

KIC 008905010

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})
008905010-01	OBS	No	3.584899	132.815440	11.5	6.329	14.0	13.9	4.20	7244	1.61	12890.49
008905010-02	OBS	No	553.266427	205.150138	78.1	14.826	11.1	7.3	4.20	7244	4.02	15.57
008905010-03	OBS	No	3.584749	134.931910	7.1	7.551	8.4	9.4	4.20	7244	1.31	12891.21
008905010-04	OBS	No	3.584535	132.276887	10.0	2.678	8.7	10.0	4.20	7244	1.52	12892.24
008905010-05	OBS	No	3.584582	134.381005	9.0	2.241	8.7	8.4	4.20	7244	1.34	12892.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008905010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008905010-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
008905010-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

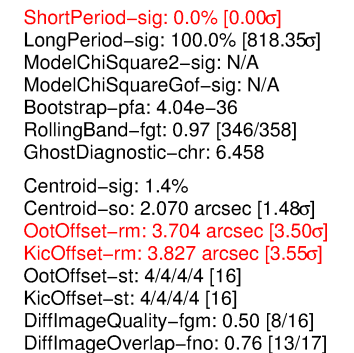
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 008905010-01

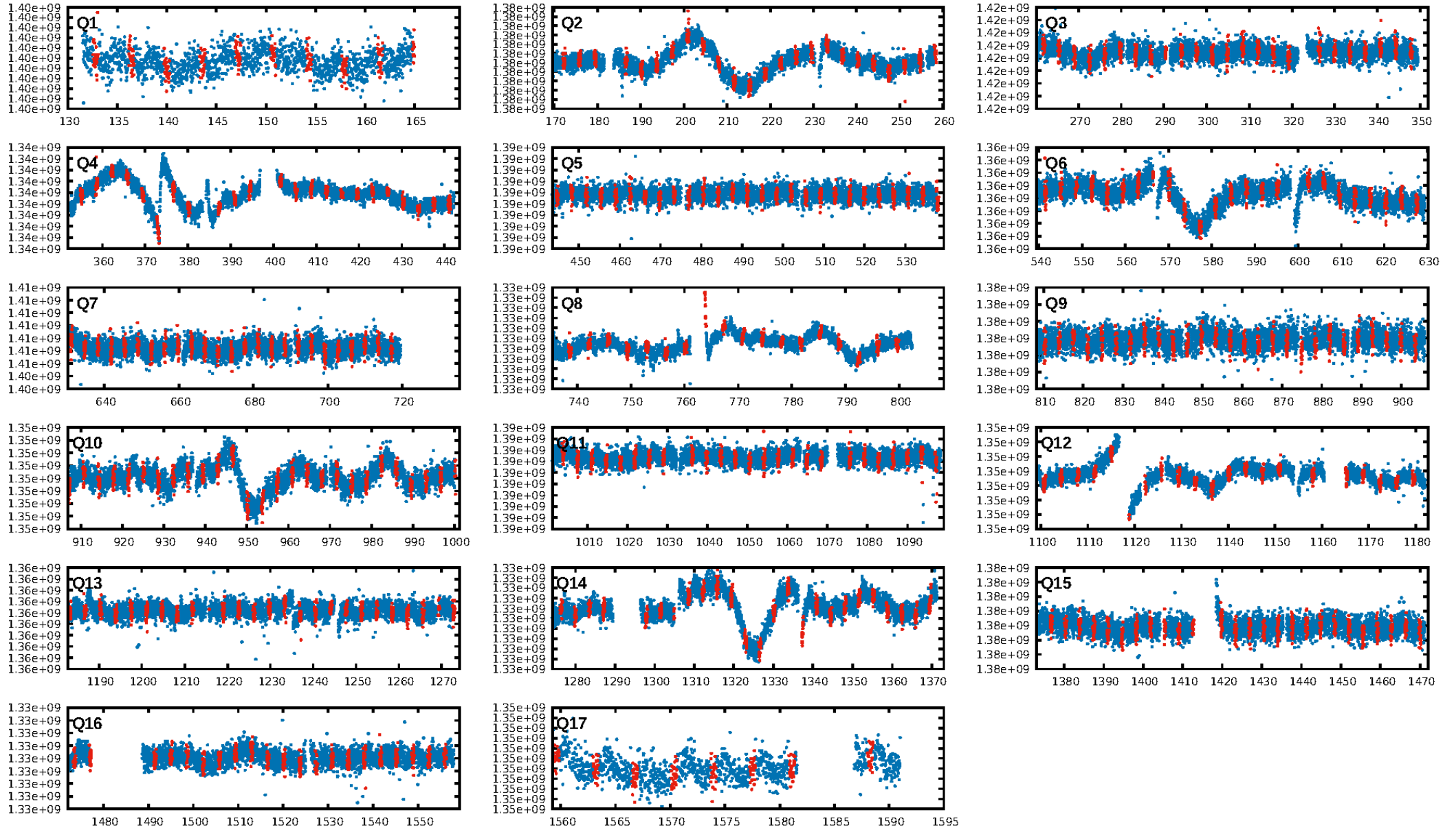
No Significant Match Found

KIC: 8905010 Candidate: 1 of 5 Period: 3.585 d

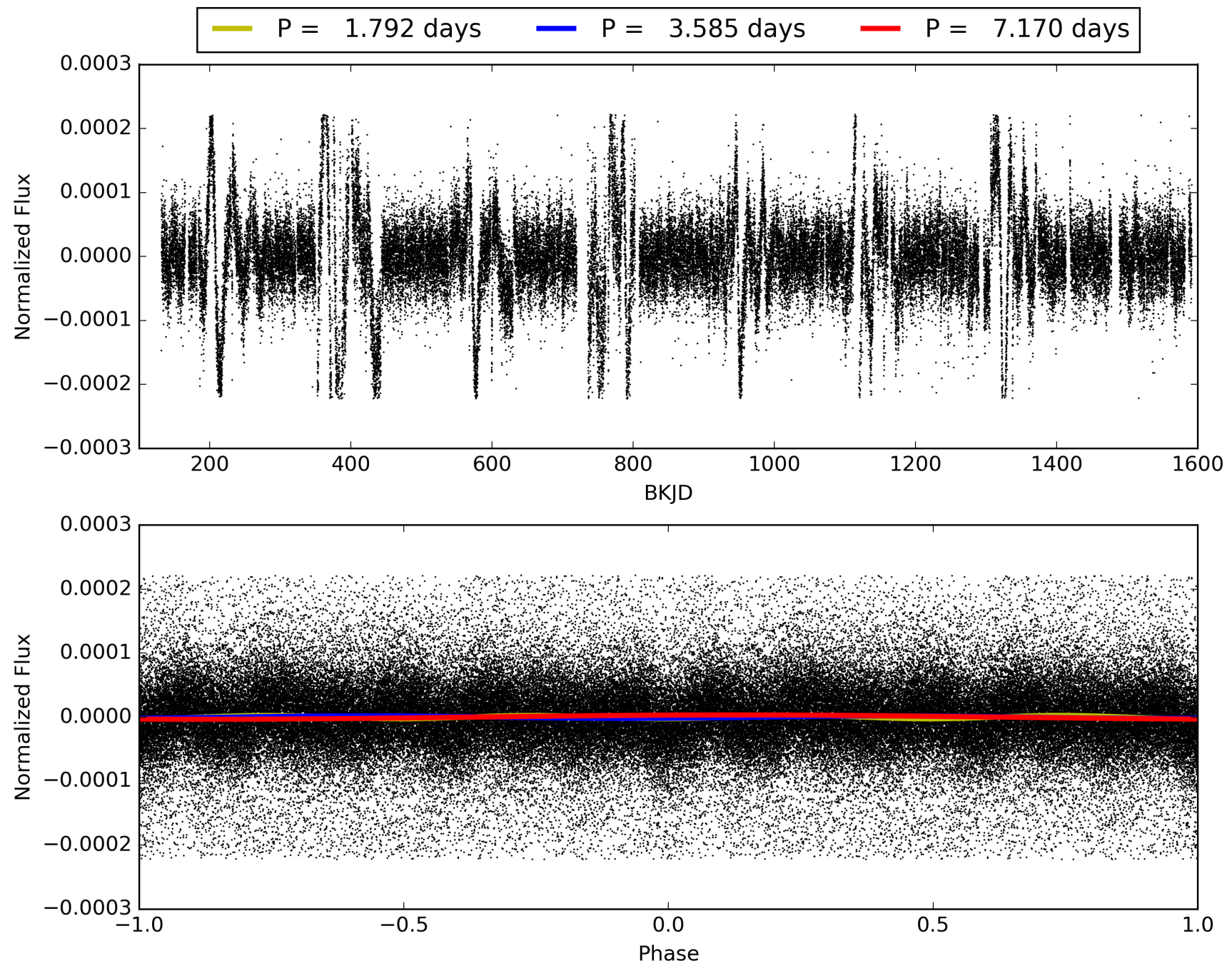


This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008905010-01, PDC Light Curves

