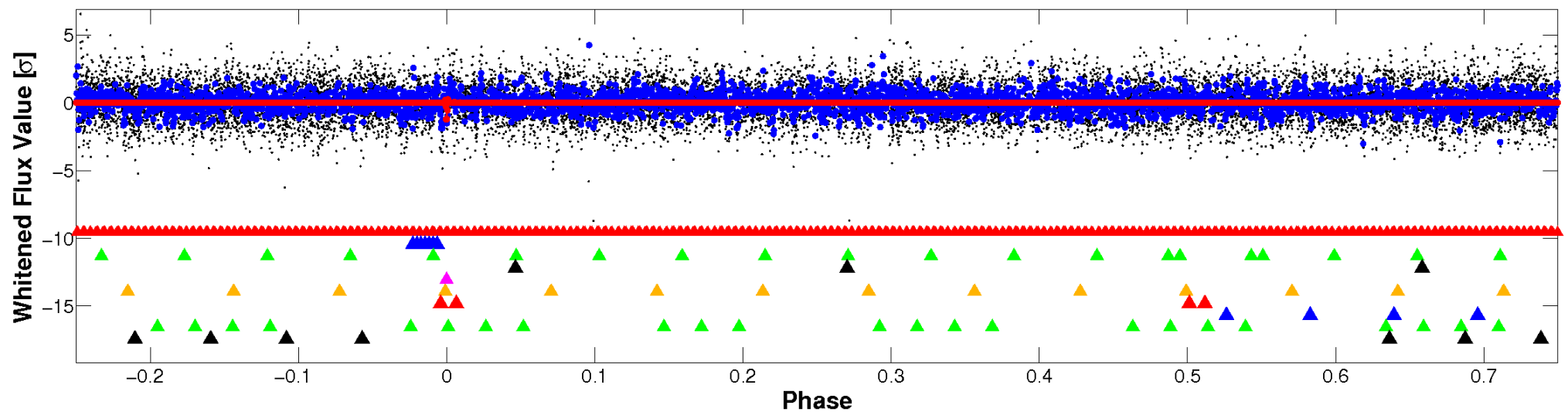


Non-Whitened Vs. Whitened Light Curve

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

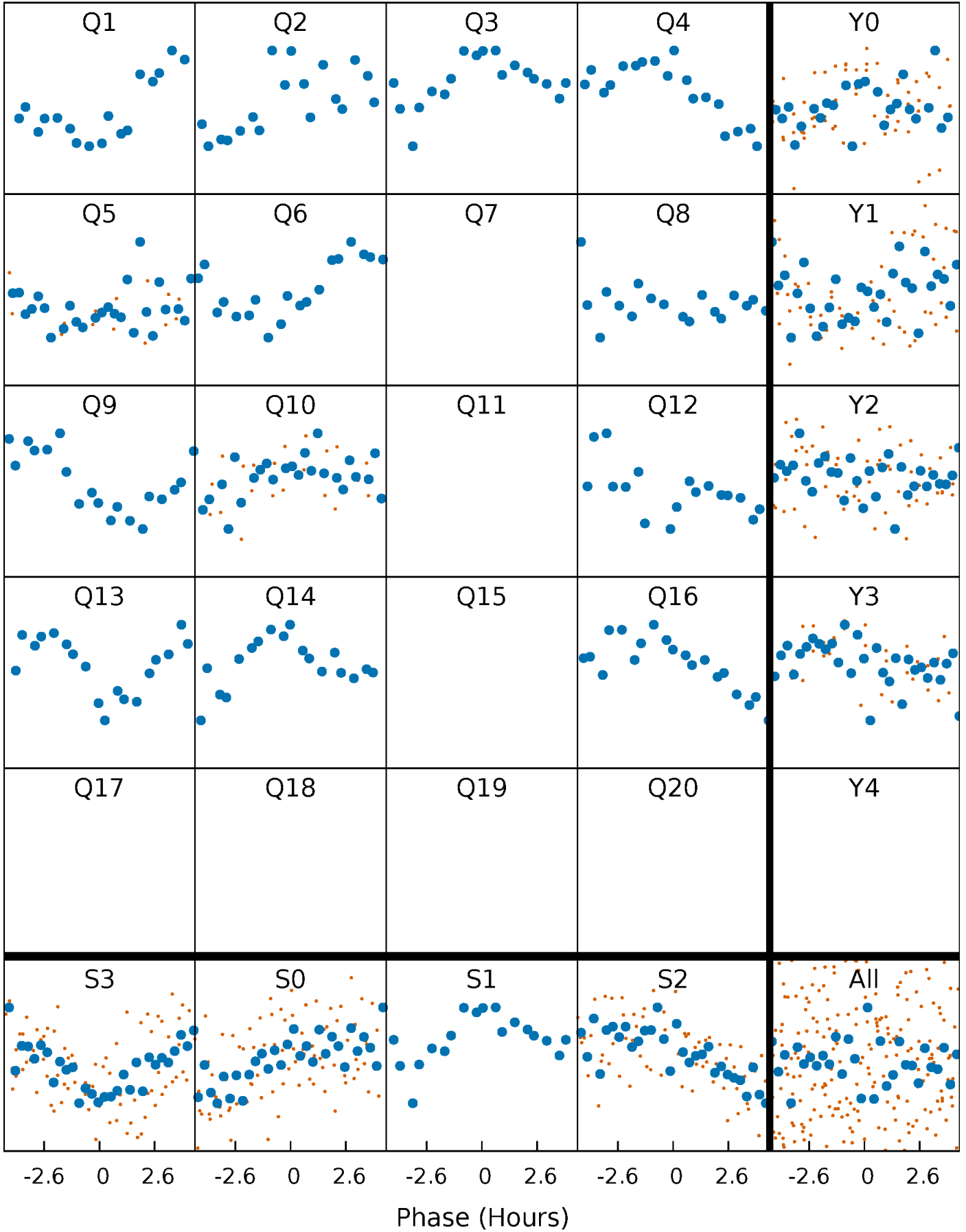


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



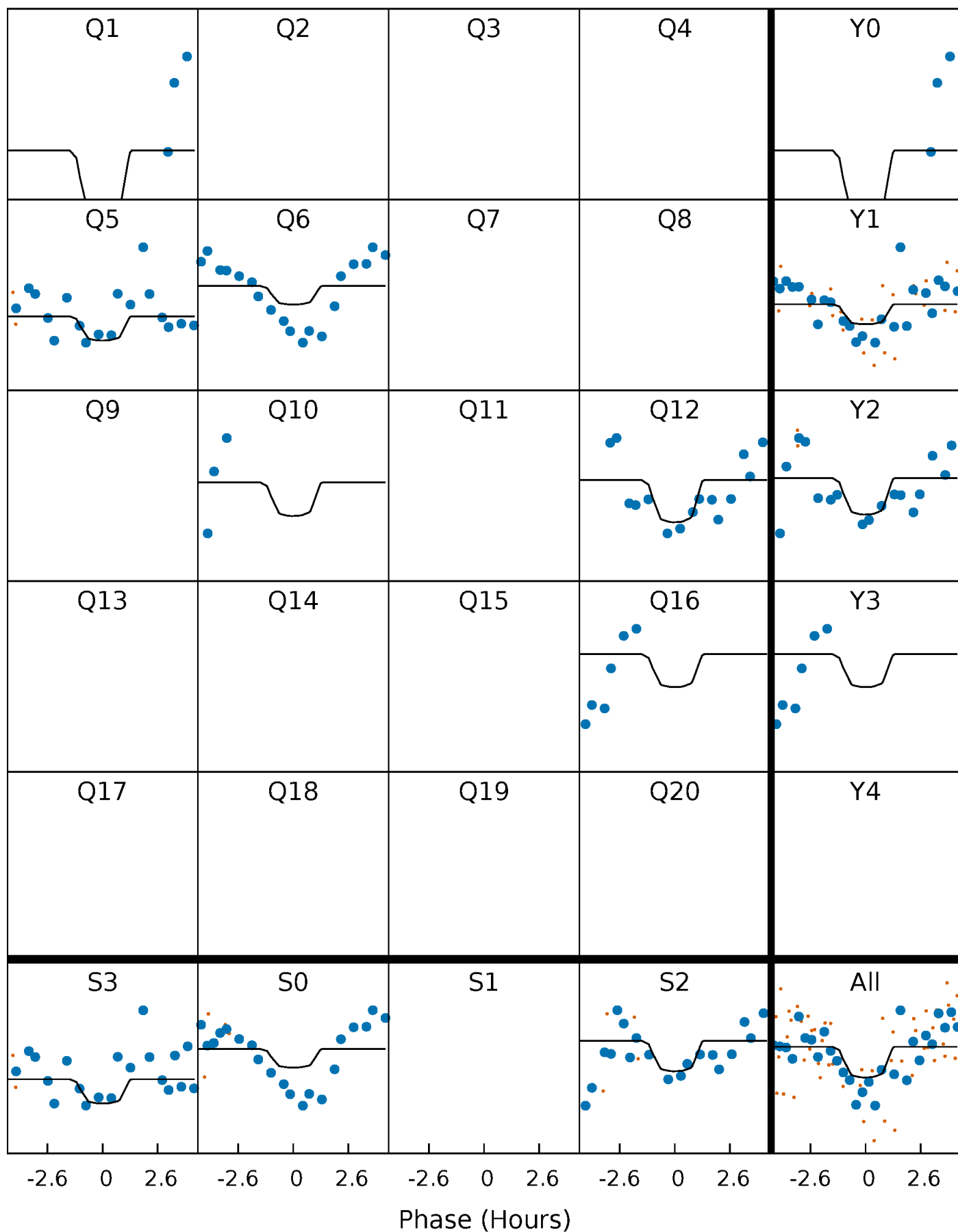
PDC Quarter-Phased Transit Curves

TCE 009910533-05 $P = 76.030833$ Days $T_0 = 152.477649$ (BKJD)



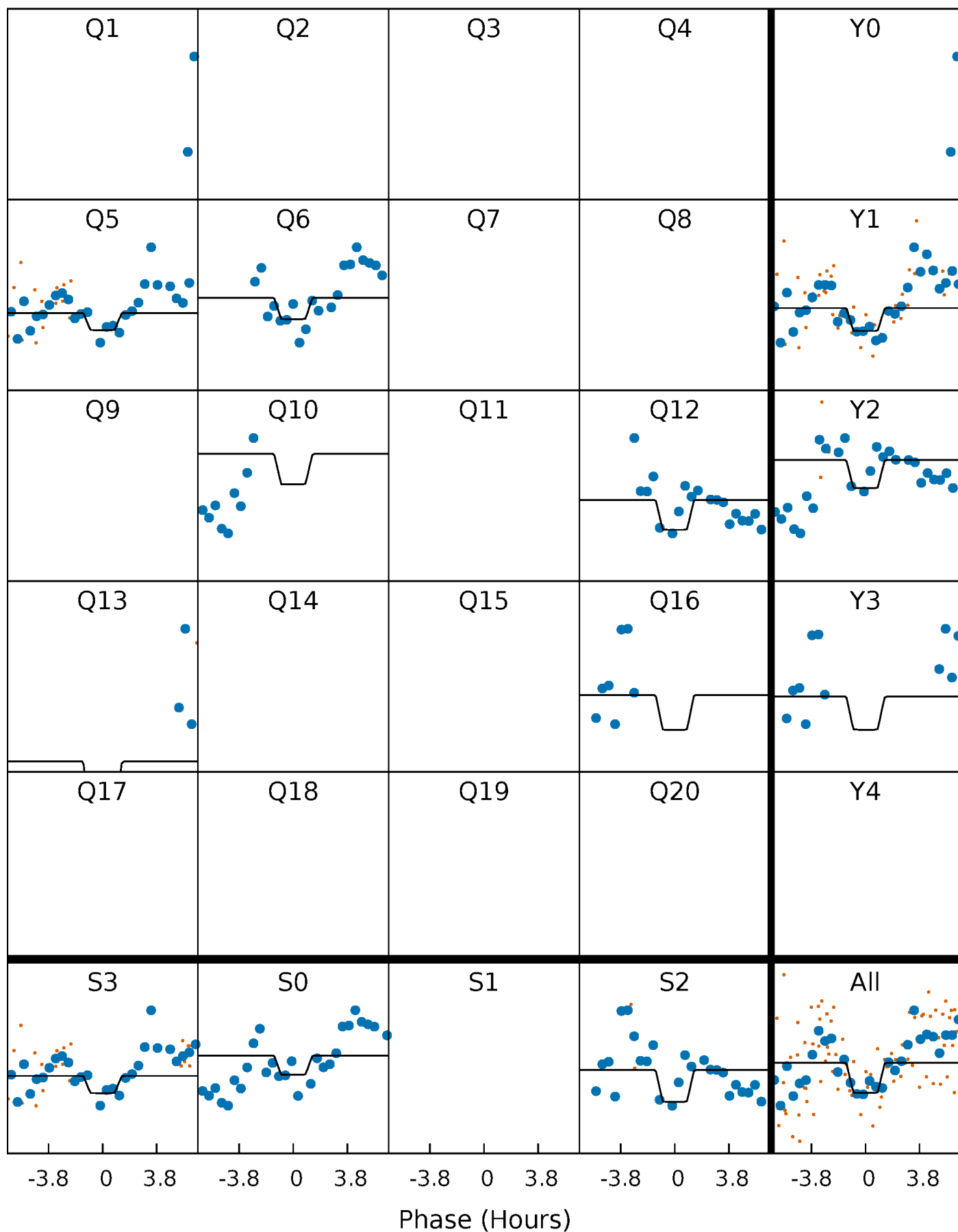
DV Quarter-Phased Transit Curves

TCE 009910533-05 $P = 76.030833$ Days $T_0 = 152.477649$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

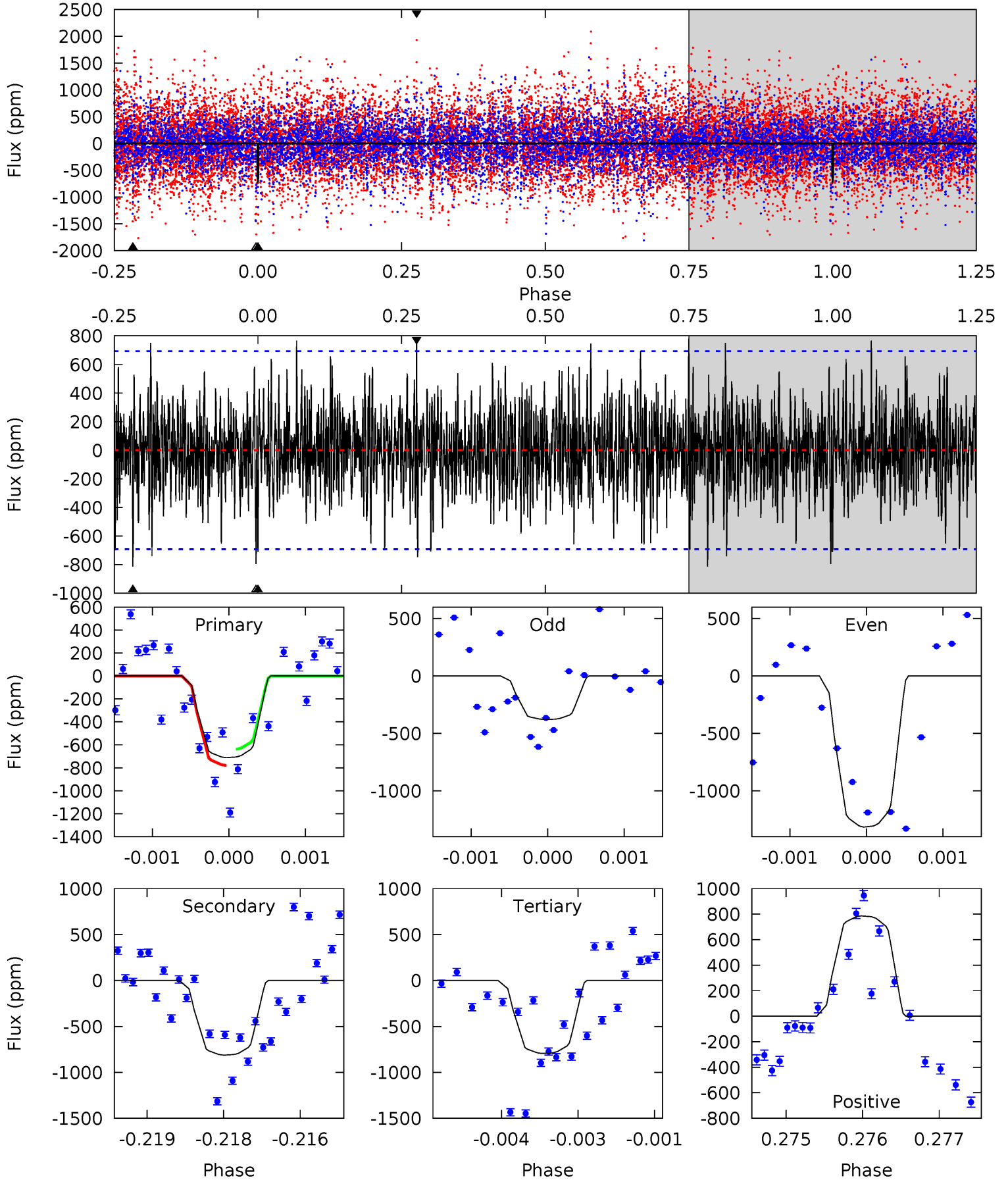
TCE 009910533-05 P= 76.039521 Days $T_0=152.359468$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-05, P = 76.030833 Days, E = 76.446816 Days

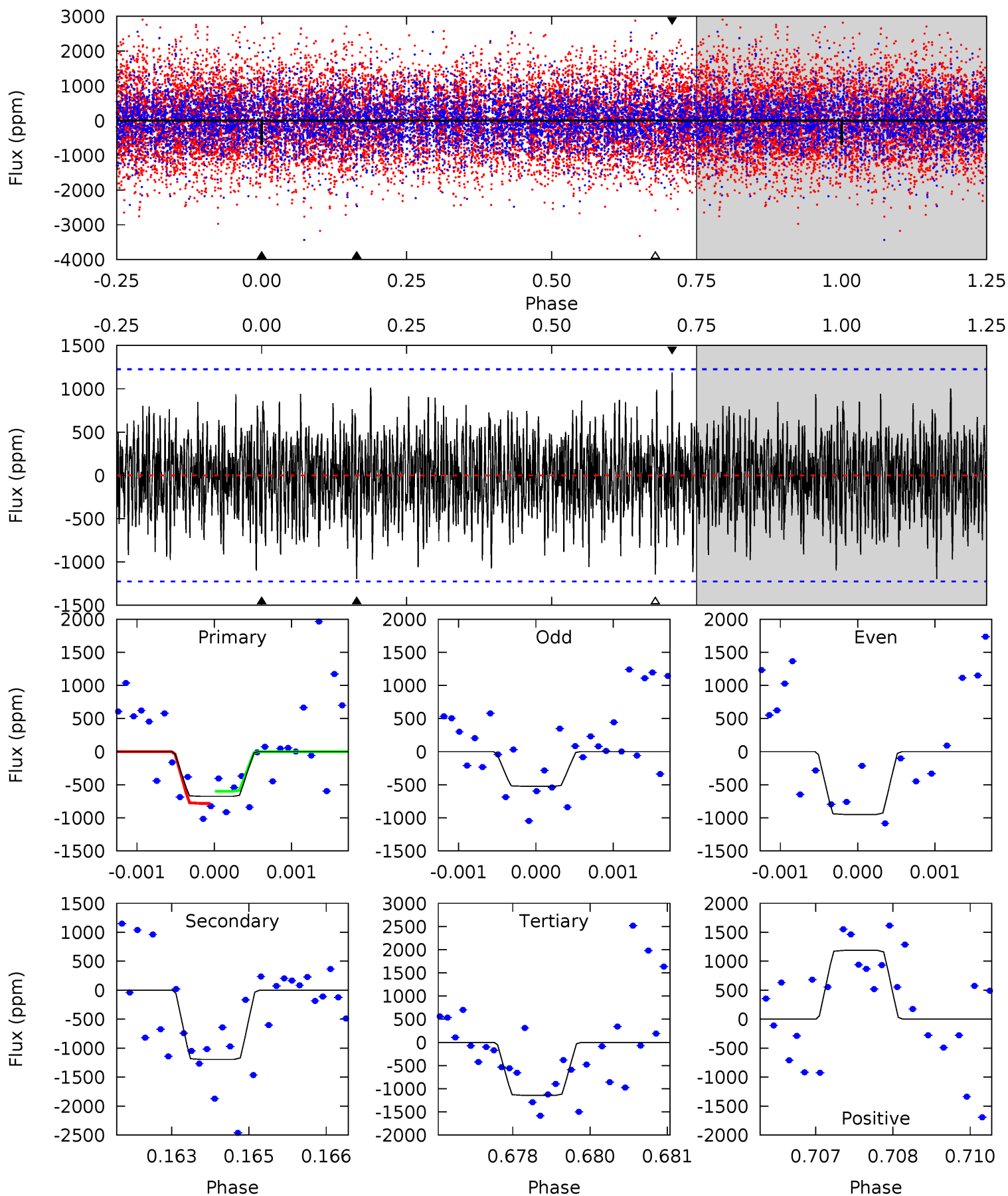
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.54	6.32	6.18	6.12	5.39	3.20	1.76	-0.65	-0.59	0.14	0.20	3.49	1.27	0.49	0.55



Alt Model-Shift Uniqueness Test

009910533-05, P = 76.039521 Days, E = 76.319947 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.97	5.26	5.03	5.22	5.39	3.19	1.55	-2.05	-2.25	0.23	0.03	0.95	0.99	0.50	0.39



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-812 \pm 128	$16.49^{+17.21}_{-11.10}$	1340^{+113}_{-147}	6034^{+5668}_{-1602}	332^{+2678}_{-255}
Alt.	-1196 \pm 227	$15.75^{+19.76}_{-10.69}$	1333^{+118}_{-158}	6594^{+7976}_{-1865}	524^{+4334}_{-420}

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 $A_{obs} \gg 1.0$

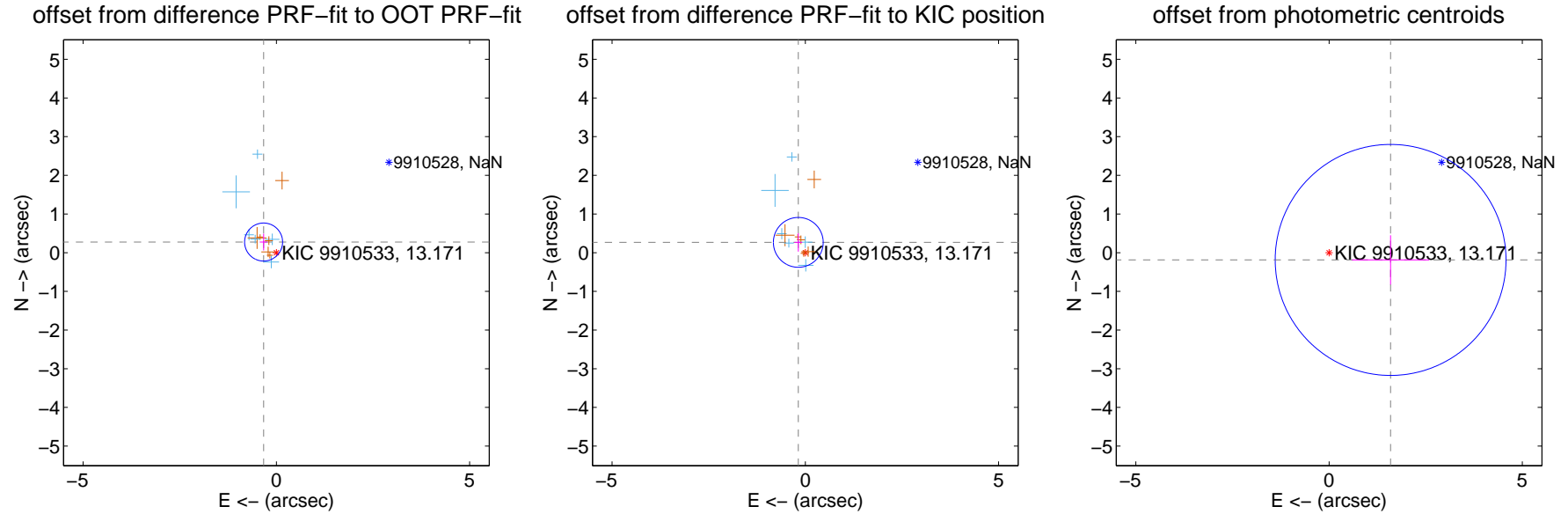
DV Centroid Data

Supplemental centroid analysis for 009910533-05. Kepler magnitude: 13.17. Transit SNR 3.93

There are 6 quarters with good PRF difference image offsets

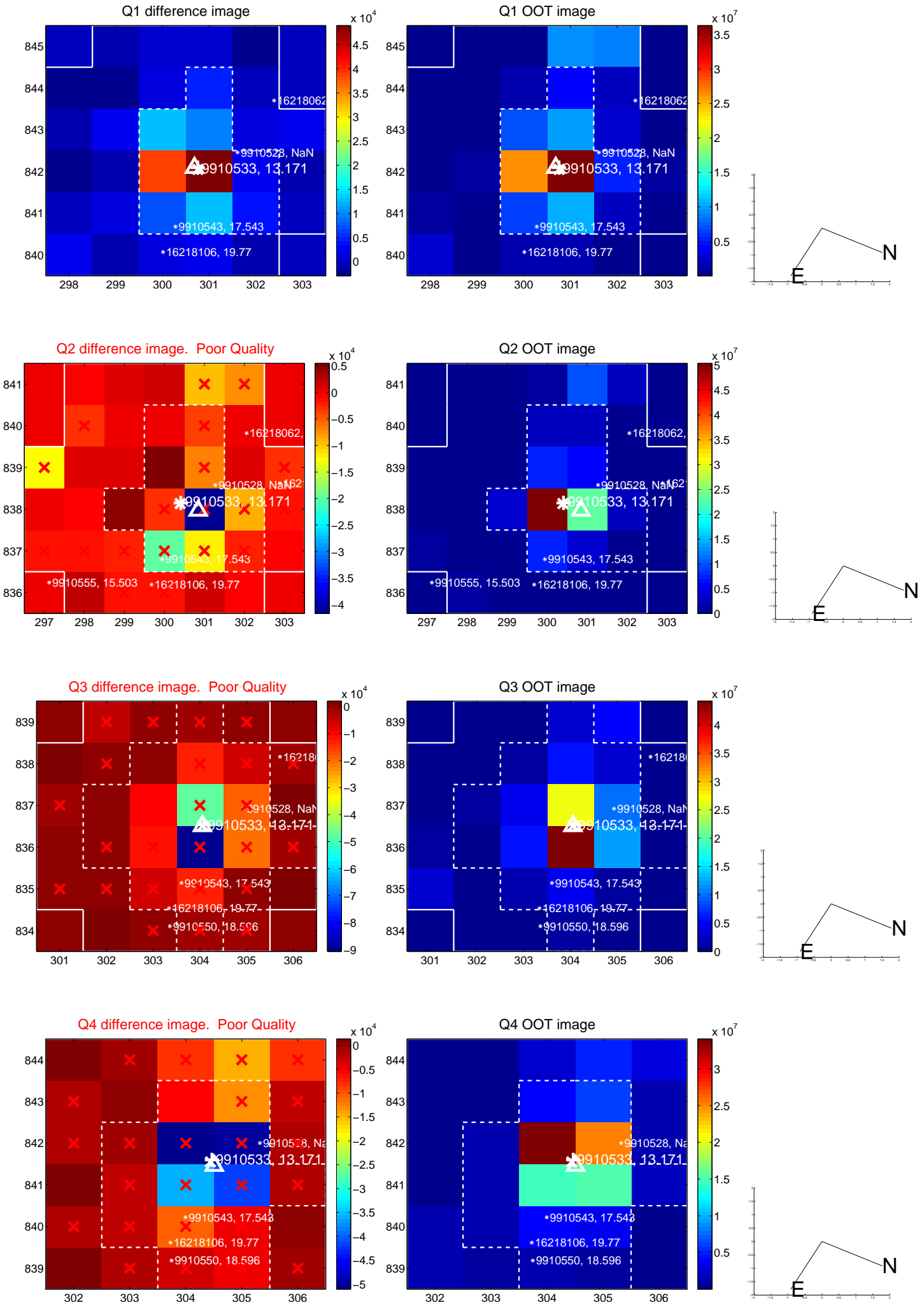
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.430 ± 0.164	2.63	0.331 ± 0.101	0.275 ± 0.217
PRF-fit source offset from KIC position	0.323 ± 0.215	1.50	0.182 ± 0.102	0.267 ± 0.239
photometric centroid source offset	1.60 ± 1.00	1.61	-1.59 ± 1.00	-0.19 ± 0.64

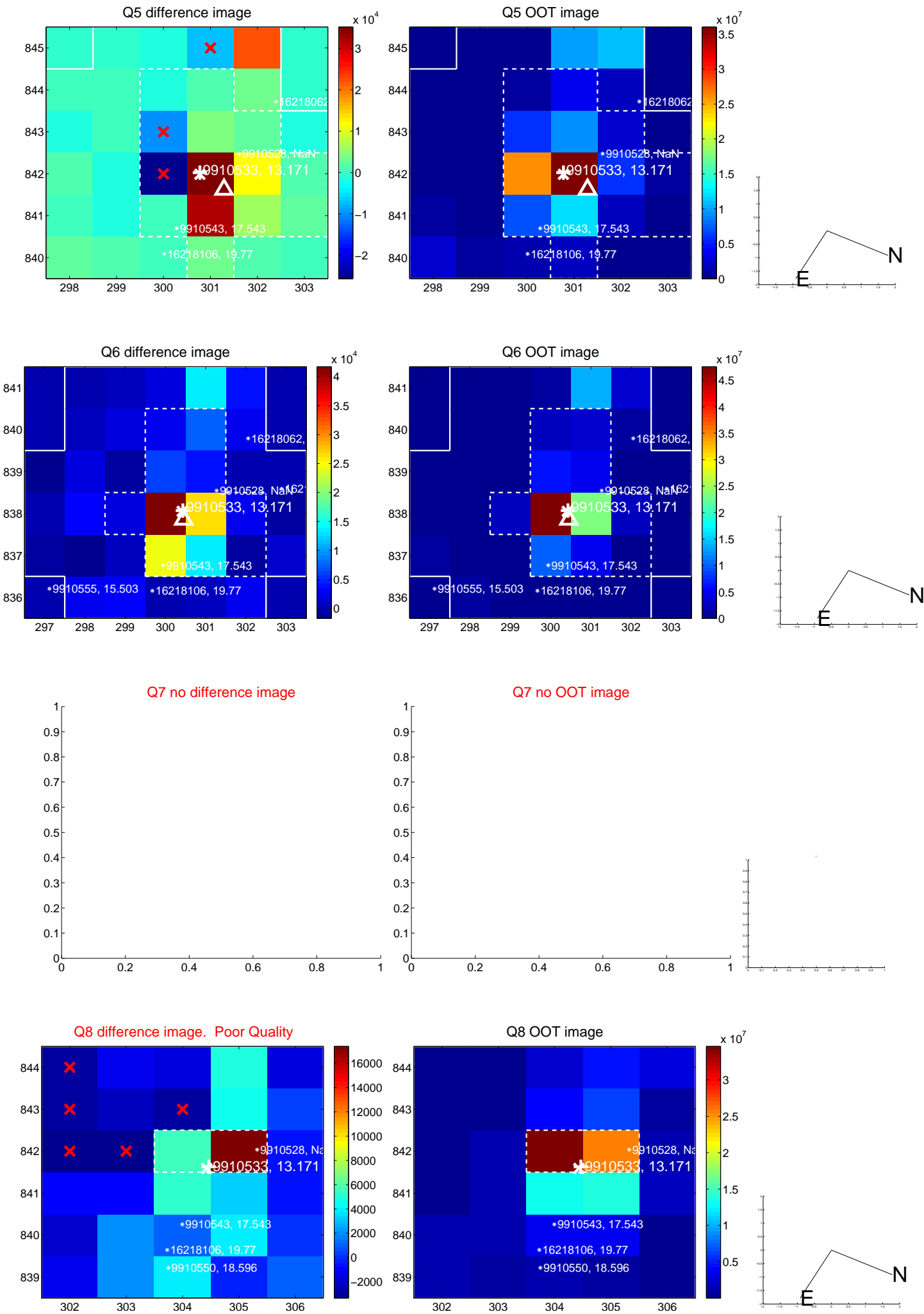


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

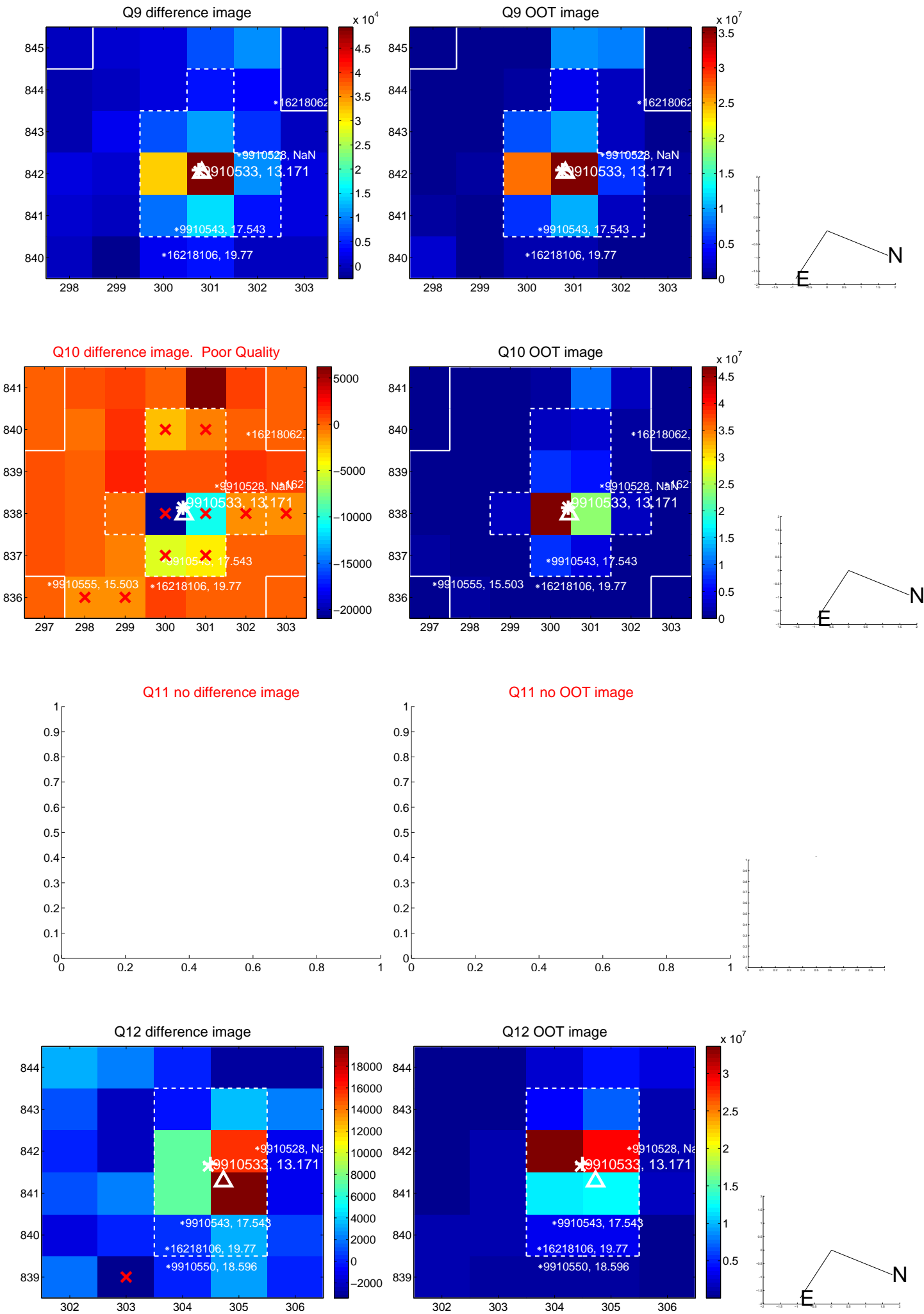
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



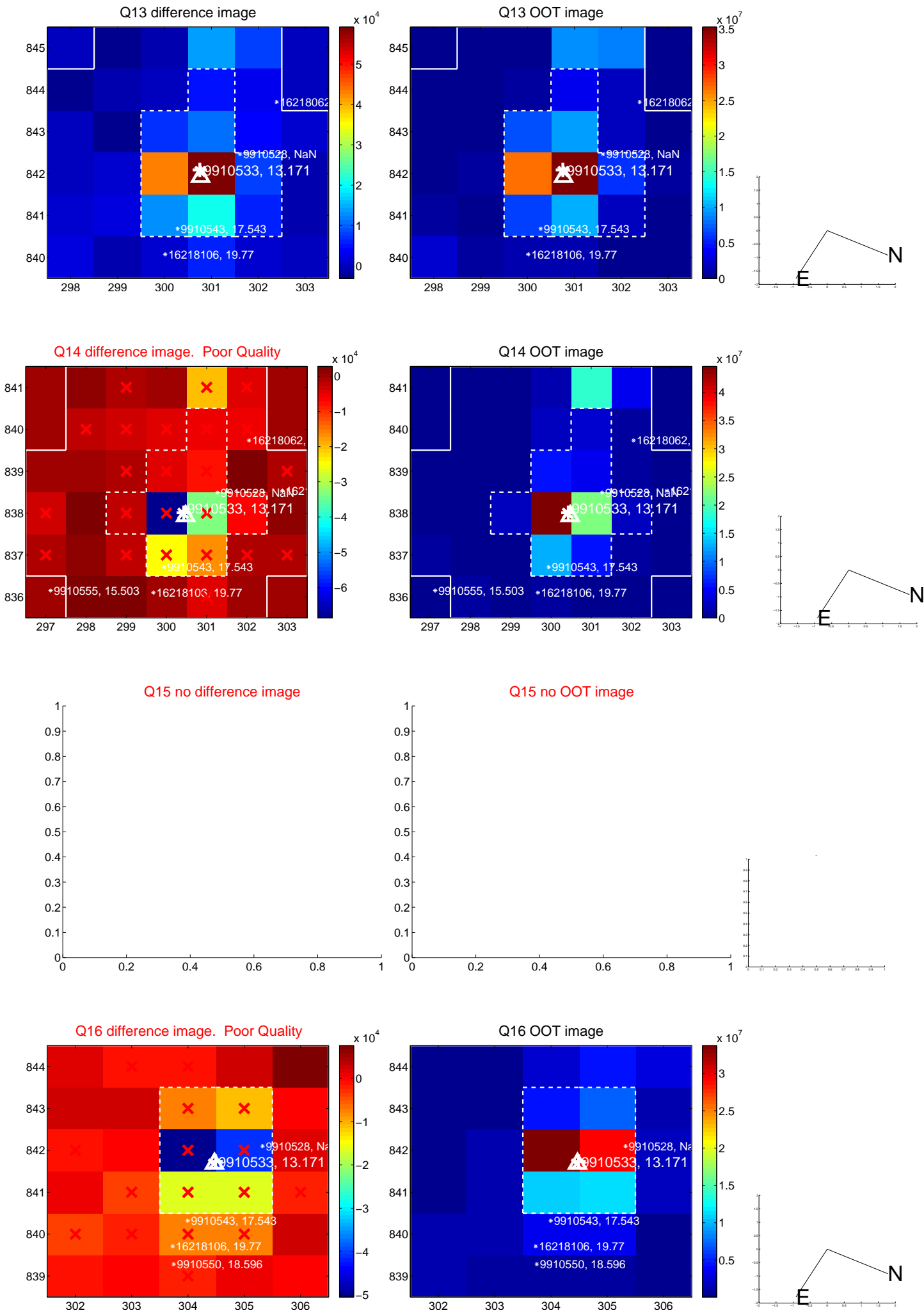
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



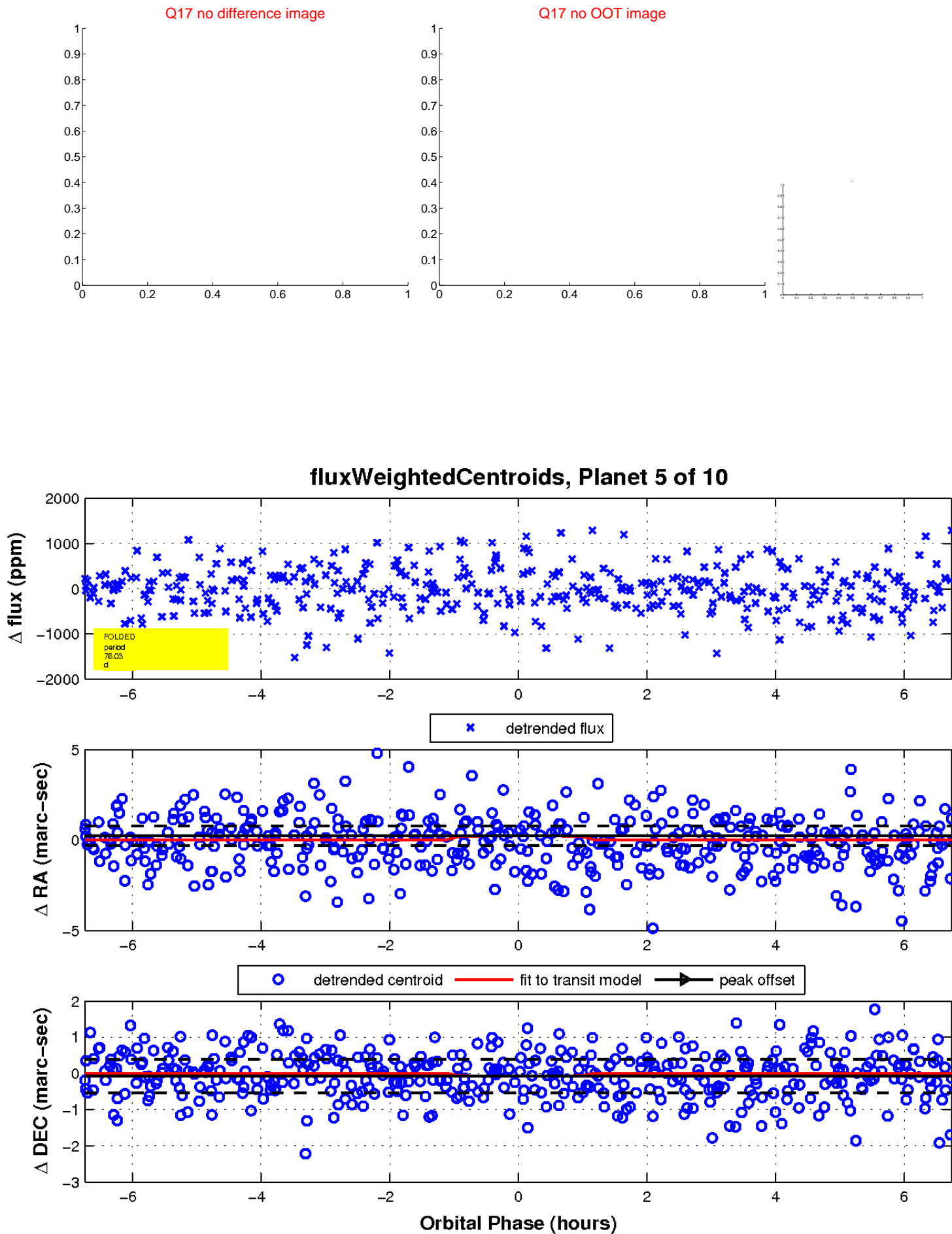
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

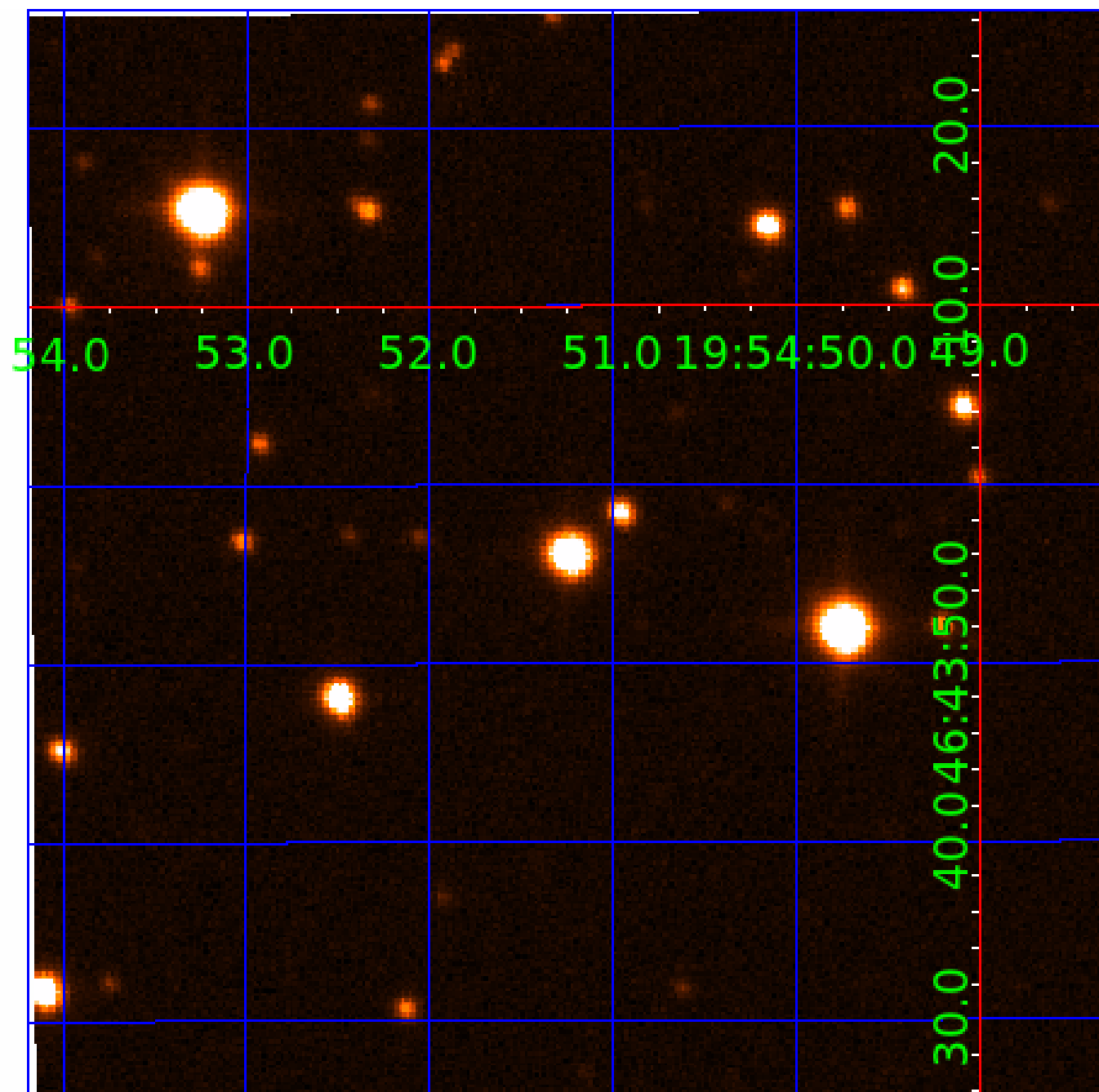


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

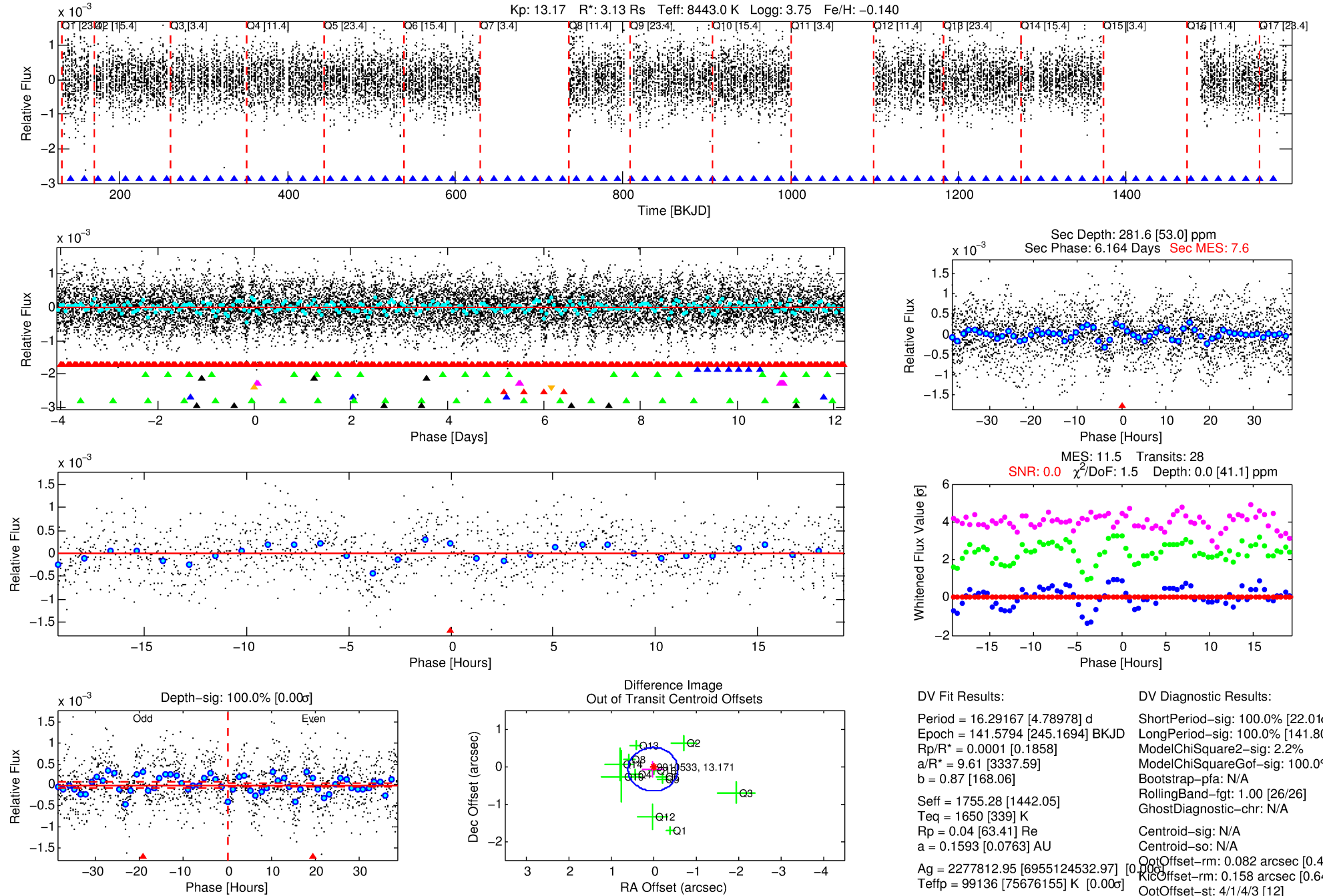
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-06

No Significant Match Found

DV One-Page Summary

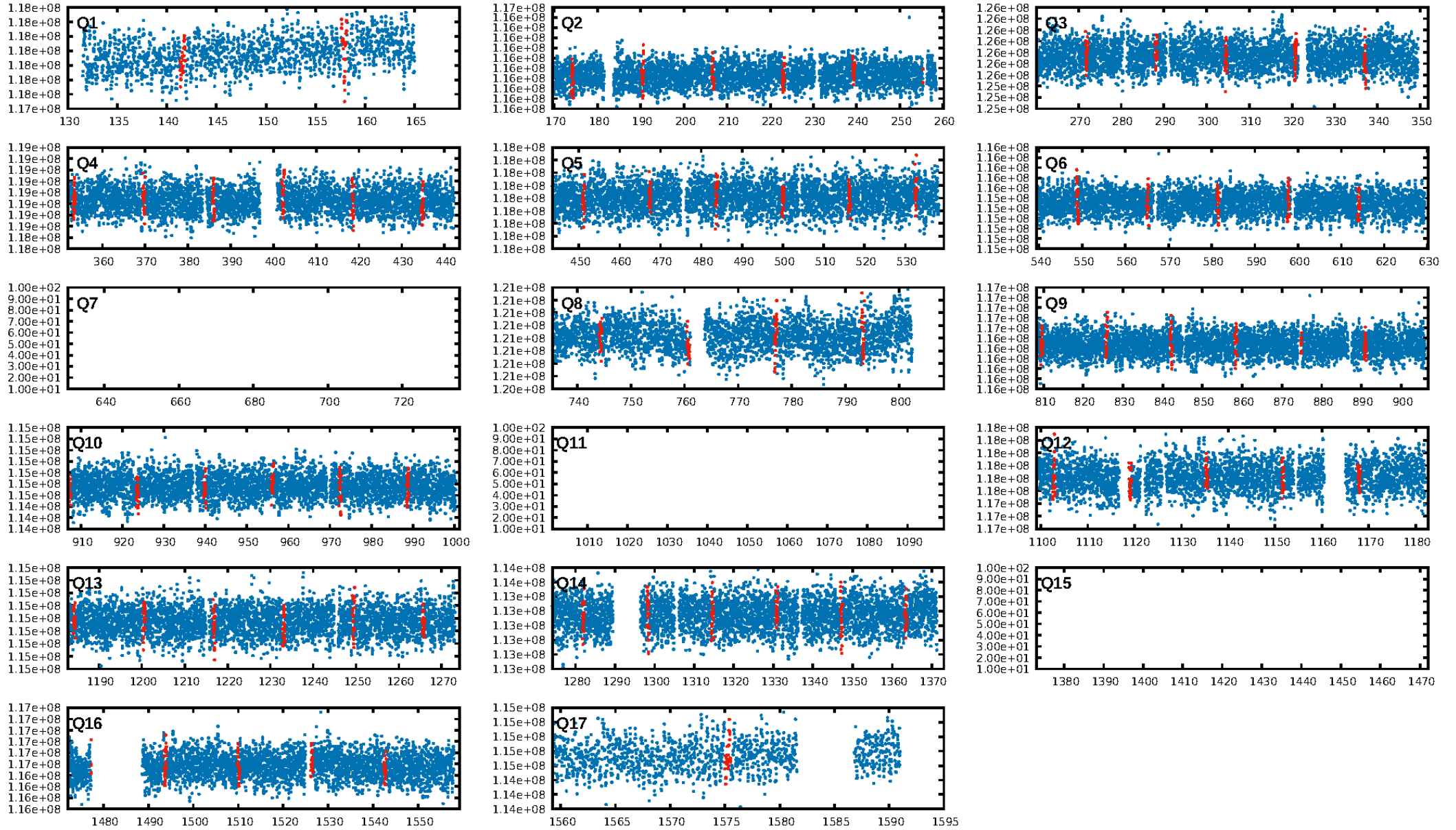
KIC: 9910533 Candidate: 6 of 10 Period: 16.292 d



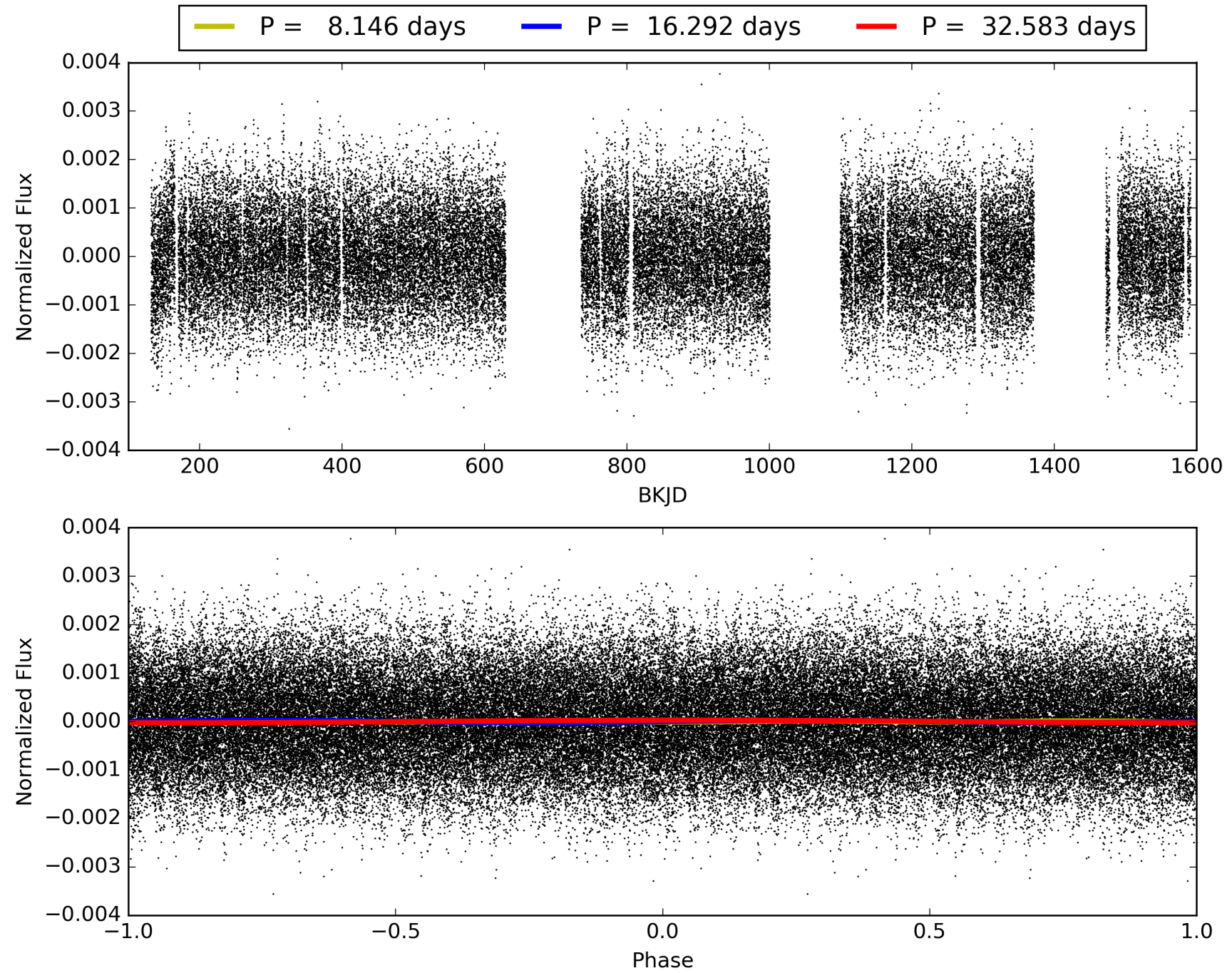
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:30:53 Z

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

TCE 009910533-06, PDC Light Curves

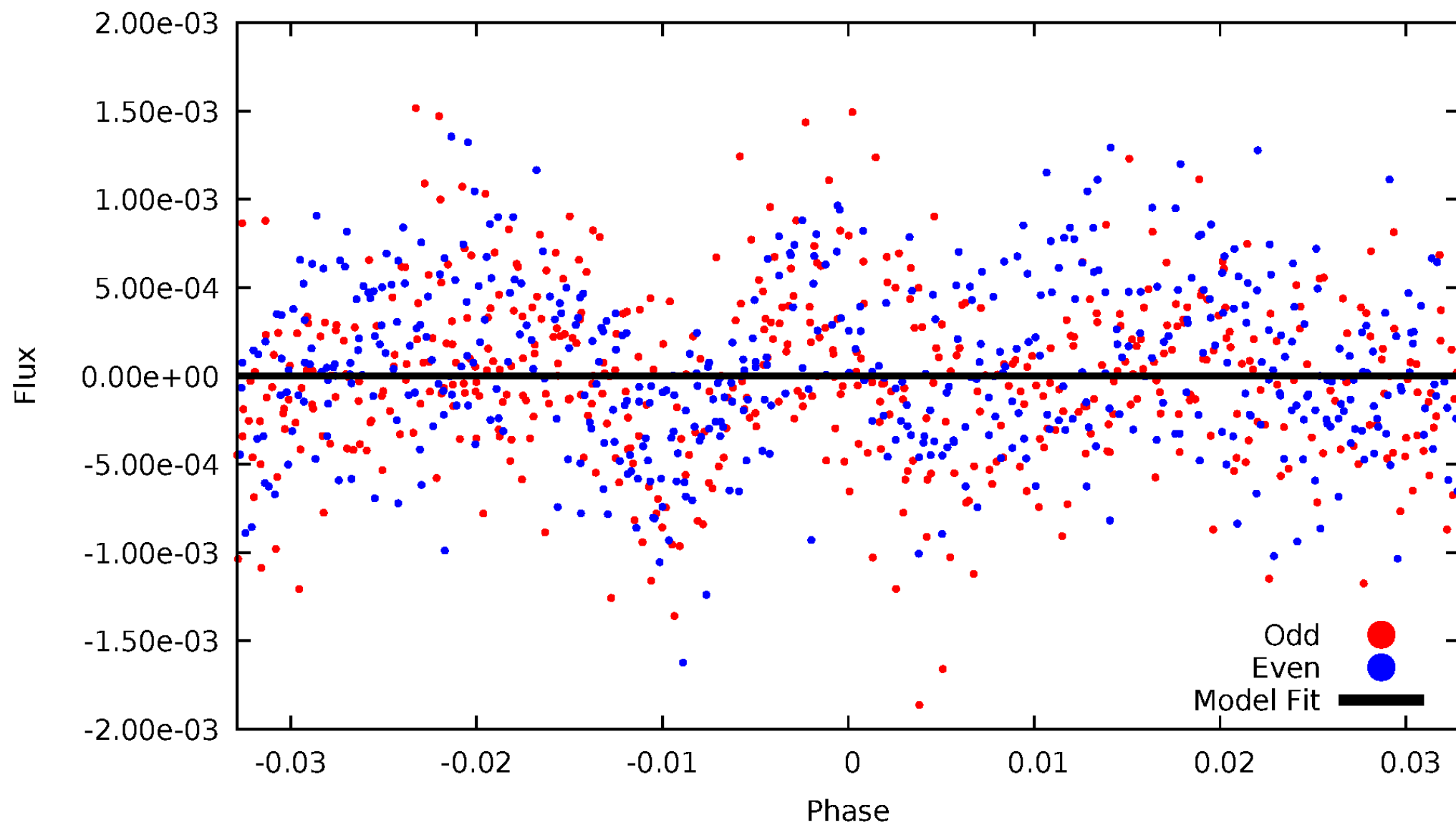


TCE 009910533-06



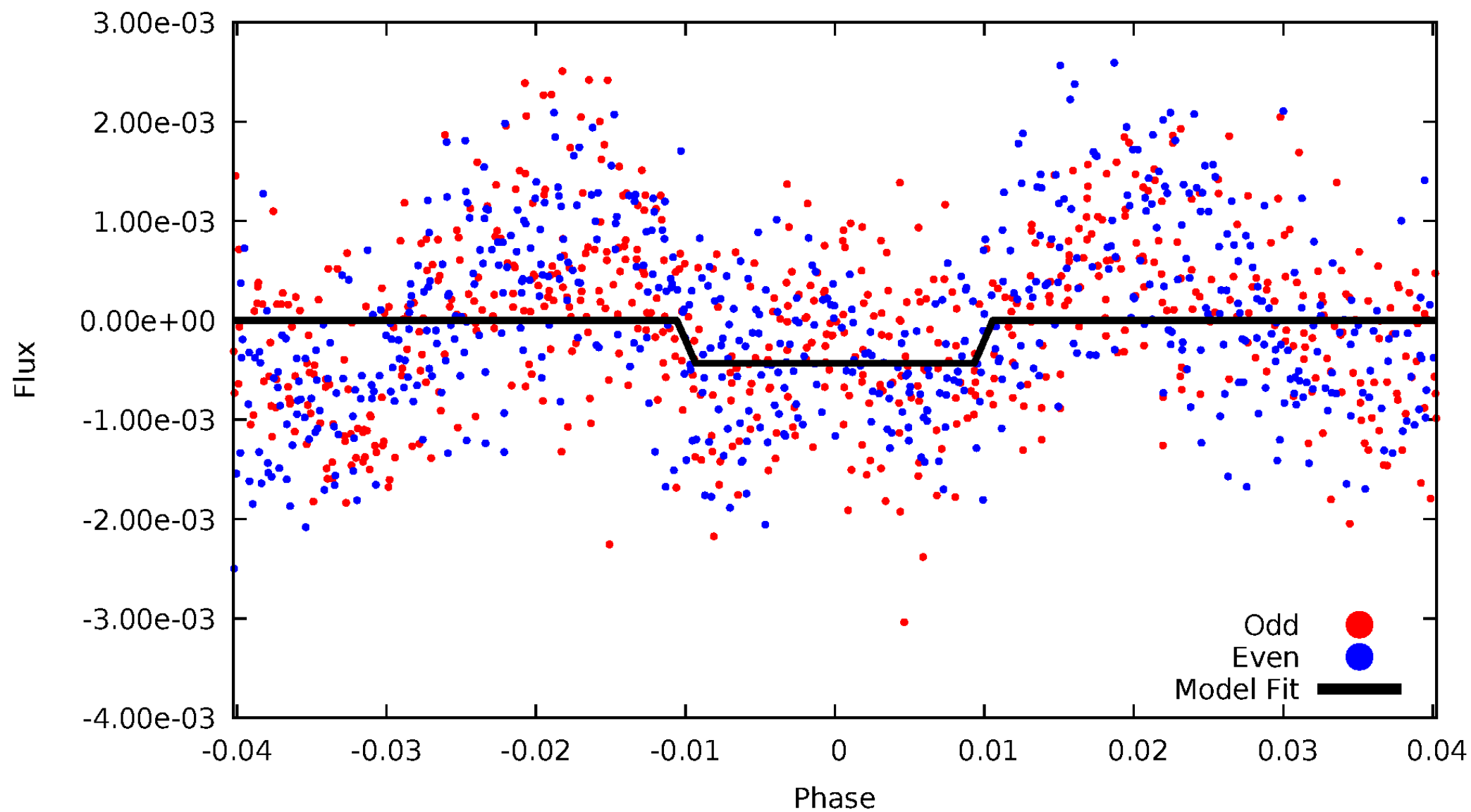
DV Odd/Even

TCE 009910533-06



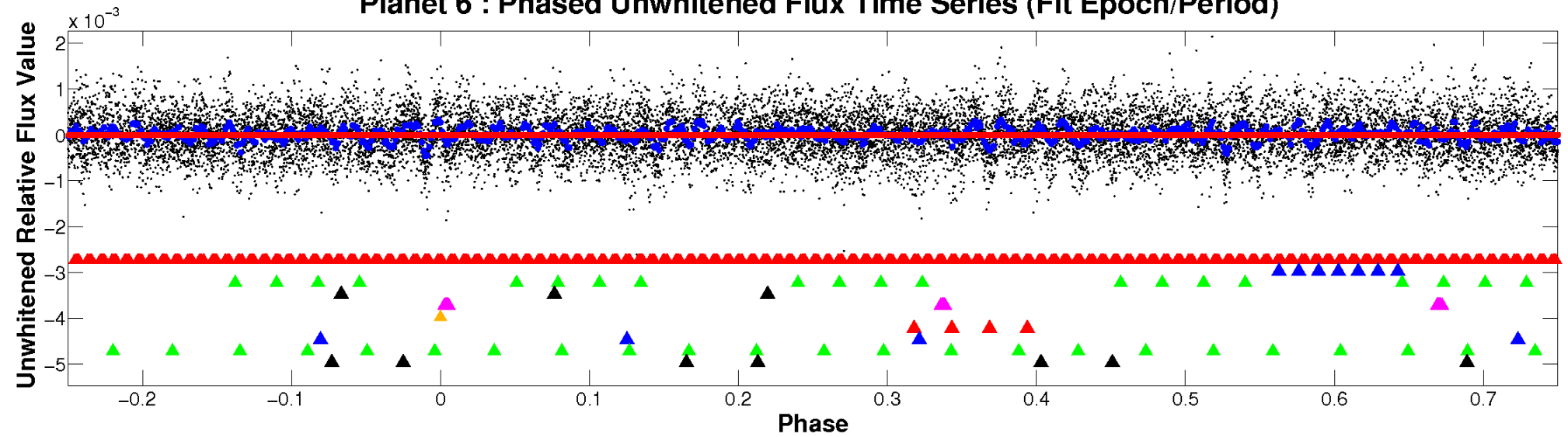
ALT Odd/Even

TCE 009910533-06

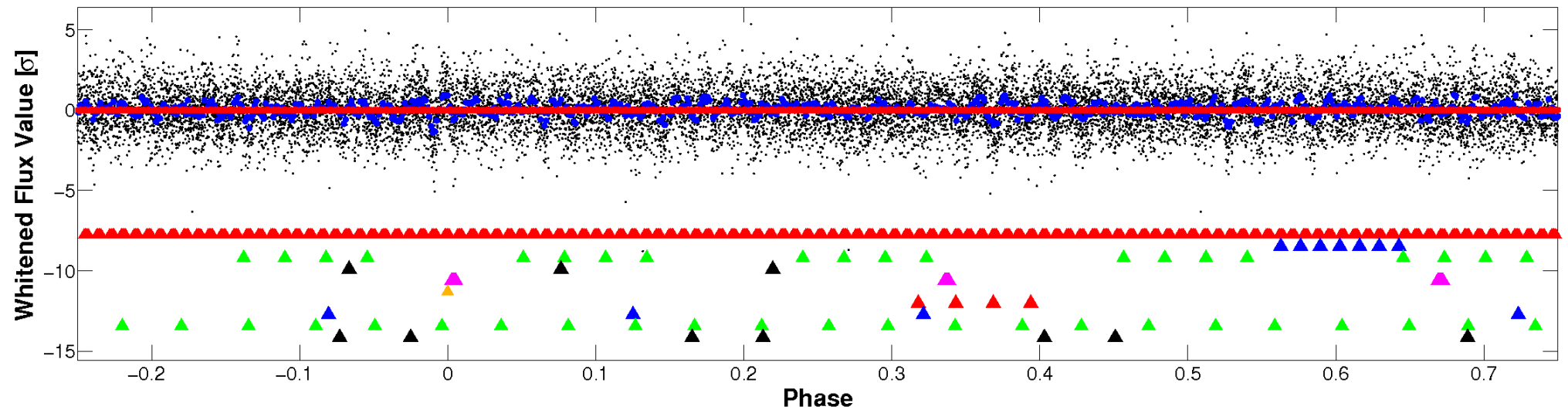


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

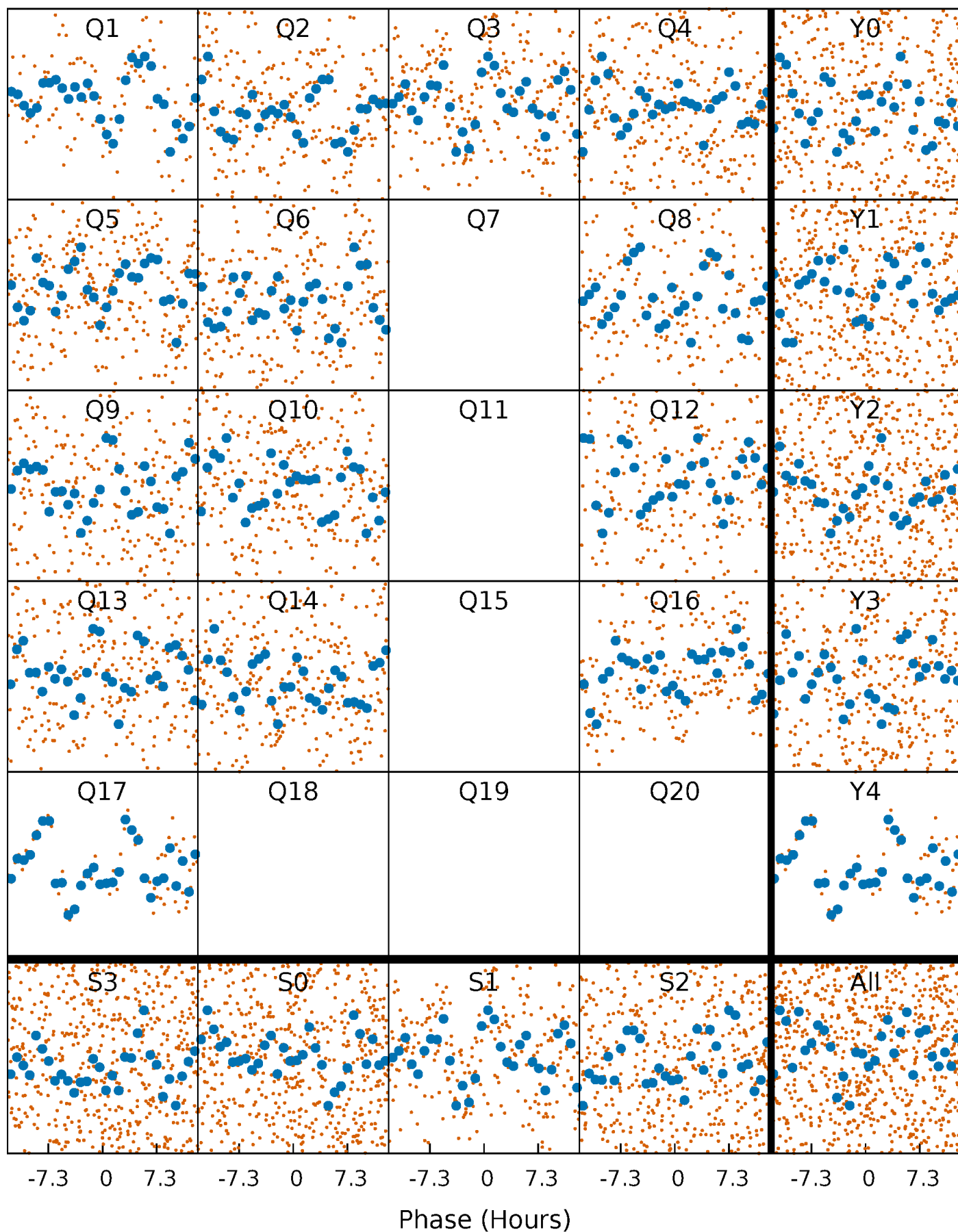


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



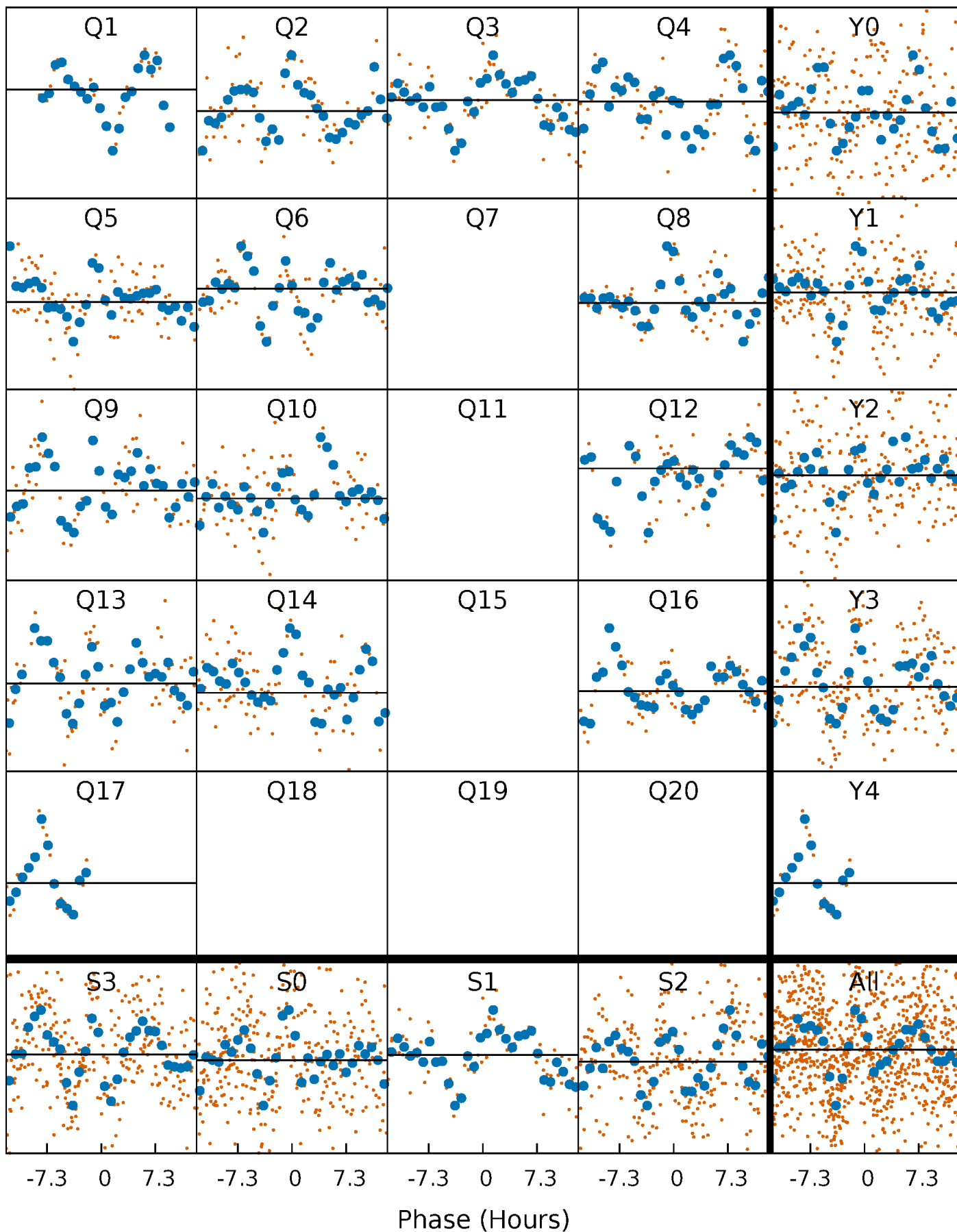
PDC Quarter-Phased Transit Curves

TCE 009910533-06 P= 16.291672 Days $T_0=141.579419$ (BKJD)



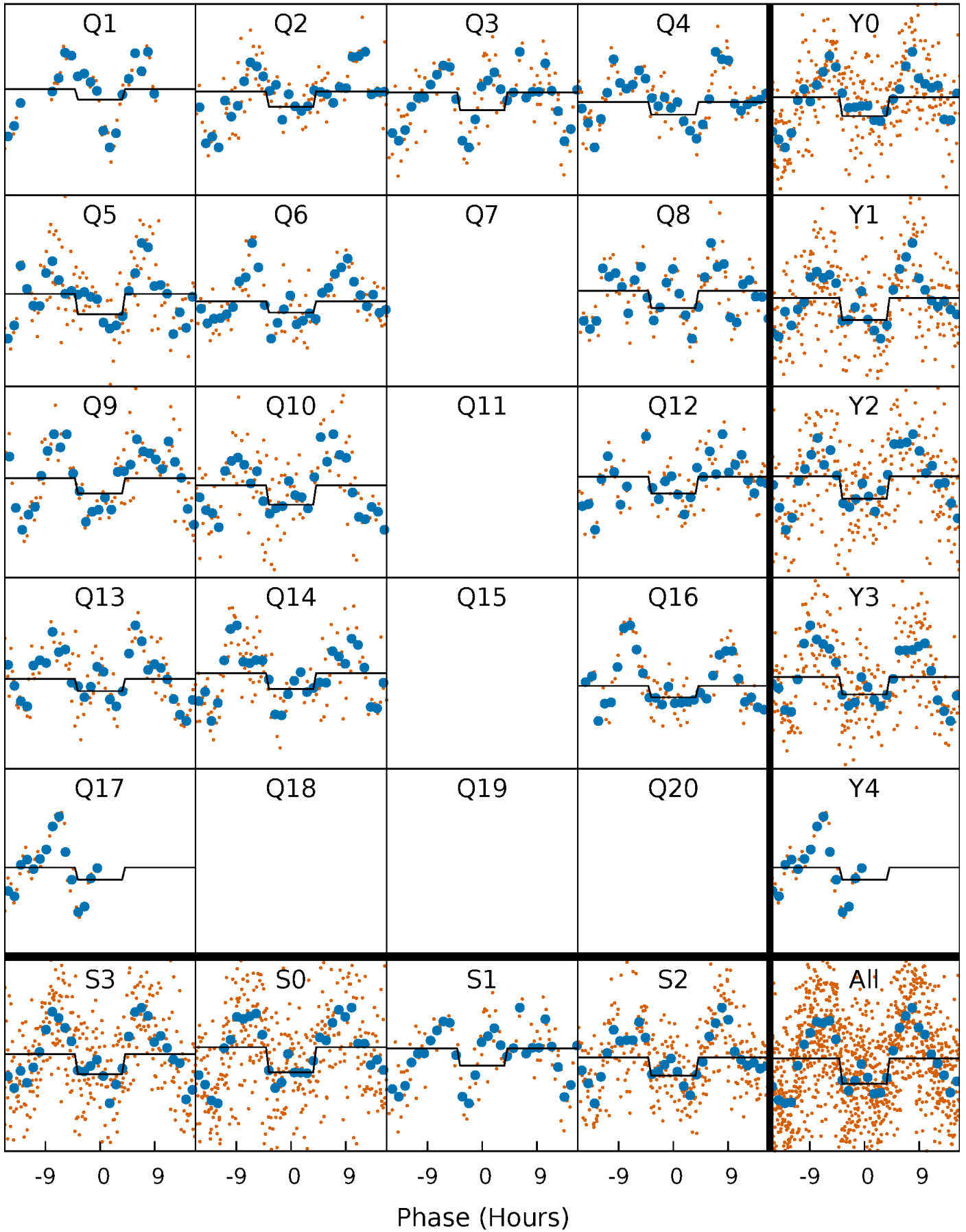
DV Quarter-Phased Transit Curves

TCE 009910533-06 P= 16.291672 Days $T_0=141.579419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

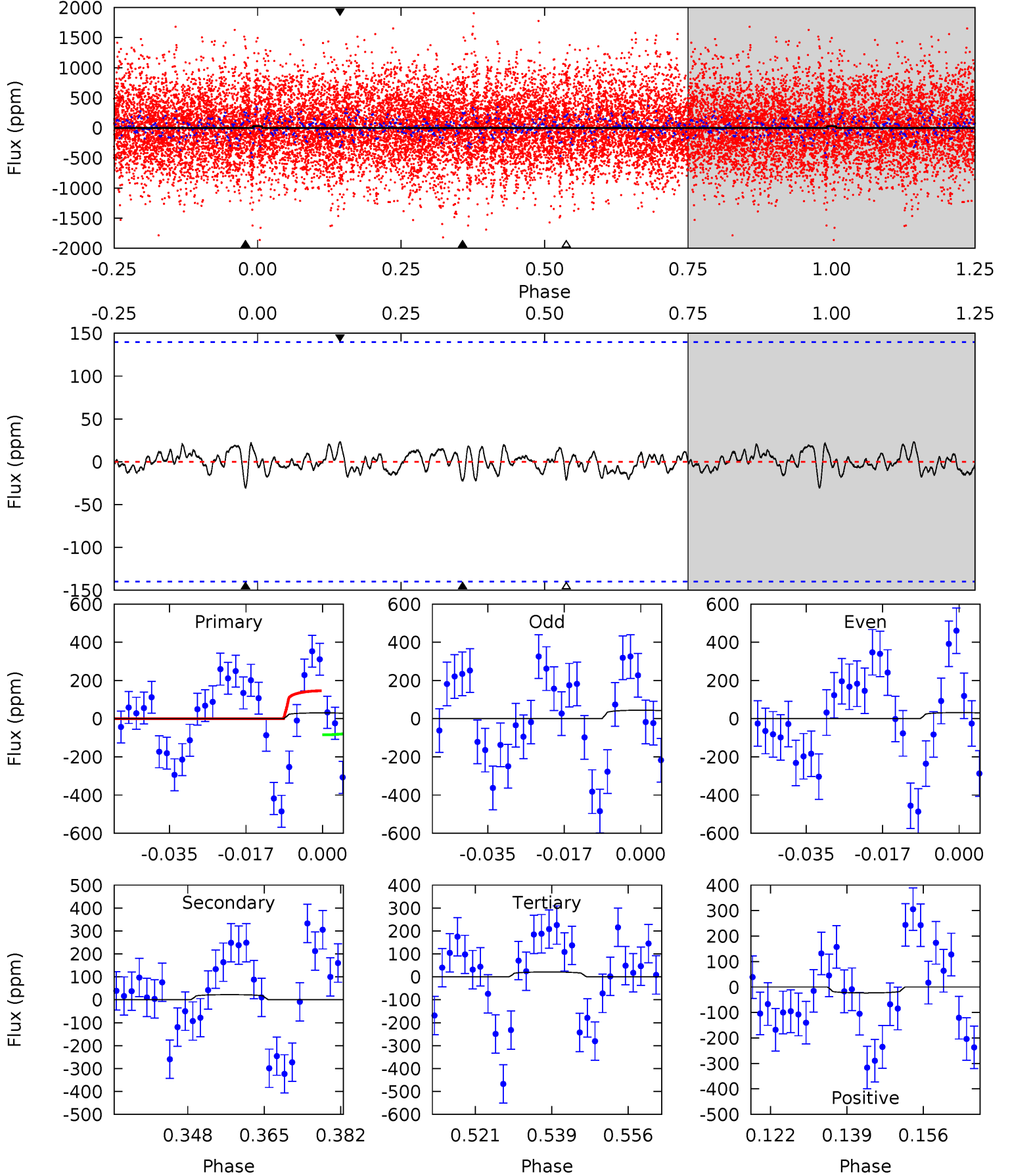
TCE 009910533-06 P= 16.291332 Days $T_0=141.566452$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-06, P = 16.291672 Days, E = 125.287747 Days

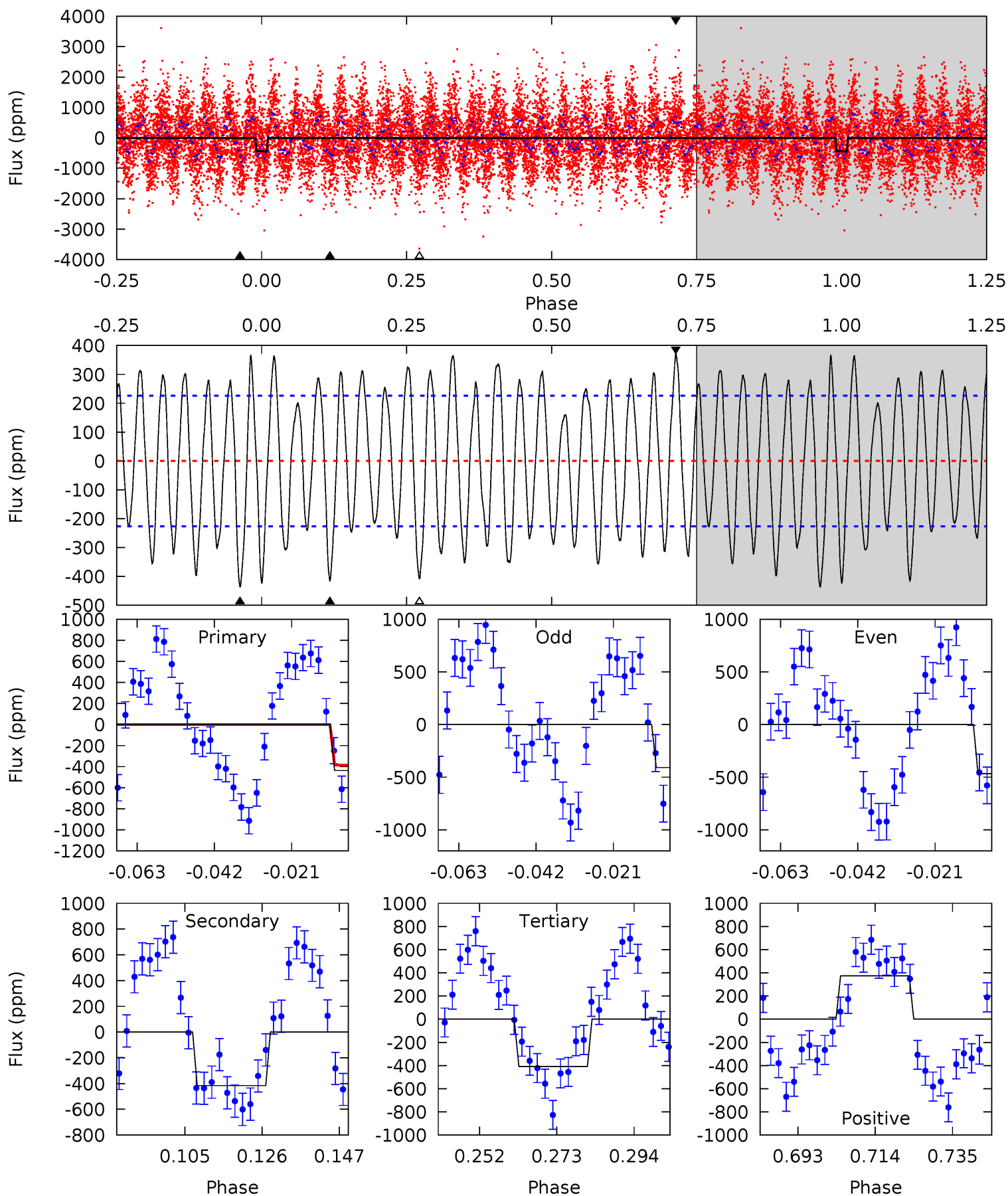
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.07	0.79	0.74	0.82	4.92	2.38	0.32	0.33	0.25	0.05	-0.03	0.22	0.42	0.43	1.09



Alt Model-Shift Uniqueness Test

009910533-06, P = 16.291332 Days, E = 125.275120 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.43	8.97	8.80	8.09	4.88	2.31	4.62	0.62	1.34	0.17	0.89	0.63	1.06	0.46	1.17



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 28	$38.17^{+45.41}_{-26.43}$	2223^{+350}_{-301}	-2370^{+5565}_{-386}	$0.128^{+1.706}_{-0.170}$
Alt.	-416 ± 46	$40.92^{+50.61}_{-29.28}$	2215^{+379}_{-285}	3548^{+2428}_{-892}	$3.361^{+34.734}_{-2.730}$

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

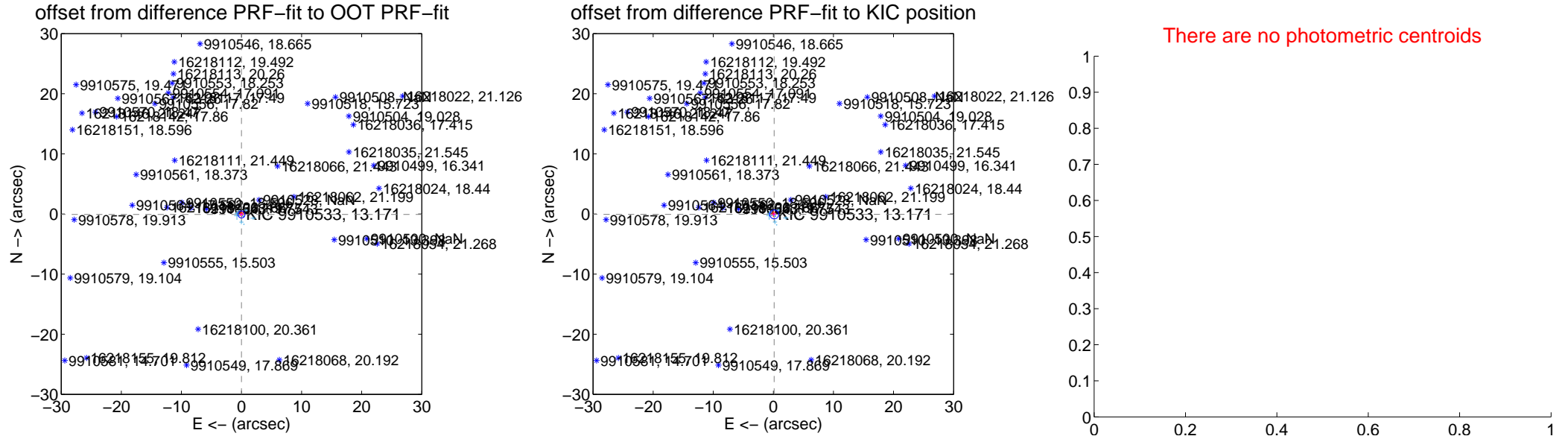
DV Centroid Data

Supplemental centroid analysis for 009910533-06. Kepler magnitude: 13.17. Transit SNR 0.00

There are 12 quarters with good PRF difference image offsets

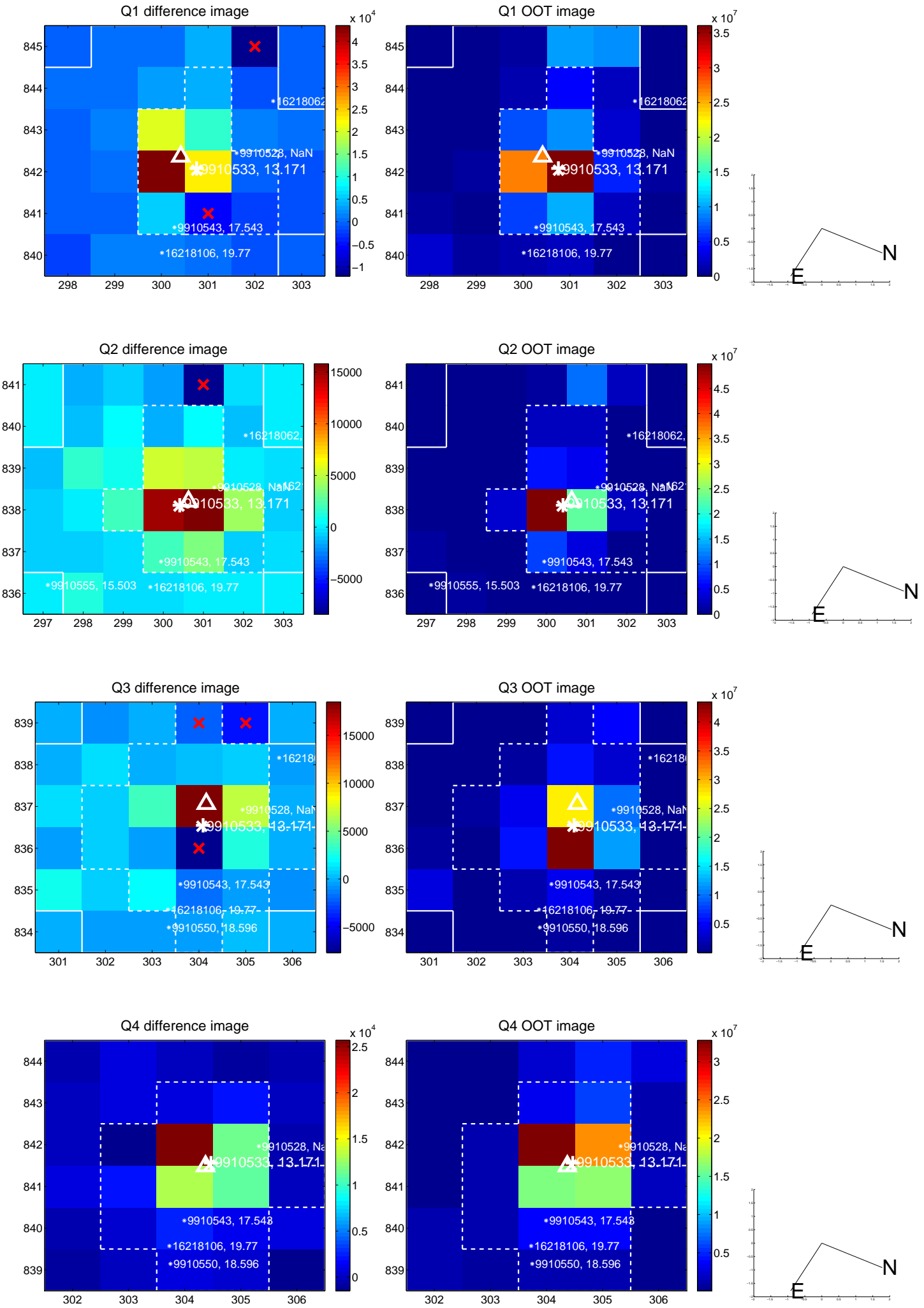
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.082 ± 0.194	0.42	0.009 ± 0.241	-0.082 ± 0.200
PRF-fit source offset from KIC position	0.158 ± 0.247	0.64	-0.142 ± 0.230	-0.071 ± 0.203
photometric centroid source offset	—	—	—	—