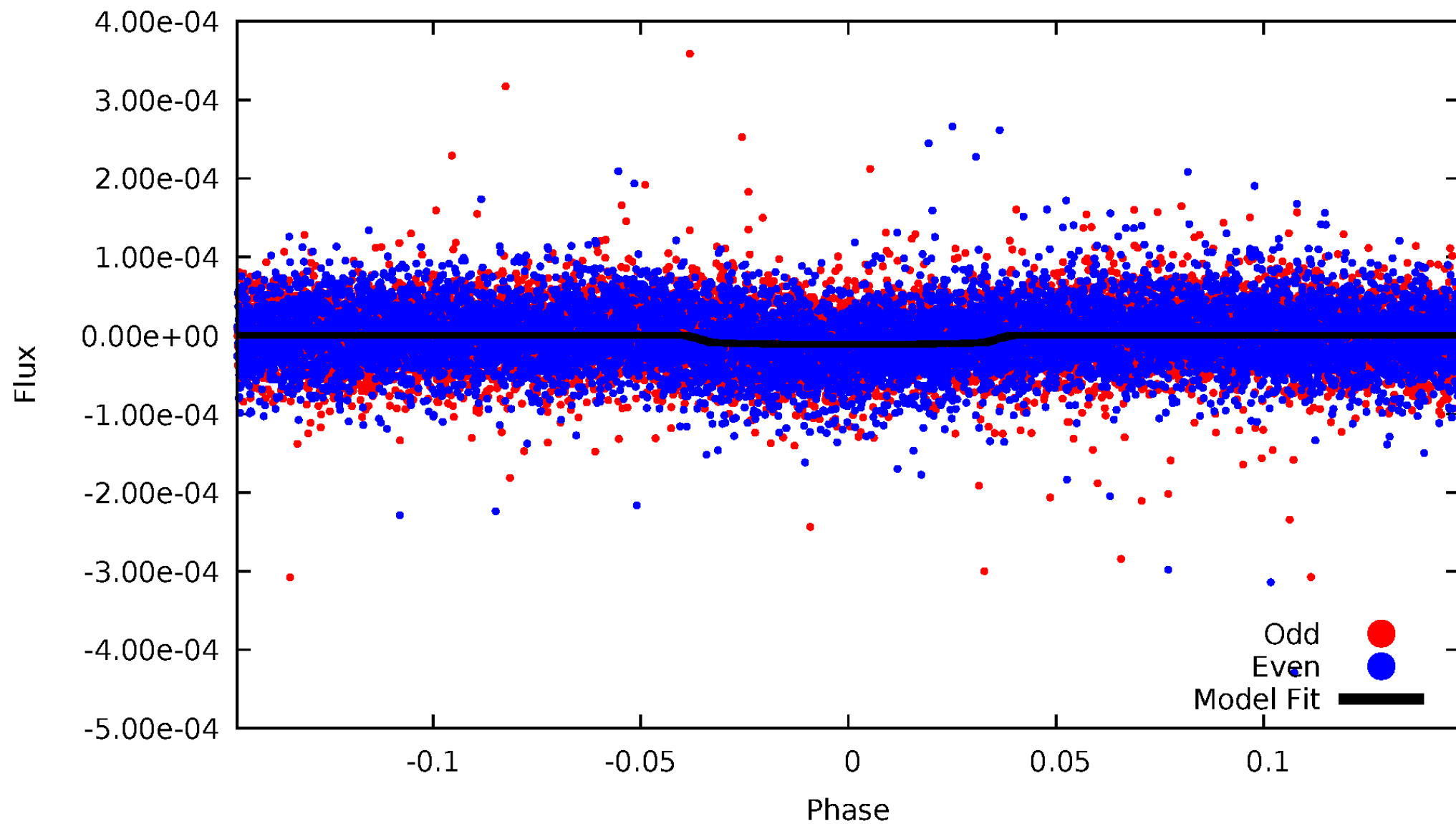


TCE 008905010-01



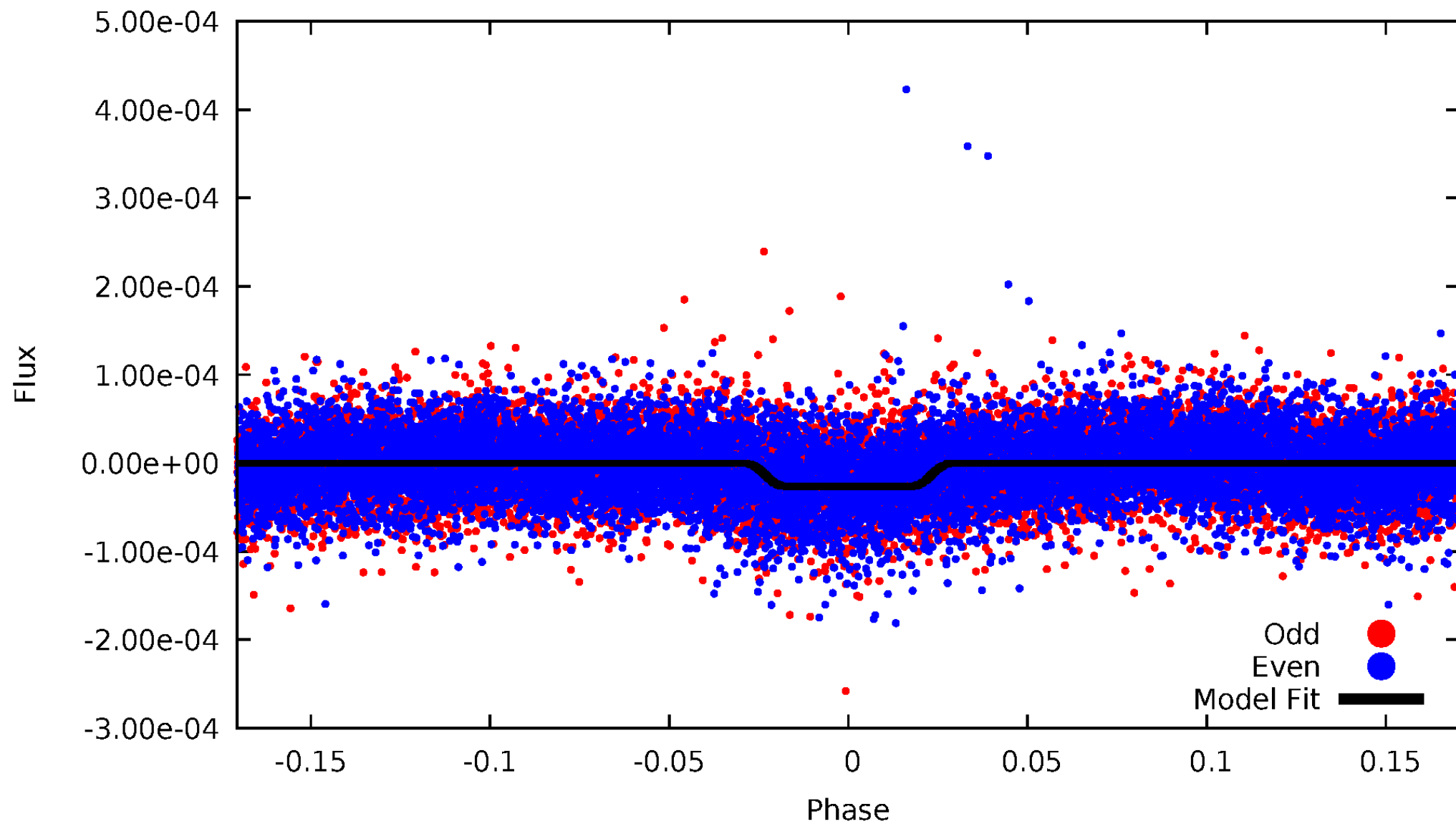
DV Odd/Even

TCE 008905010-01