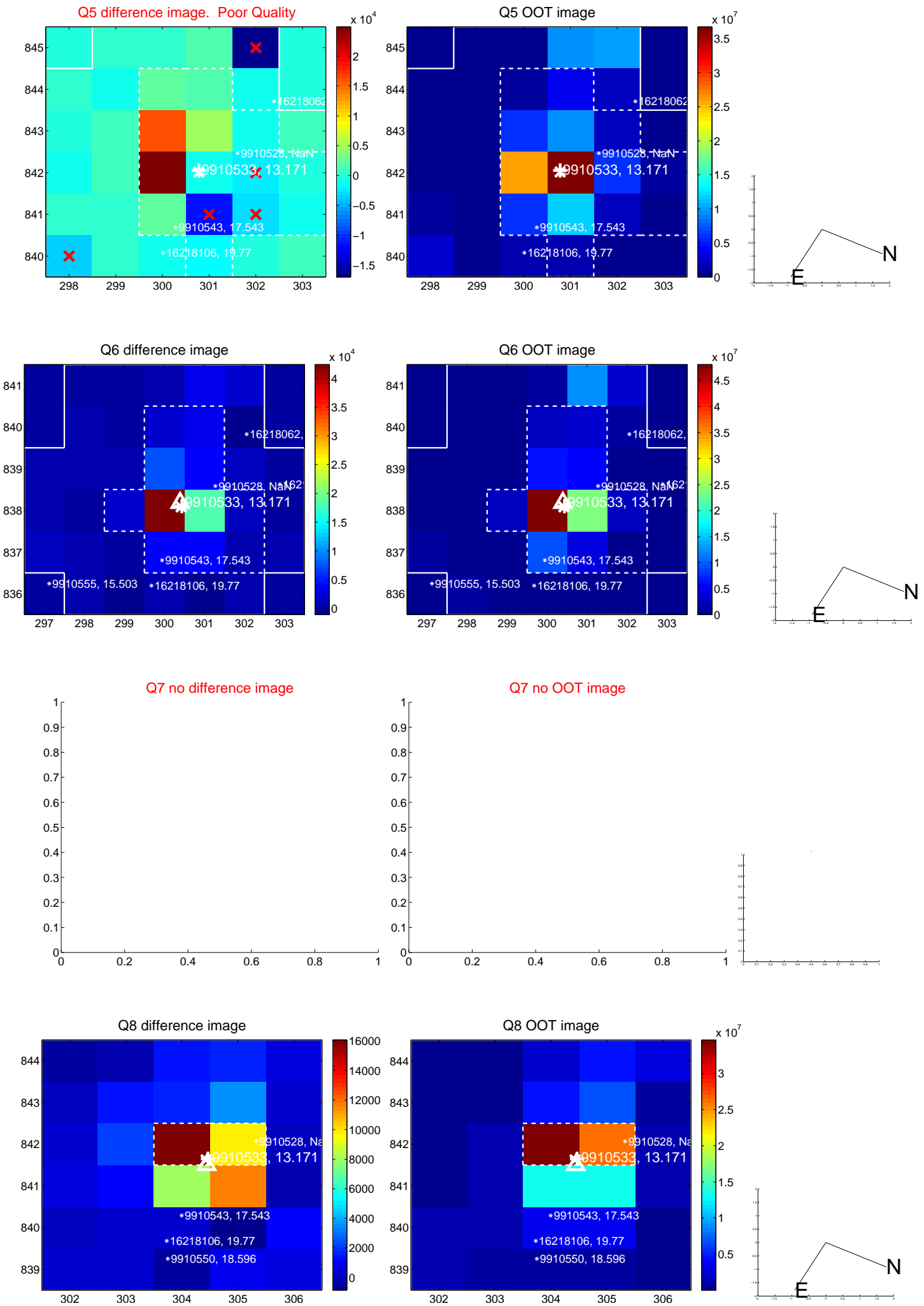


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

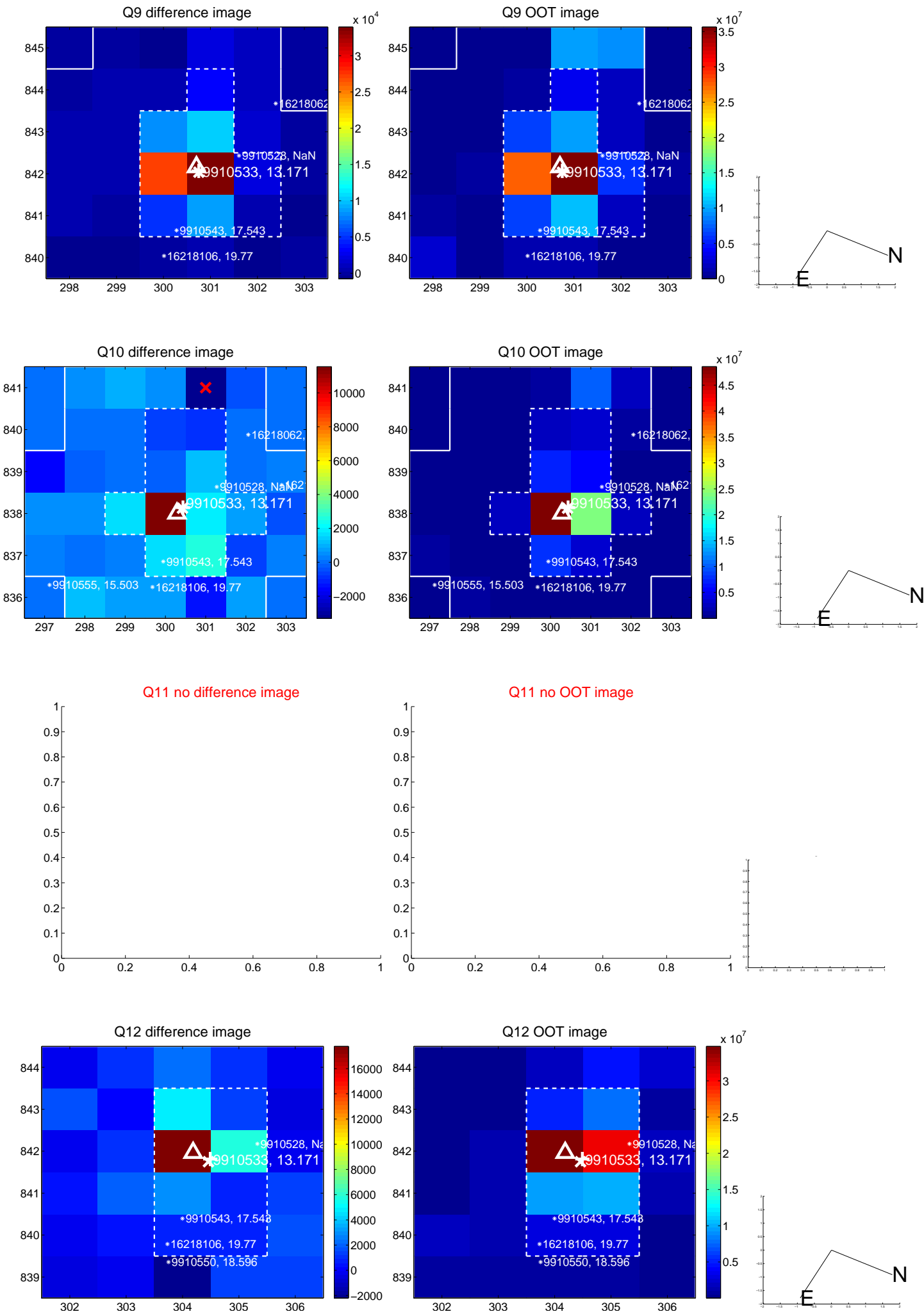
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



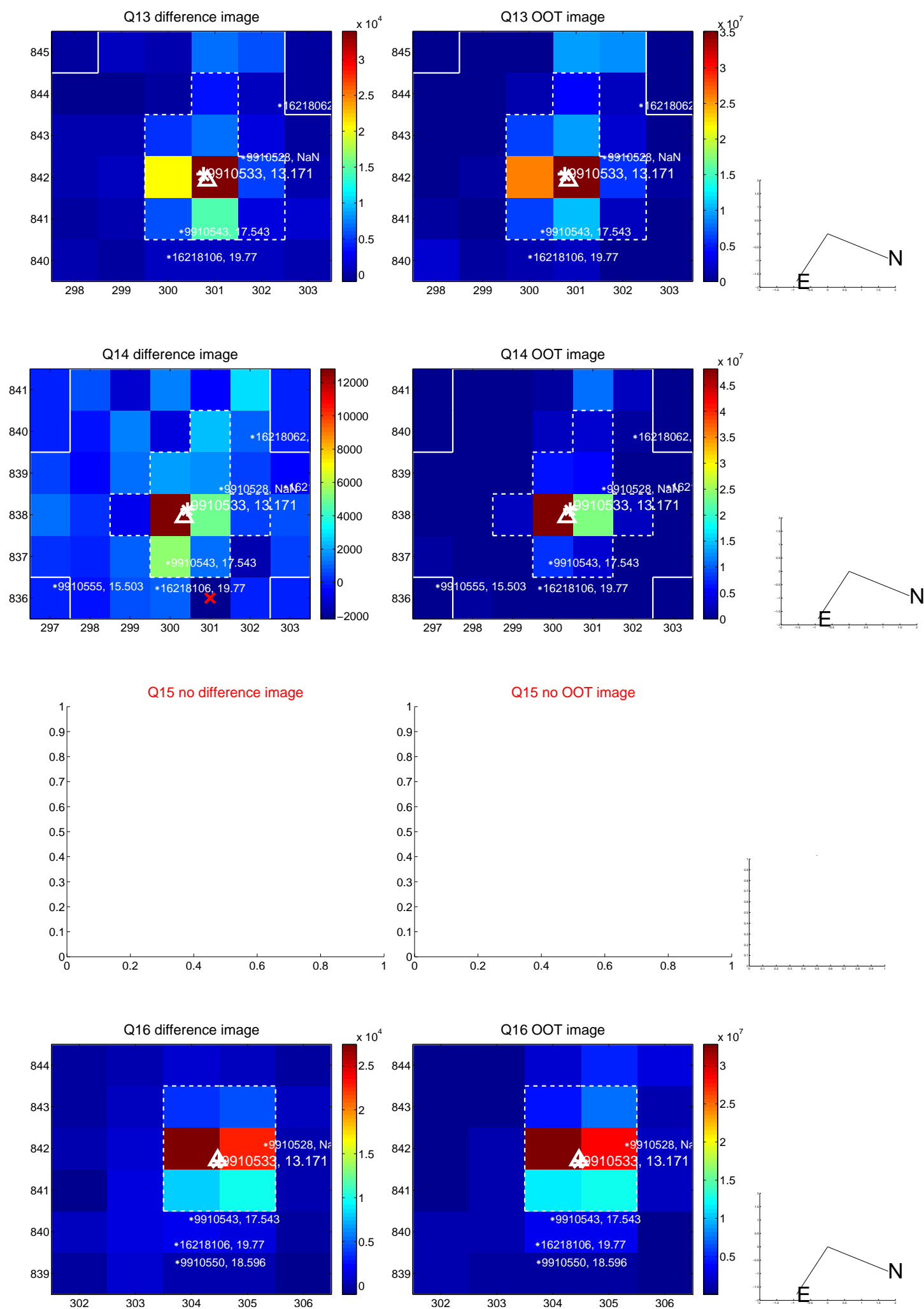
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



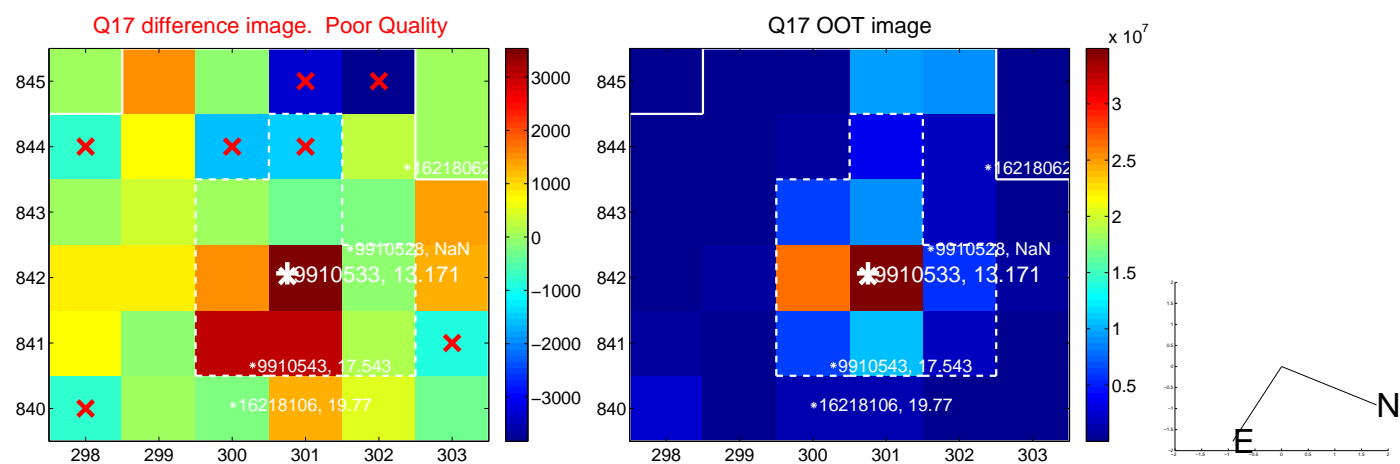
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



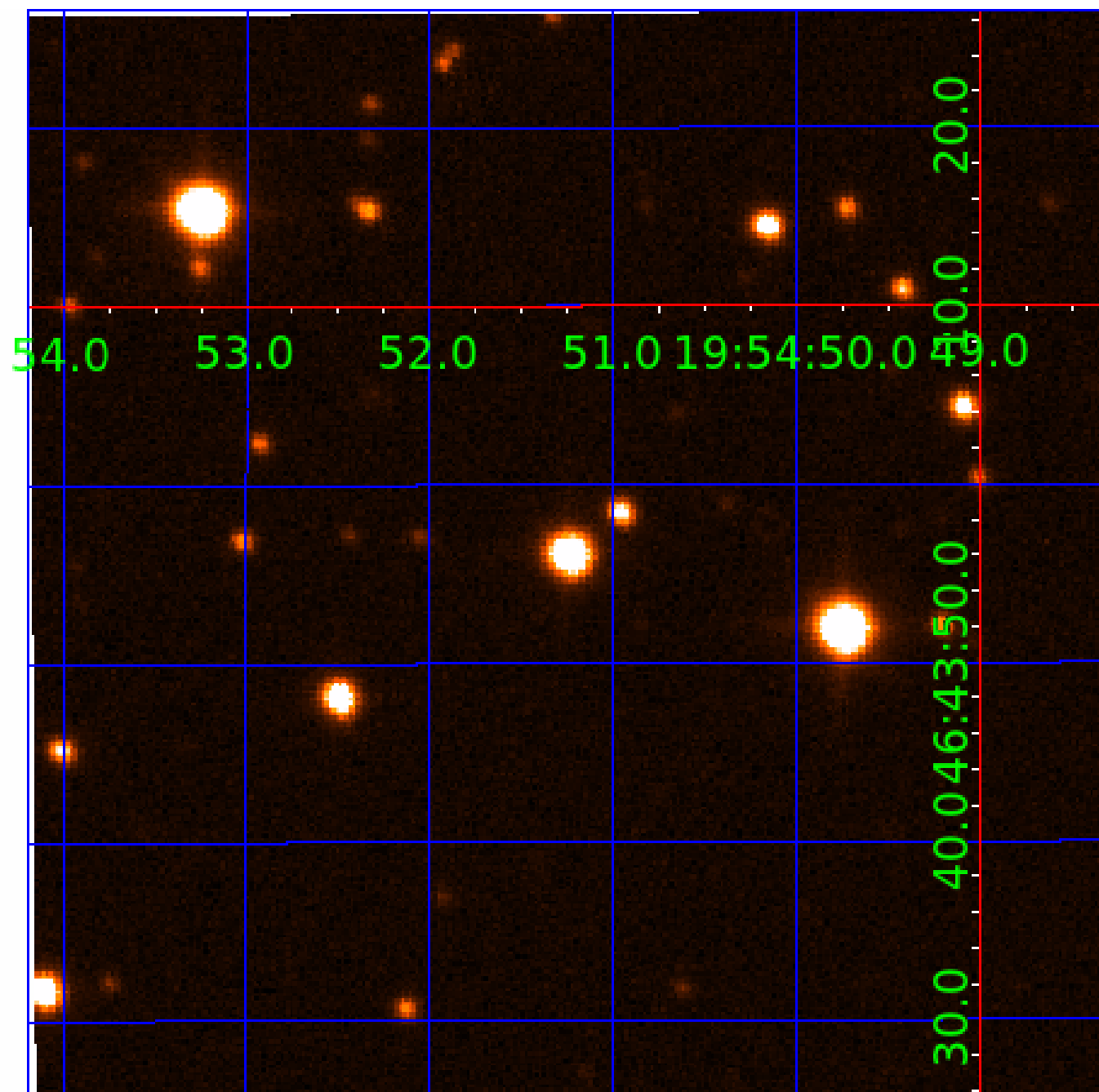
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

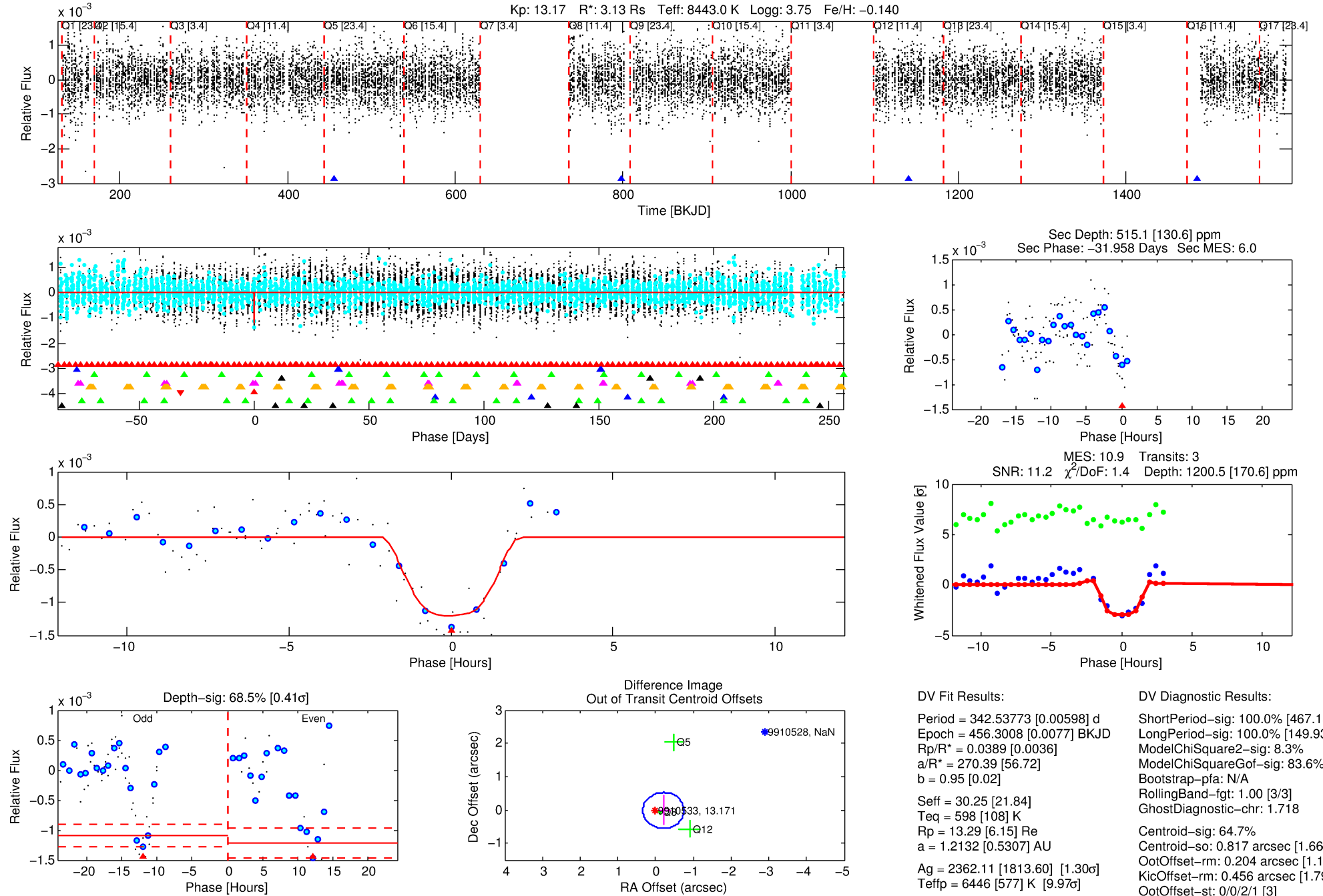
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-07

No Significant Match Found

DV One-Page Summary

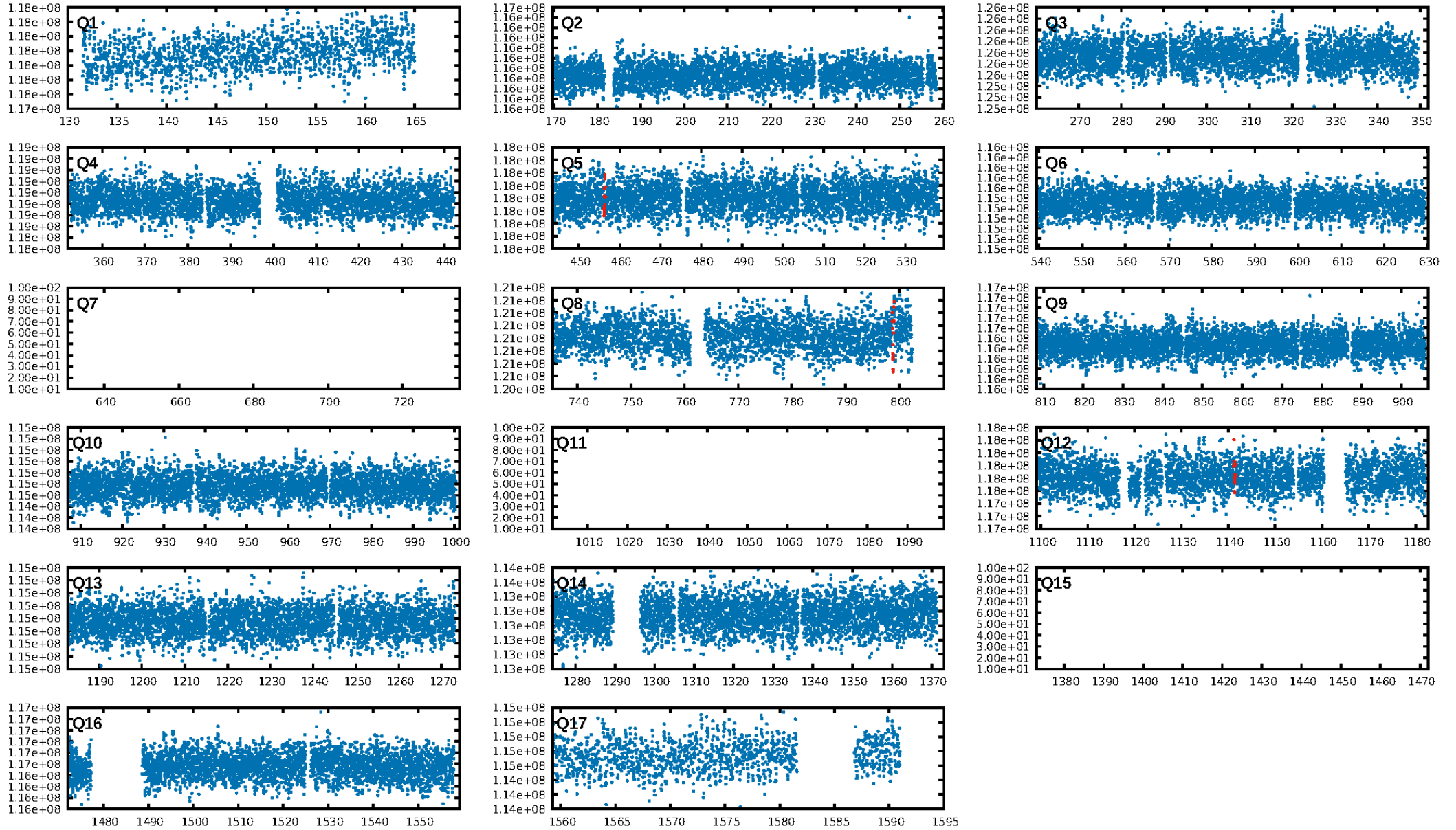
KIC: 9910533 Candidate: 7 of 10 Period: 342.538 d



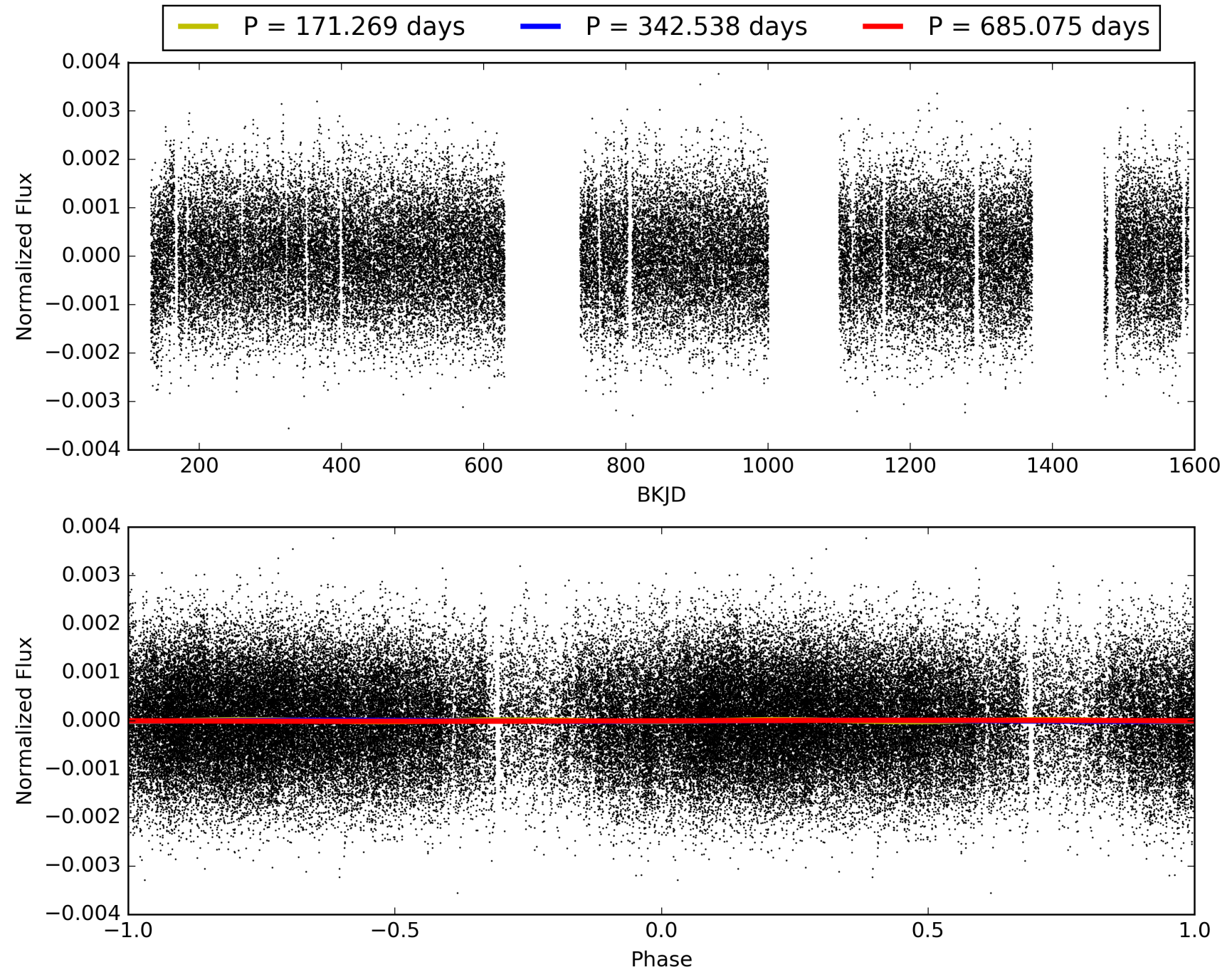
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:30:59 Z

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

TCE 009910533-07, PDC Light Curves

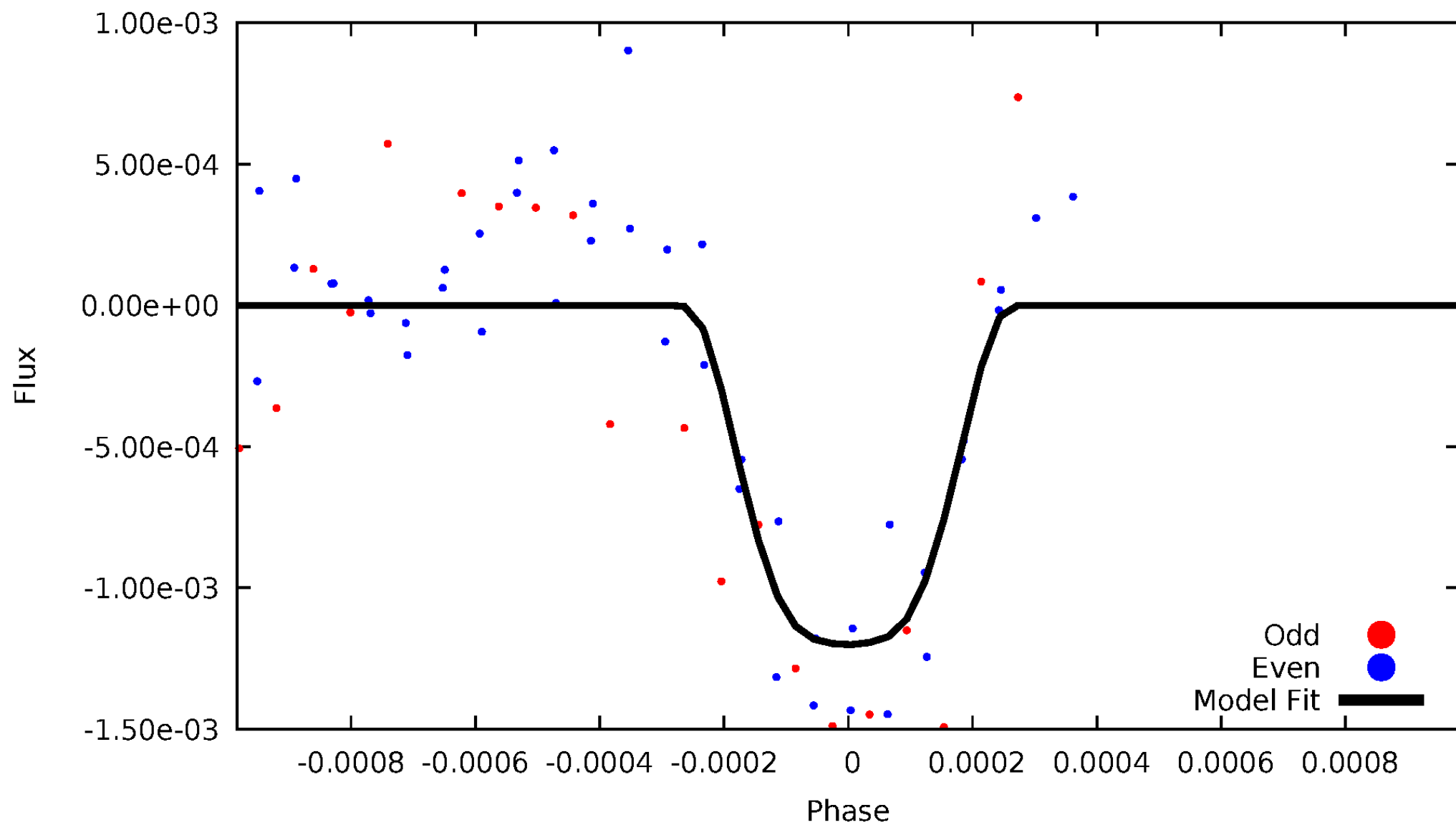


TCE 009910533-07



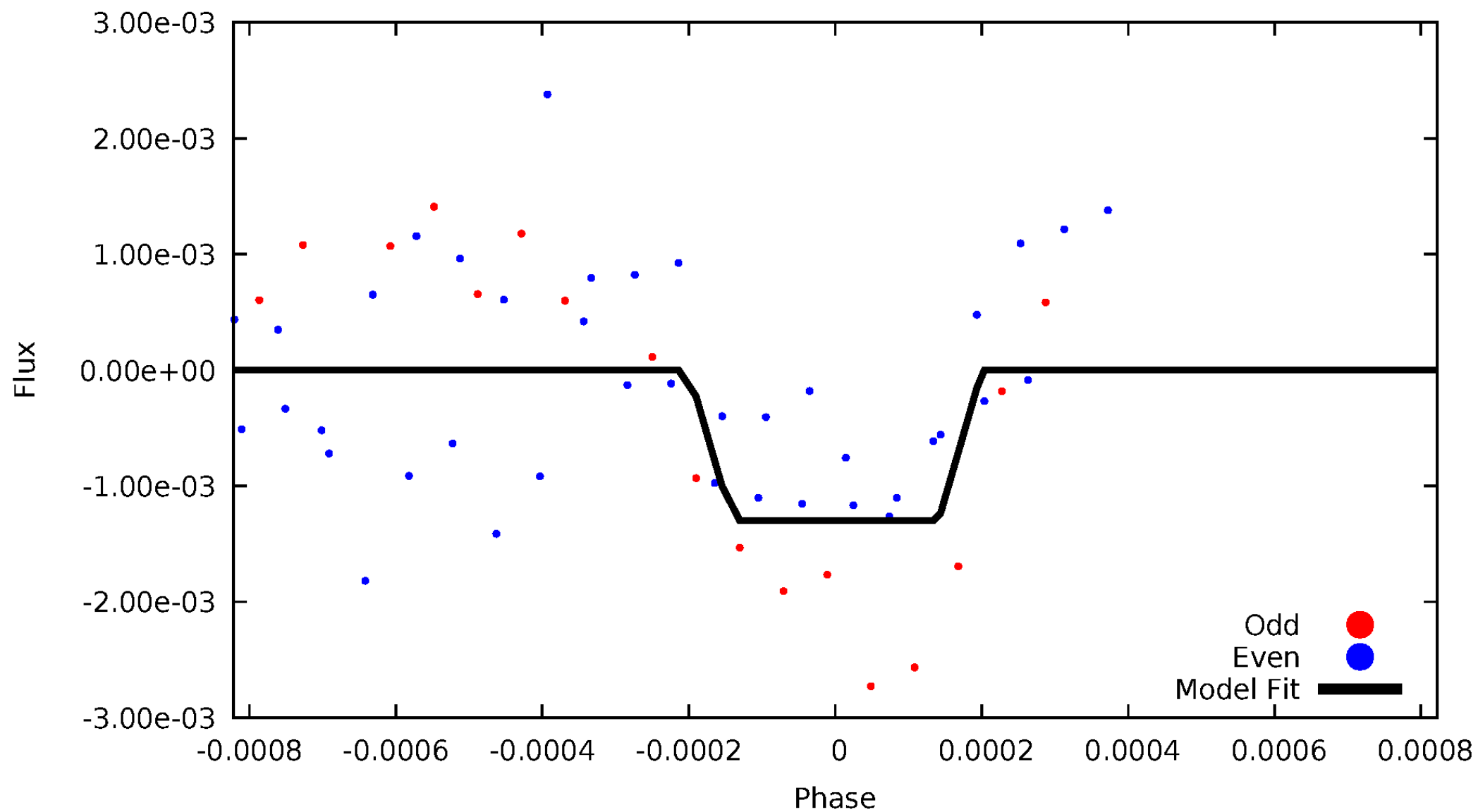
DV Odd/Even

TCE 009910533-07



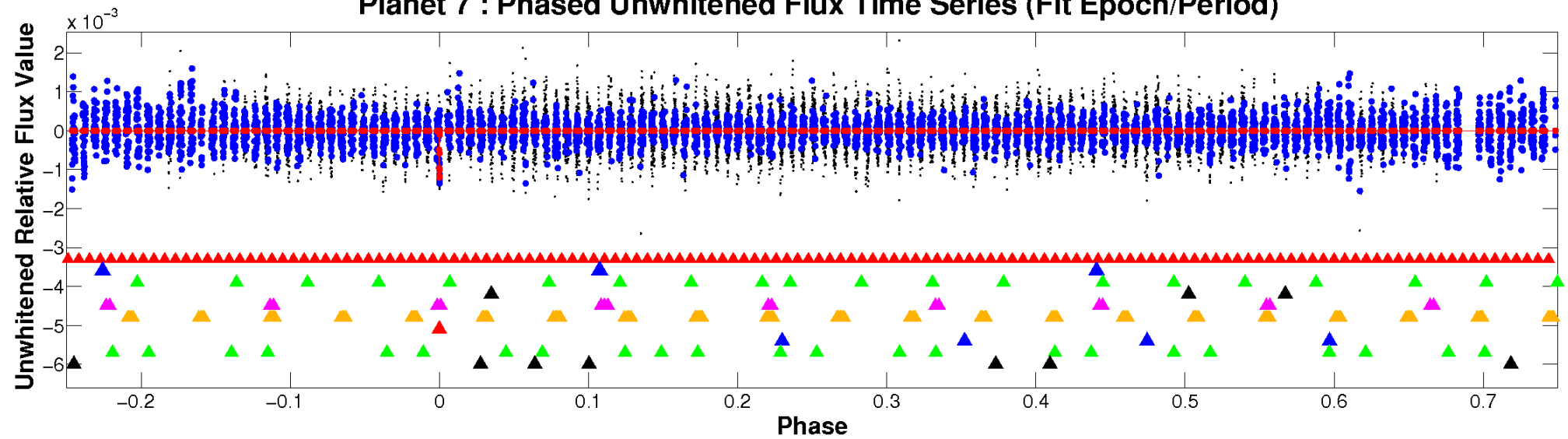
ALT Odd/Even

TCE 009910533-07

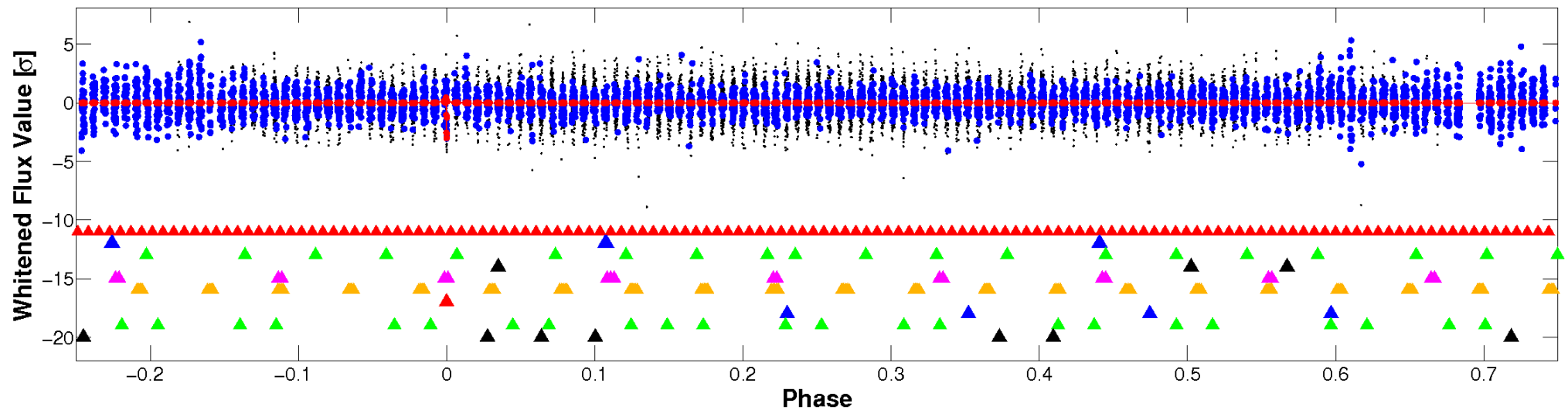


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

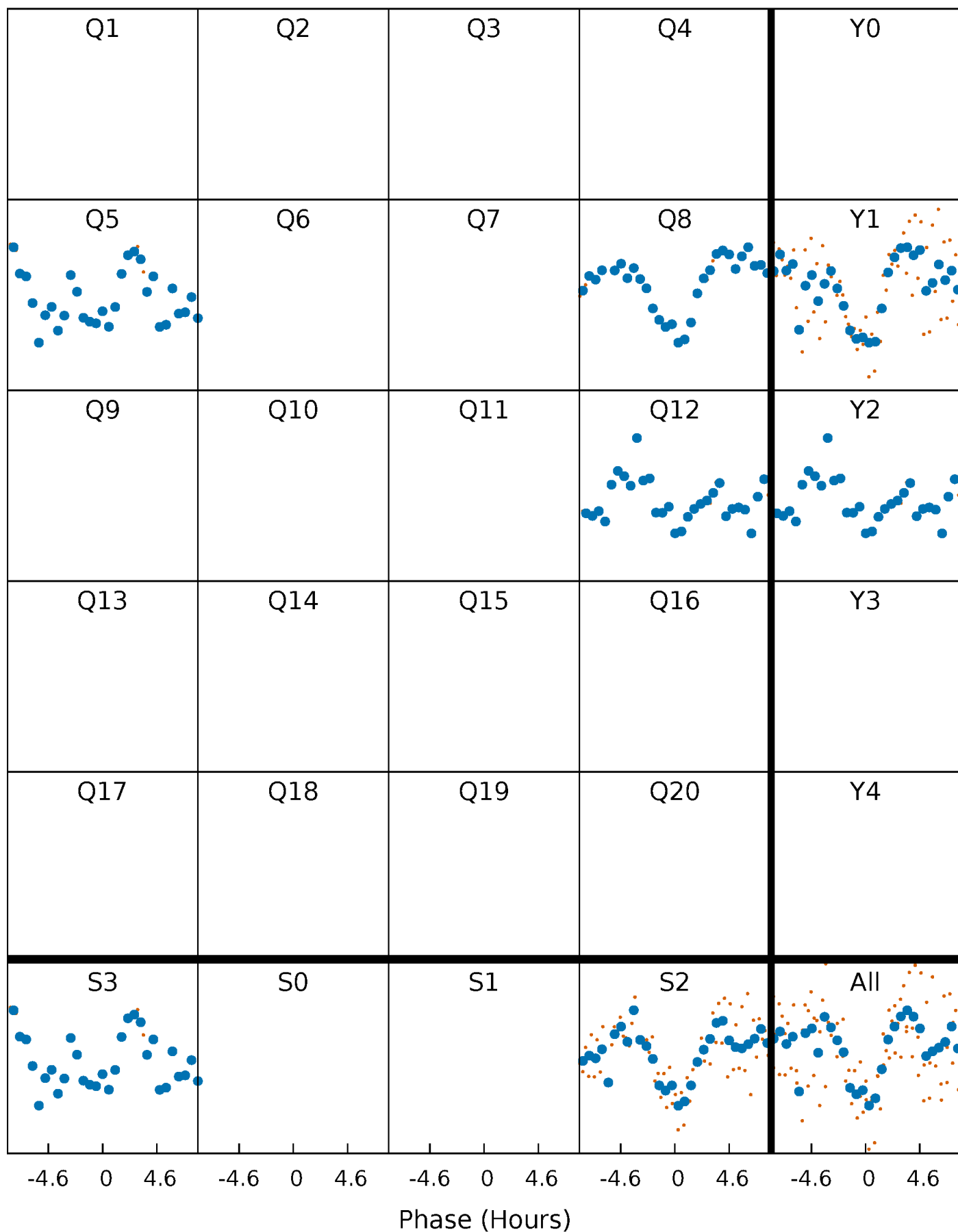


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



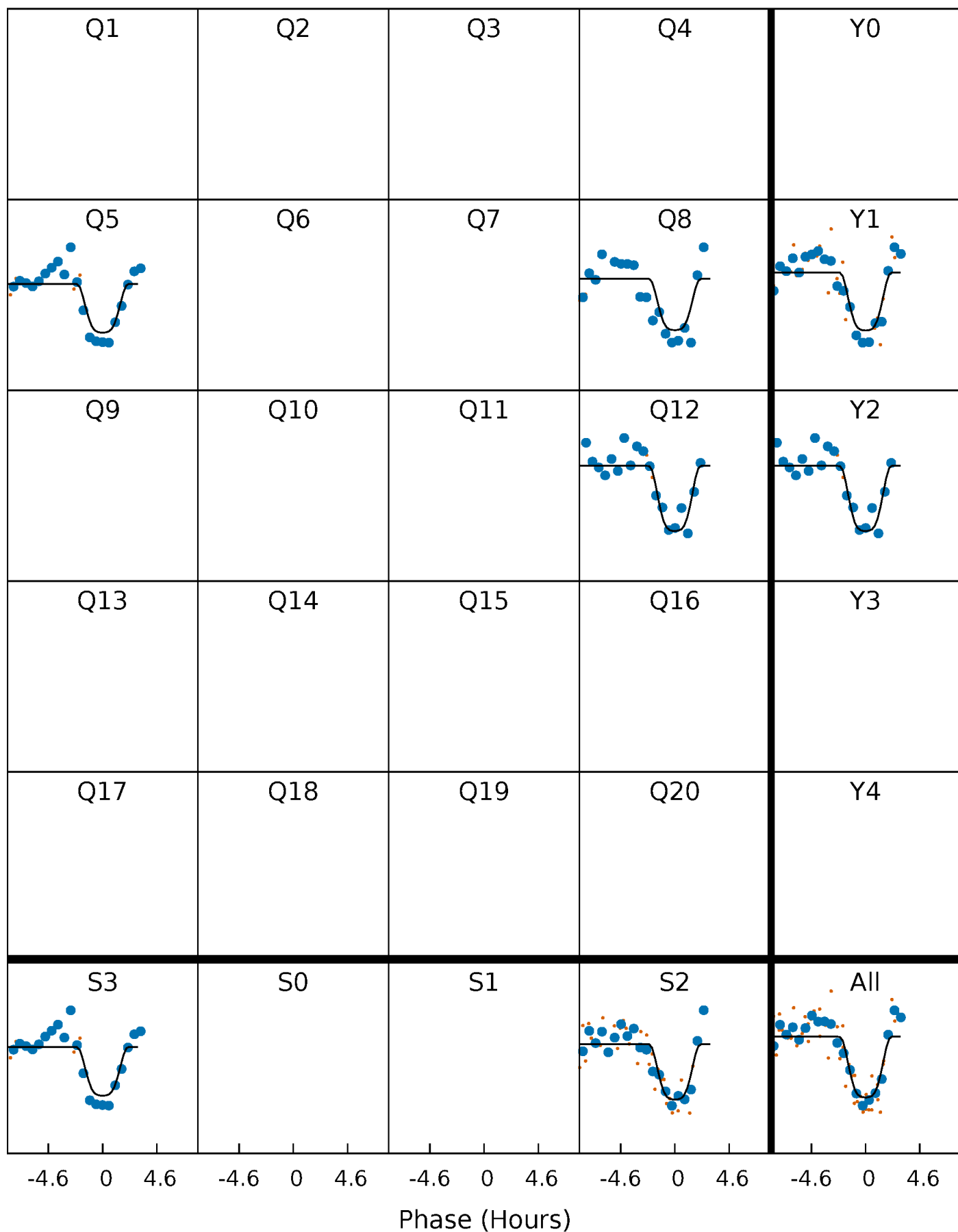
PDC Quarter-Phased Transit Curves

TCE 009910533-07 $P=342.537734$ Days $T_0=456.300823$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009910533-07 $P=342.537734$ Days $T_0=456.300823$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

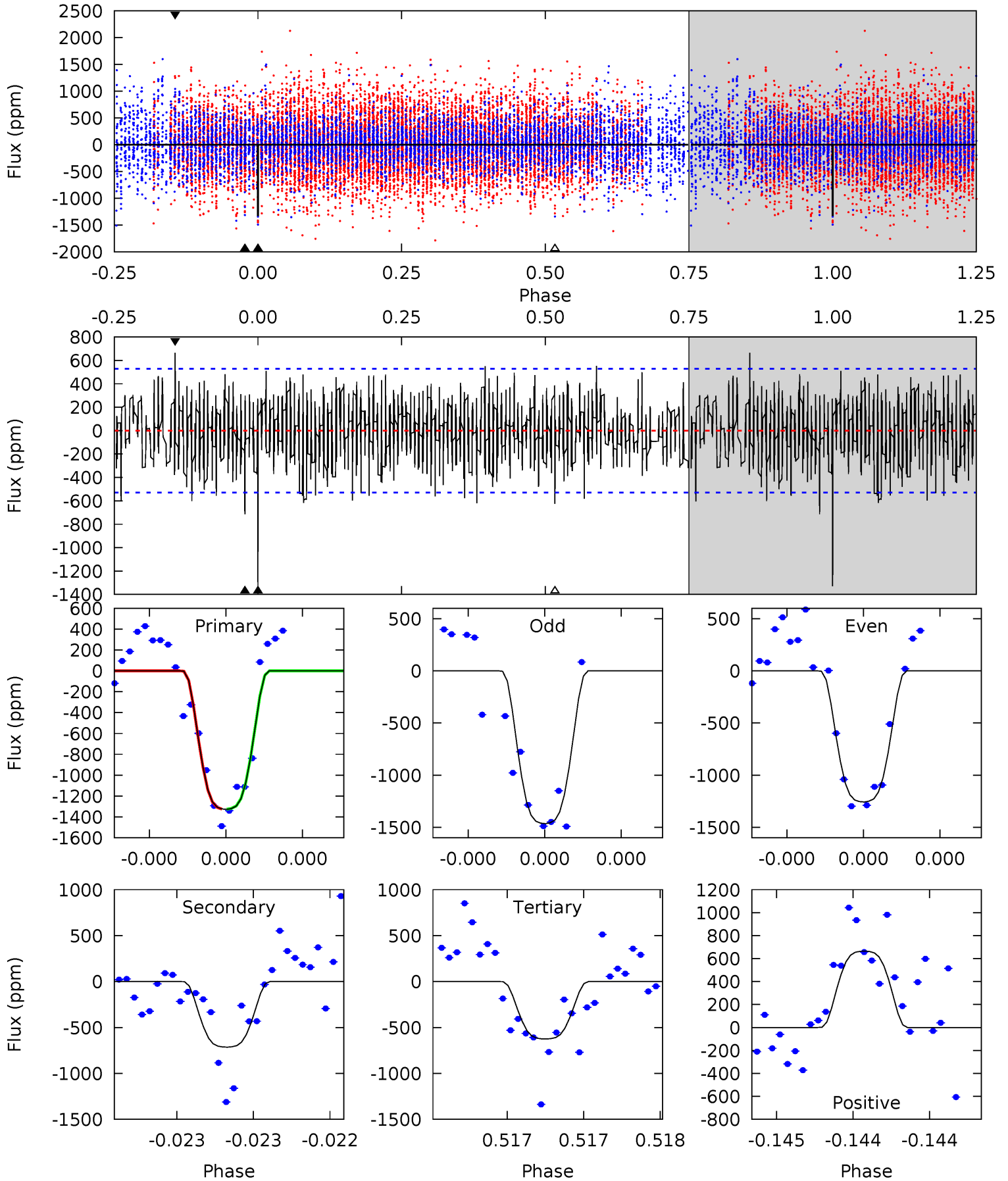
TCE 009910533-07 P=342.536575 Days $T_0=456.297115$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-07, P = 342.537734 Days, E = 113.763089 Days

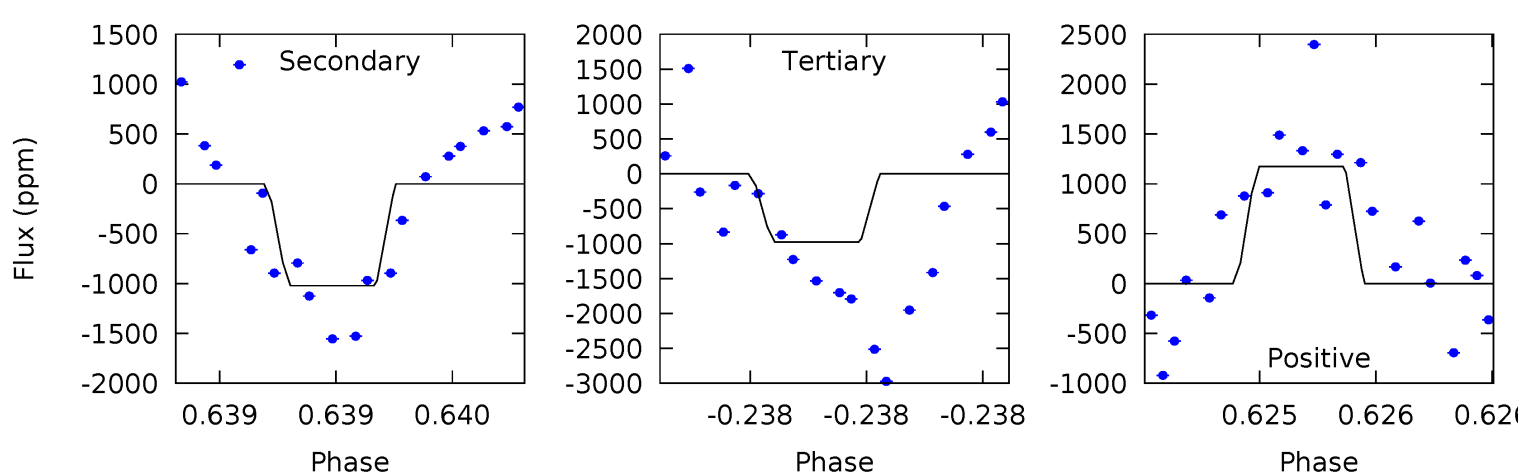
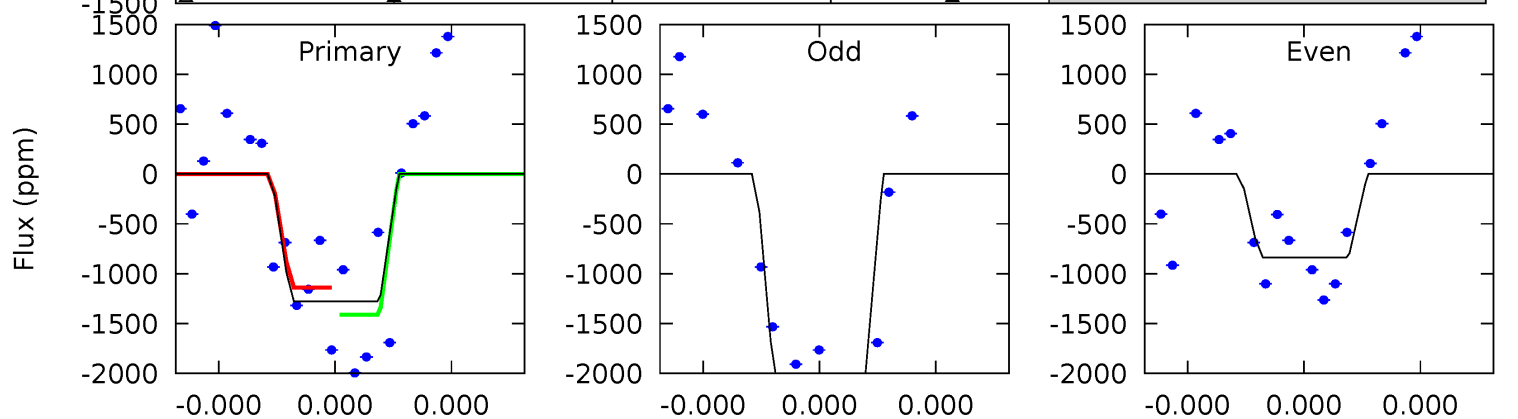
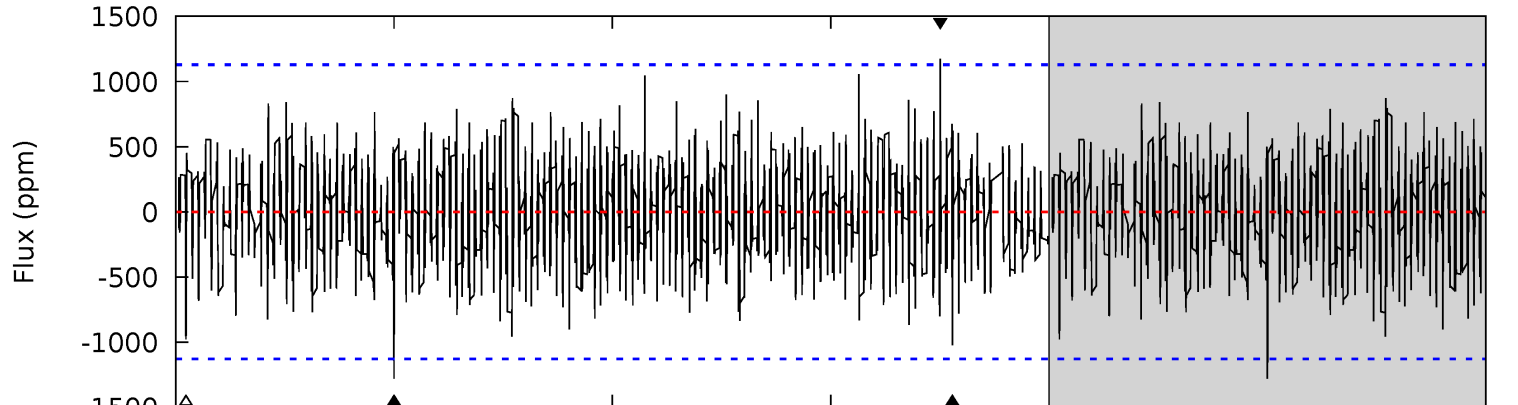
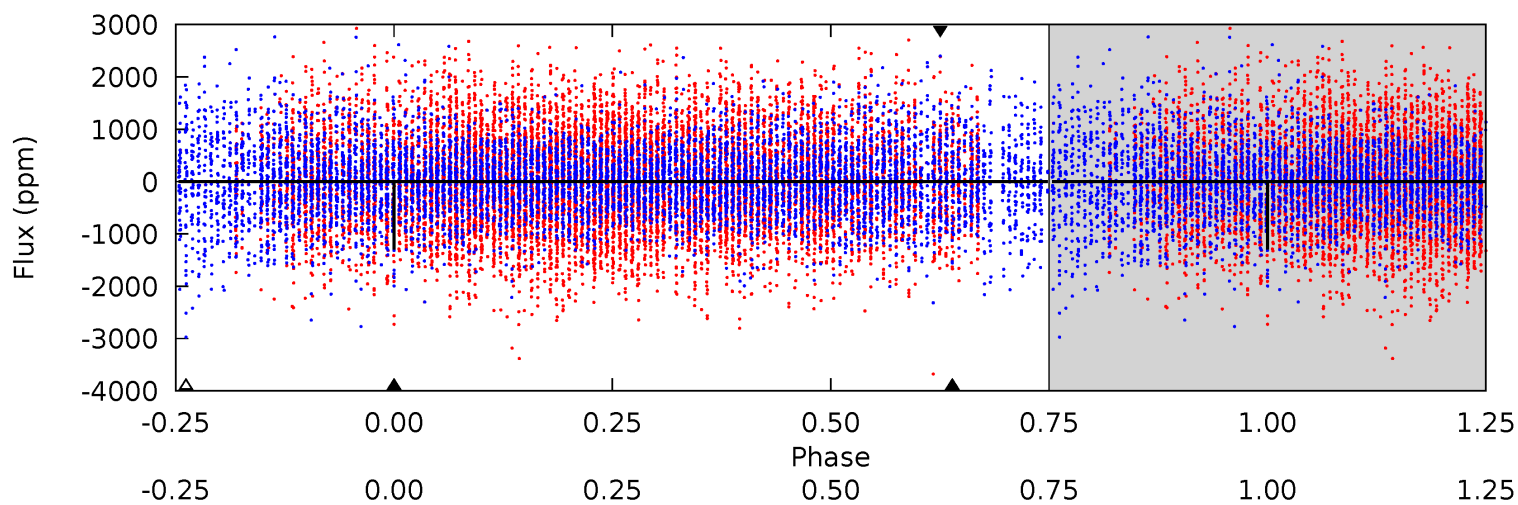
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	7.54	6.60	7.02	5.58	3.49	2.09	7.41	6.99	0.94	0.52	1.02	0.94	0.33	0.00



Alt Model-Shift Uniqueness Test

009910533-07, P = 342.536575 Days, E = 113.760540 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.37	5.10	4.88	5.85	5.63	3.56	1.56	1.49	0.52	0.22	-0.76	3.14	1.27	0.48	0.68



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-714 ± 95	$12.38^{+2.70}_{-2.91}$	804^{+71}_{-101}	6755^{+469}_{-453}	3850^{+2670}_{-1332}
Alt.	-1021 ± 200	$11.52^{+2.70}_{-3.03}$	810^{+66}_{-101}	7787^{+694}_{-713}	6240^{+4888}_{-2198}

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

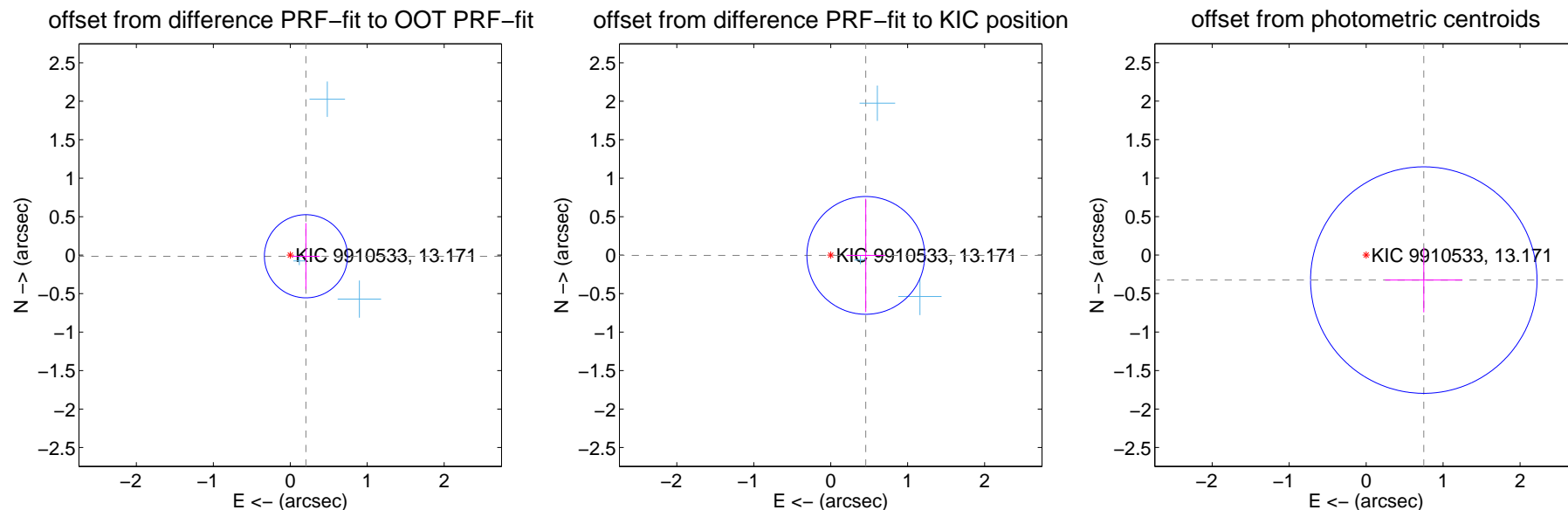
DV Centroid Data

Supplemental centroid analysis for 009910533-07. Kepler magnitude: 13.17. Transit SNR 11.16

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.204 ± 0.180	1.14	-0.204 ± 0.178	-0.014 ± 0.430
PRF-fit source offset from KIC position	0.456 ± 0.255	1.79	-0.456 ± 0.251	-0.003 ± 0.737
photometric centroid source offset	0.82 ± 0.49	1.66	-0.75 ± 0.50	-0.32 ± 0.42

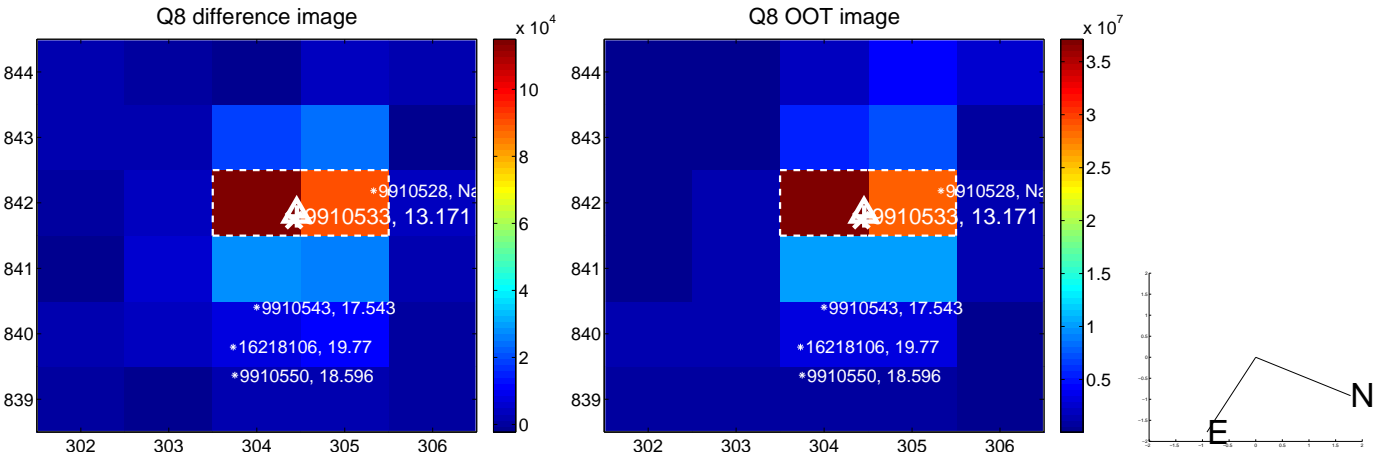
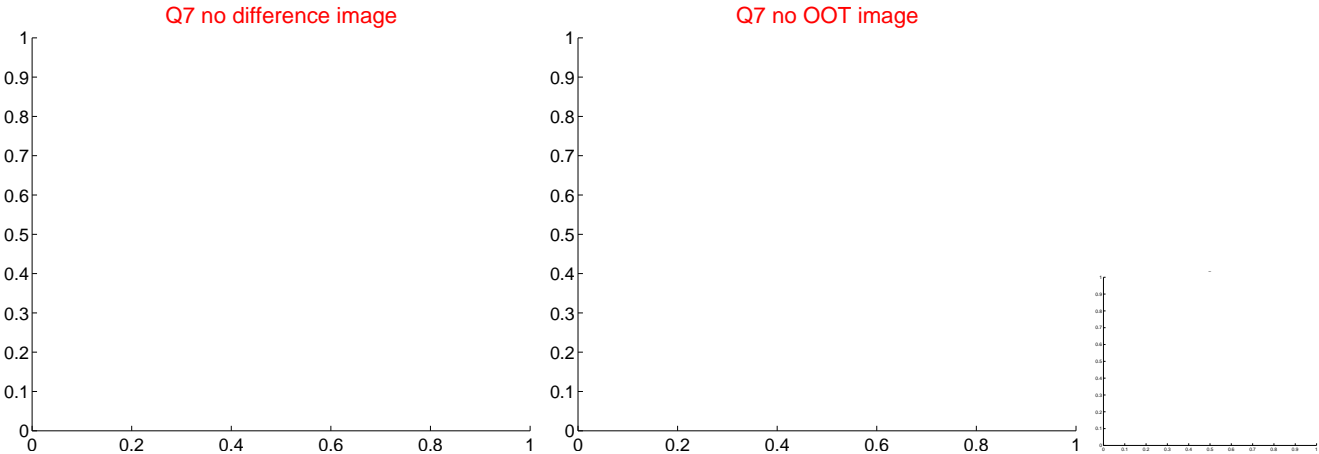
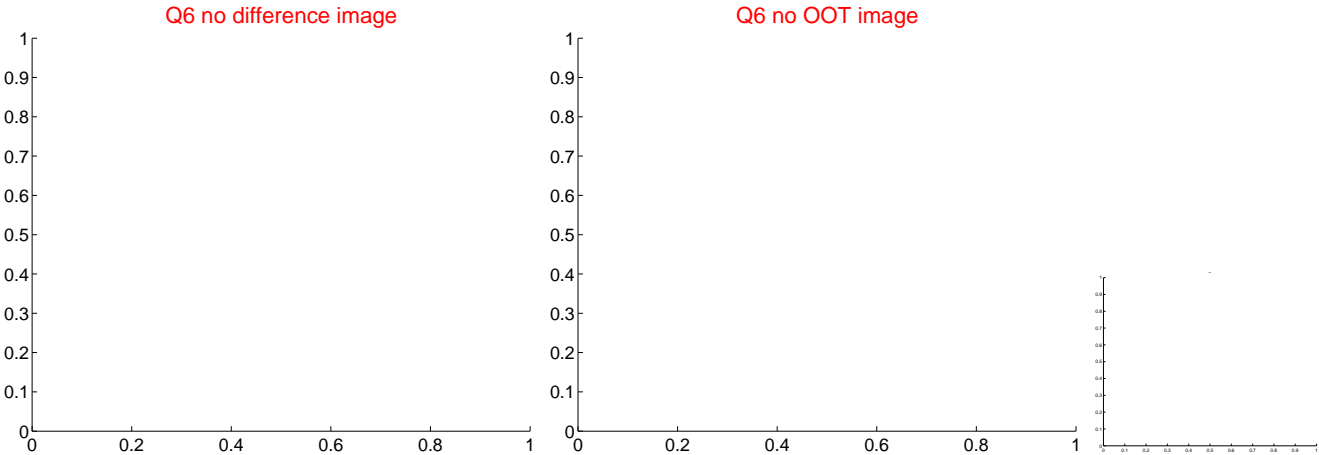
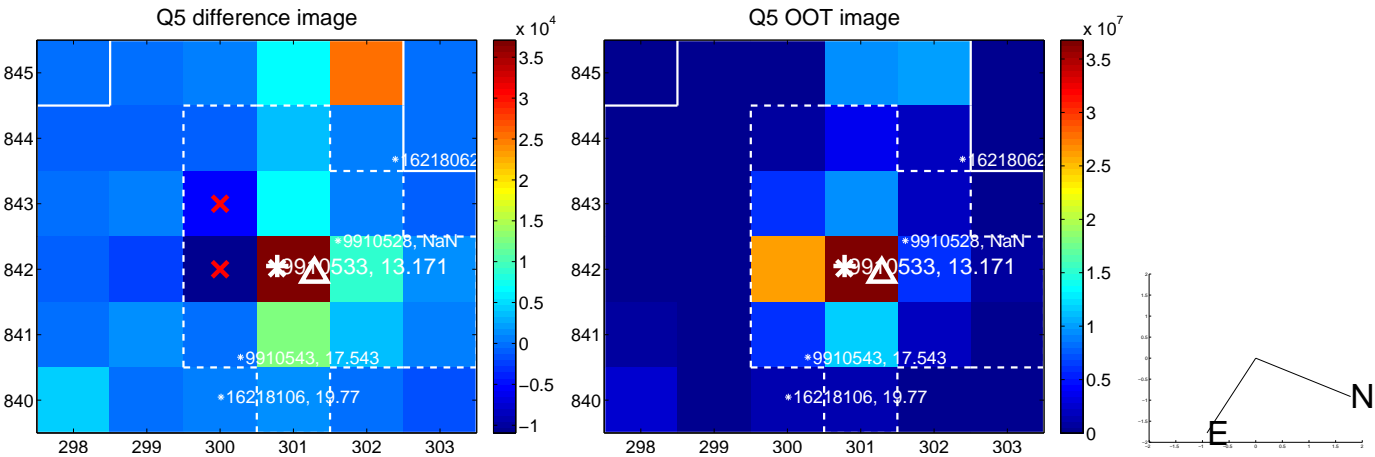


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

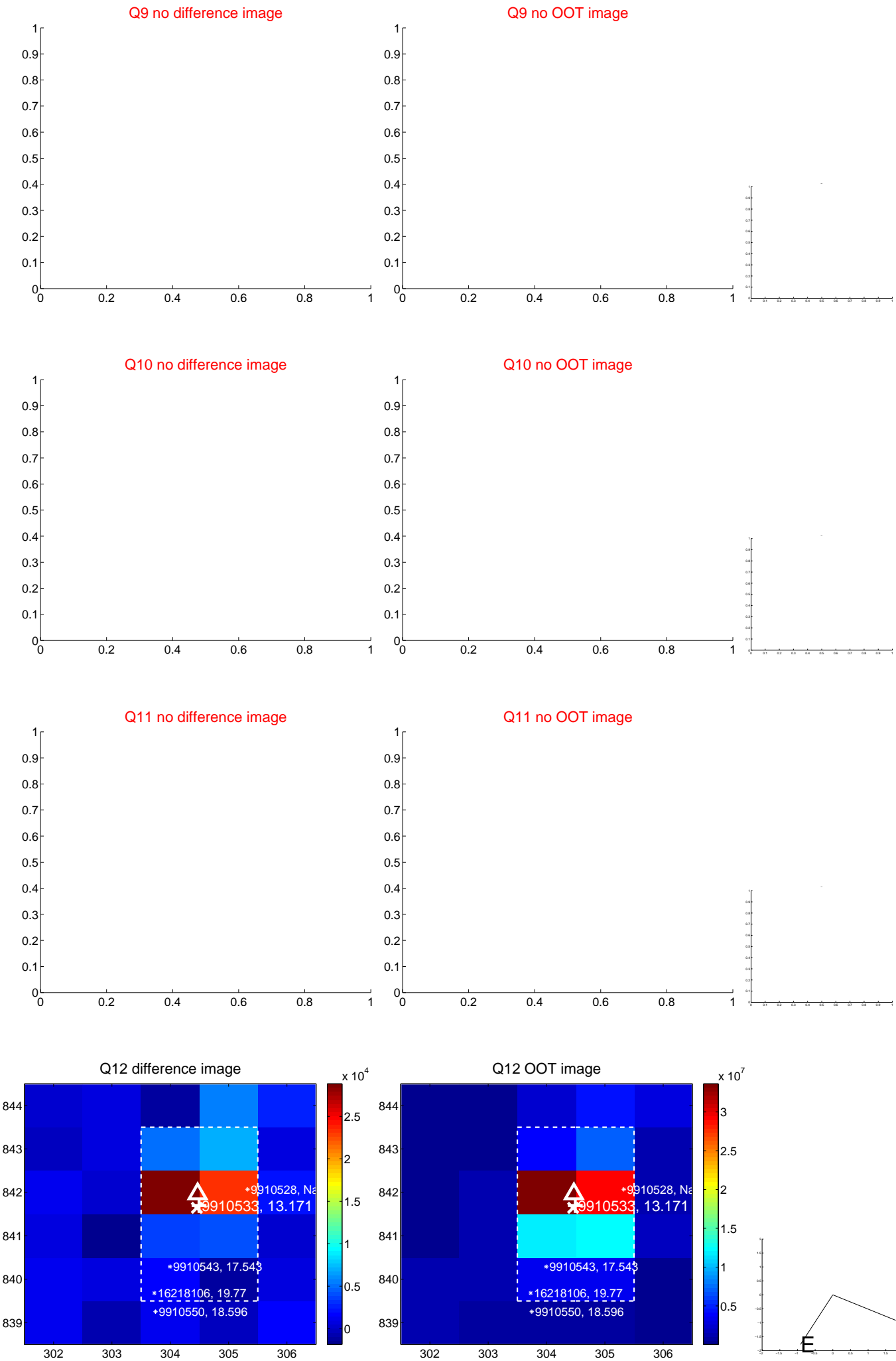
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



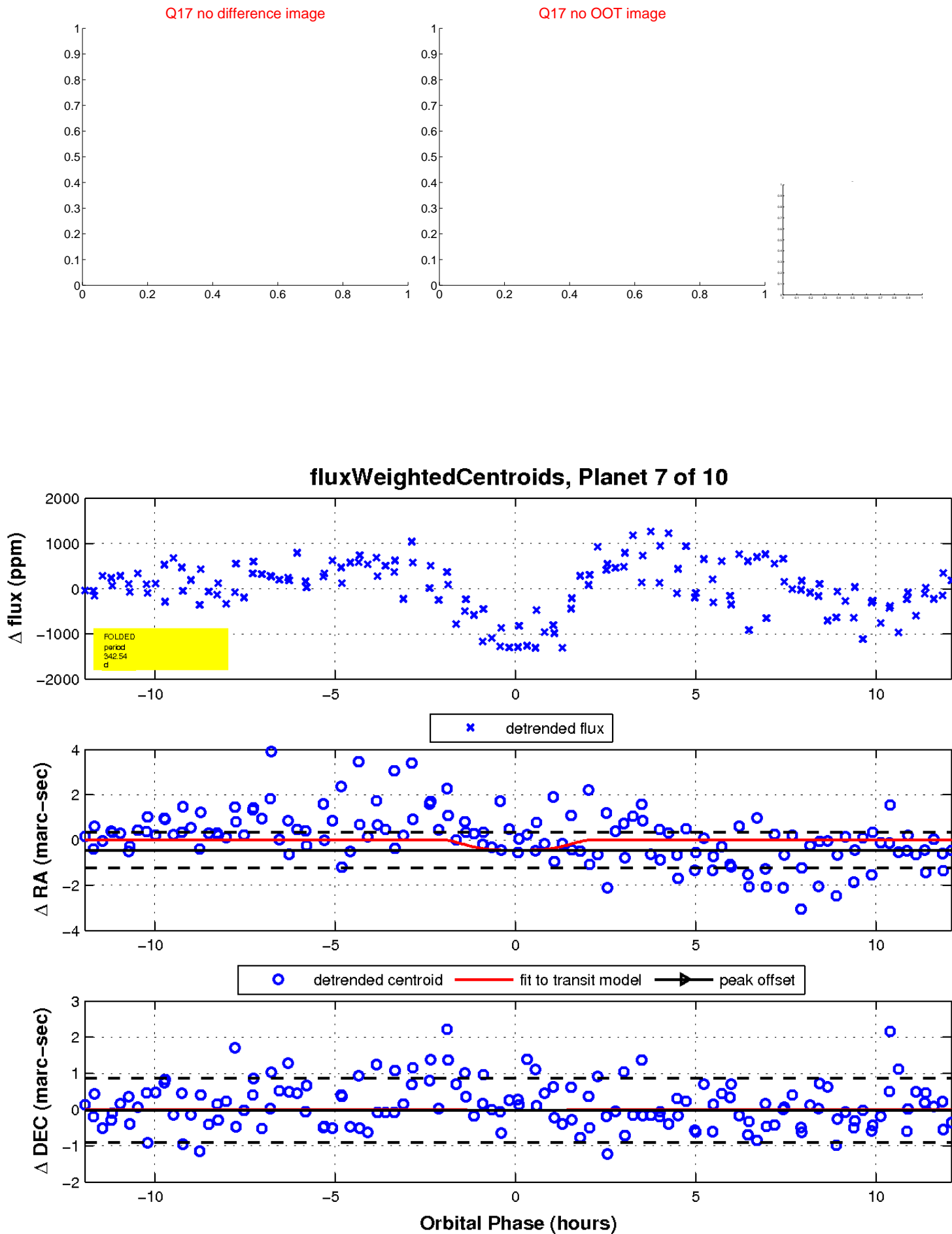
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

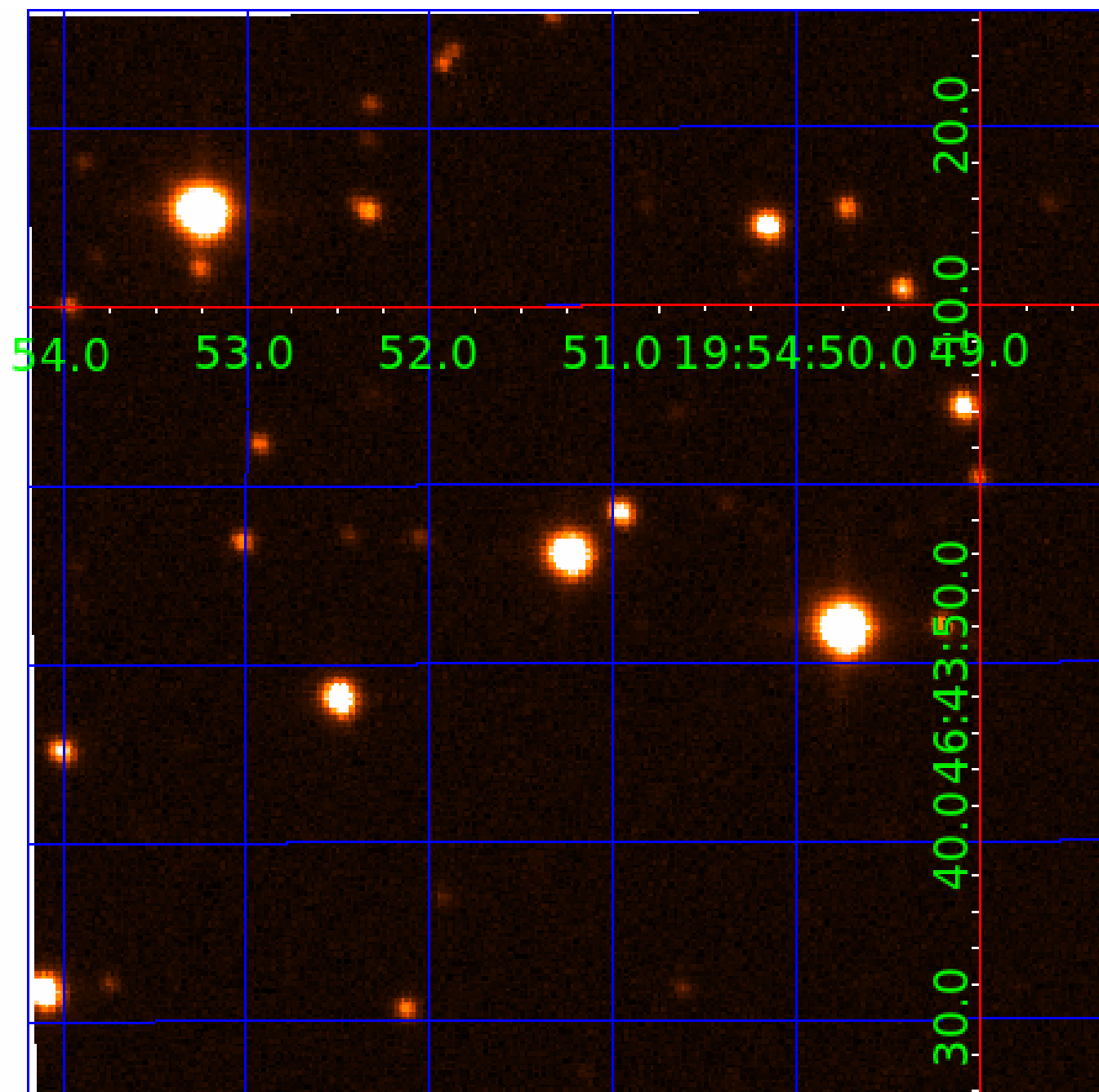


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

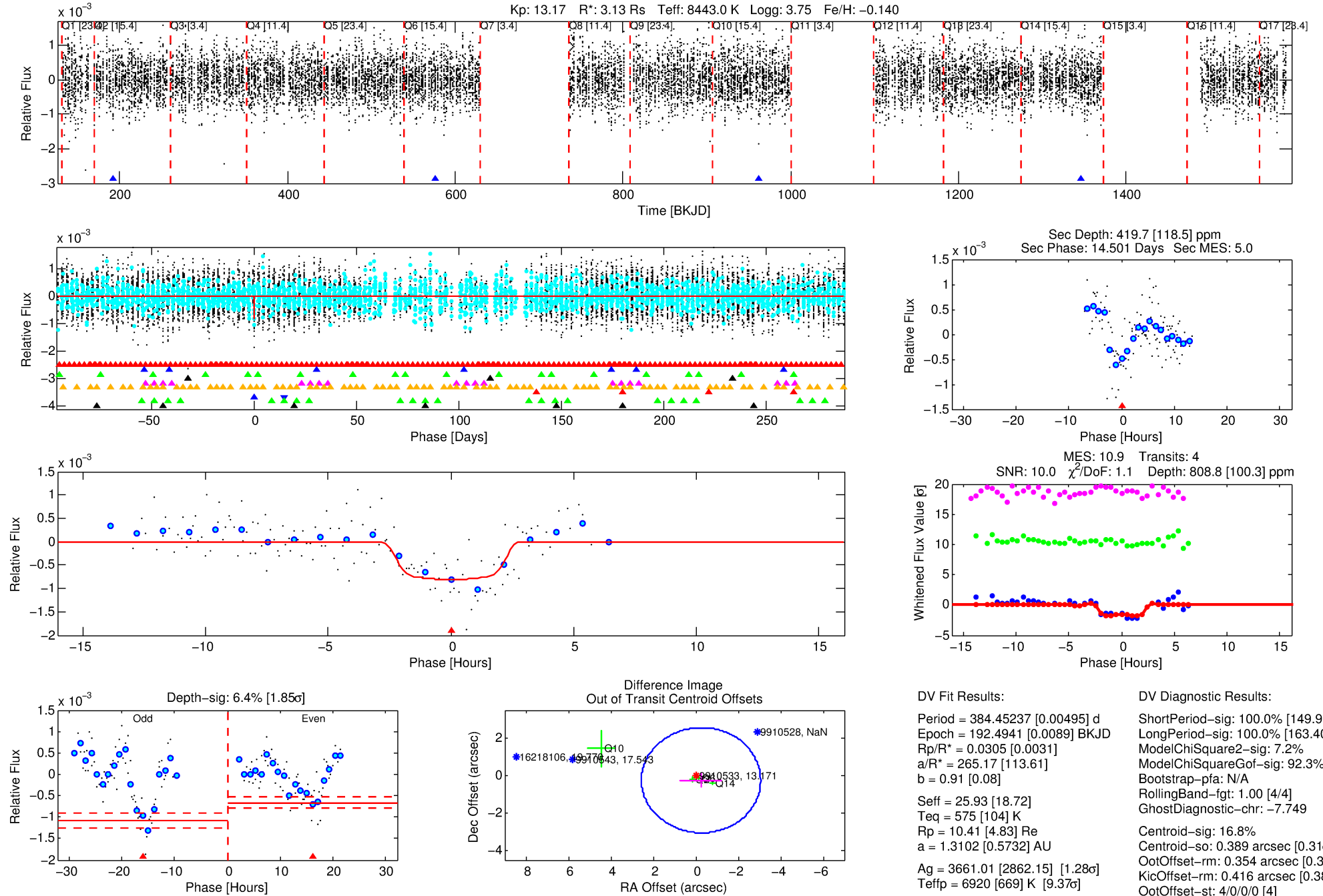
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-08

No Significant Match Found

DV One-Page Summary

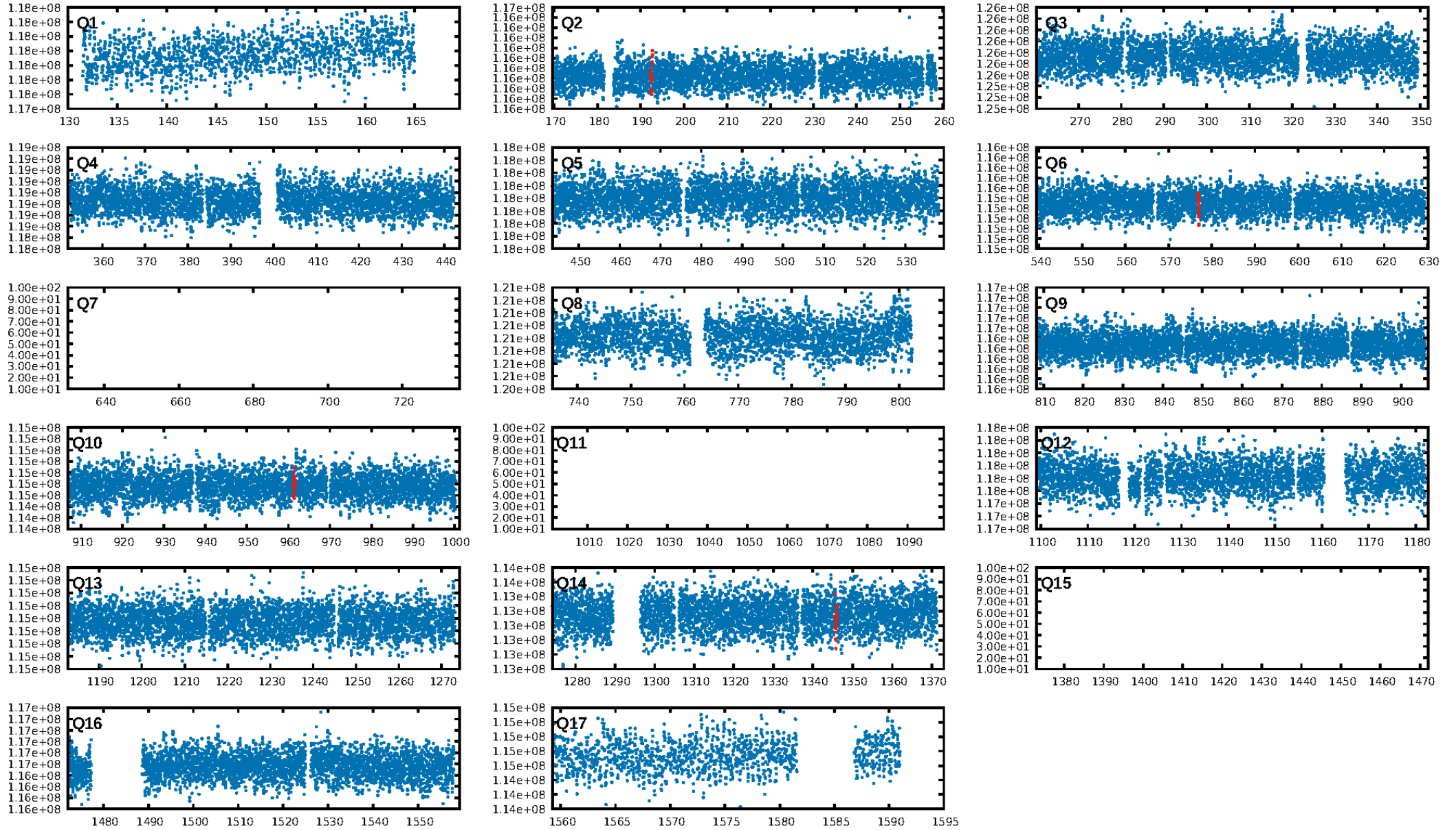
KIC: 9910533 Candidate: 8 of 10 Period: 384.452 d



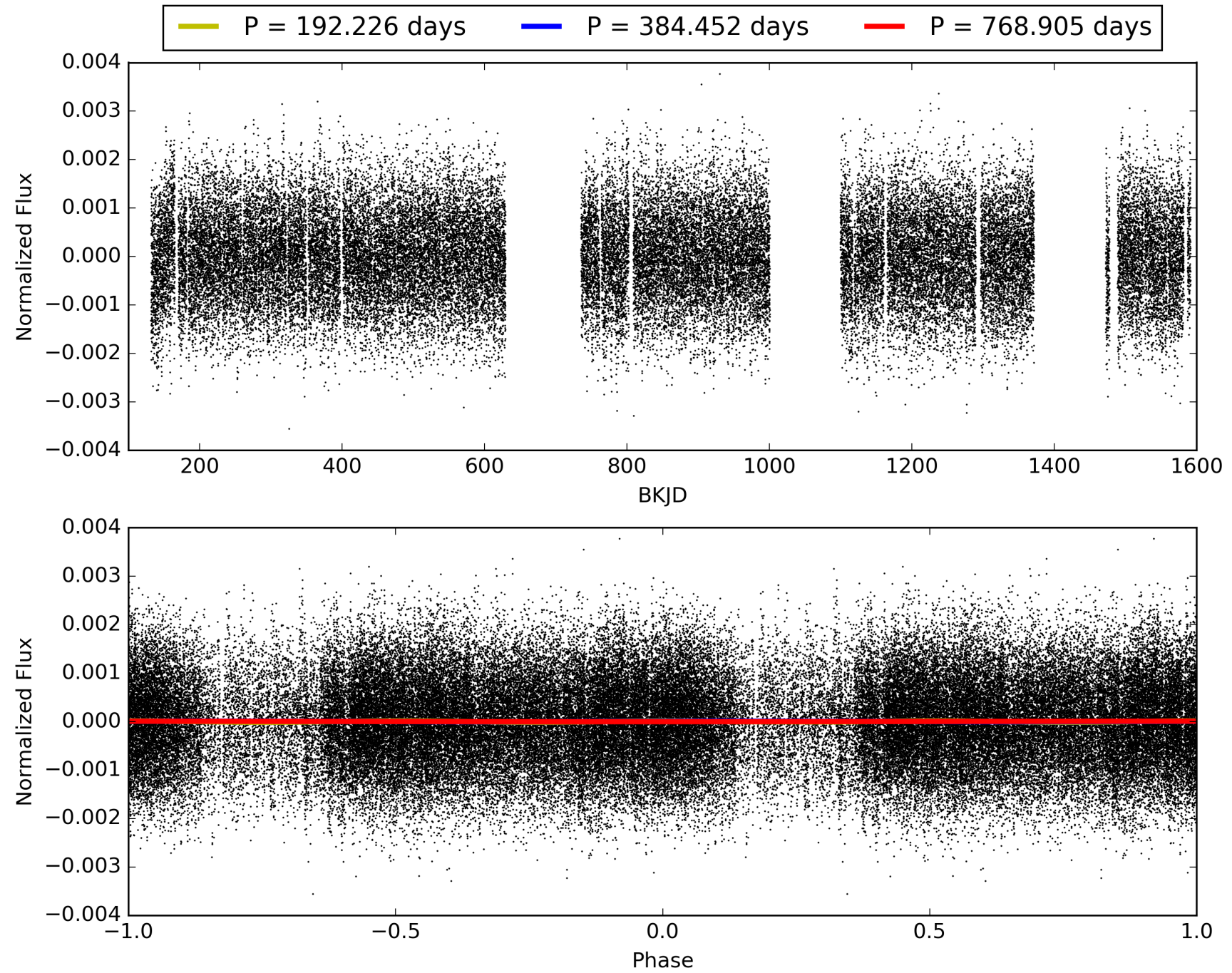
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:31:04 Z