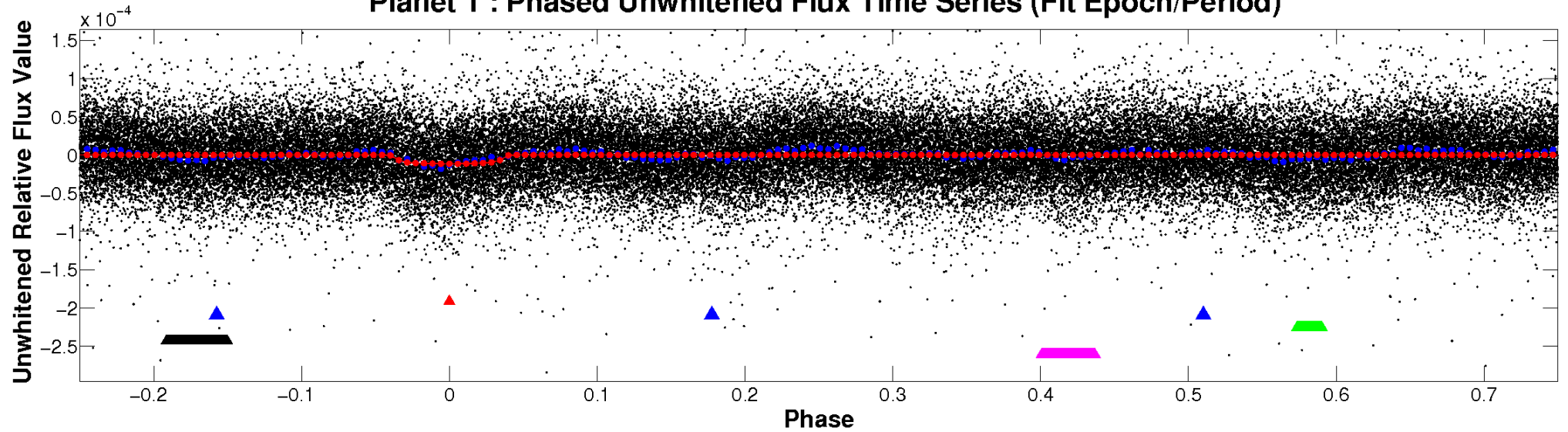
ALT Odd/Even

TCE 008905010-01

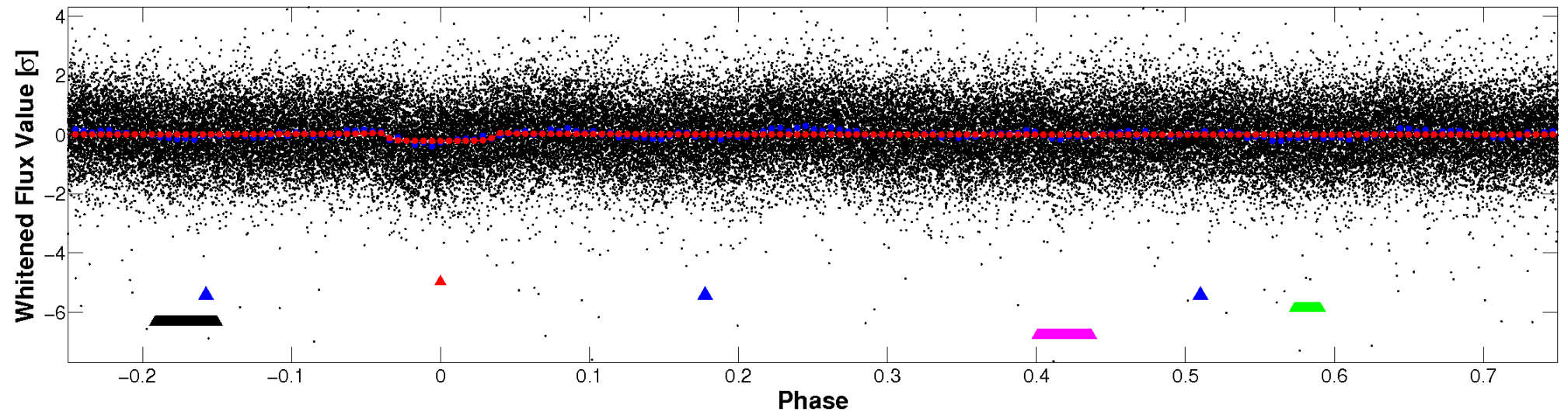


Non-Whitened Vs. Whitened Light Curve