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

TCE 009910533-08, PDC Light Curves

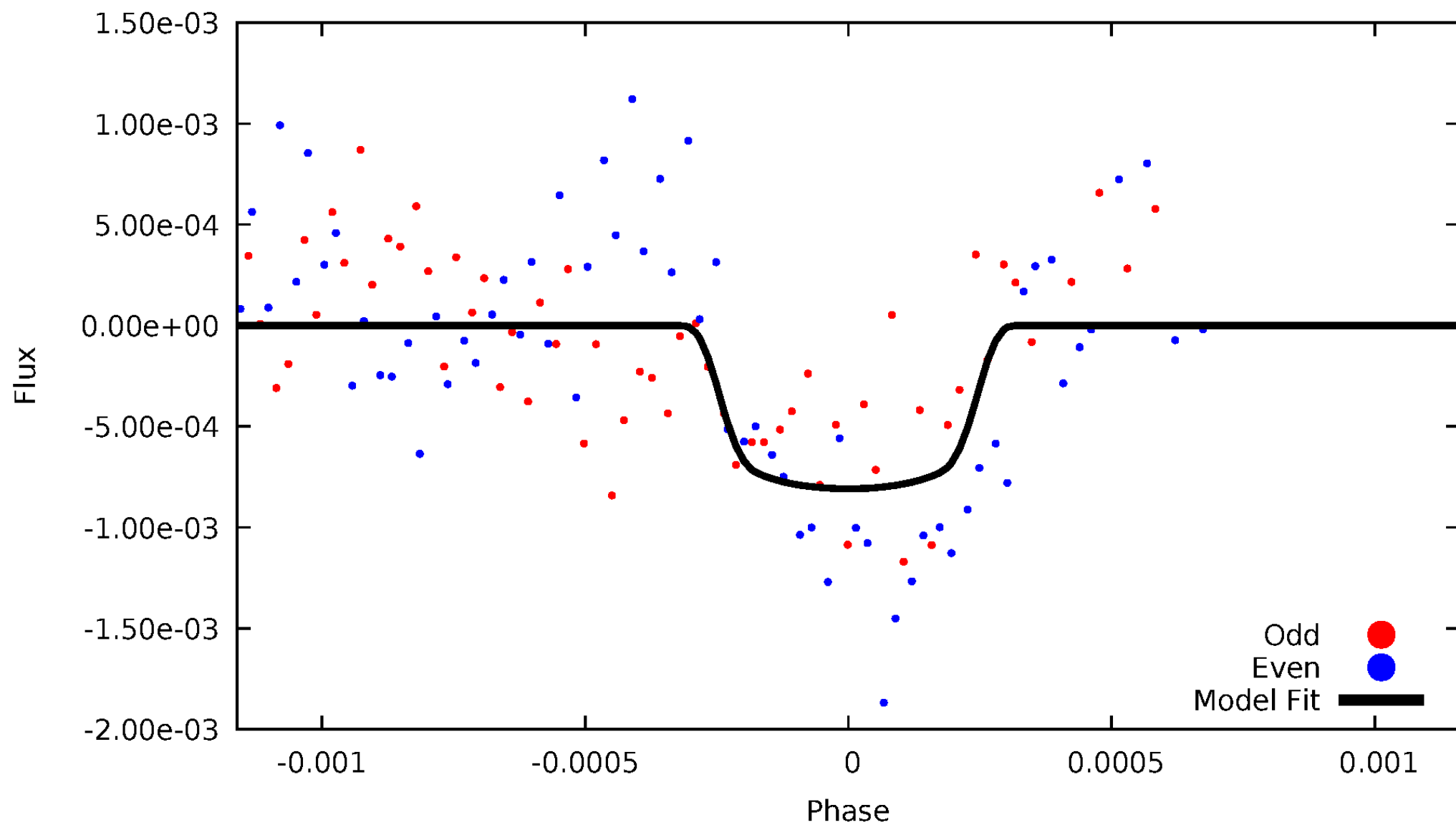


TCE 009910533-08



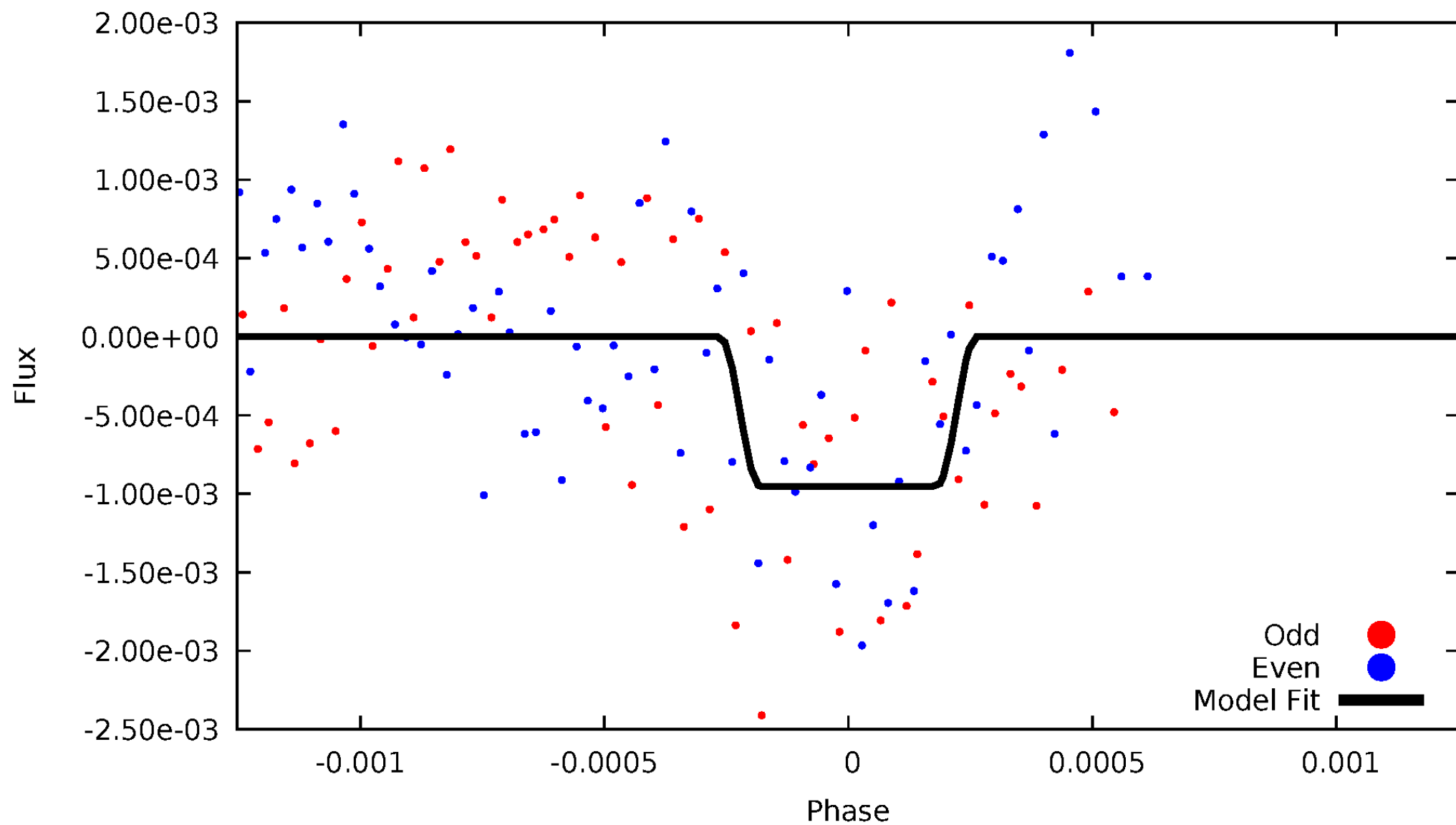
DV Odd/Even

TCE 009910533-08



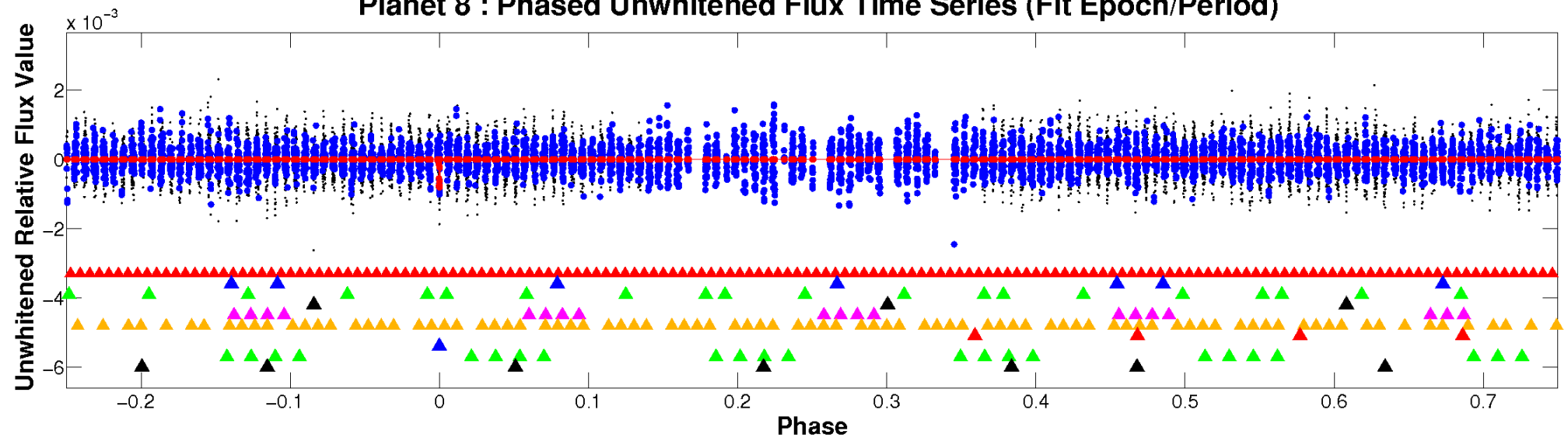
ALT Odd/Even

TCE 009910533-08

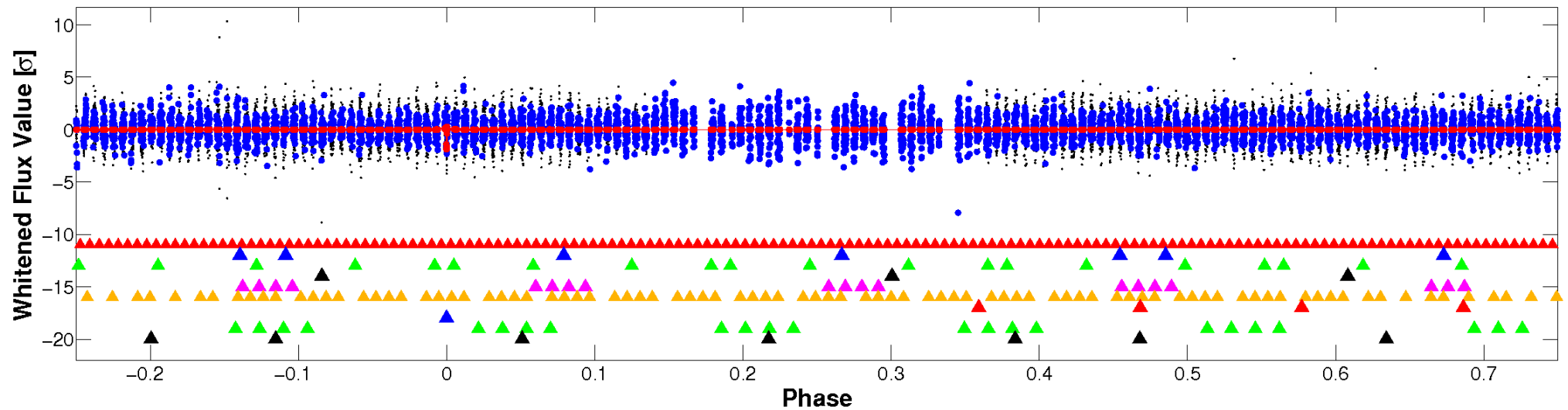


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

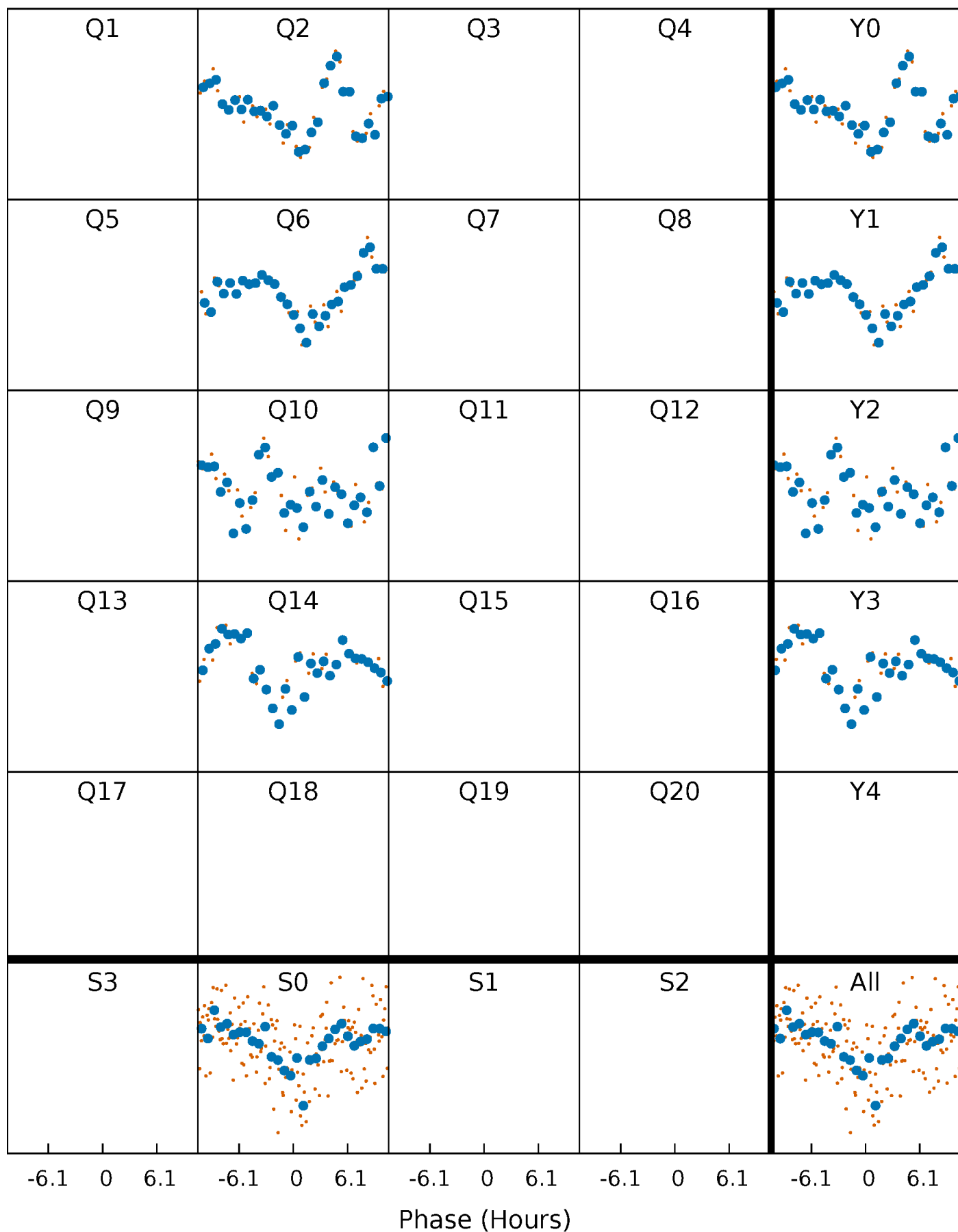


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



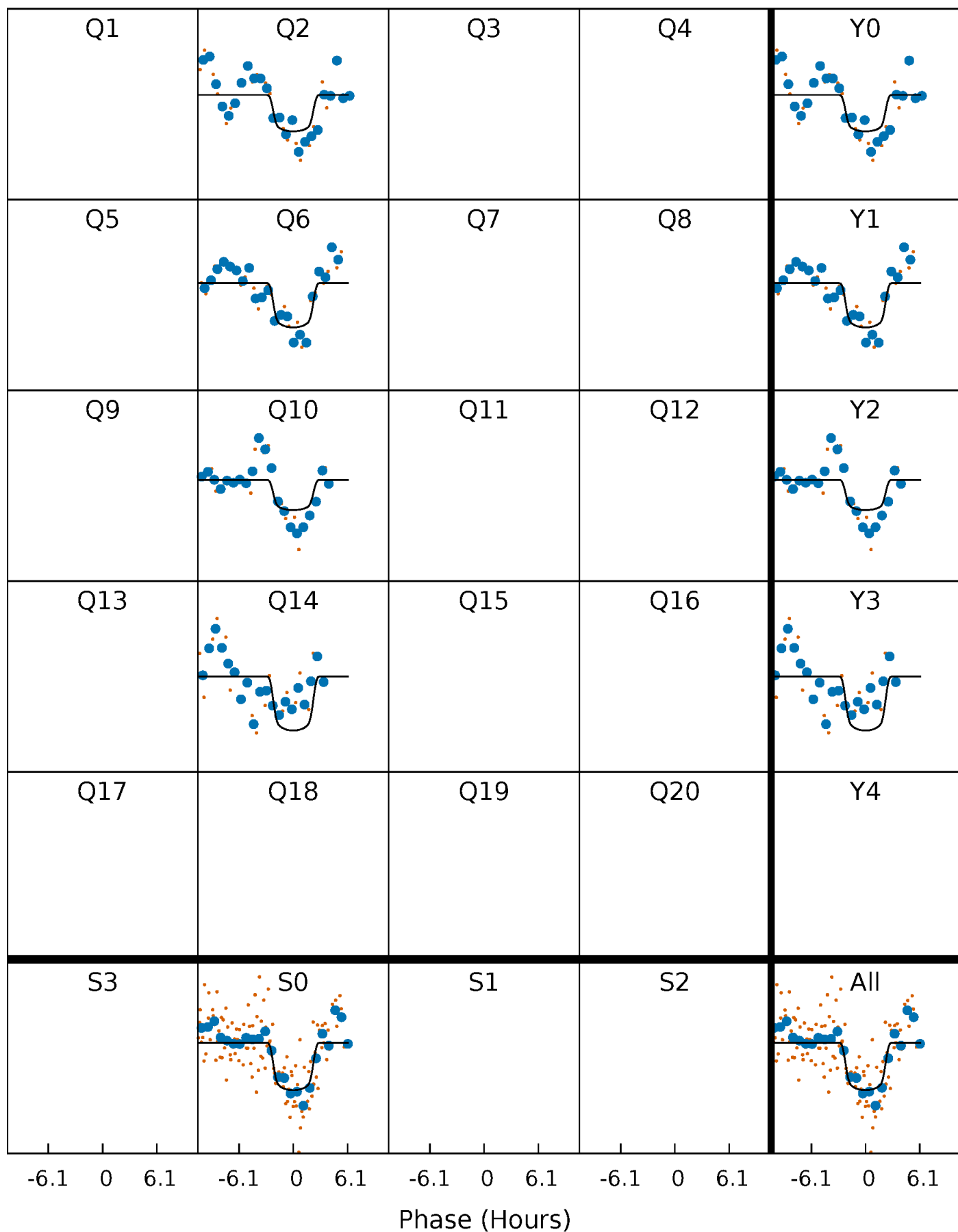
PDC Quarter-Phased Transit Curves

TCE 009910533-08 $P=384.452374$ Days $T_0=192.494144$ (BKJD)



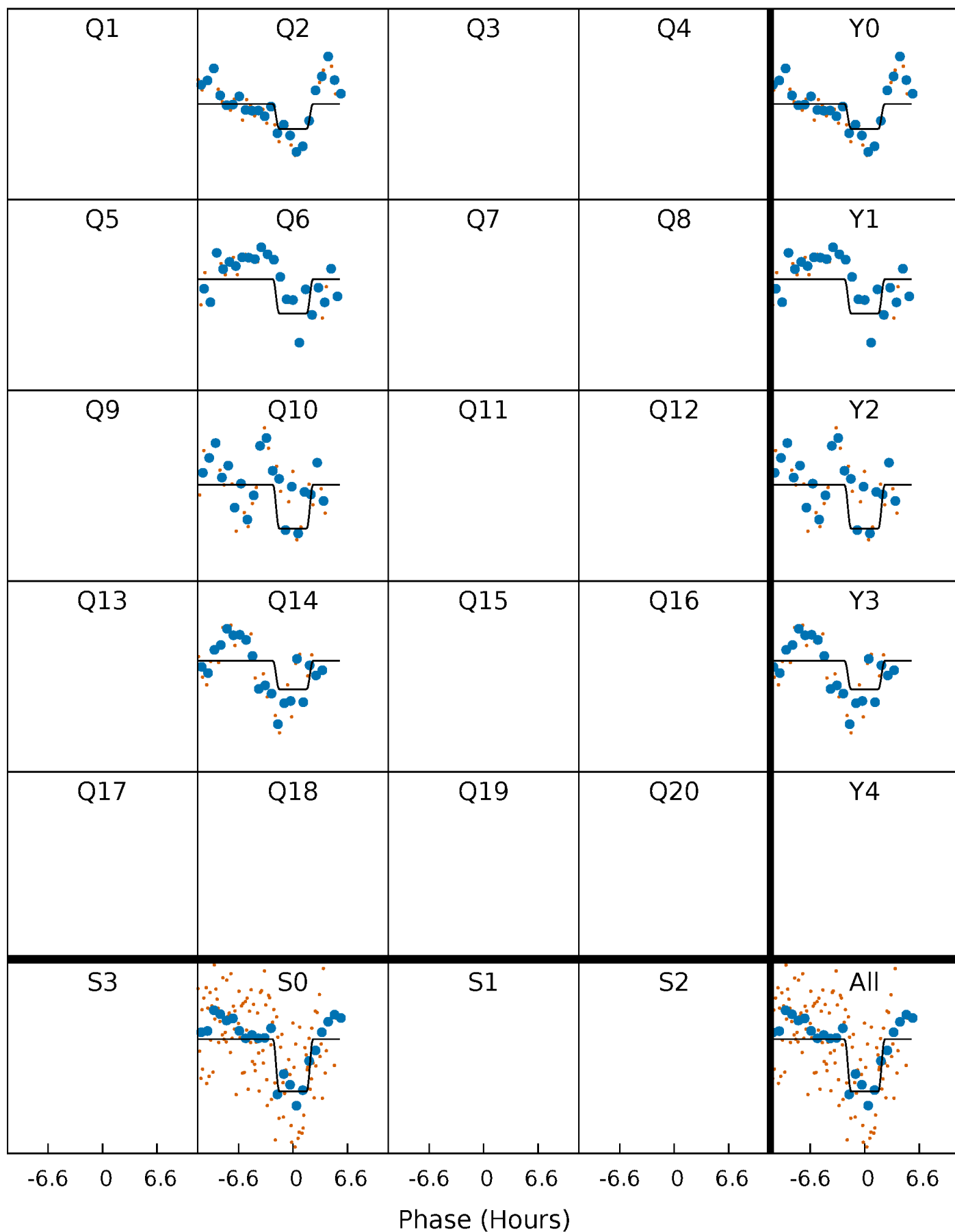
DV Quarter-Phased Transit Curves

TCE 009910533-08 $P=384.452374$ Days $T_0=192.494144$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

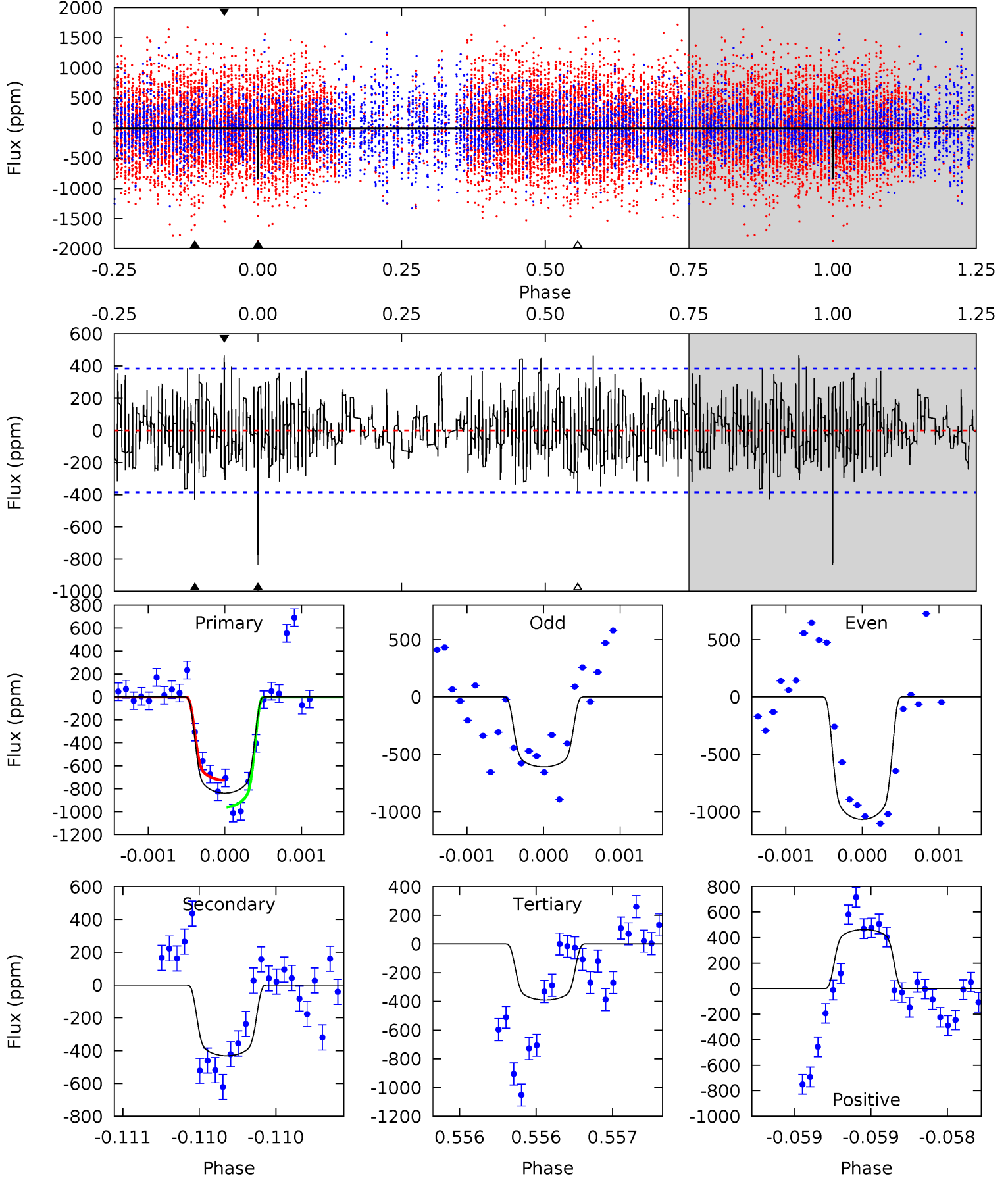
TCE 009910533-08 P=384.443809 Days $T_0=192.517684$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-08, $P = 384.452374$ Days, $E = 192.494144$ Days

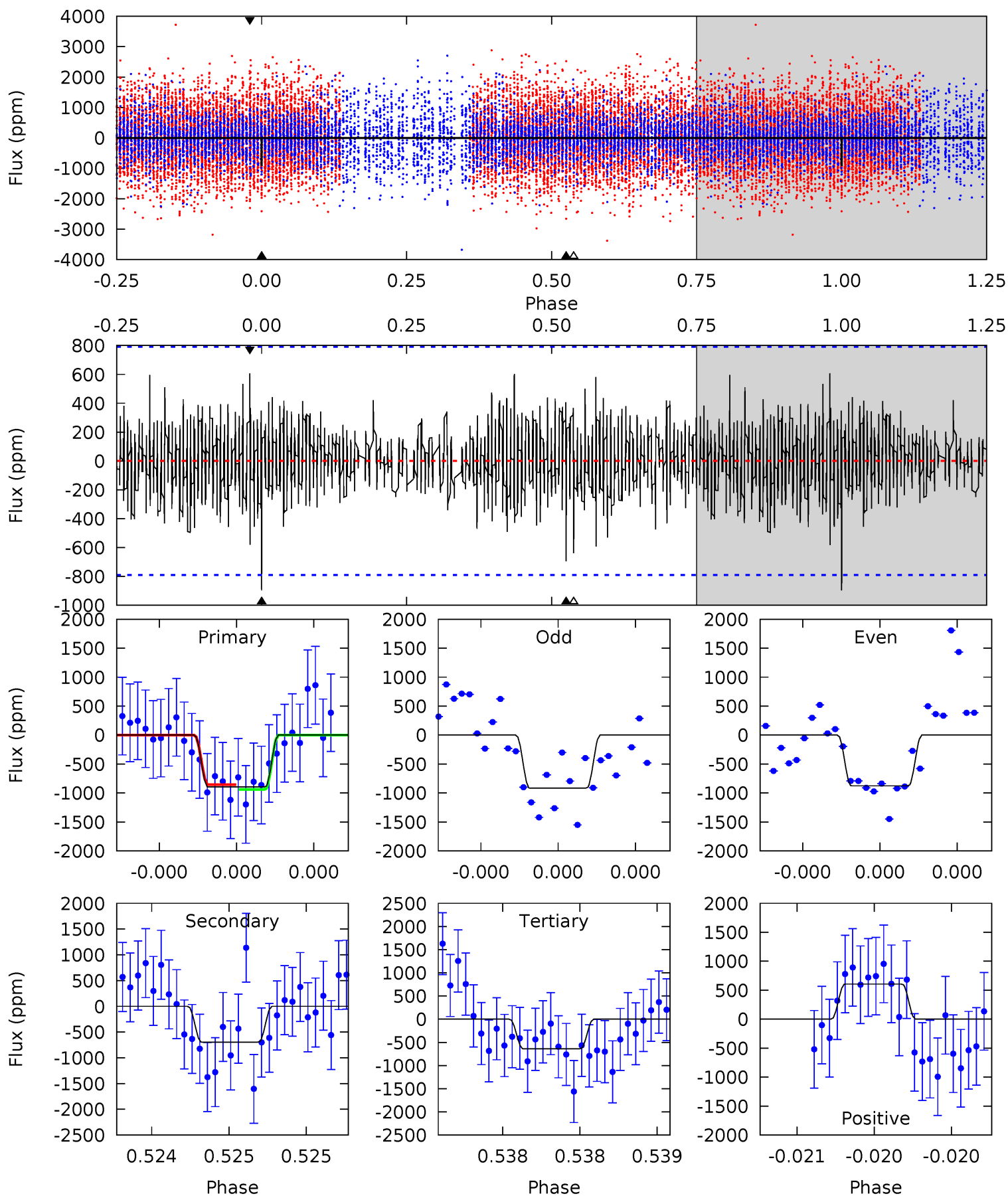
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	6.21	5.62	6.68	5.54	3.42	2.01	6.46	5.40	0.59	-0.47	3.30	0.91	0.36	1.69



Alt Model-Shift Uniqueness Test

009910533-08, P = 384.443809 Days, E = 192.517684 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.33	4.91	4.51	4.28	5.58	3.49	1.33	1.82	2.05	0.40	0.63	0.14	0.98	0.40	0.30



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-431 ± 69	$9.93^{+2.20}_{-2.30}$	781^{+67}_{-86}	6692^{+510}_{-495}	4080^{+2679}_{-1274}
Alt.	-695 ± 142	$10.15^{+2.07}_{-2.53}$	783^{+63}_{-88}	7616^{+732}_{-677}	6370^{+4821}_{-2072}

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

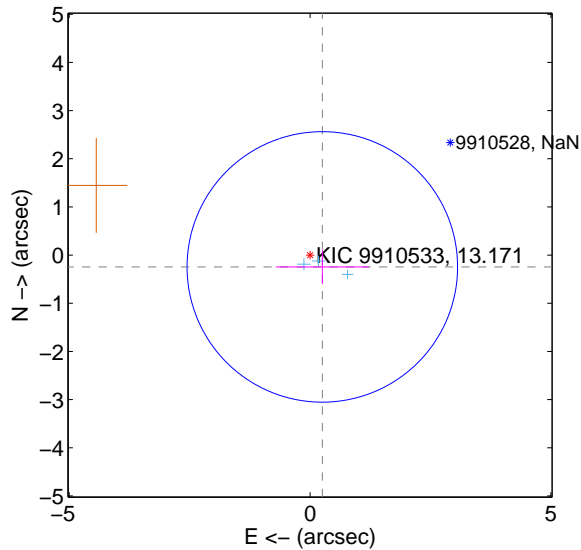
Supplemental centroid analysis for 009910533-08. Kepler magnitude: 13.17. Transit SNR 10.04

There are 3 quarters with good PRF difference image offsets

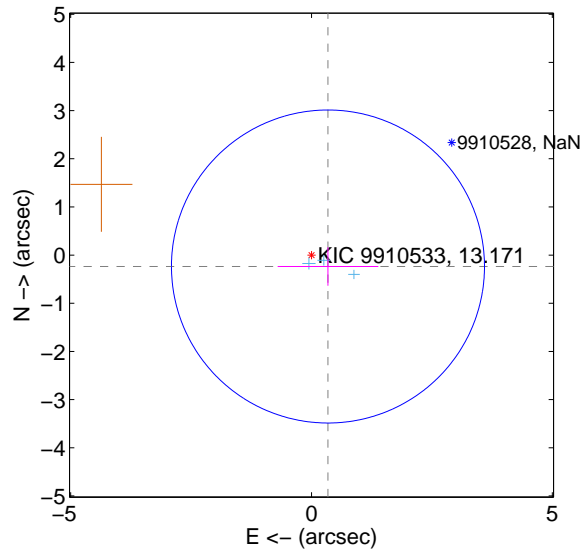
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.354 ± 0.936	0.38	-0.255 ± 0.966	-0.245 ± 0.353
PRF-fit source offset from KIC position	0.416 ± 1.083	0.38	-0.342 ± 1.046	-0.237 ± 0.399
photometric centroid source offset	0.39 ± 1.27	0.31	-0.35 ± 1.37	0.17 ± 0.62

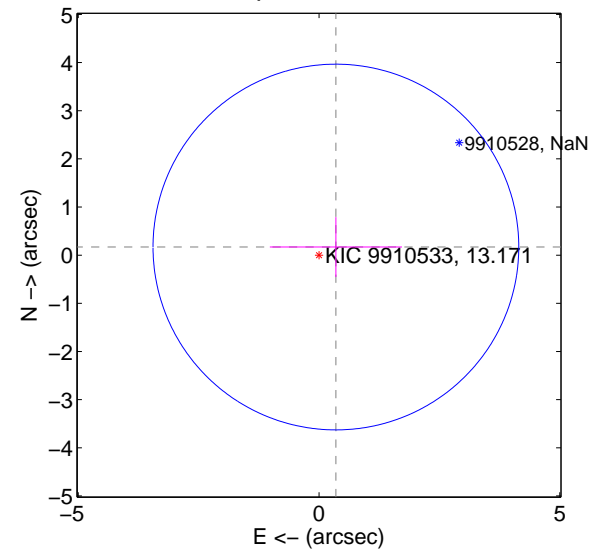
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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

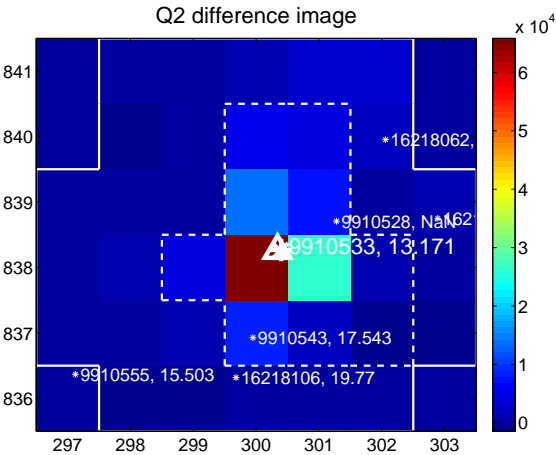
Q1 no difference image



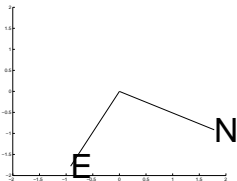
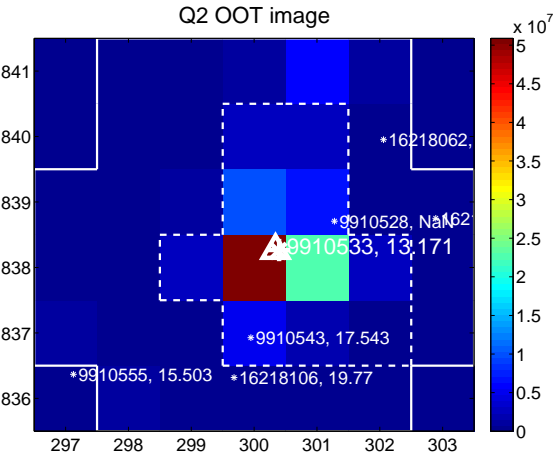
Q1 no OOT image



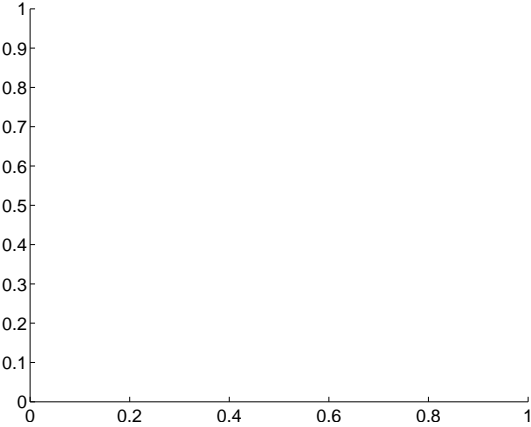
Q2 difference image



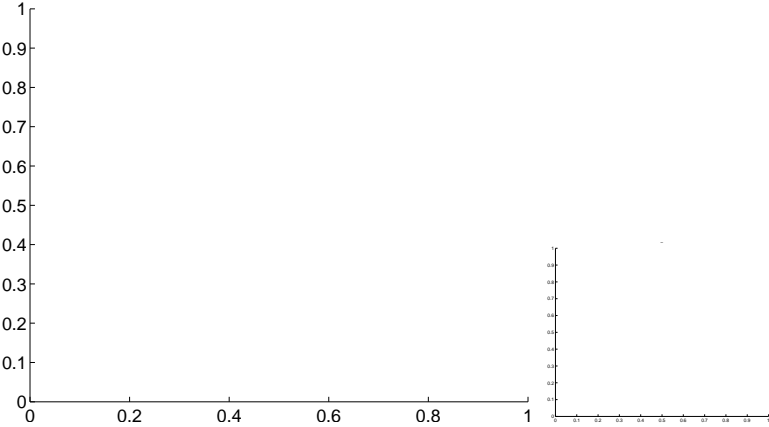
Q2 OOT image



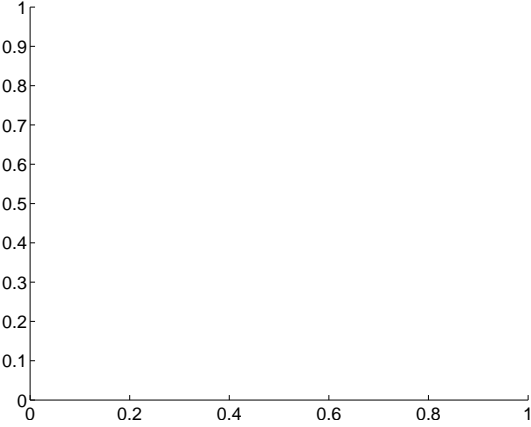
Q3 no difference image



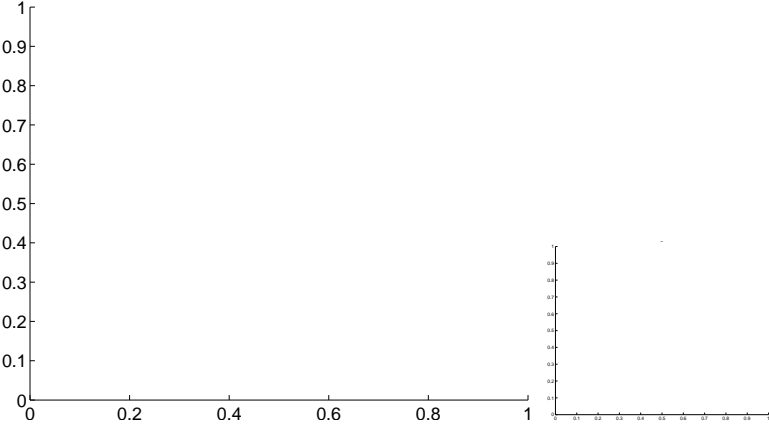
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

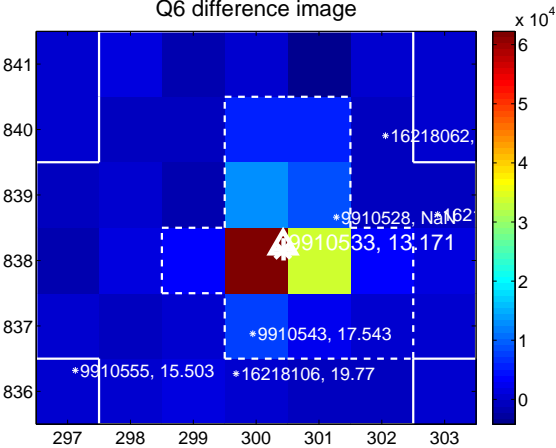
Q5 no difference image



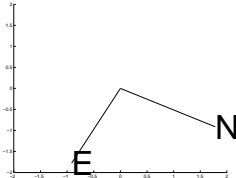
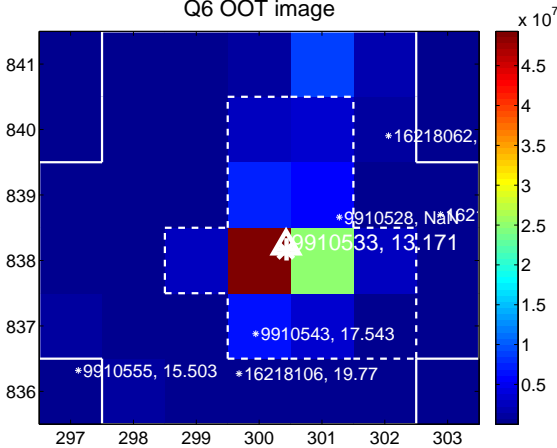
Q5 no OOT image



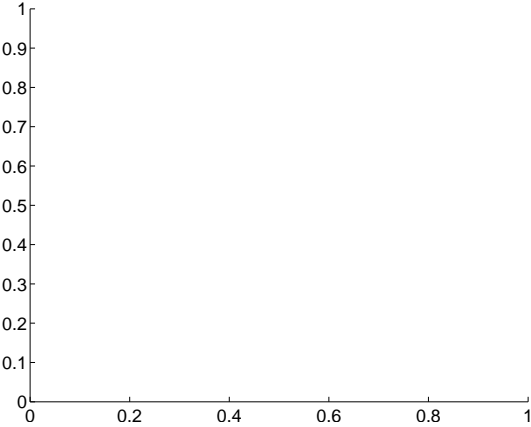
Q6 difference image



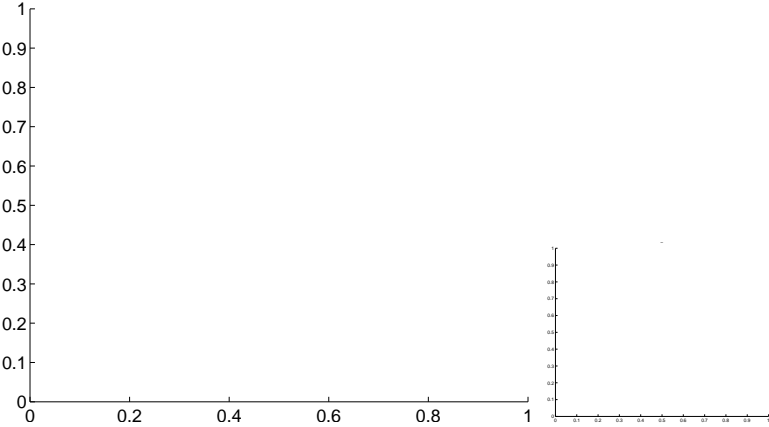
Q6 OOT image



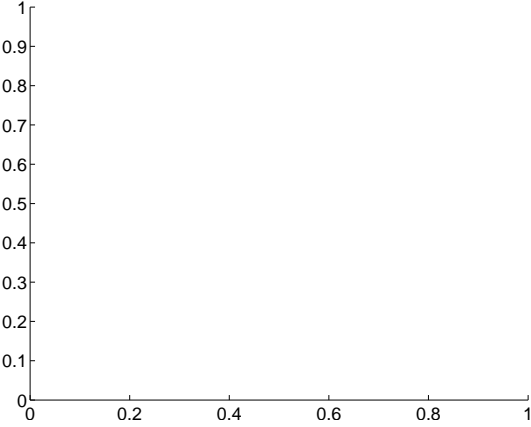
Q7 no difference image



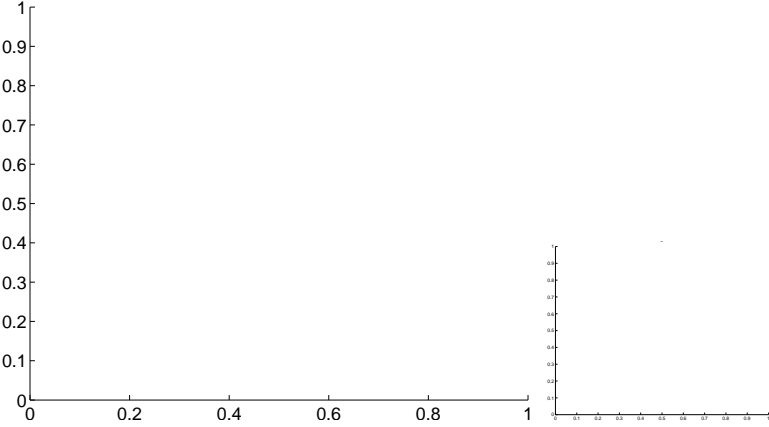
Q7 no OOT image



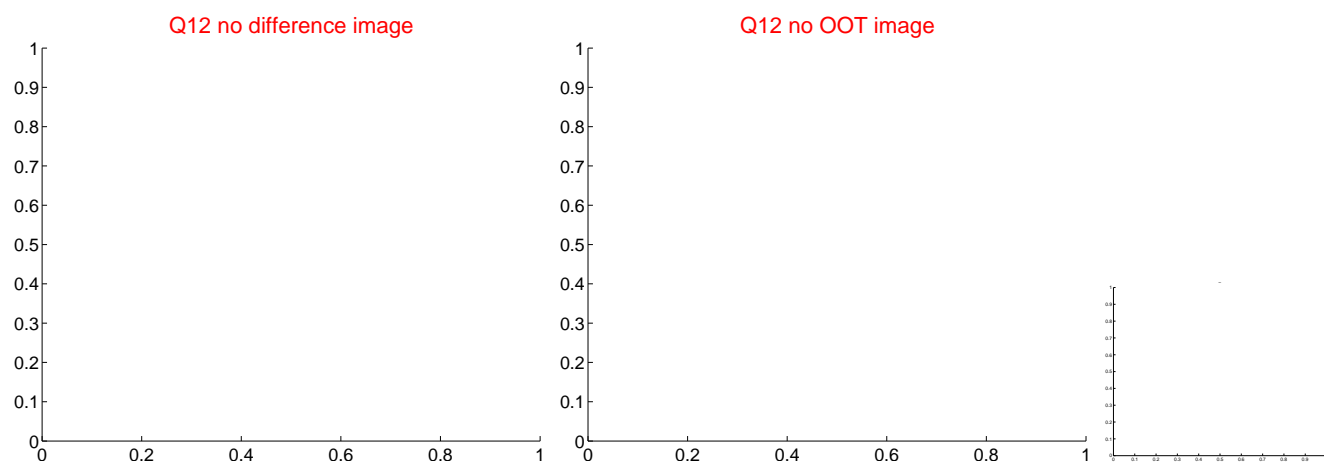
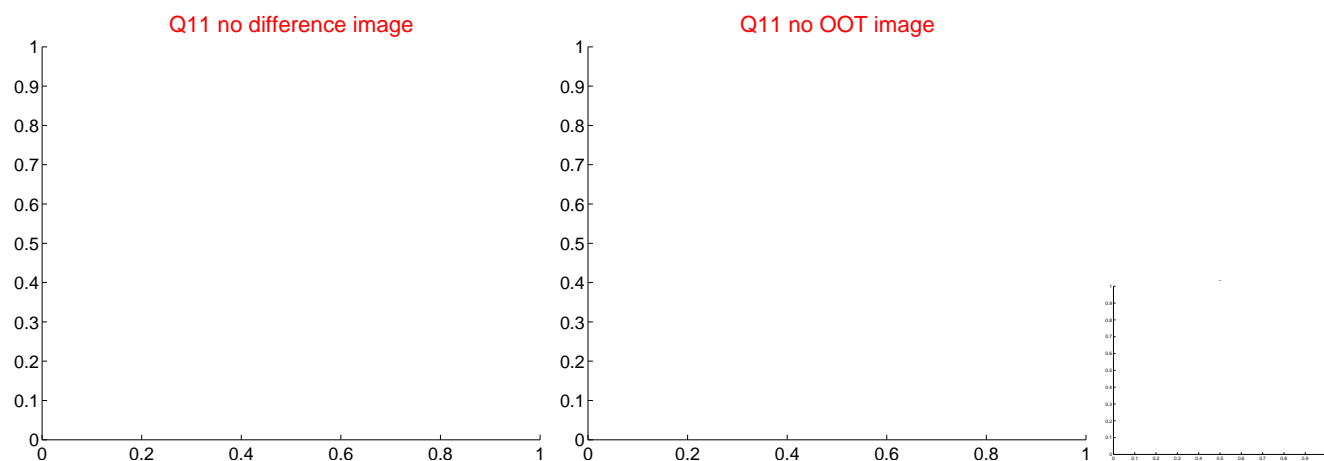
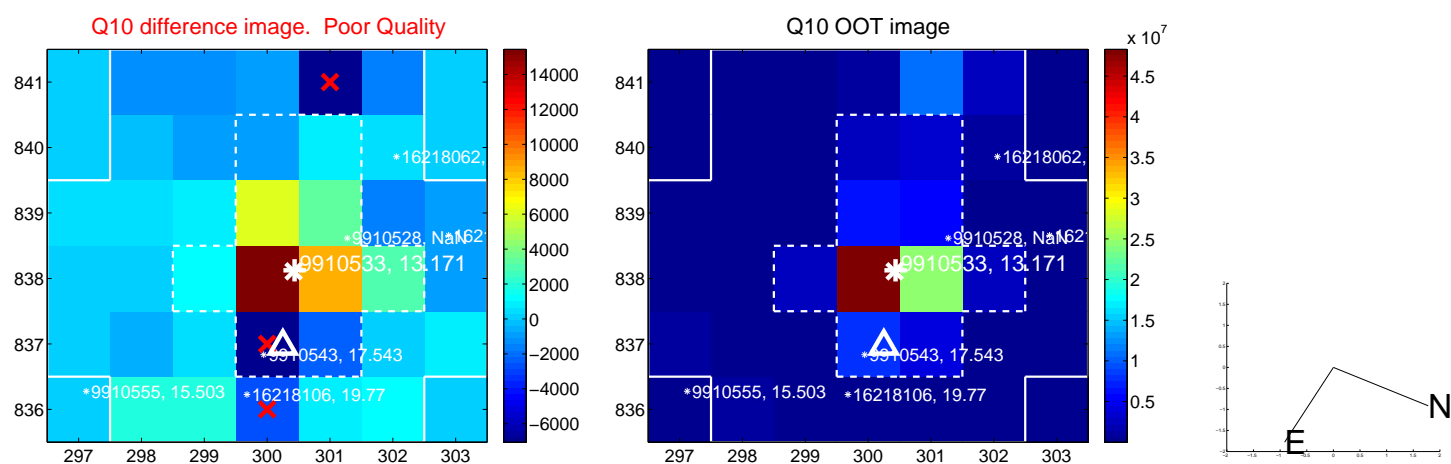
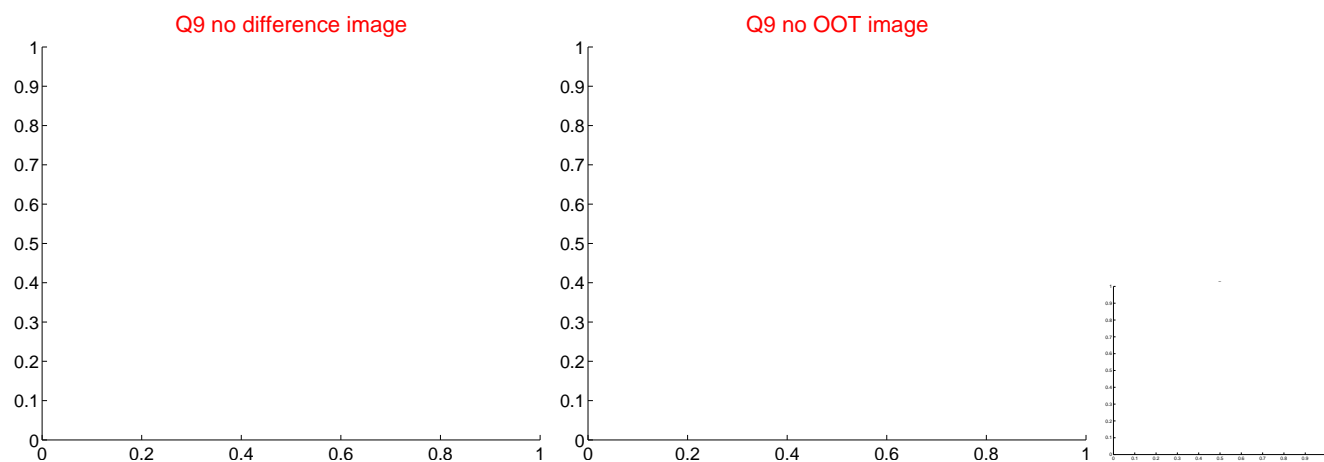
Q8 no difference image



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.