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

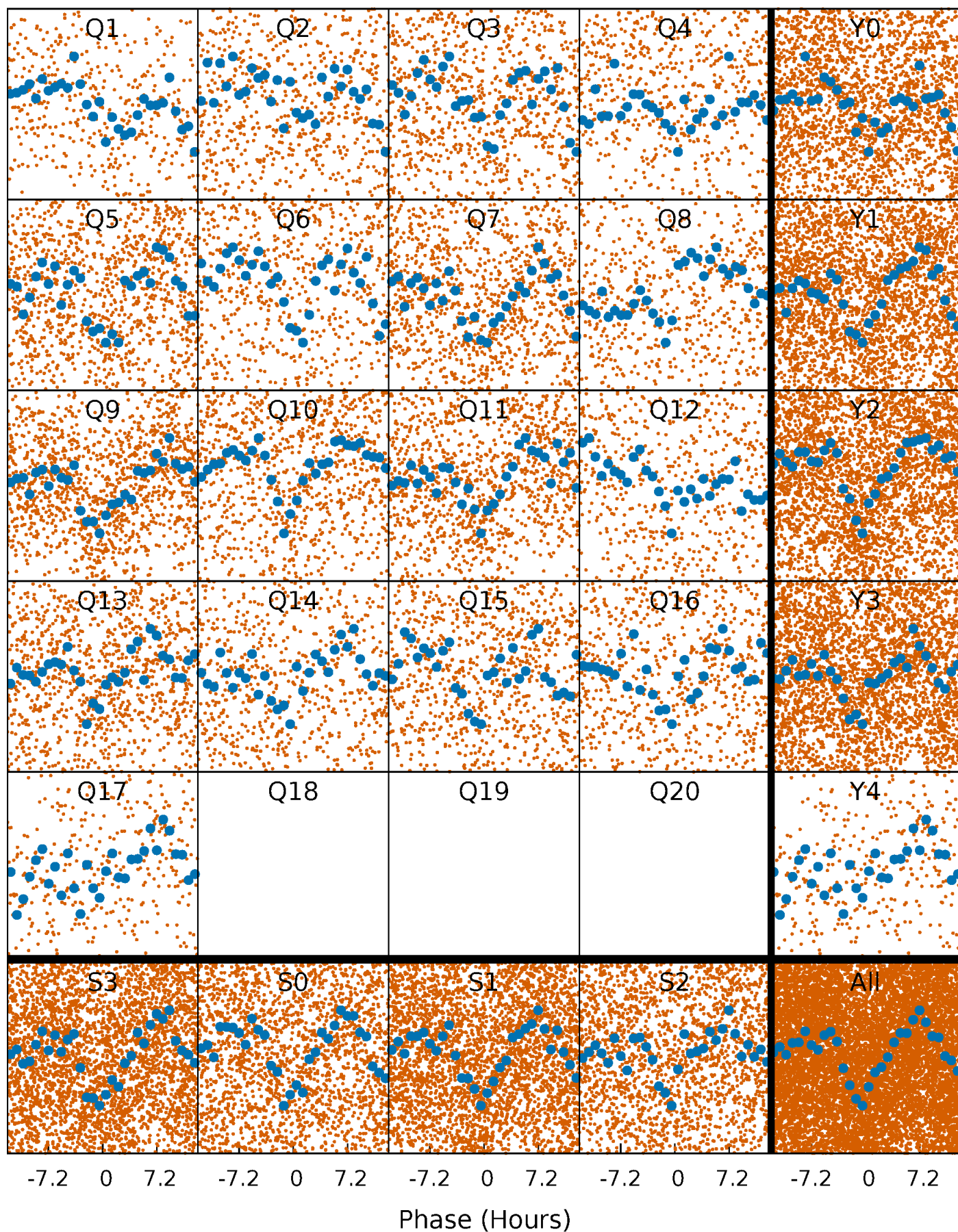


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