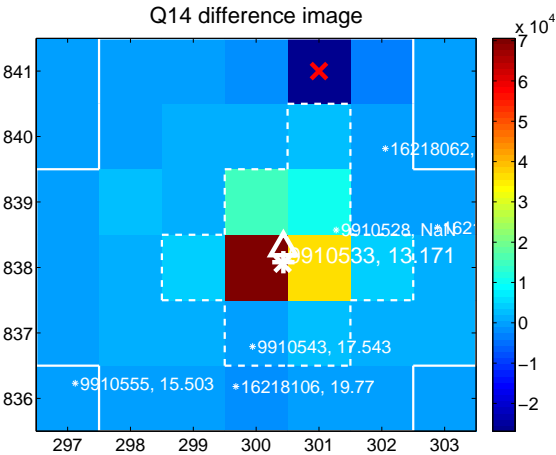
Q13 no difference image



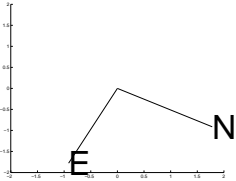
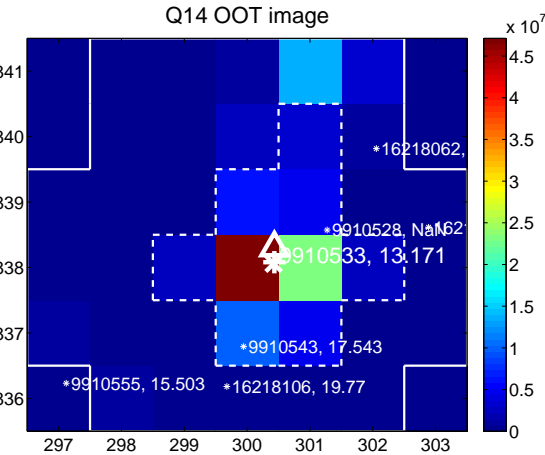
Q13 no OOT image



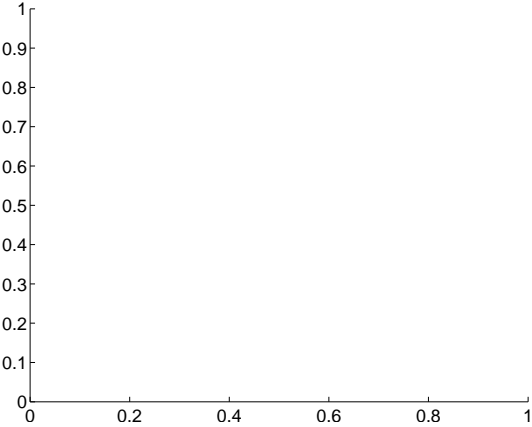
Q14 difference image



Q14 OOT image



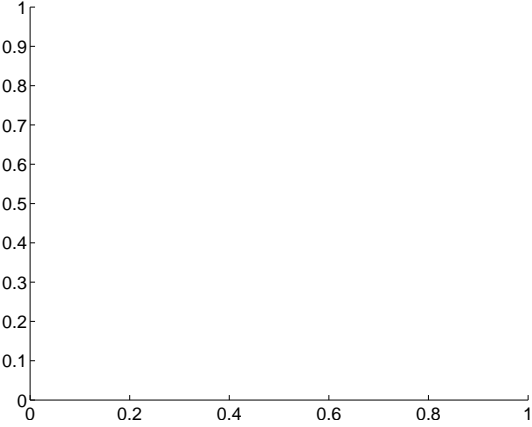
Q15 no difference image



Q15 no OOT image



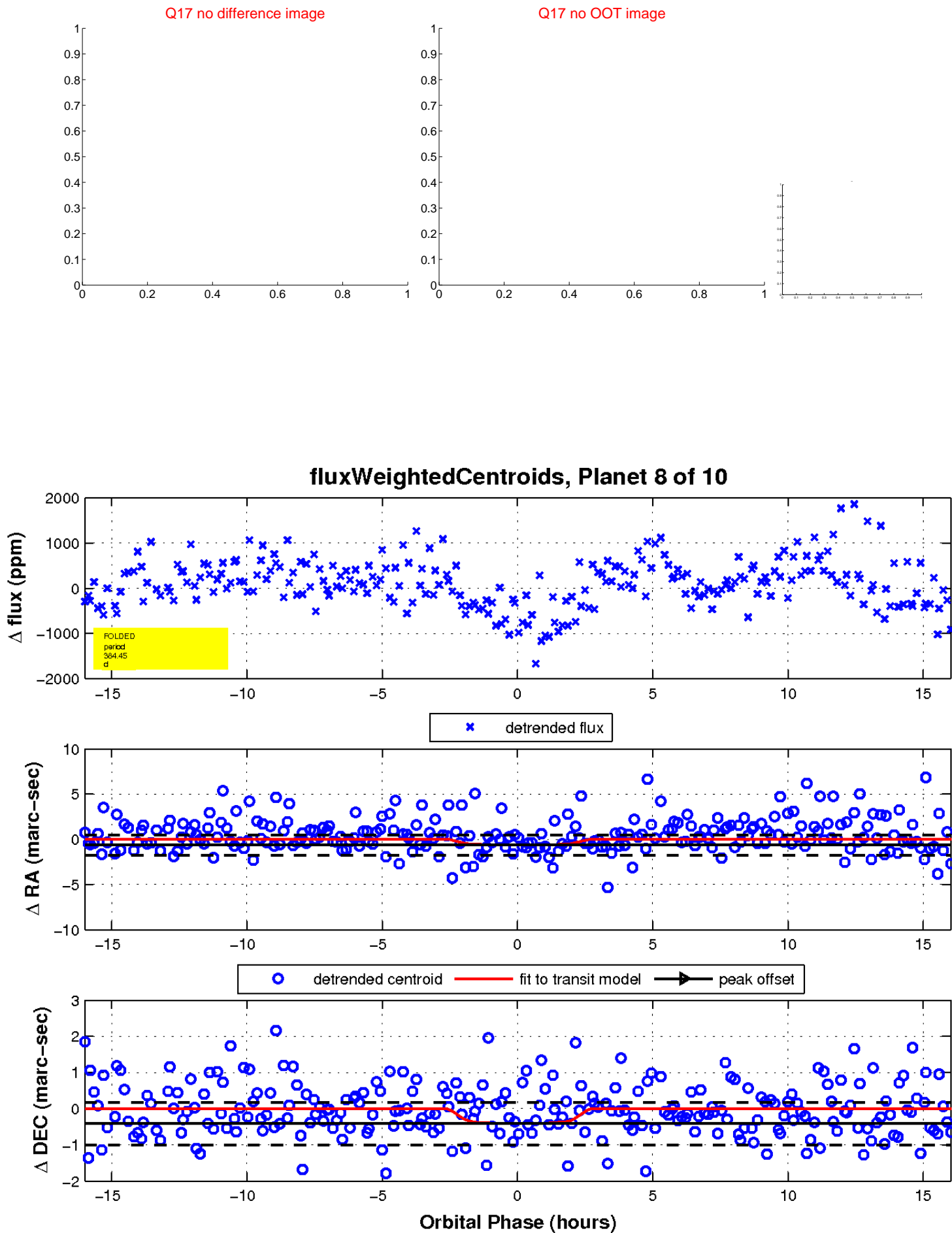
Q16 no difference image



Q16 no OOT image

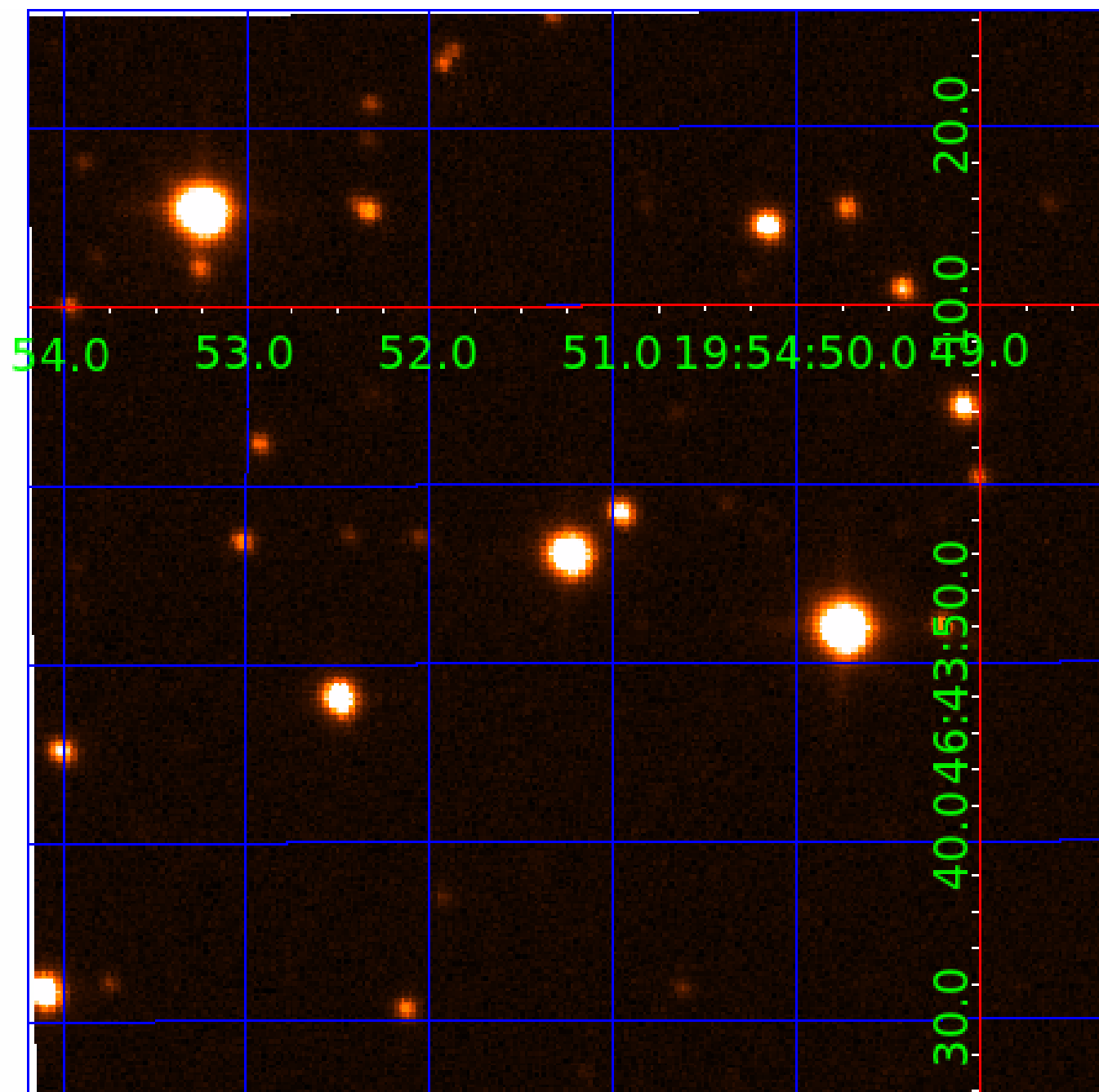


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

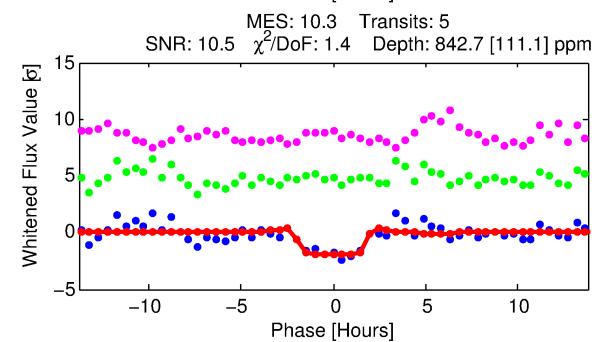
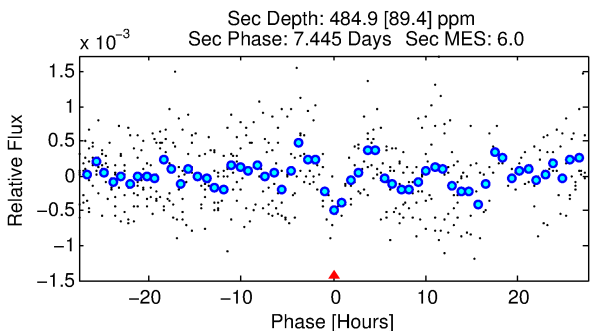
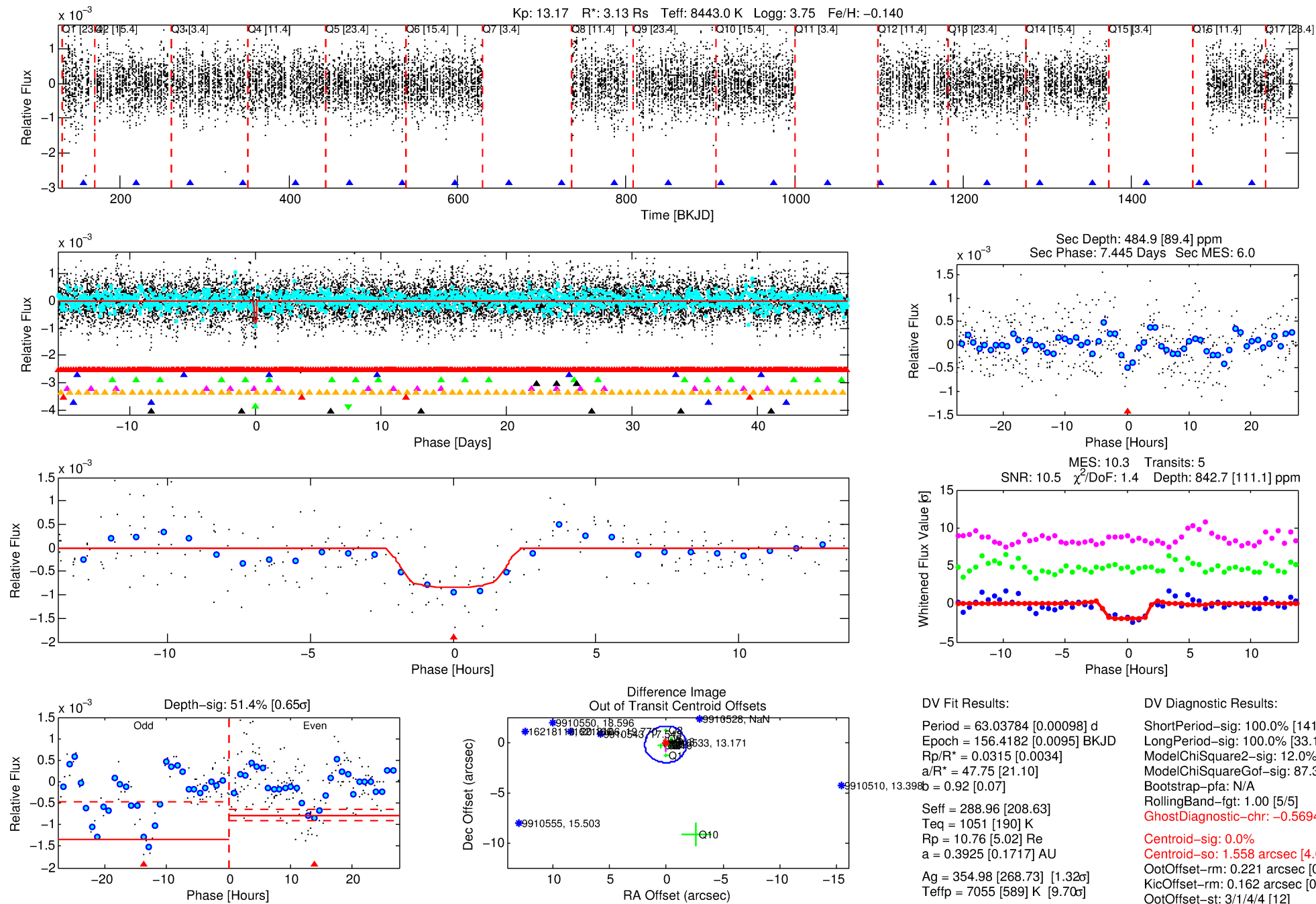
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-09

No Significant Match Found

DV One-Page Summary

KIC: 9910533 Candidate: 9 of 10 Period: 63.038 d



DV Fit Results:

Period = 63.03784 [0.00098] d
Epoch = 156.4182 [0.0095] BKJD
Rp/R* = 0.0315 [0.0034]
a/R* = 47.75 [21.10]
b = 0.92 [0.07]
Seff = 288.96 [208.63]
Teq = 1051 [190] K
Rp = 10.76 [5.02] Re
a = 0.3925 [0.1717] AU
Ag = 354.98 [268.73] [1.32 σ]
Teffp = 7055 [589] K [9.70 σ]

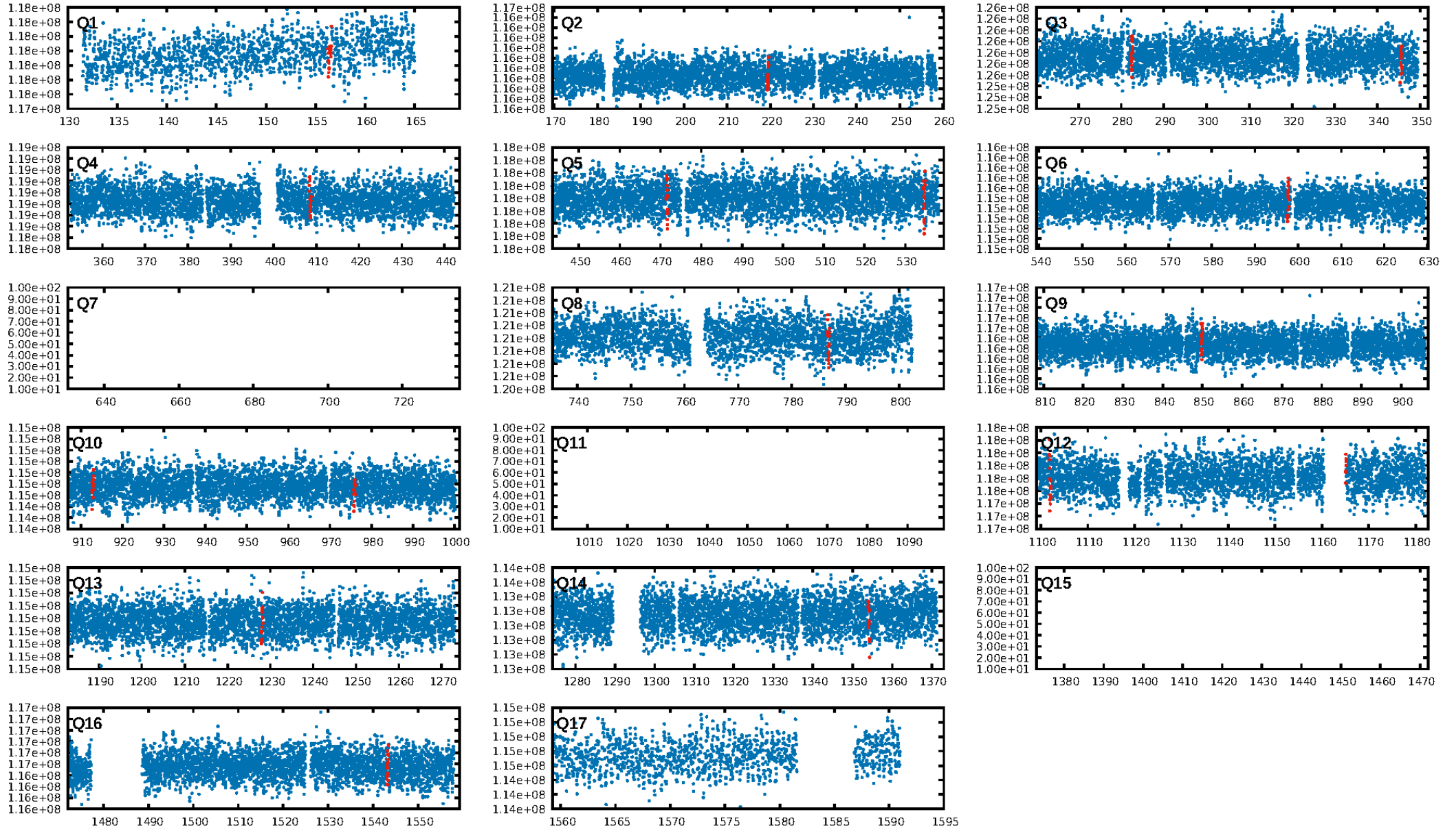
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [141.80 σ]
LongPeriod-sig: 100.0% [33.18 σ]
ModelChiSquare2-sig: 12.0%
ModelChiSquareGof-sig: 87.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.5694
Centroid-sig: 0.0%
Centroid-so: 1.558 arcsec [4.01 σ]
OotOffset-rm: 0.221 arcsec [0.36 σ]
KicOffset-rm: 0.162 arcsec [0.21 σ]
OotOffset-st: 3/1/4/4 [12]
KicOffset-st: 3/1/4/4 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.58 [7/12]

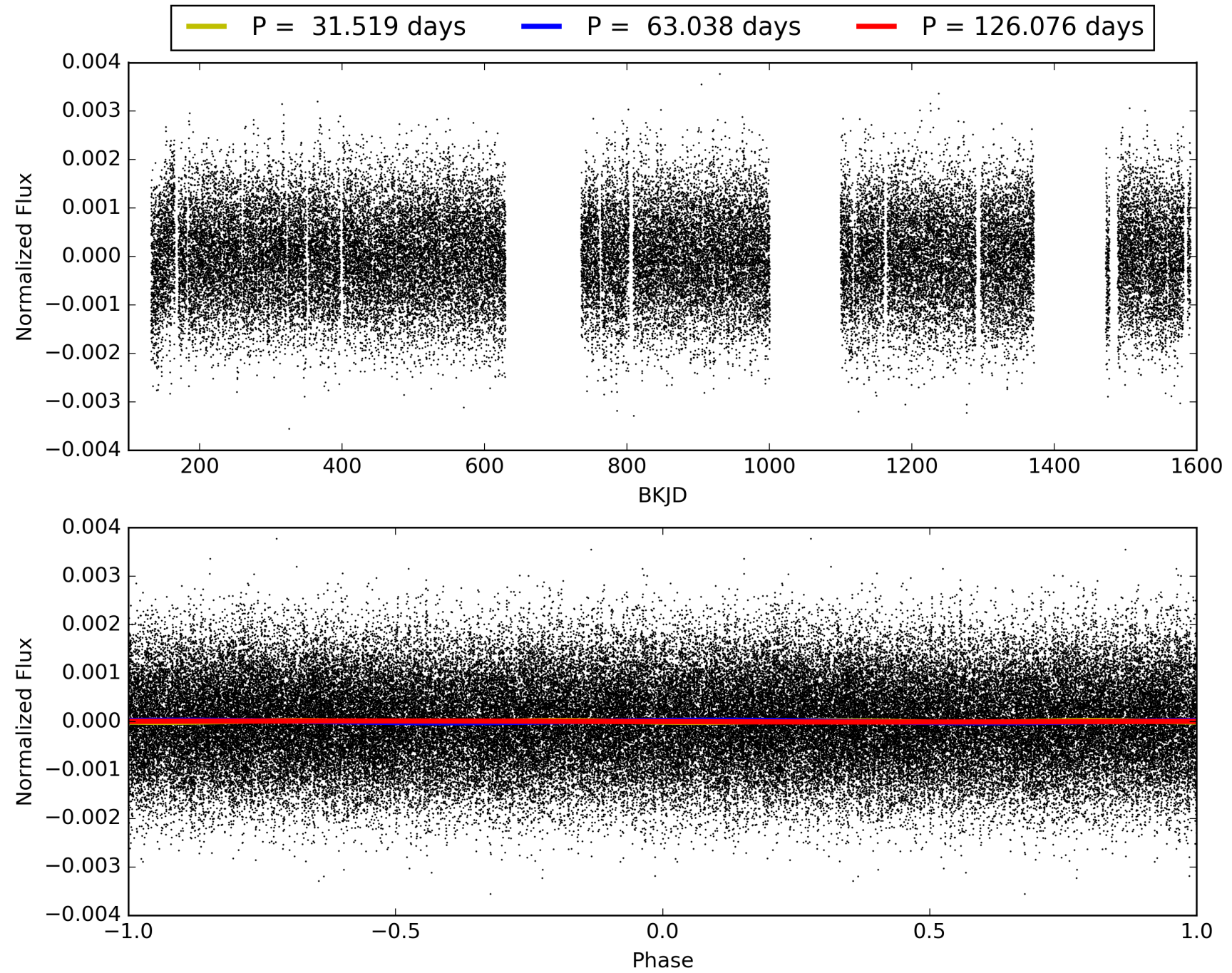
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:31:09 Z

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

TCE 009910533-09, PDC Light Curves

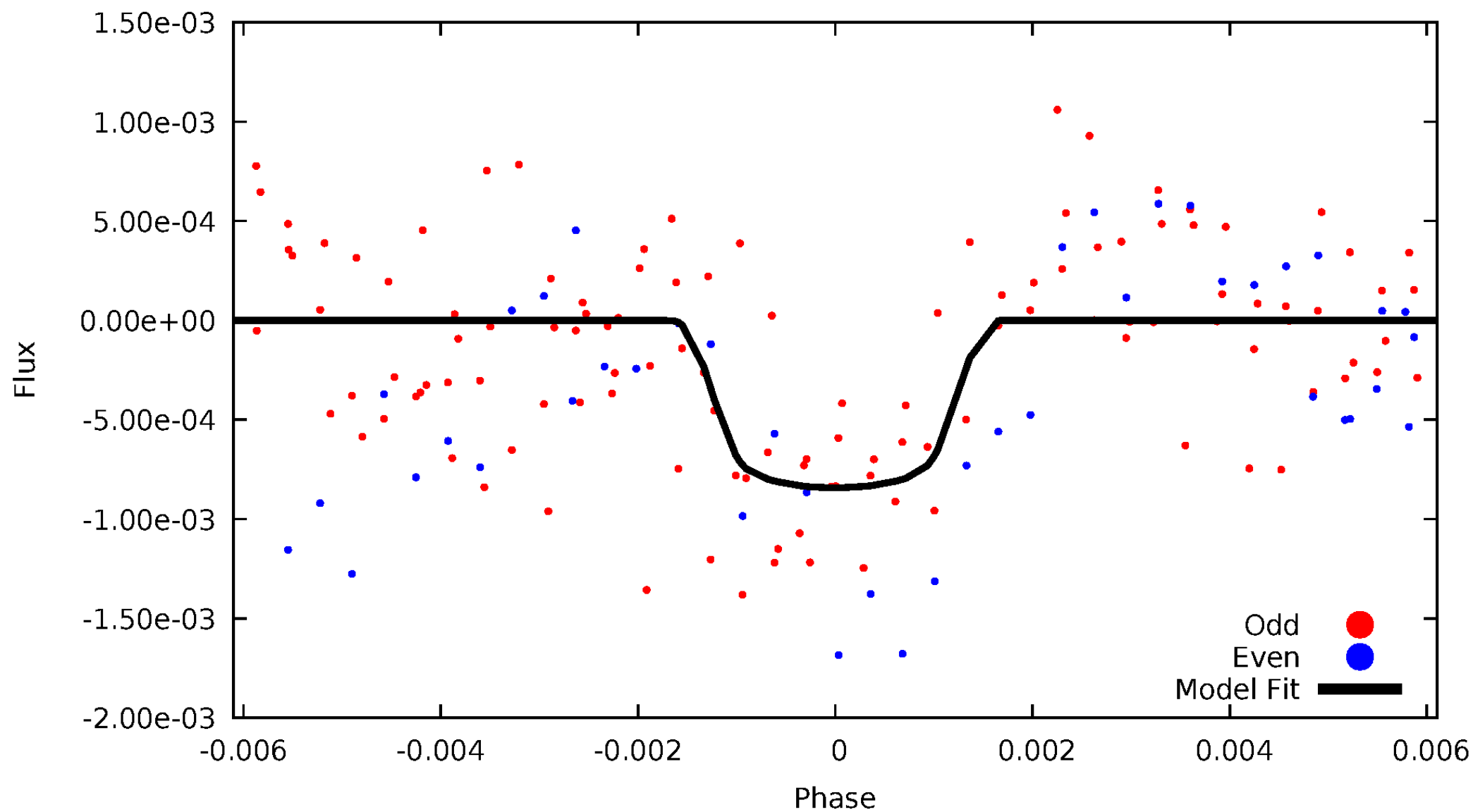


TCE 009910533-09



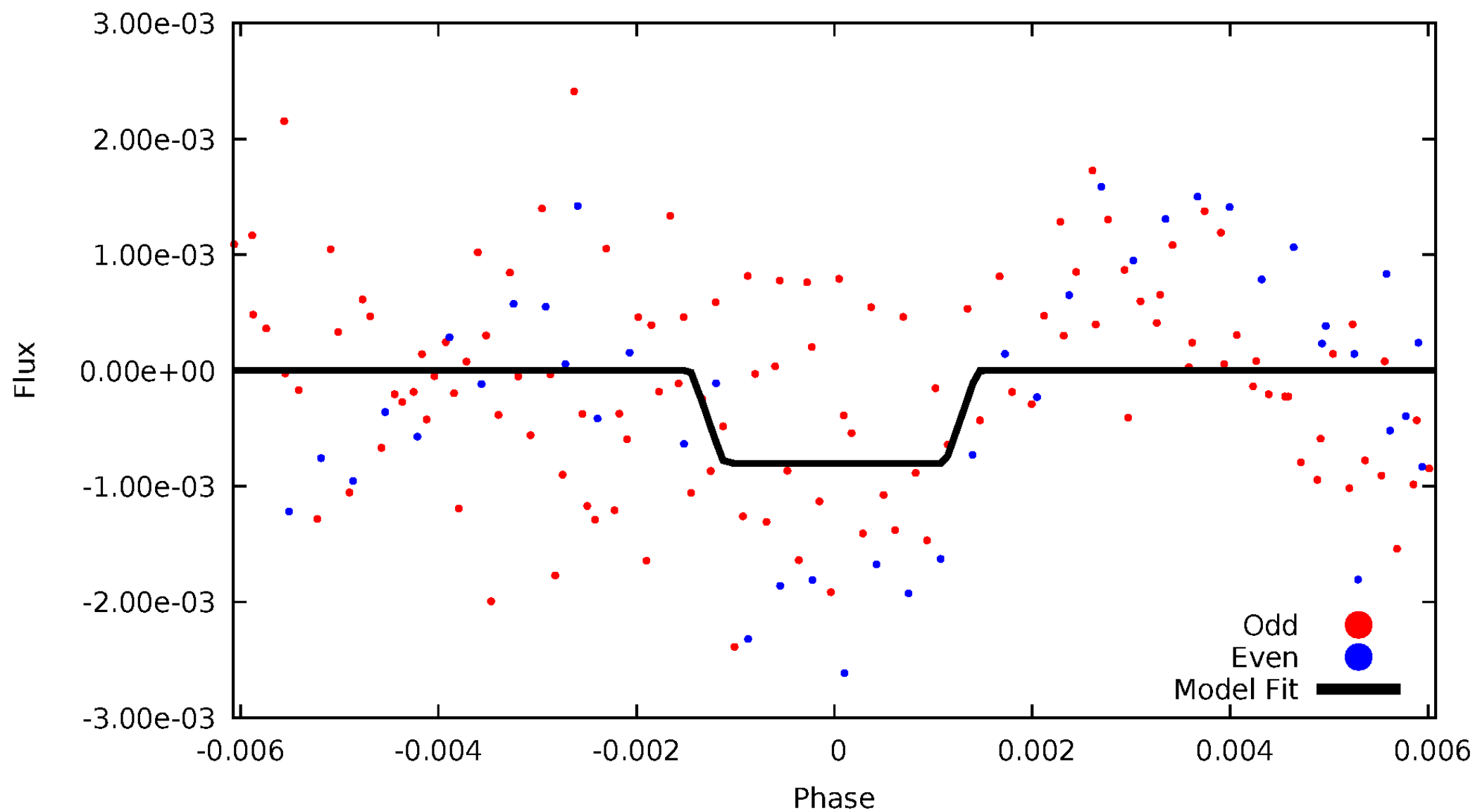
DV Odd/Even

TCE 009910533-09



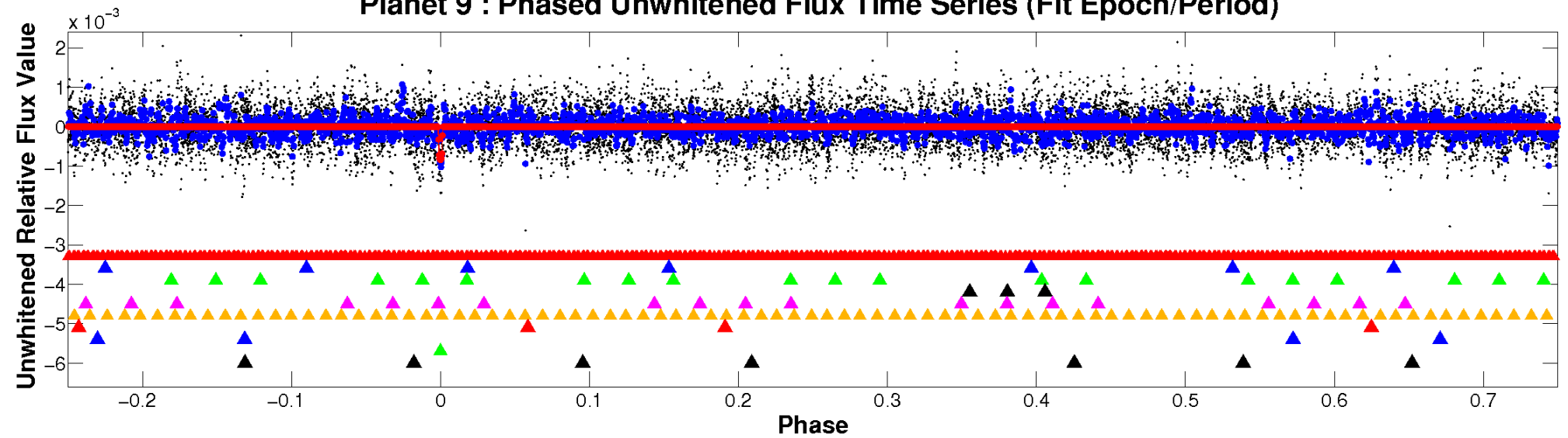
ALT Odd/Even

TCE 009910533-09

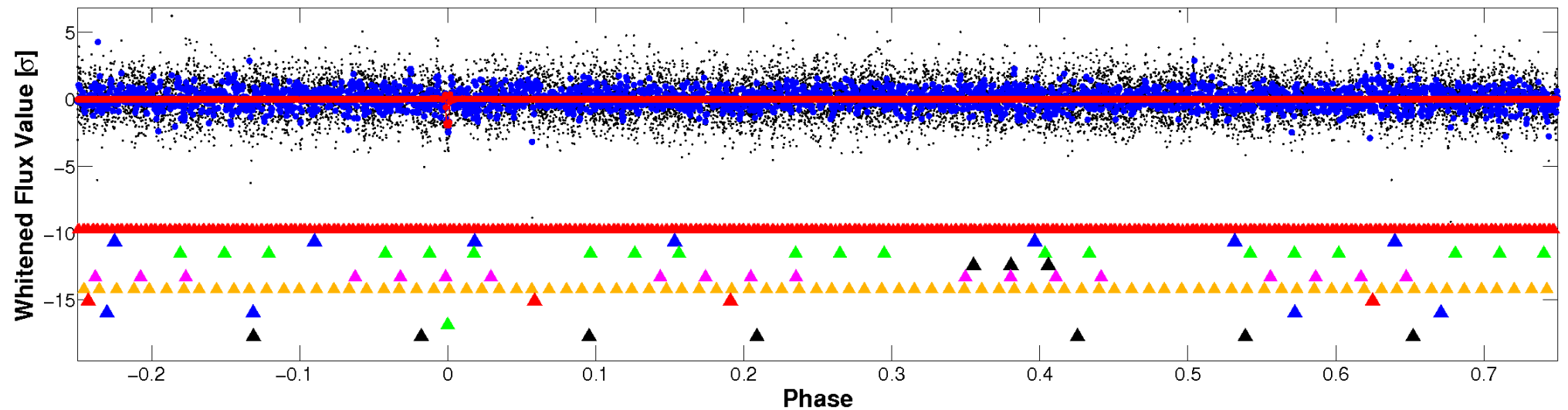


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

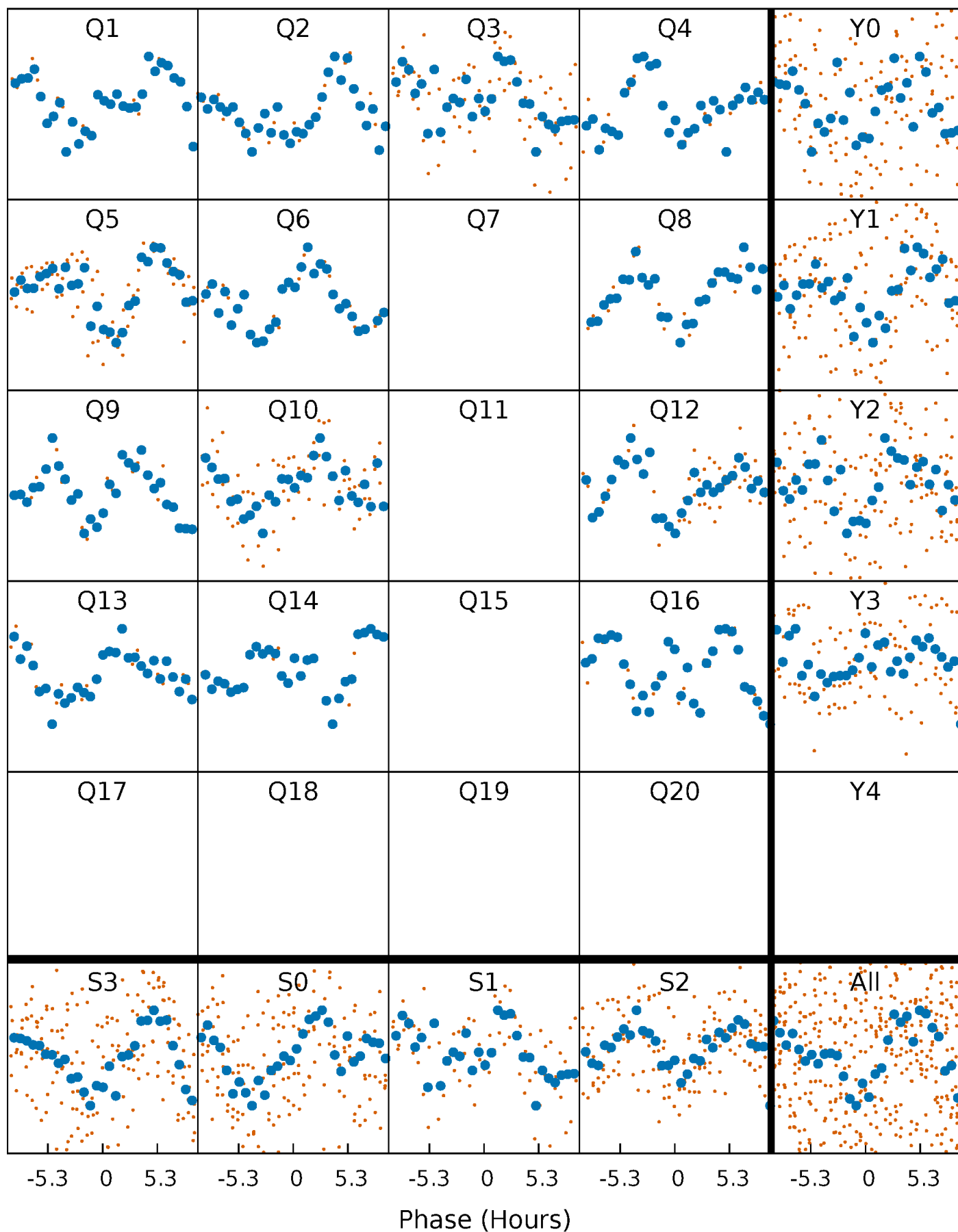


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



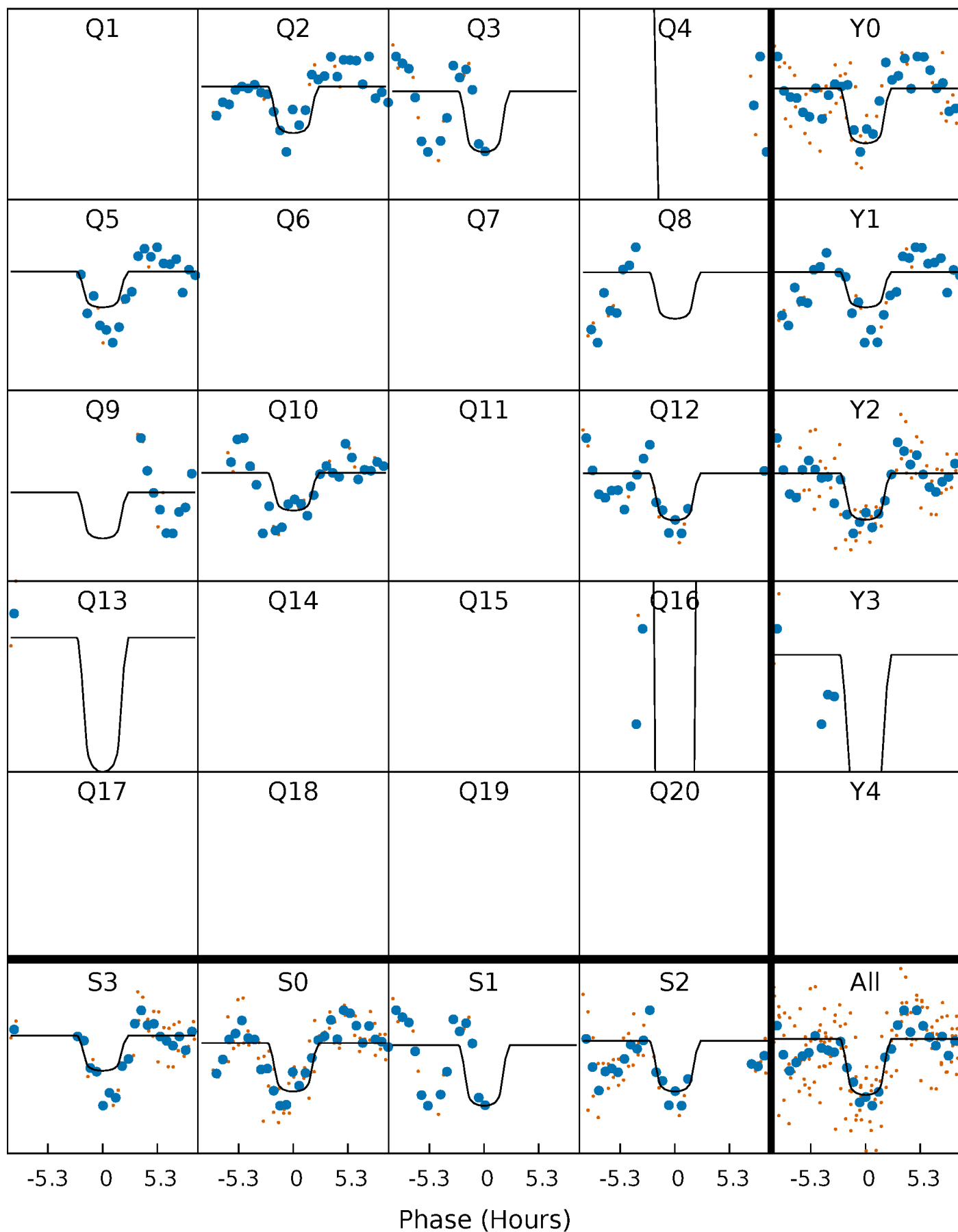
PDC Quarter-Phased Transit Curves

TCE 009910533-09 P= 63.037844 Days $T_0=156.418247$ (BKJD)



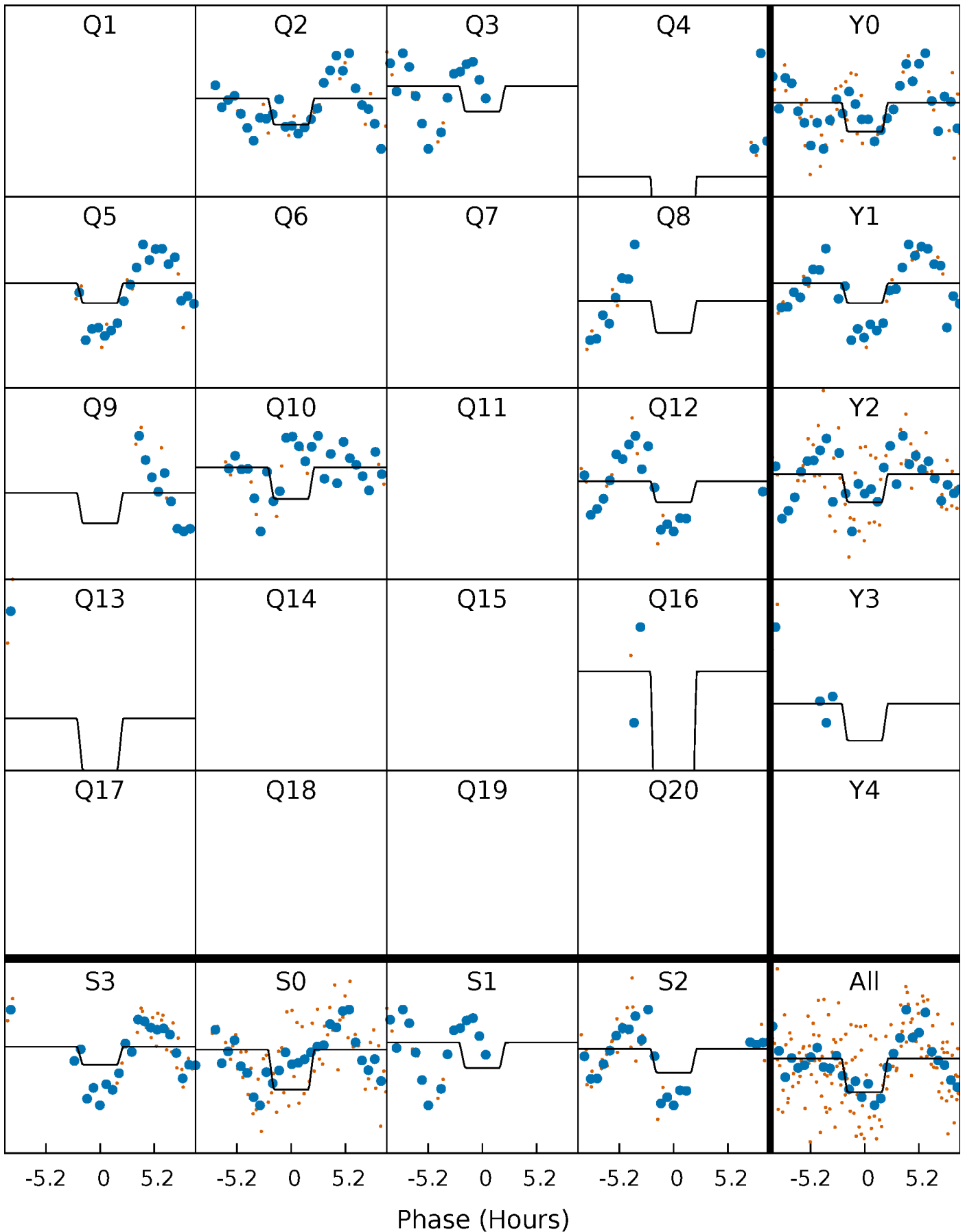
DV Quarter-Phased Transit Curves

TCE 009910533-09 P= 63.037844 Days $T_0=156.418247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

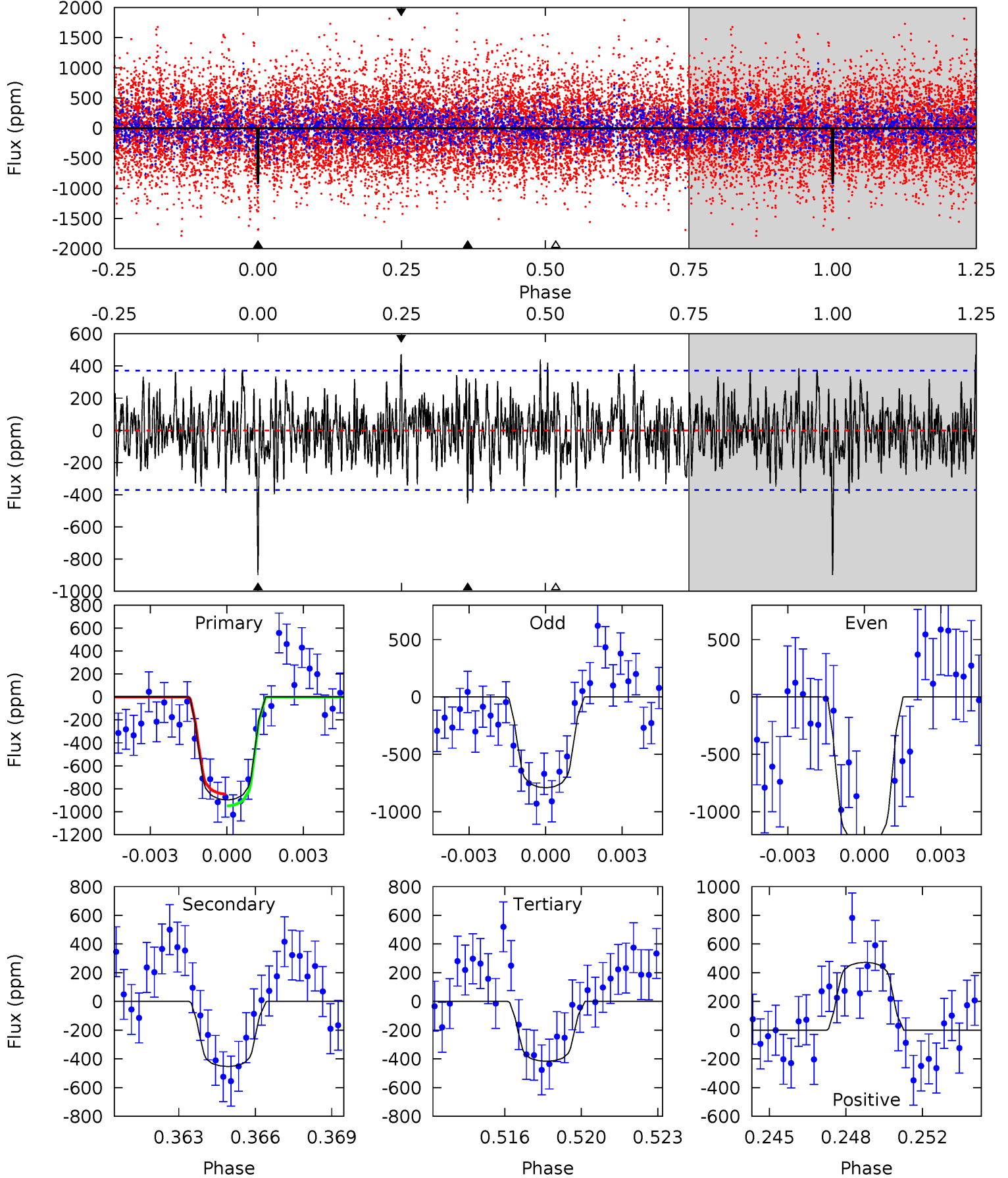
TCE 009910533-09 P= 63.038313 Days $T_0=156.411159$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-09, P = 63.037844 Days, E = 93.380403 Days