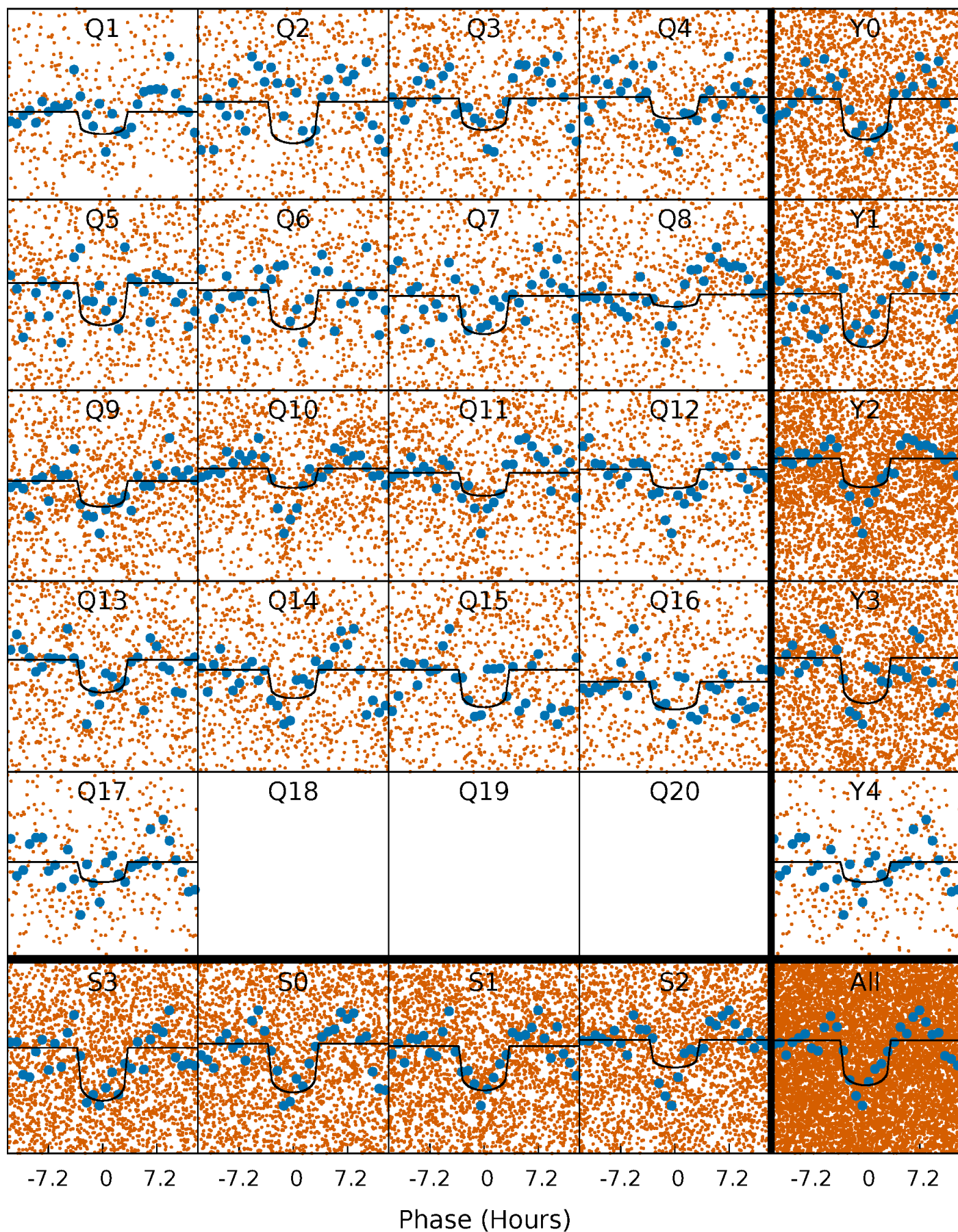
PDC Quarter-Phased Transit Curves

TCE 008905010-01 P= 3.584899 Days $T_0=132.815440$ (BKJD)



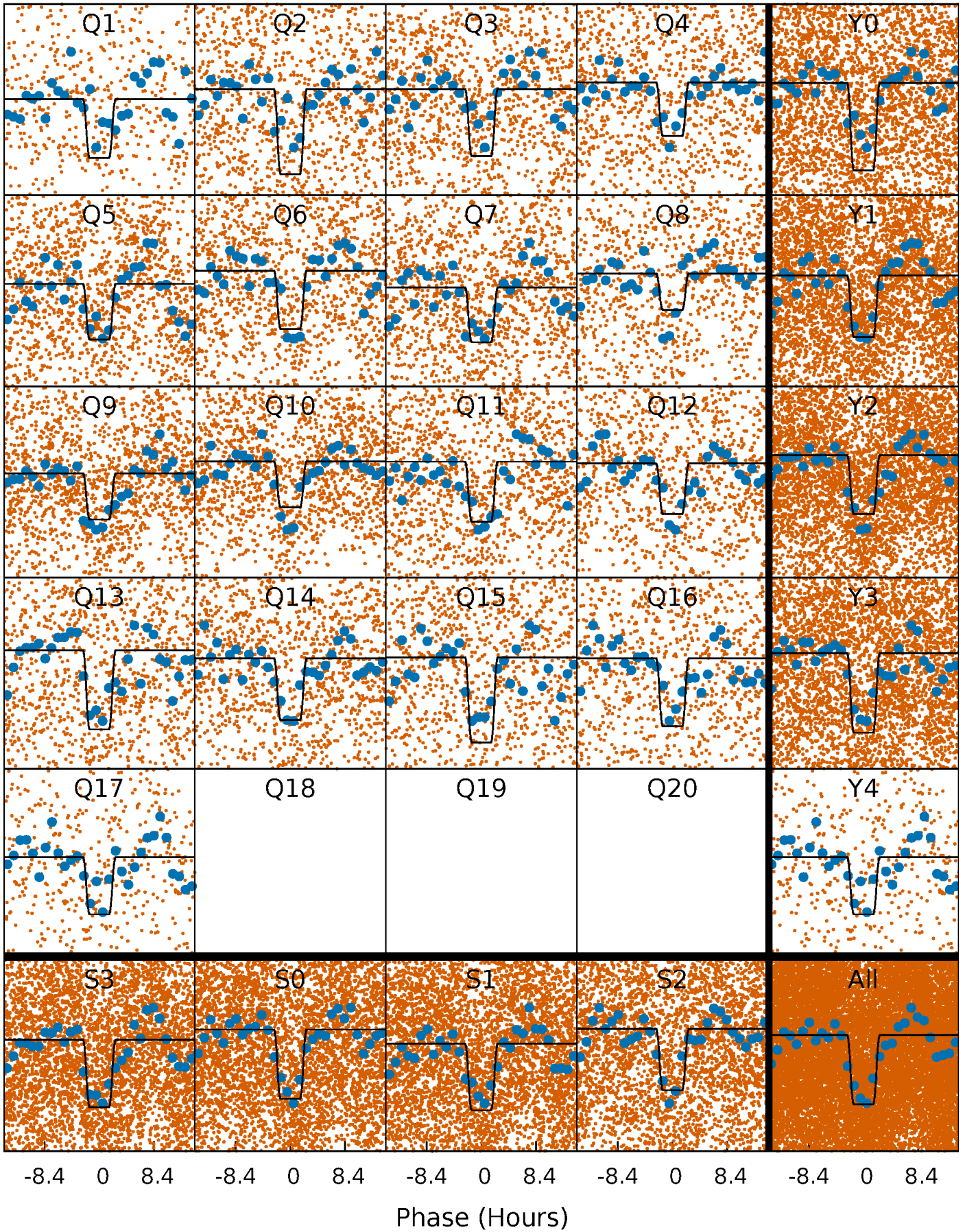
DV Quarter-Phased Transit Curves

TCE 008905010-01 P= 3.584899 Days $T_0=132.815440$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