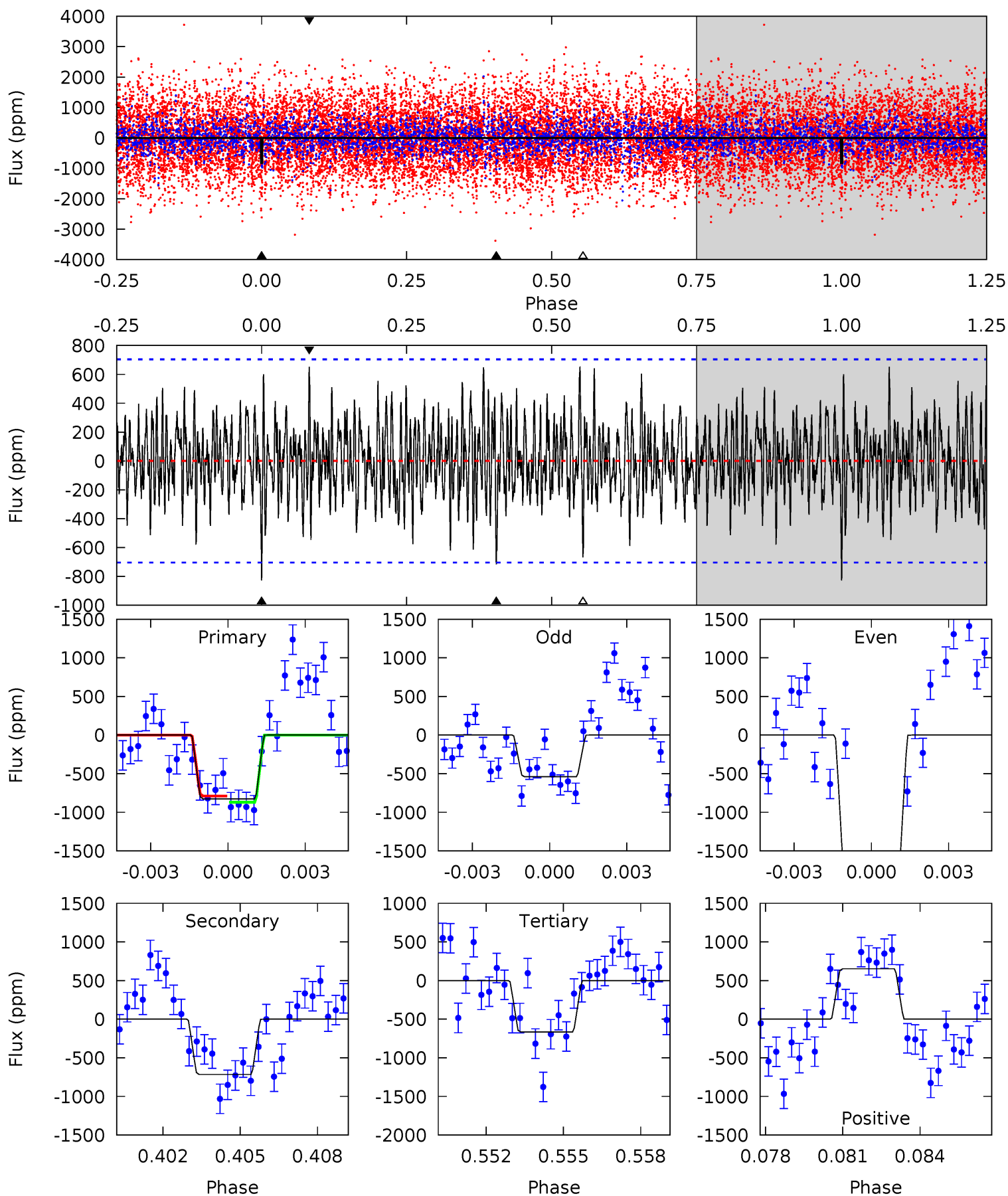
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	6.39	5.88	6.67	5.24	2.94	1.96	6.79	6.01	0.51	-0.27	2.86	0.90	0.34	0.72



Alt Model-Shift Uniqueness Test

009910533-09, P = 63.038313 Days, E = 93.372846 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.16	5.34	4.97	4.87	5.25	2.96	1.61	1.19	1.30	0.37	0.47	4.07	1.02	0.44	0.29



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-453 ± 71	$10.22^{+2.41}_{-2.56}$	1425^{+116}_{-172}	6667^{+528}_{-489}	367^{+272}_{-119}
Alt.	-716 ± 134	$9.05^{+2.26}_{-2.36}$	1418^{+118}_{-181}	8042^{+921}_{-777}	757^{+535}_{-282}

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

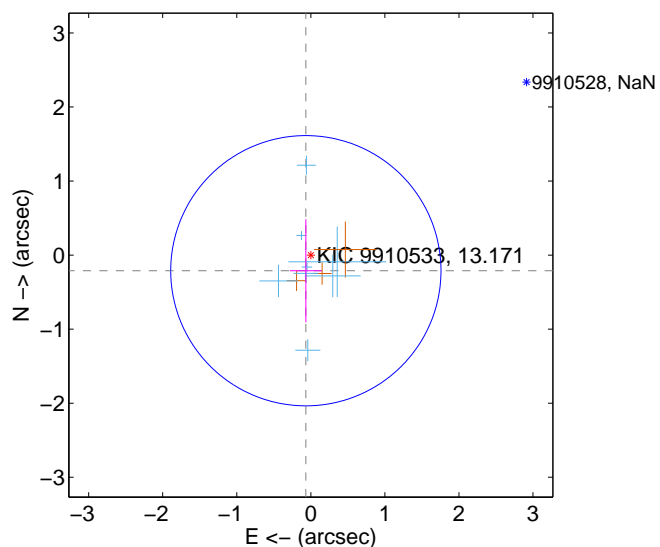
Supplemental centroid analysis for 009910533-09. Kepler magnitude: 13.17. Transit SNR 10.45

There are 8 quarters with good PRF difference image offsets

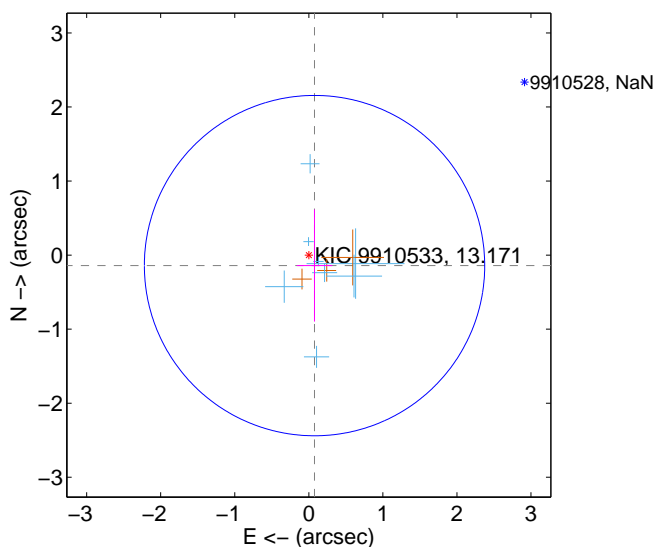
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.221 ± 0.608	0.36	0.067 ± 0.215	-0.211 ± 0.696
PRF-fit source offset from KIC position	0.162 ± 0.766	0.21	-0.077 ± 0.239	-0.142 ± 0.756
photometric centroid source offset	1.56 ± 0.39	4.01	-1.27 ± 0.43	-0.91 ± 0.28

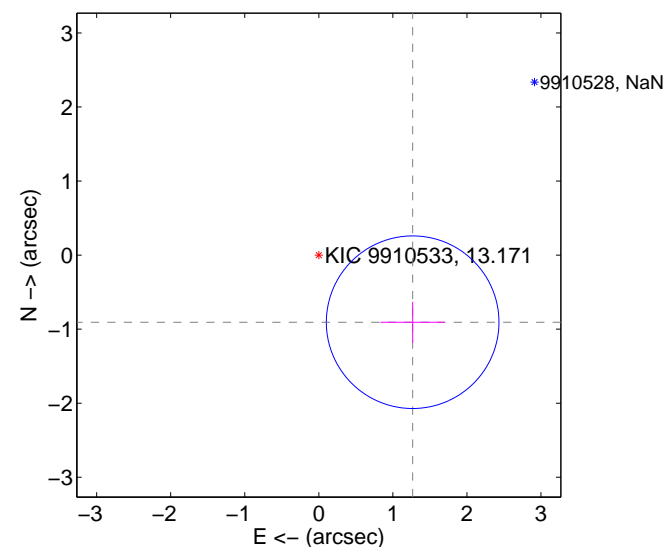
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

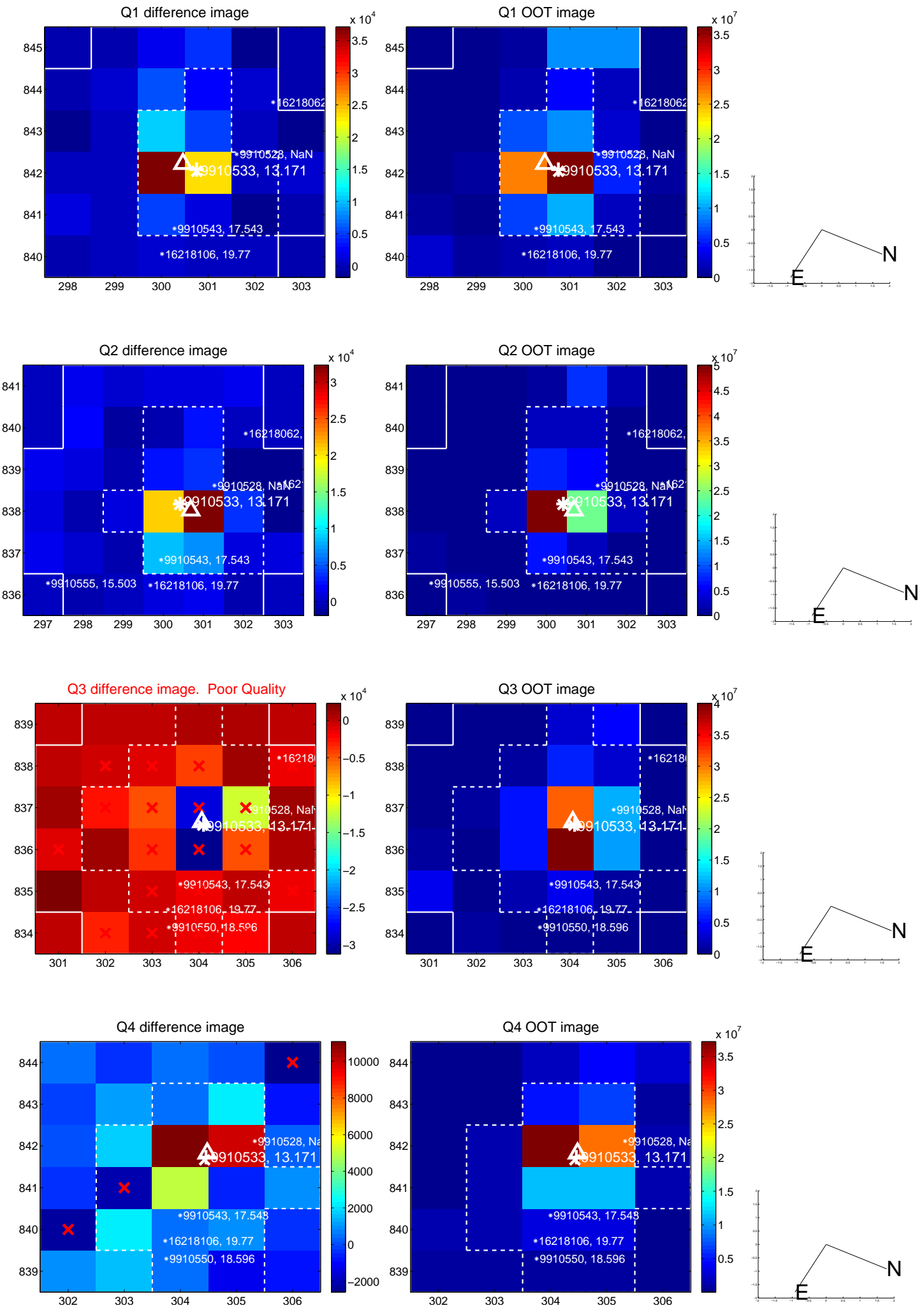


offset from photometric centroids

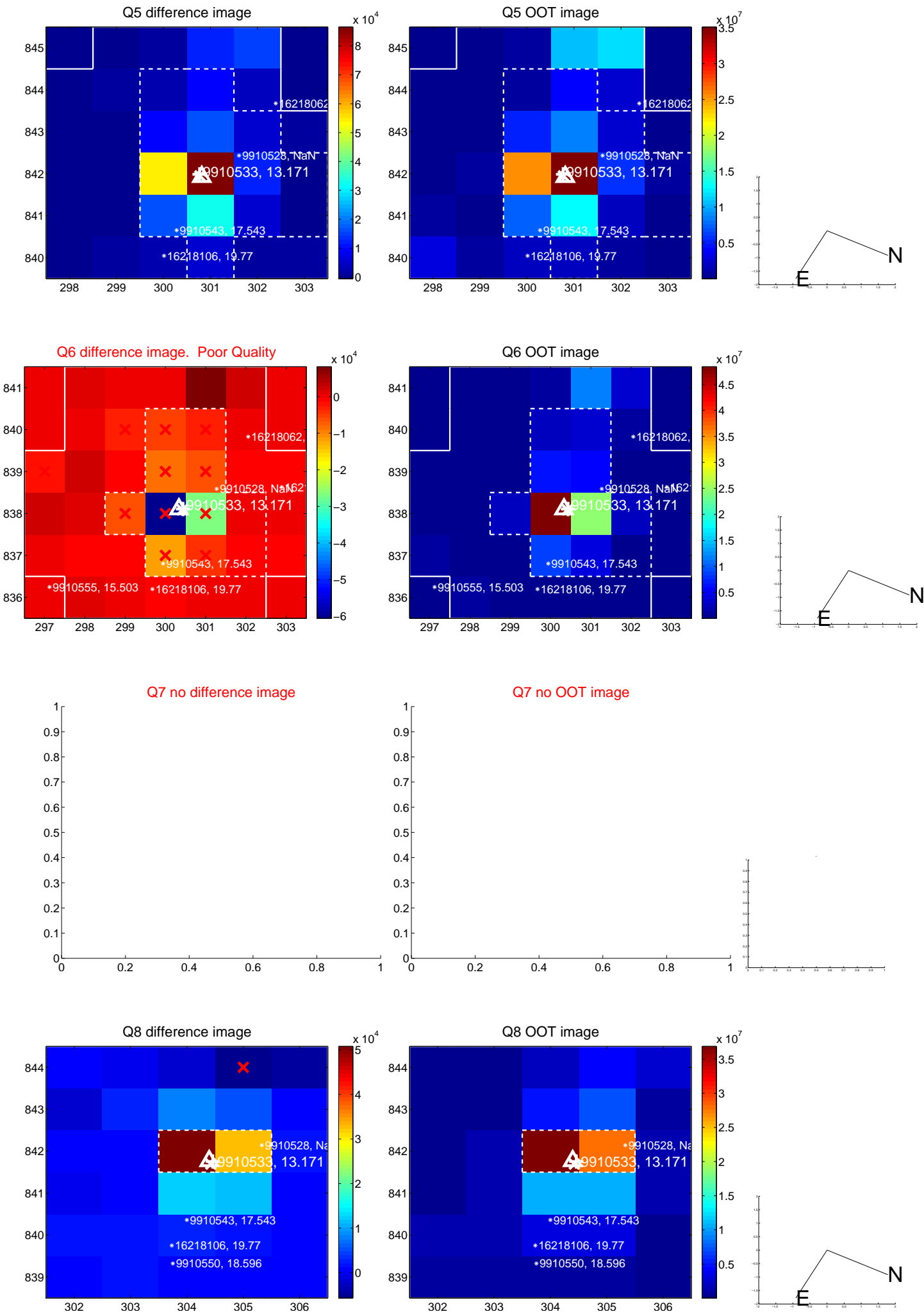


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

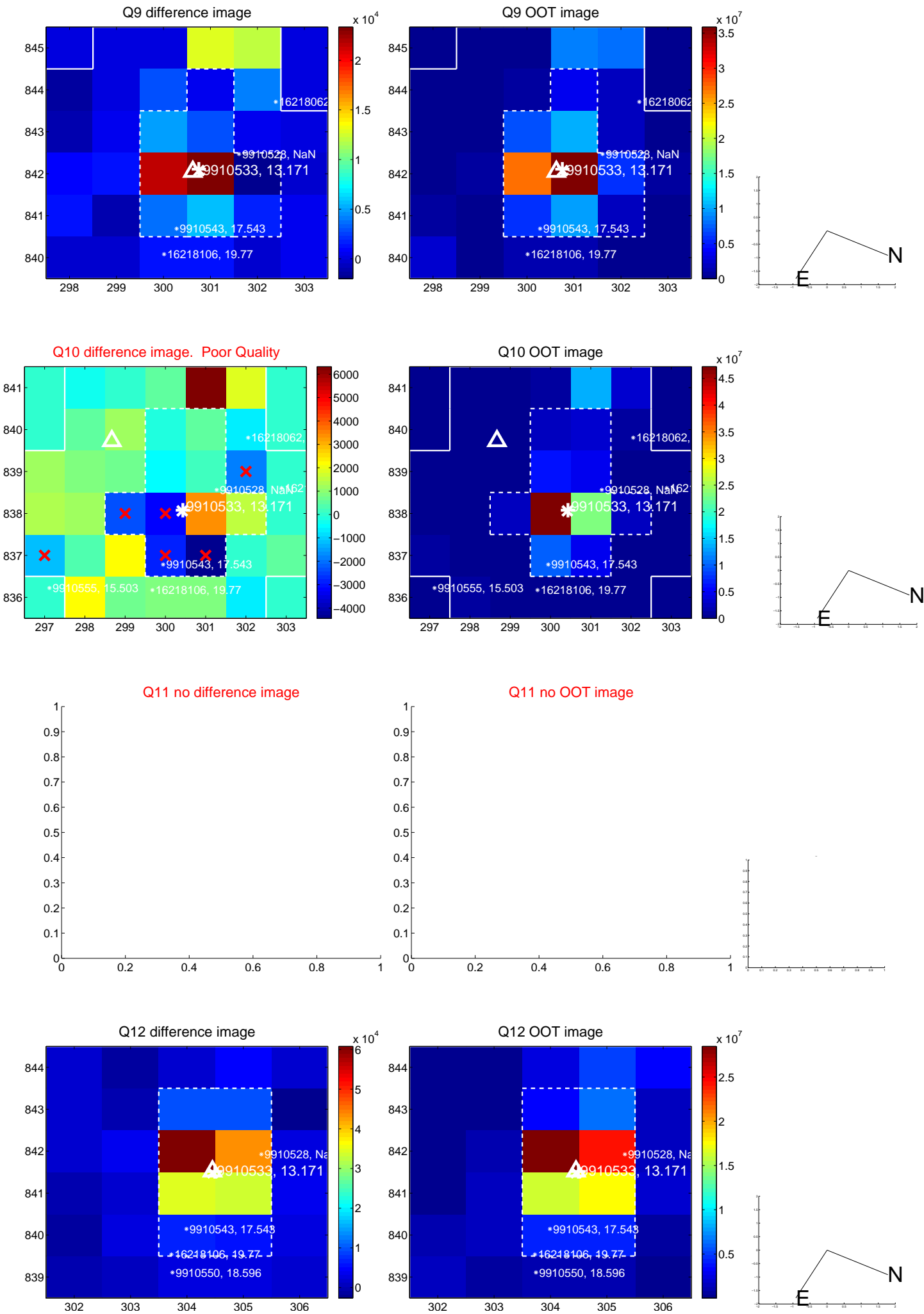
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



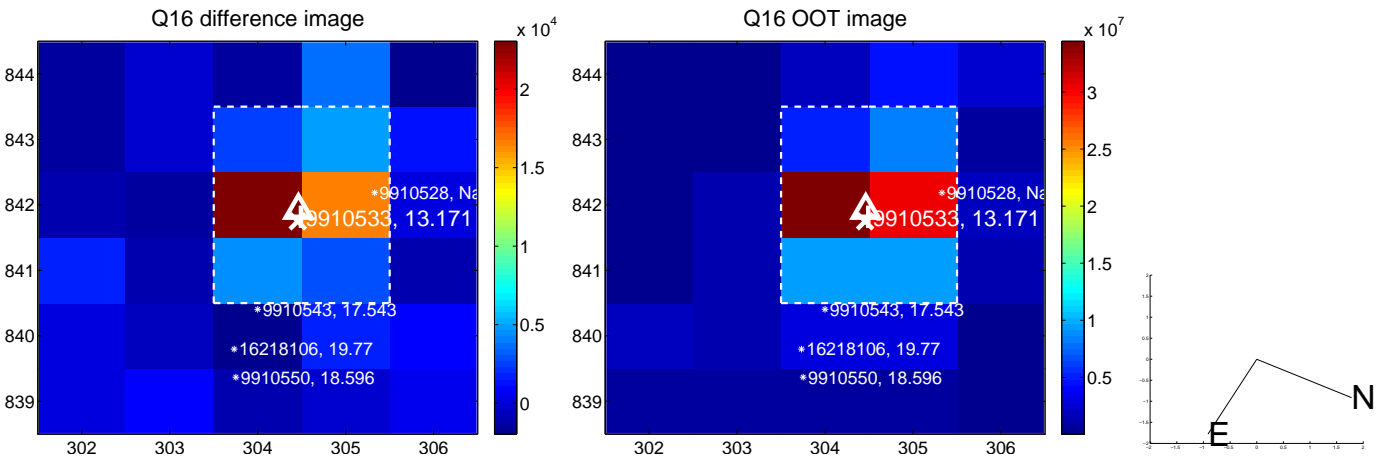
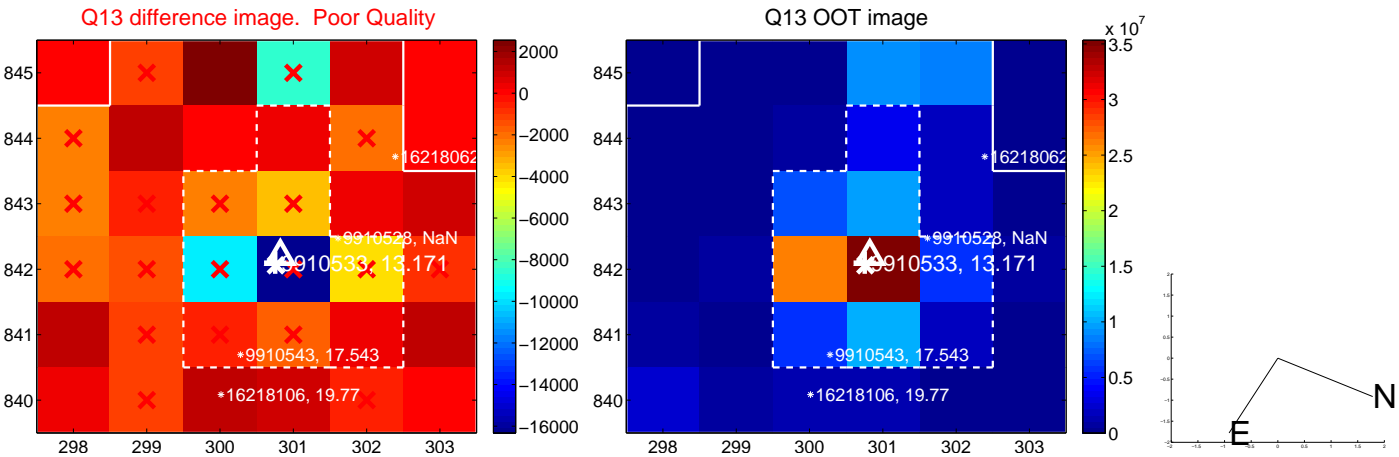
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



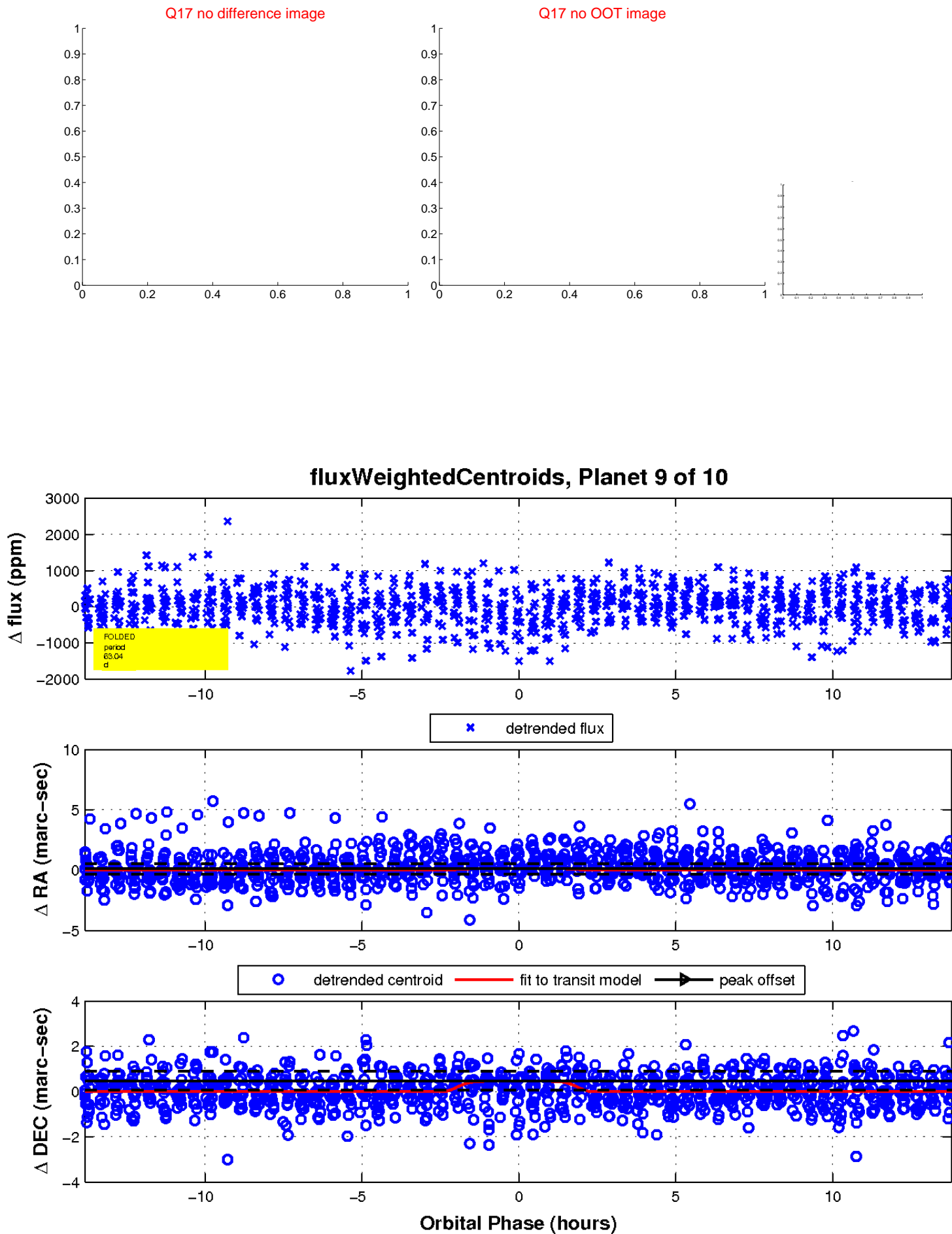
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

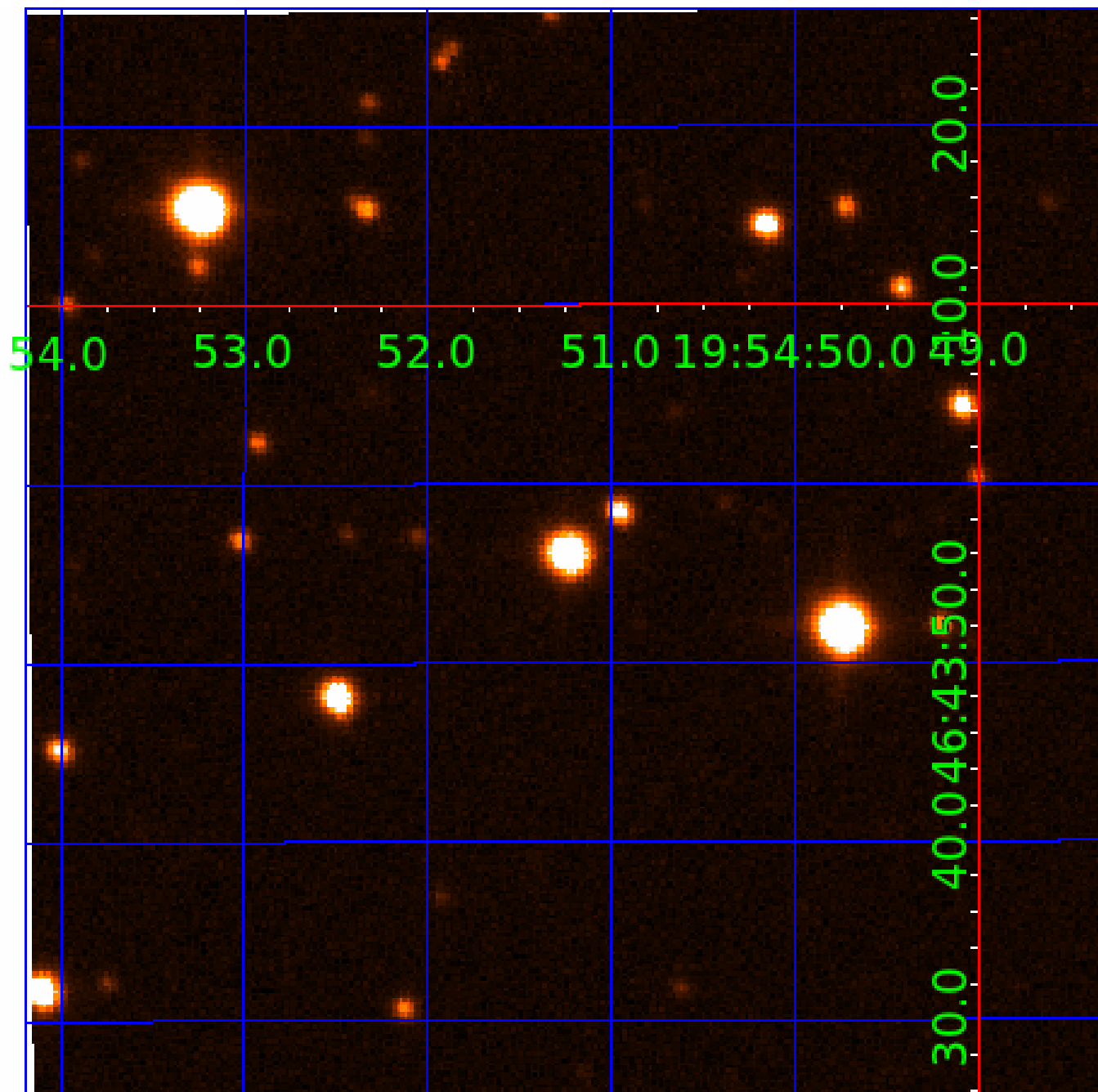


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009910533-01	OBS	No	2.464185	132.020325	80.9	13.637	9.7	10.0	3.13	8443	3.49	21780.56
009910533-02	OBS	No	228.299950	150.749210	1299.4	4.257	12.1	12.5	3.13	8443	13.73	51.95
009910533-03	OBS	No	71.773998	194.363263	1212.1	4.318	11.4	11.1	3.13	8443	19.71	243.04
009910533-04	OBS	No	502.710362	308.074203	663.7	16.523	12.0	9.4	3.13	8443	9.84	18.14
009910533-05	OBS	No	76.030833	152.477649	489.2	2.249	11.7	3.9	3.13	8443	7.53	225.07
009910533-06	OBS	No	16.291672	141.579419	0.0	6.427	11.5	0.0	3.13	8443	0.04	1755.28
009910533-07	OBS	No	342.537734	456.300823	1200.5	4.040	10.9	11.2	3.13	8443	13.29	30.25
009910533-08	OBS	No	384.452374	192.494144	808.8	5.356	10.9	10.0	3.13	8443	10.40	25.93
009910533-09	OBS	No	63.037844	156.418247	842.7	4.614	10.3	10.5	3.13	8443	10.76	288.96
009910533-10	OBS	No	224.205645	148.146862	697.0	5.423	9.7	9.4	3.13	8443	9.25	53.22

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009910533-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
009910533-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
009910533-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009910533-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
009910533-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009910533-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-09	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009910533-10	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—CENT_FEW_DIFFS

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

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

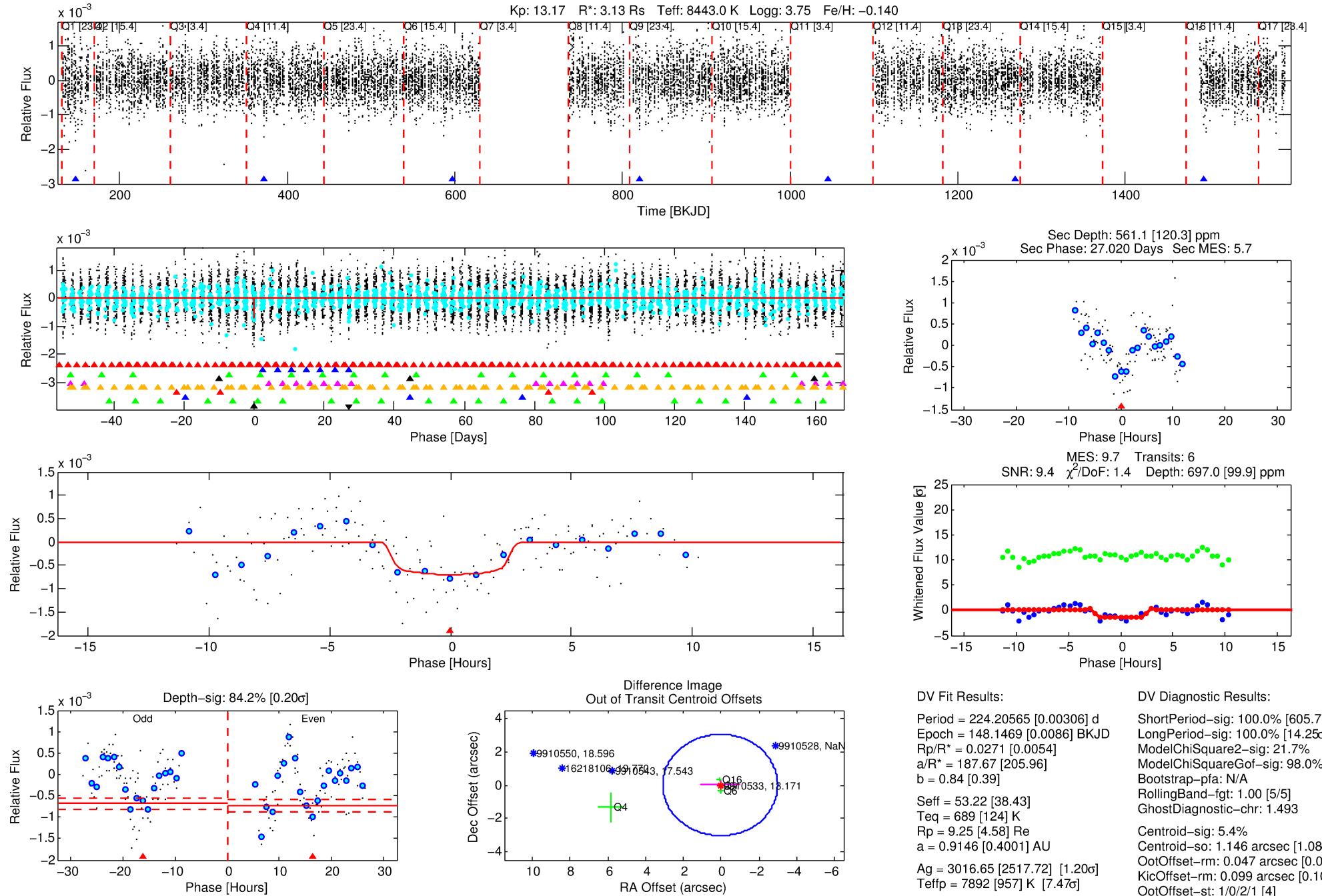
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009910533-10

No Significant Match Found

DV One-Page Summary

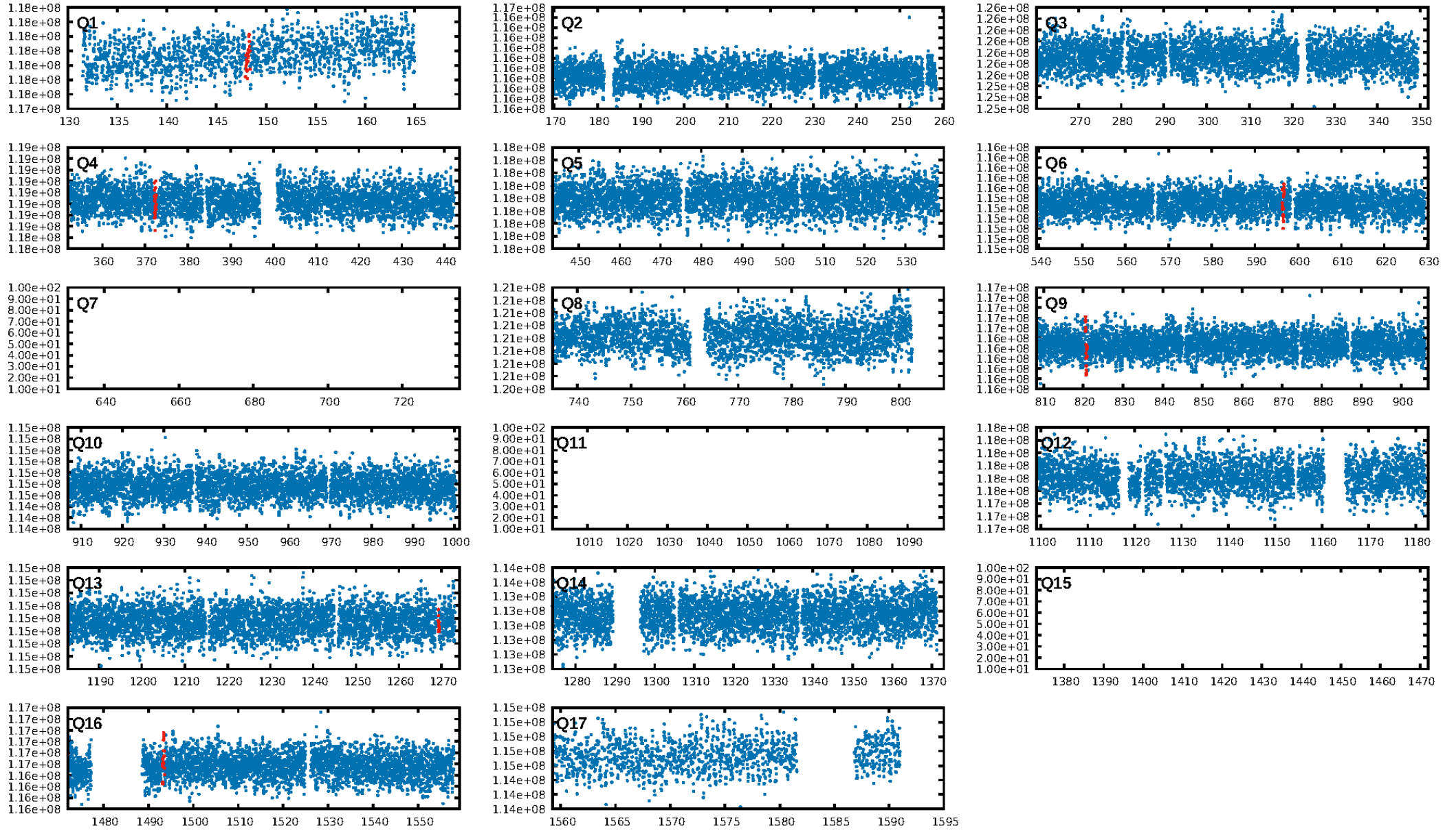
KIC: 9910533 Candidate: 10 of 10 Period: 224.206 d



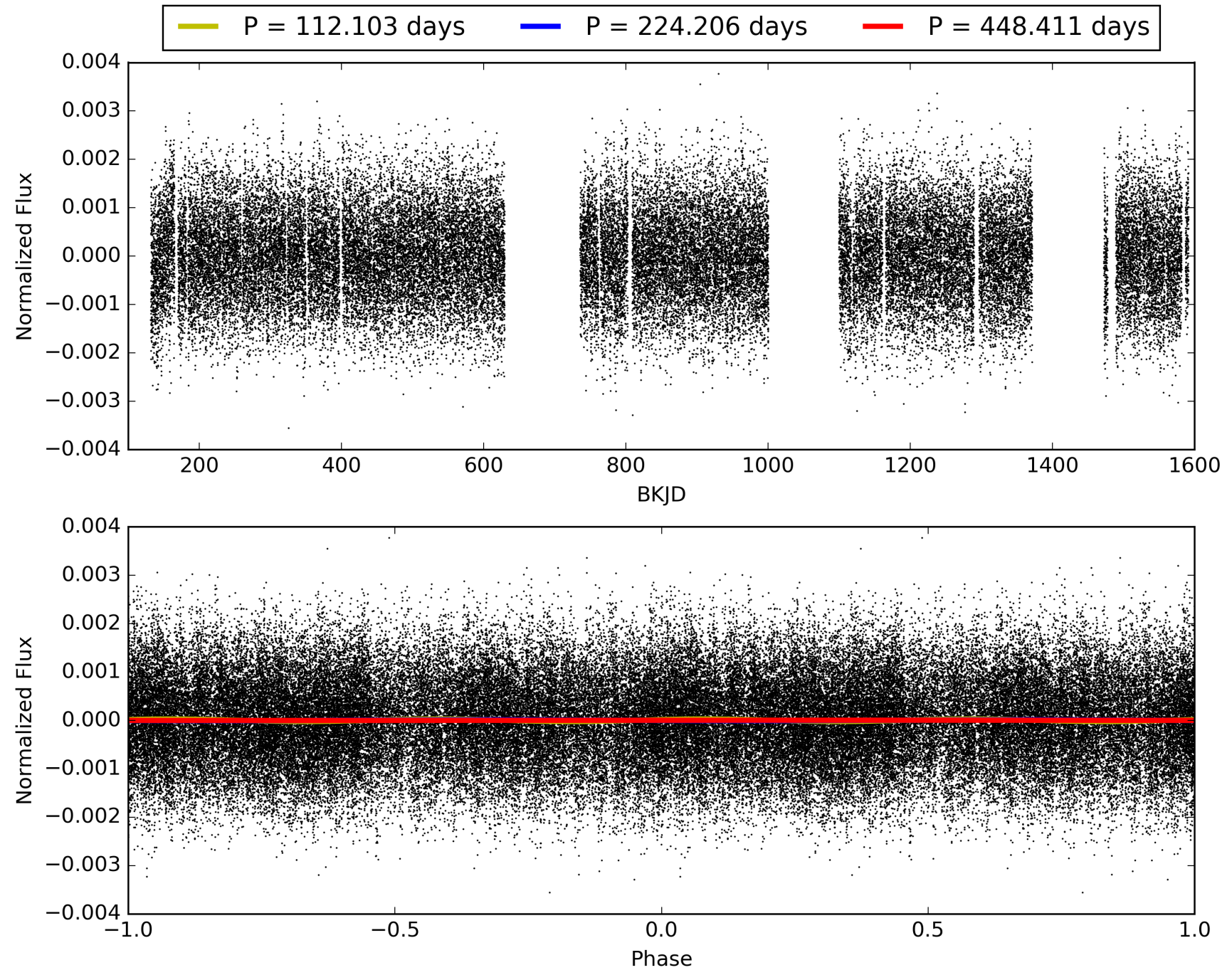
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 15:31:13 Z

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

TCE 009910533-10, PDC Light Curves

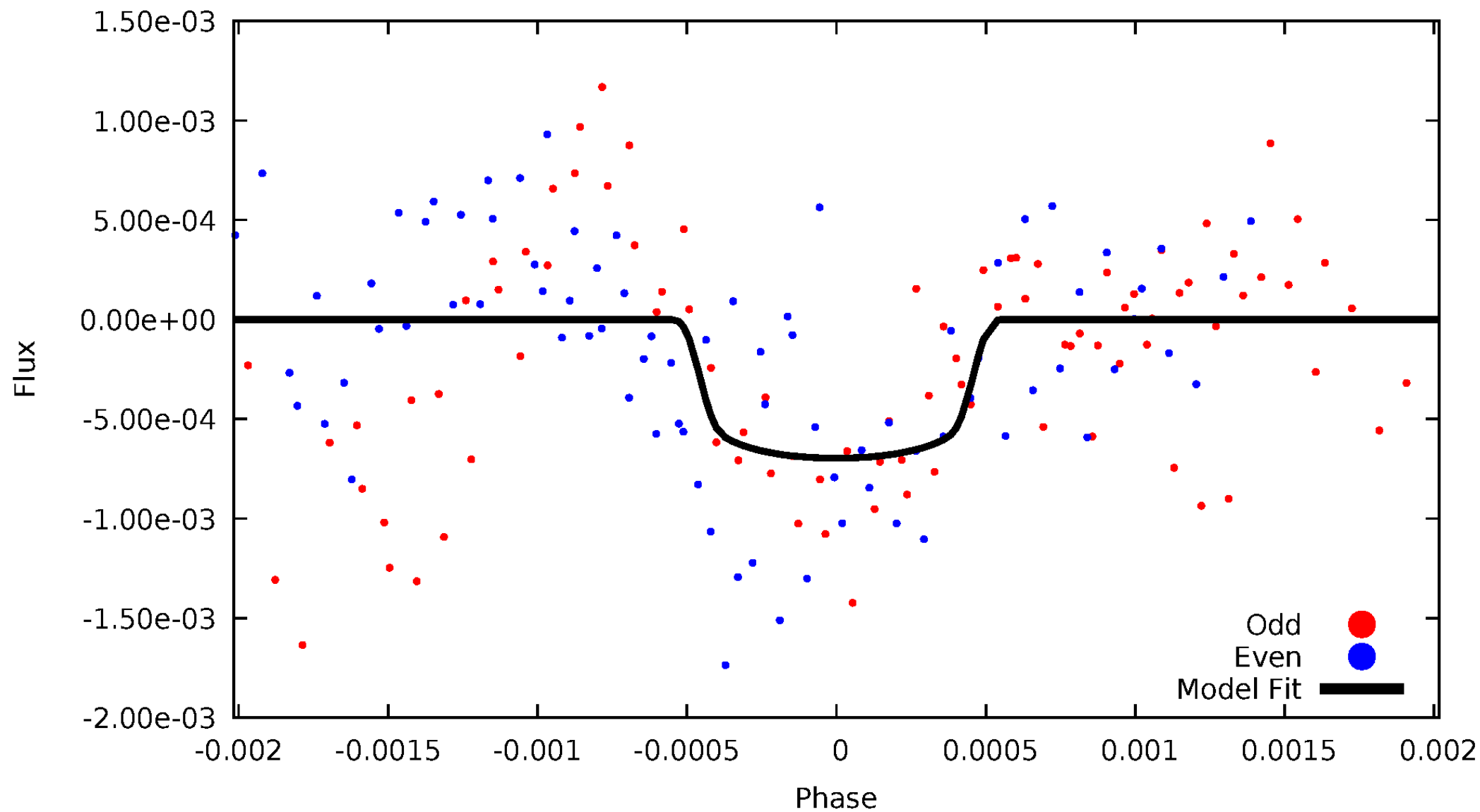


TCE 009910533-10



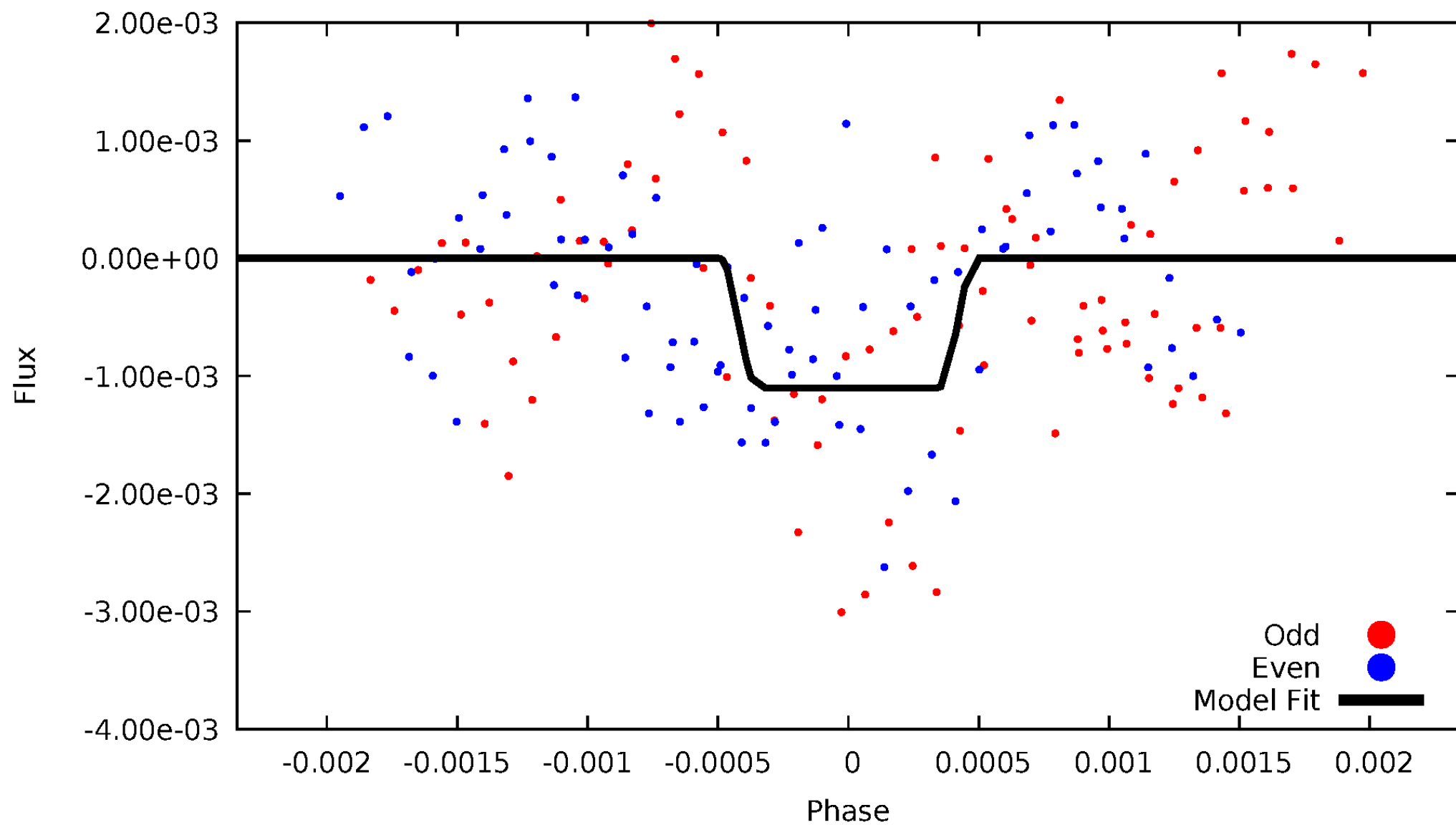
DV Odd/Even

TCE 009910533-10



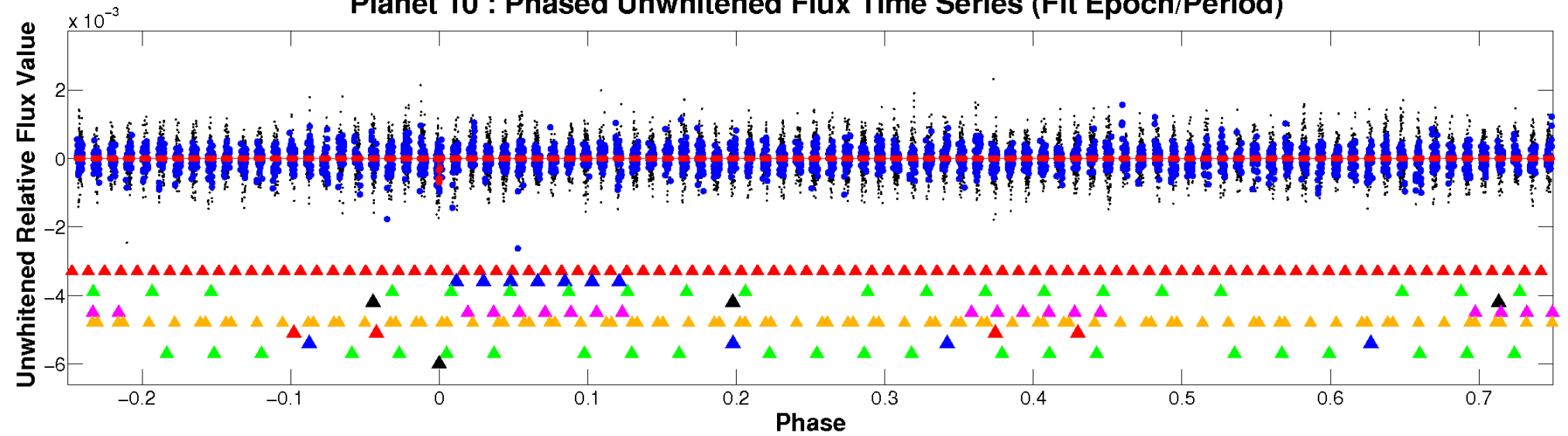
ALT Odd/Even

TCE 009910533-10

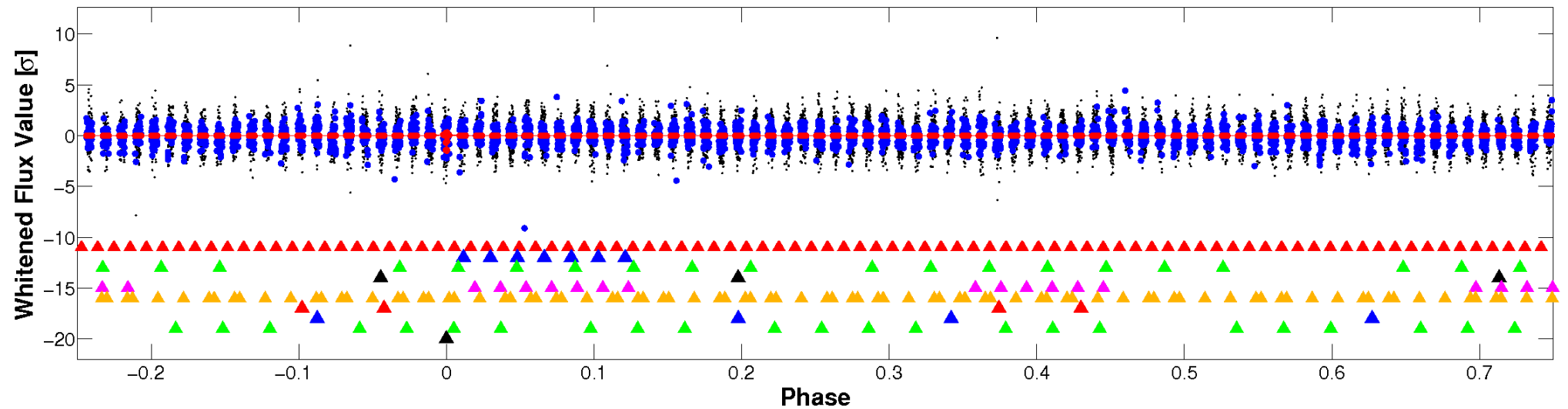


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

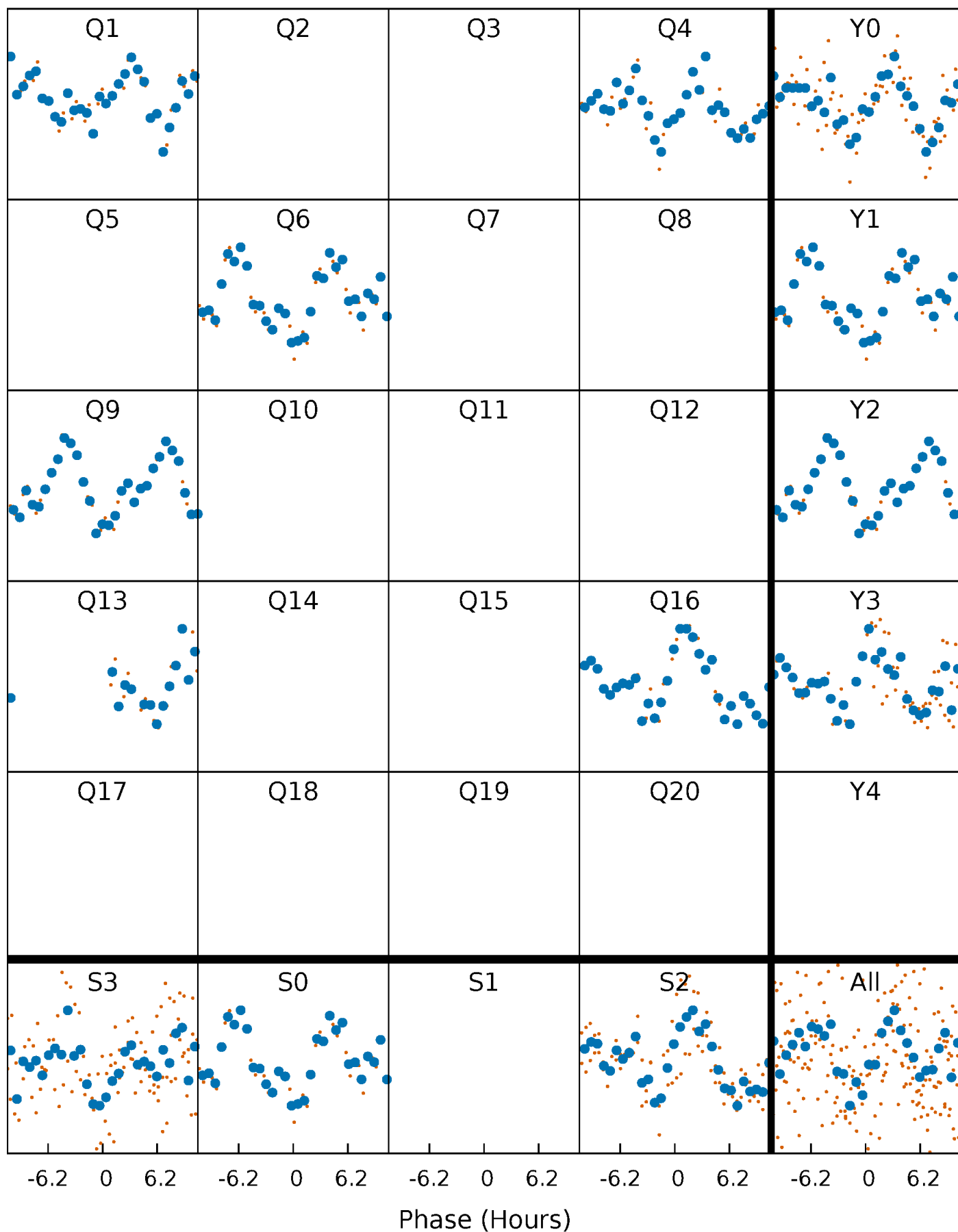


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



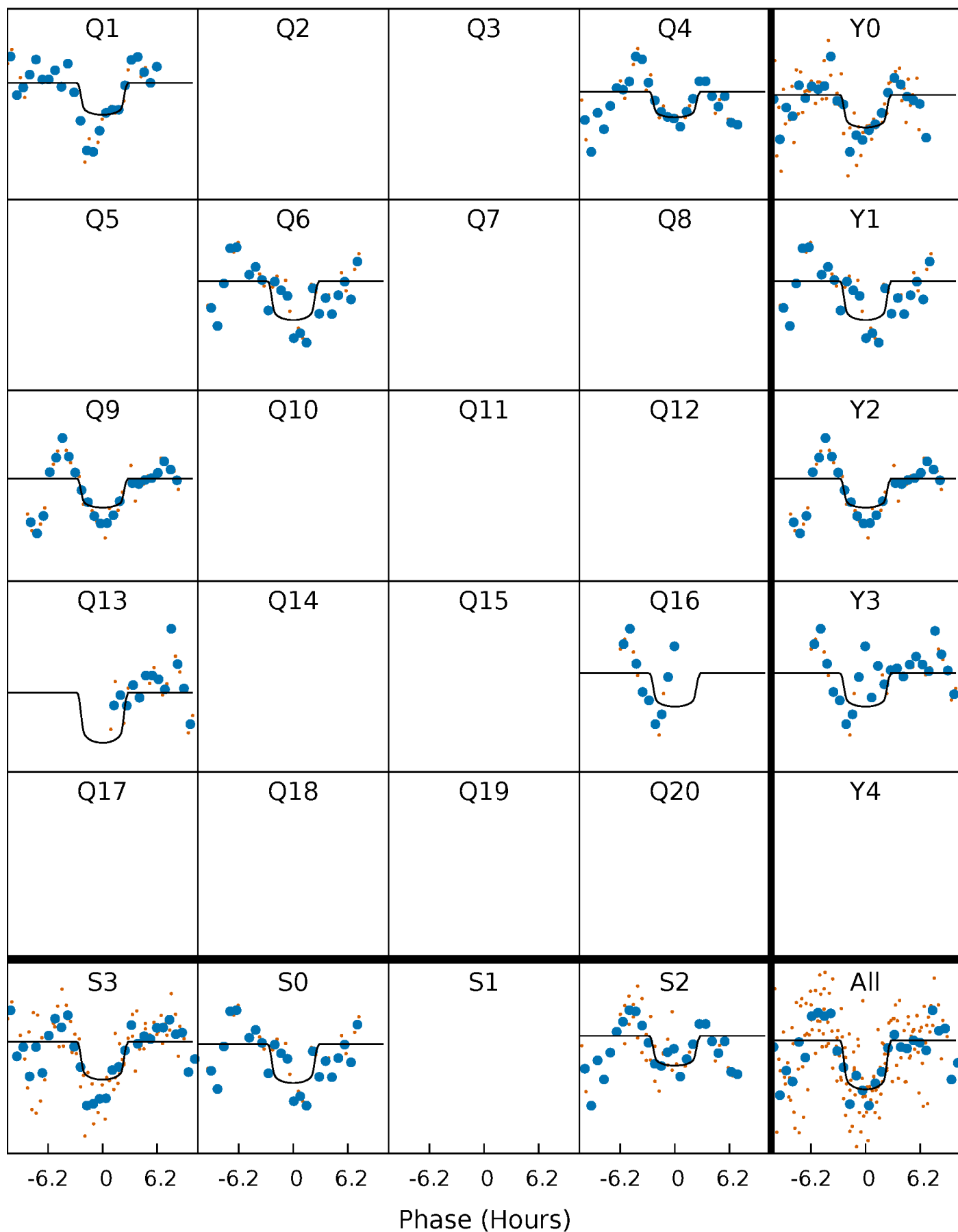
PDC Quarter-Phased Transit Curves

TCE 009910533-10 $P=224.205646$ Days $T_0=148.146862$ (BKJD)



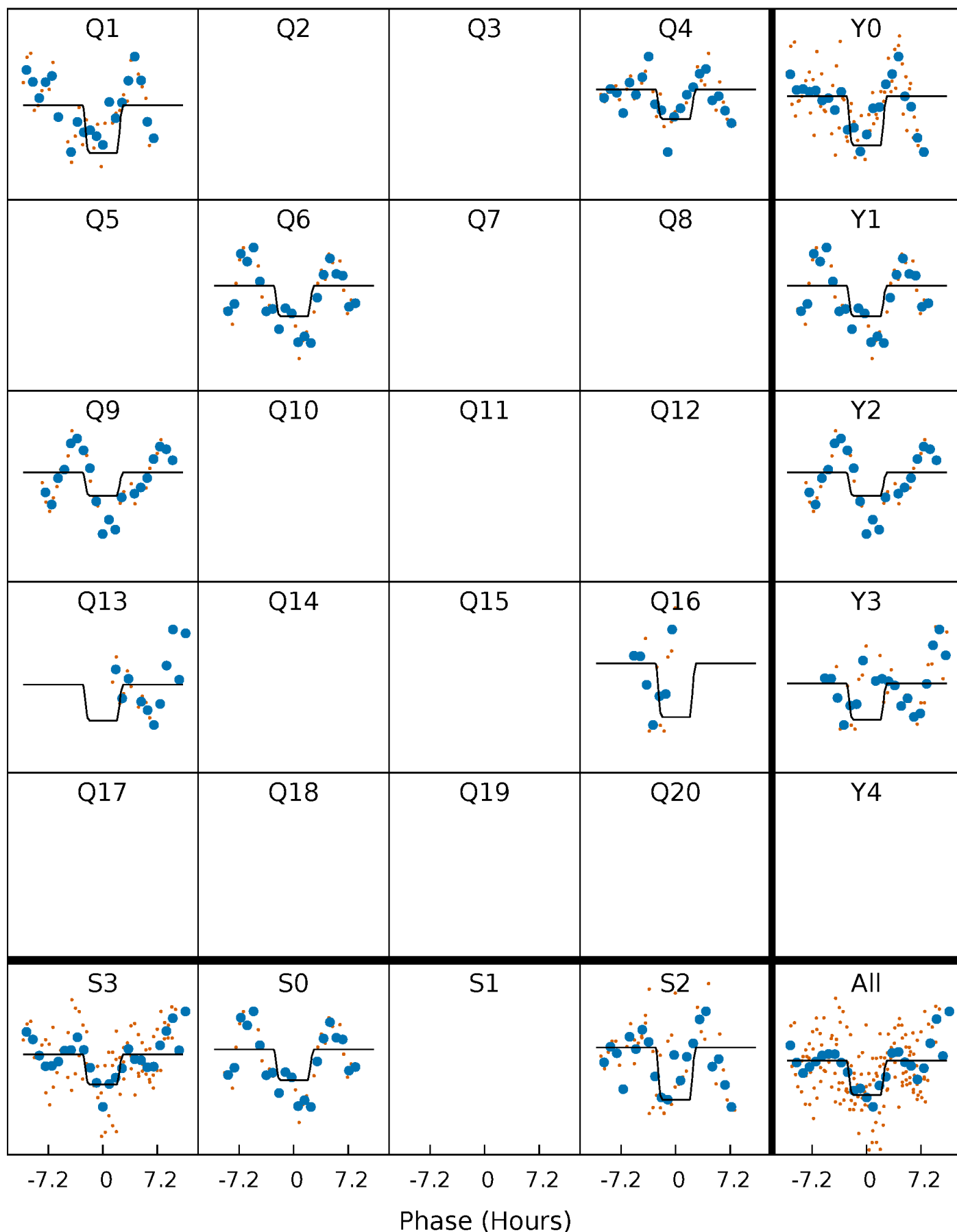
DV Quarter-Phased Transit Curves

TCE 009910533-10 P=224.205646 Days $T_0=148.146862$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

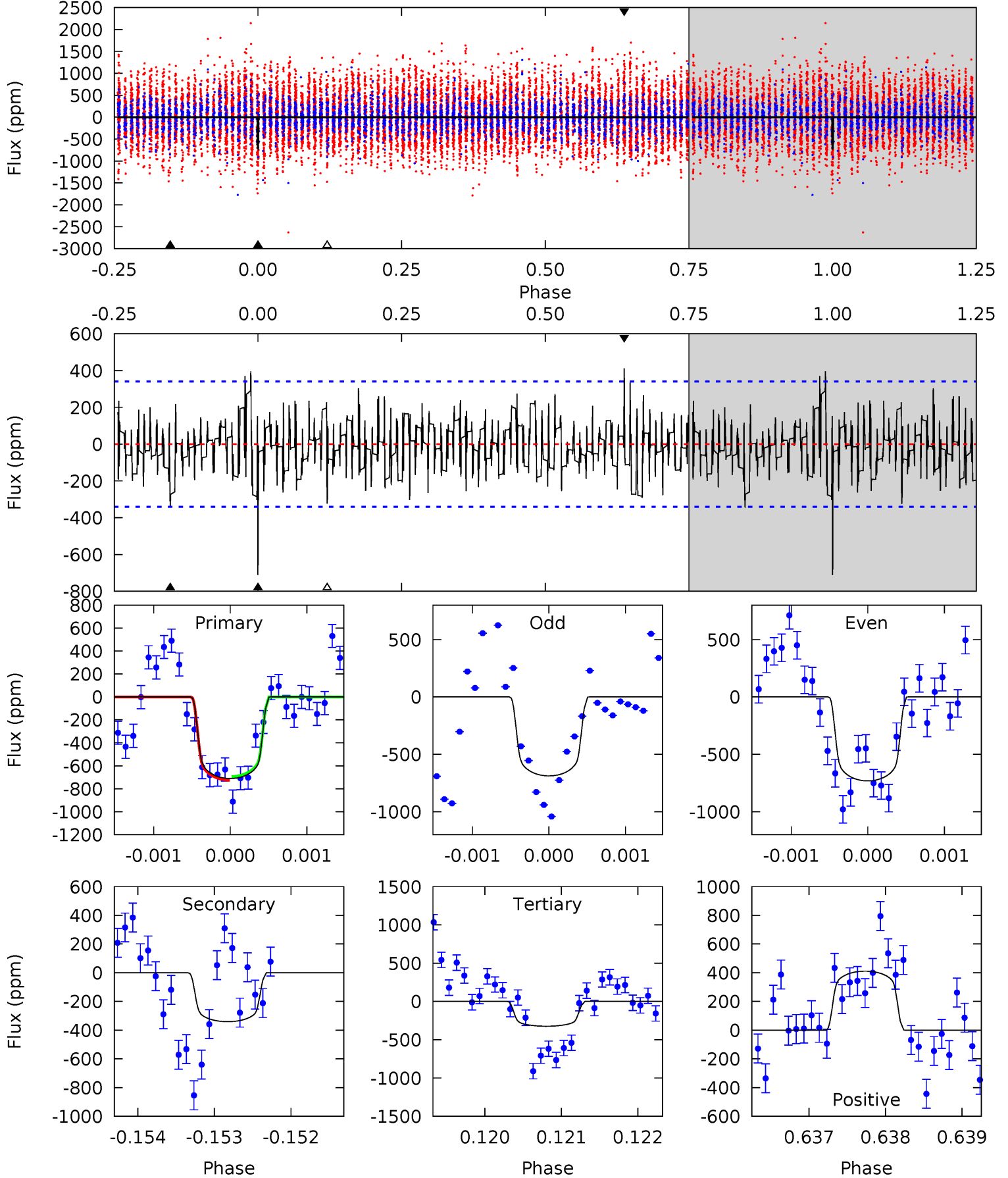
TCE 009910533-10 P=224.209606 Days $T_0=148.112327$ (BKJD)



DV Model-Shift Uniqueness Test

009910533-10, P = 224.205646 Days, E = 148.146862 Days

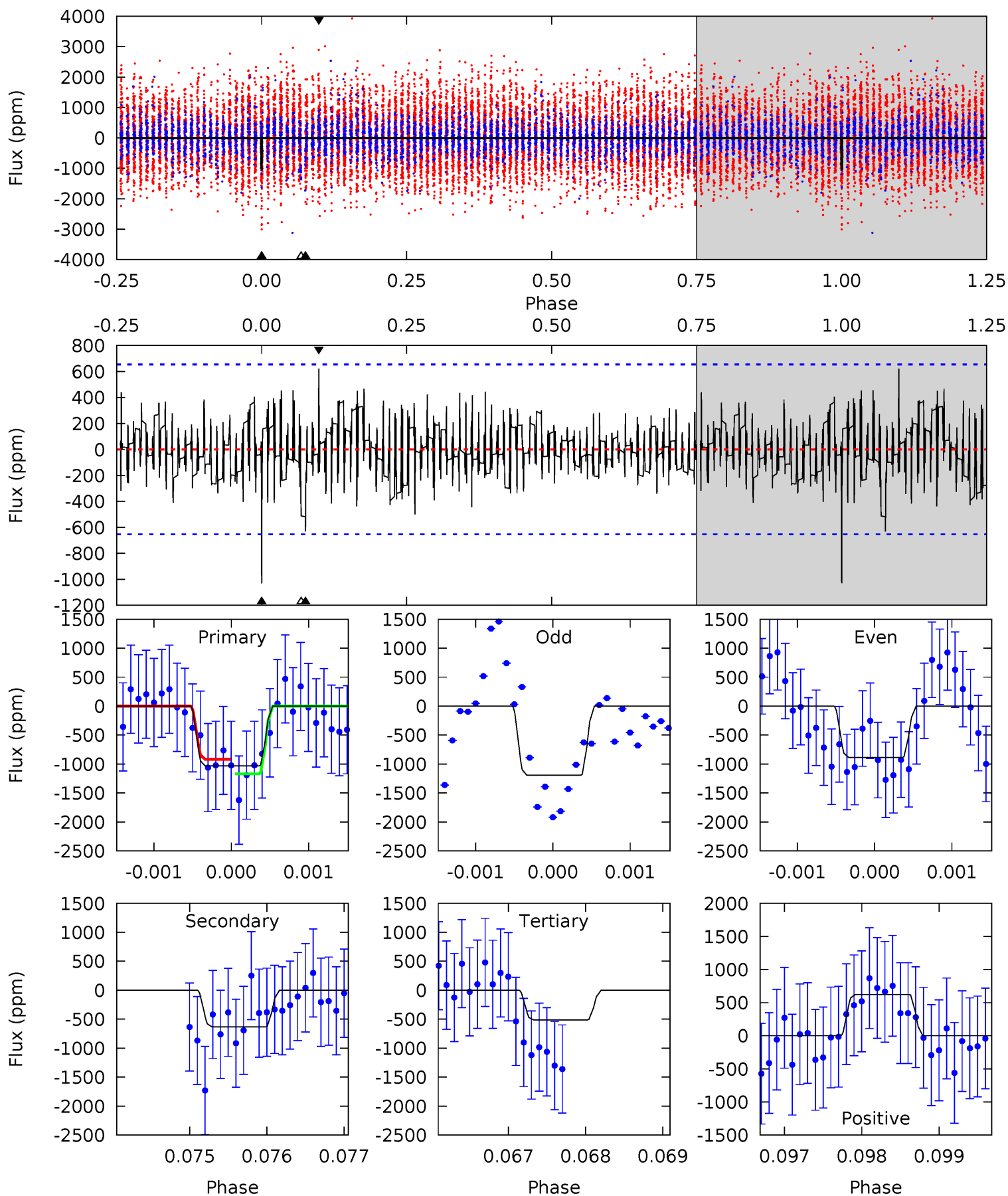
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.43	5.16	6.56	5.44	3.27	1.80	6.17	4.77	0.27	-1.13	0.35	1.07	0.37	0.24



Alt Model-Shift Uniqueness Test

009910533-10, P = 224.209606 Days, E = 148.112327 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.61	5.27	4.27	5.20	5.46	3.31	1.37	4.34	3.41	1.00	0.07	1.28	1.14	0.38	1.03



Stellar Parameters For KIC 009910533

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8443^{+232}_{-365}	$3.755^{+0.412}_{-0.137}$	$-0.140^{+0.300}_{-0.400}$	$3.127^{+0.946}_{-1.418}$	$2.032^{+0.382}_{-0.467}$	$0.094^{+0.363}_{-0.043}$
	+3%/-4%	+11%/-4%	+214%/-286%	+30%/-45%	+19%/-23%	+388%/-46%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009910533-10 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-341 ± 63	$8.55^{+2.39}_{-2.51}$	927^{+81}_{-115}	6729^{+988}_{-723}	2188^{+2138}_{-902}
Alt.	-631 ± 120	$10.59^{+3.00}_{-2.80}$	932^{+76}_{-114}	7033^{+972}_{-659}	2537^{+2210}_{-973}

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

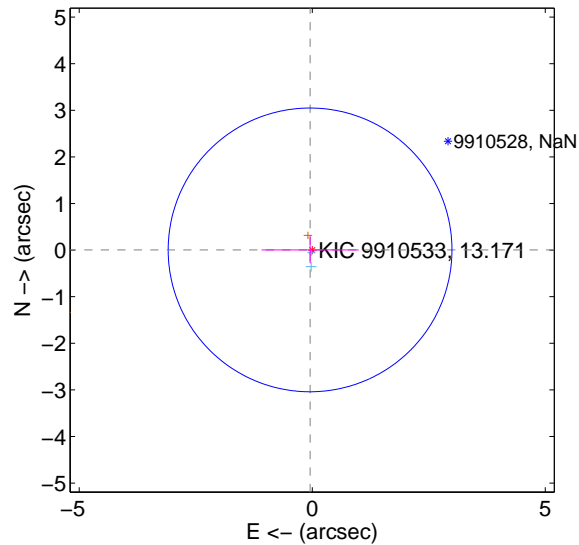
Supplemental centroid analysis for 009910533-10. Kepler magnitude: 13.17. Transit SNR 9.37

There are 2 quarters with good PRF difference image offsets

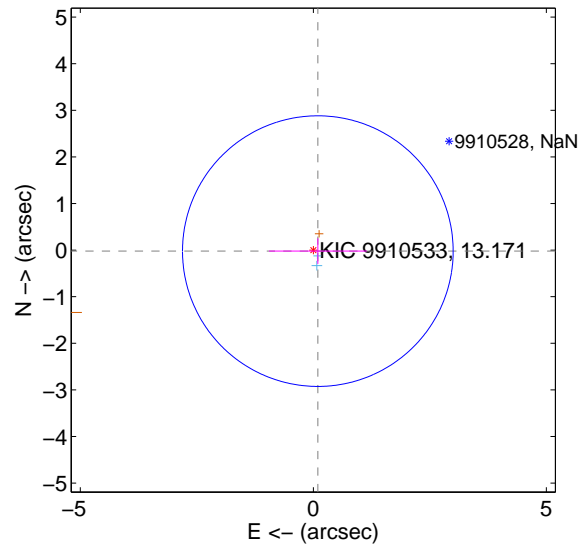
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.047 ± 1.015	0.05	0.047 ± 1.042	0.004 ± 0.288
PRF-fit source offset from KIC position	0.099 ± 0.968	0.10	-0.097 ± 1.050	-0.022 ± 0.275
photometric centroid source offset	1.15 ± 1.06	1.08	1.12 ± 1.08	-0.23 ± 0.48

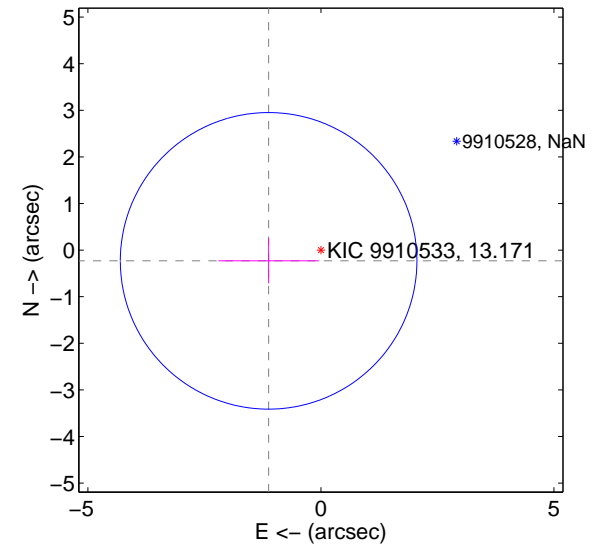
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

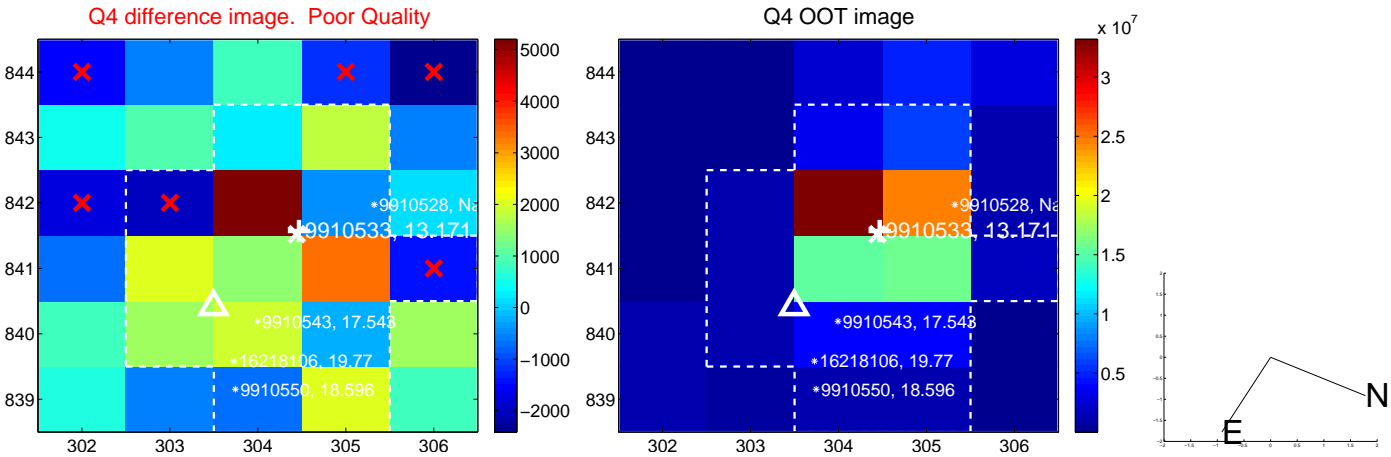
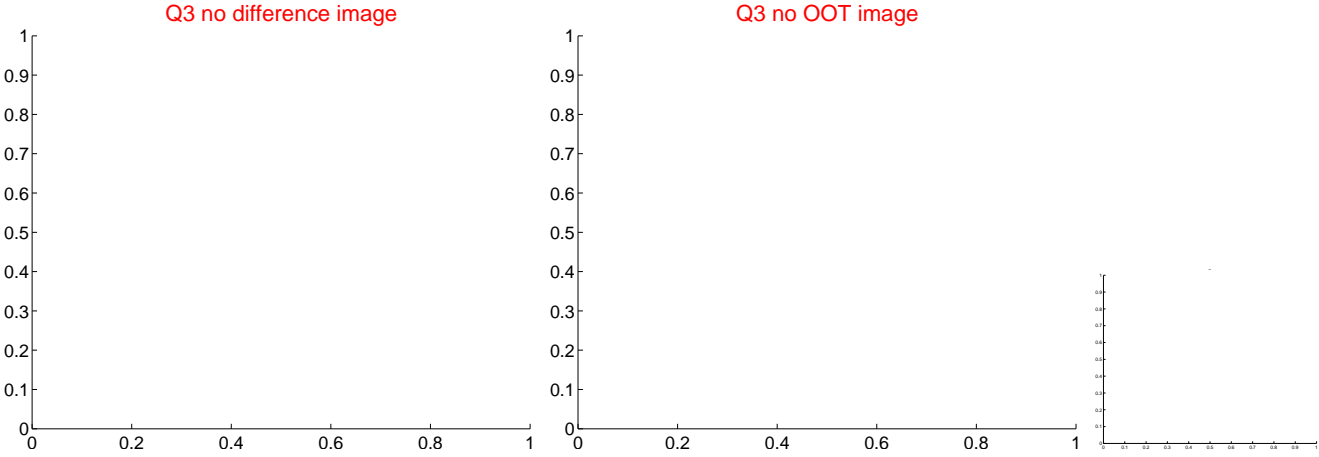
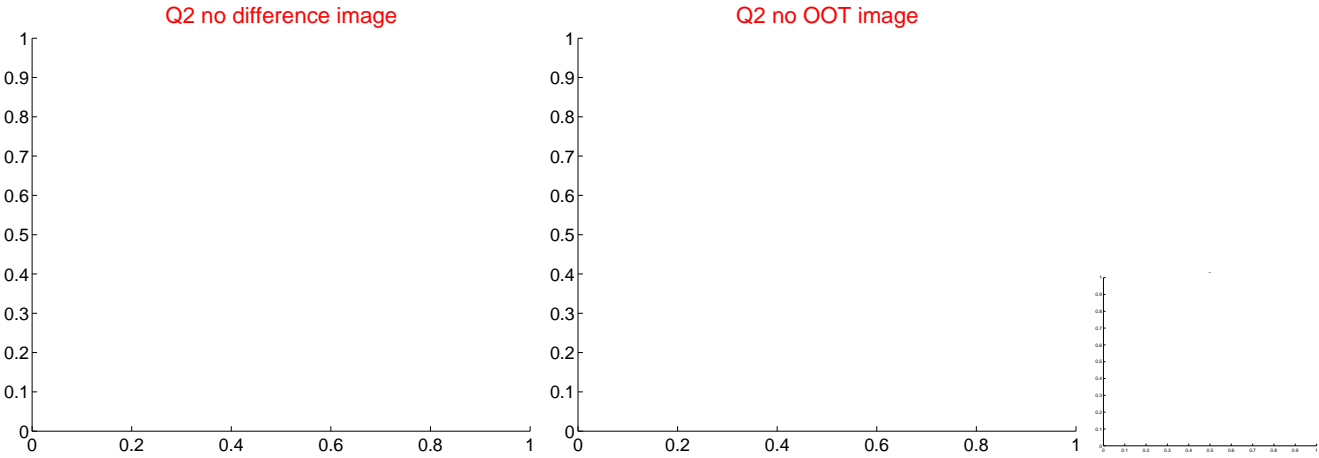
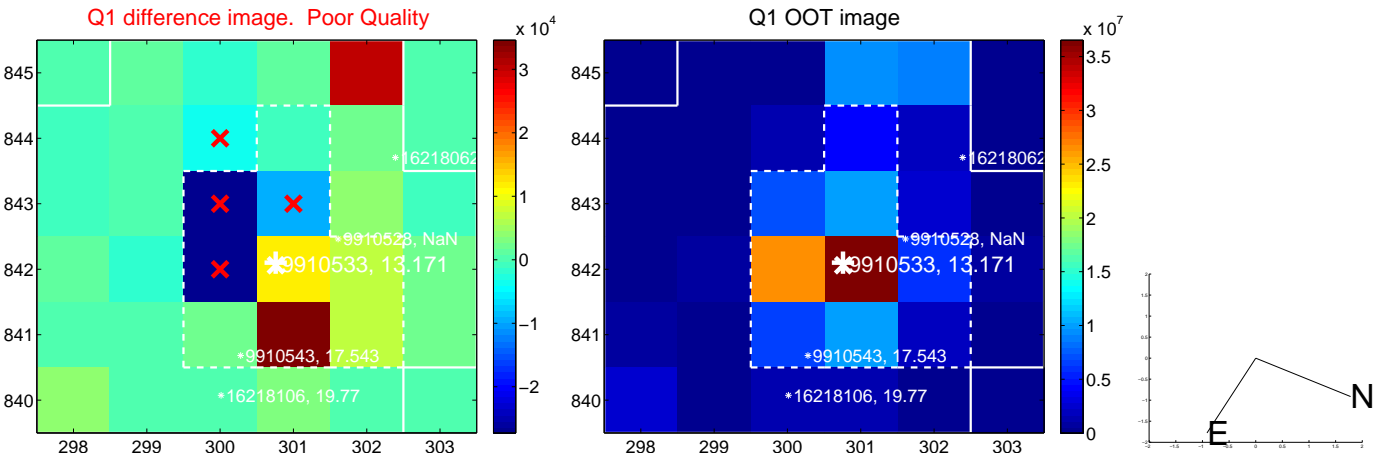


offset from photometric centroids



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

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



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

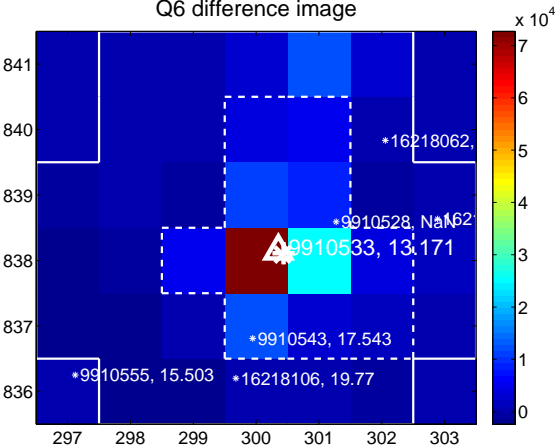
Q5 no difference image



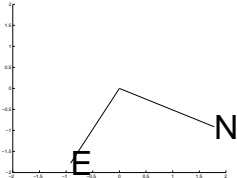
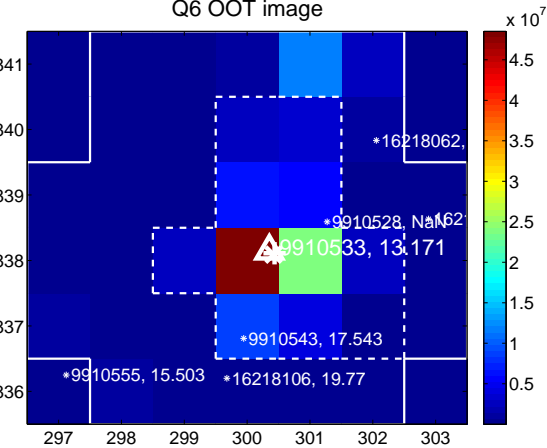
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



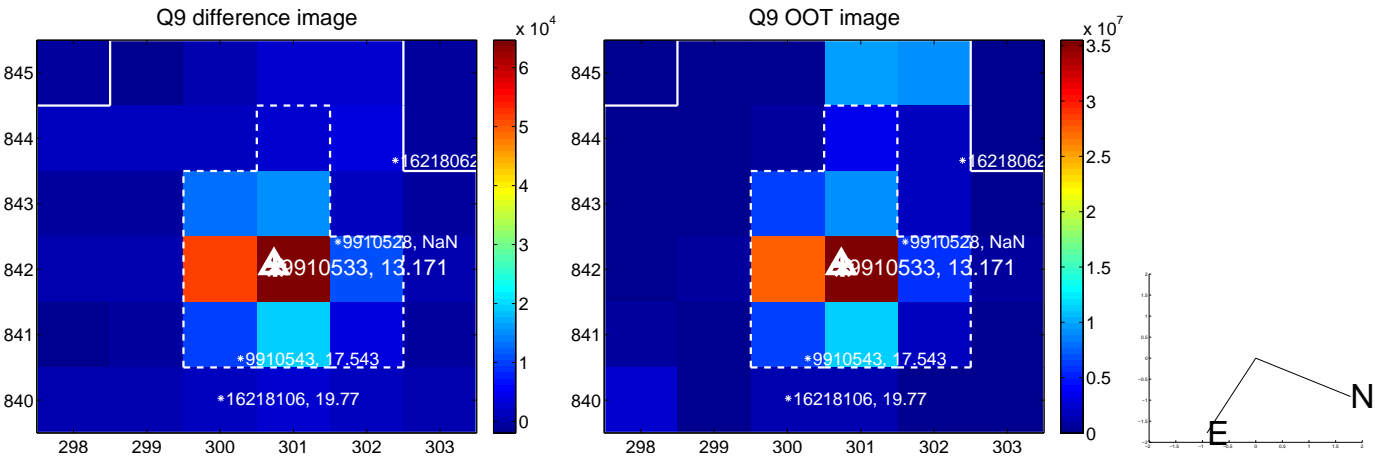
Q8 no difference image



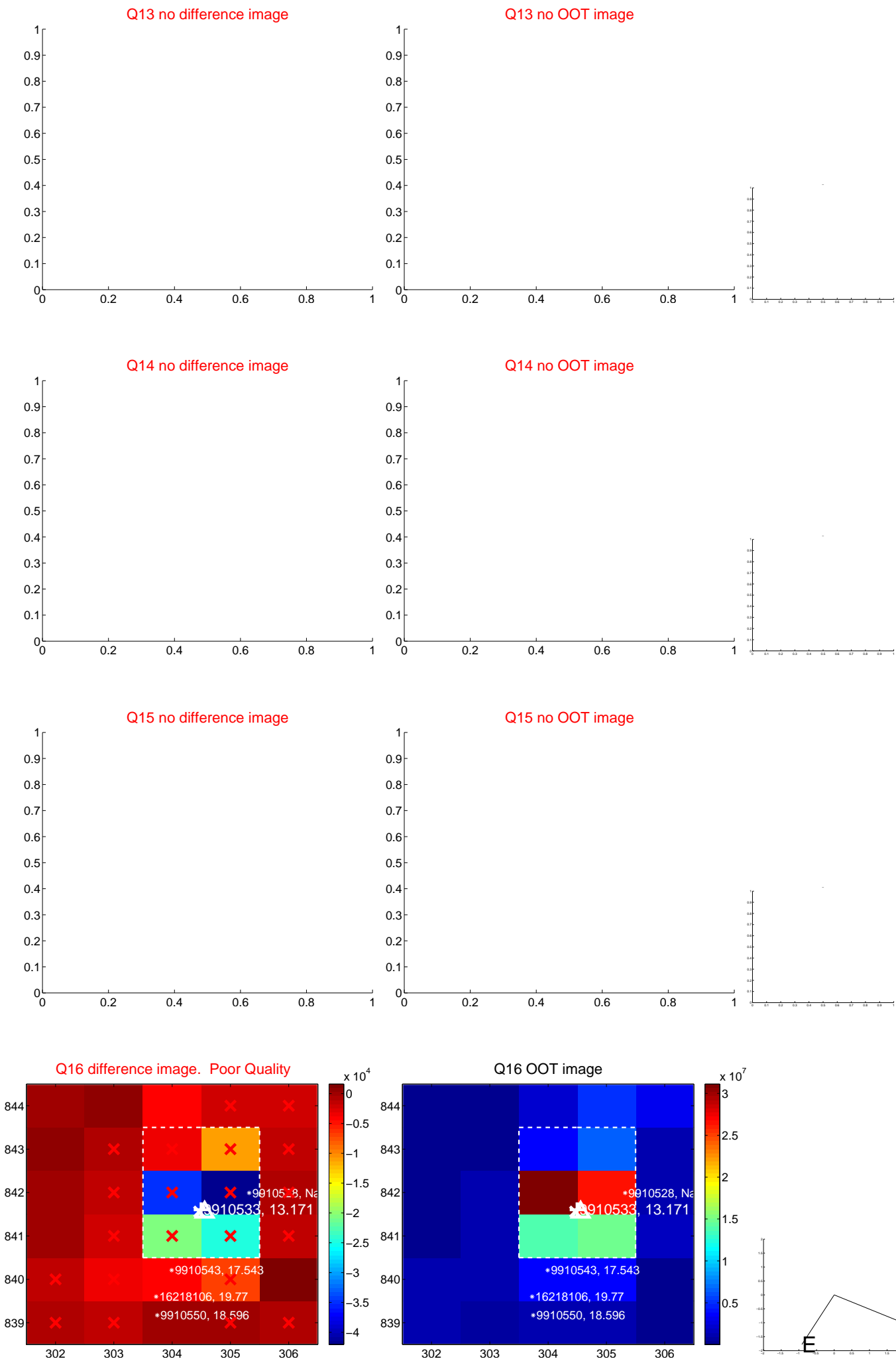
Q8 no OOT image



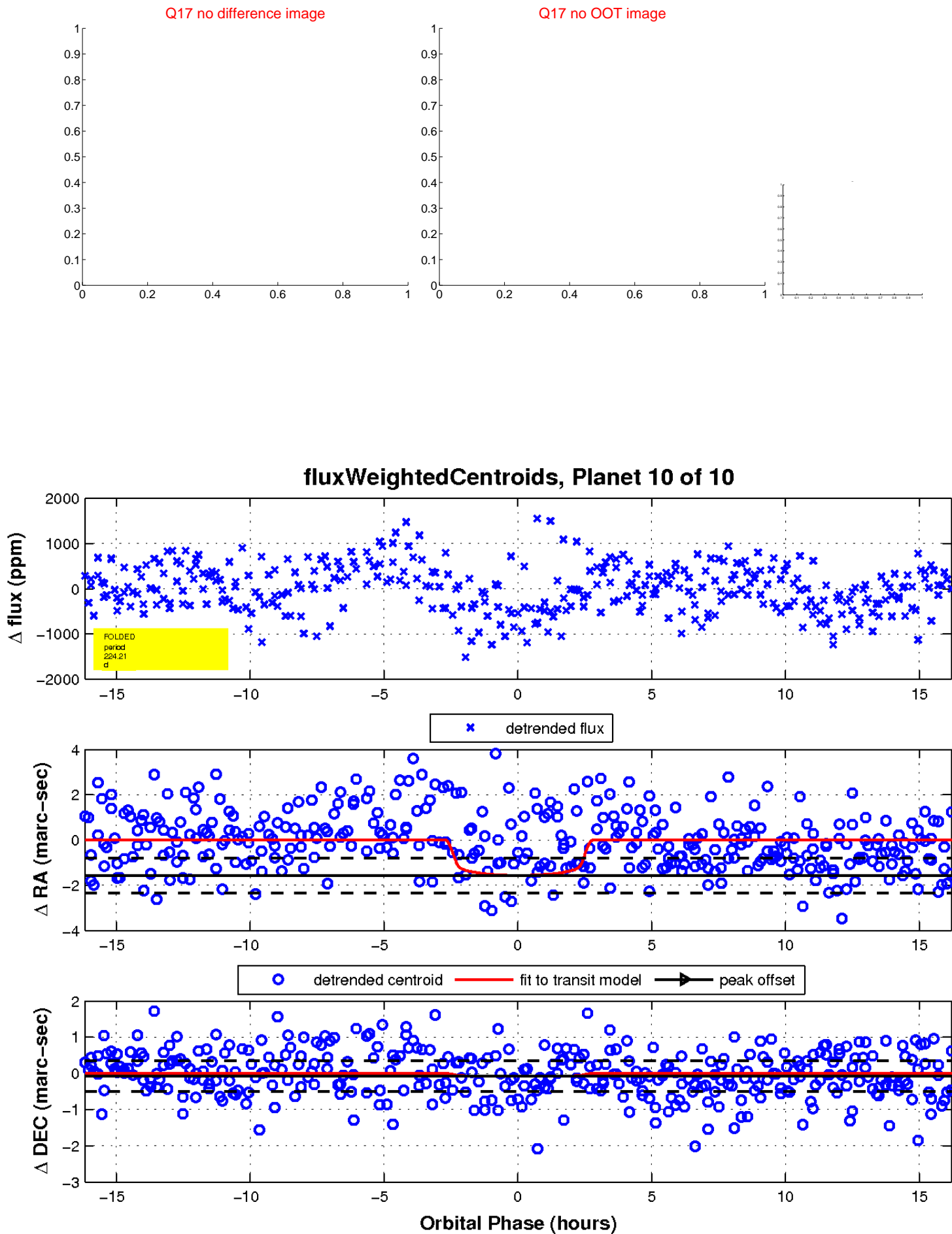
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