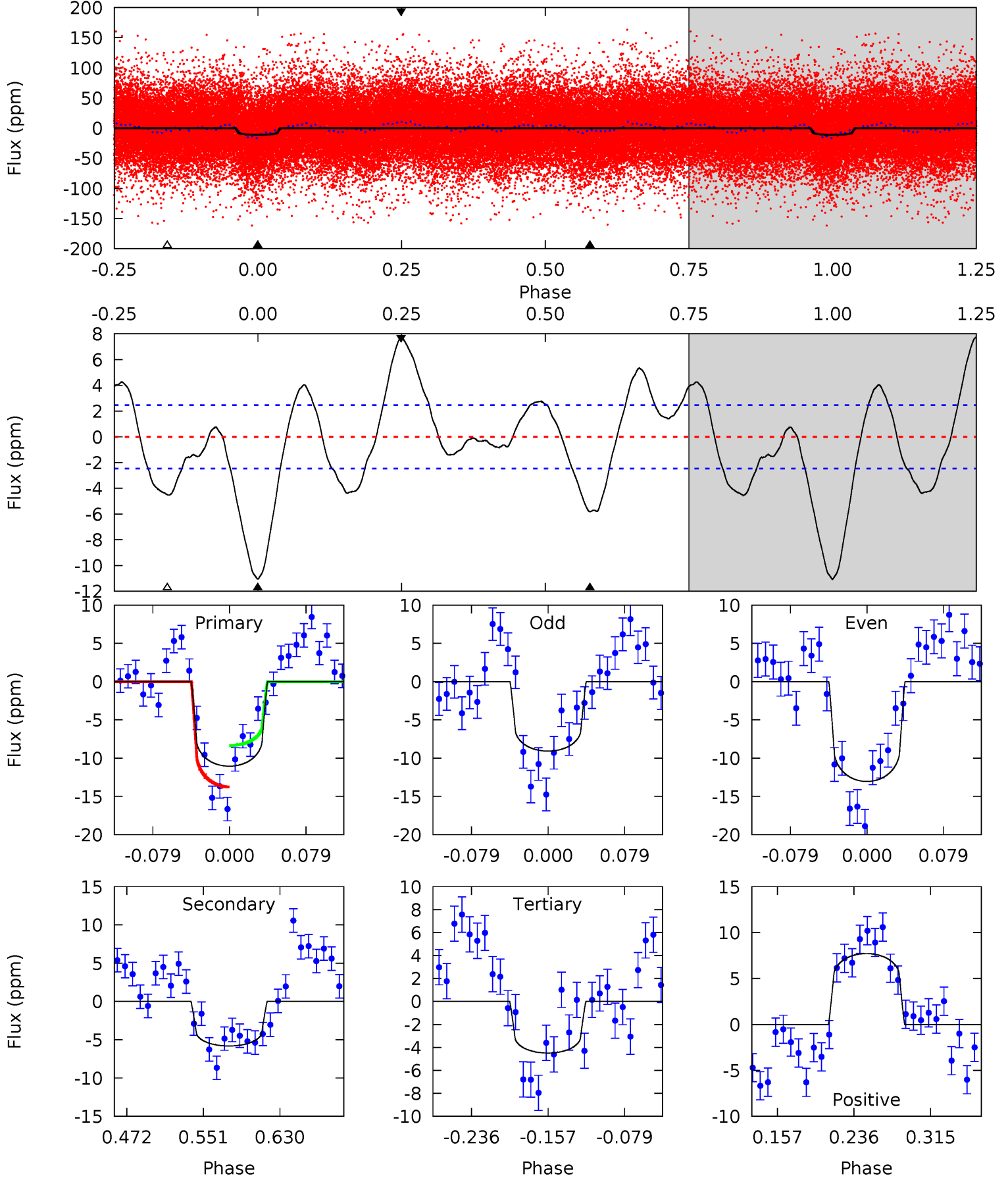
TCE 008905010-01 P= 3.584672 Days $T_0=132.846265$ (BKJD)



DV Model-Shift Uniqueness Test

008905010-01, P = 3.584899 Days, E = 129.230541 Days

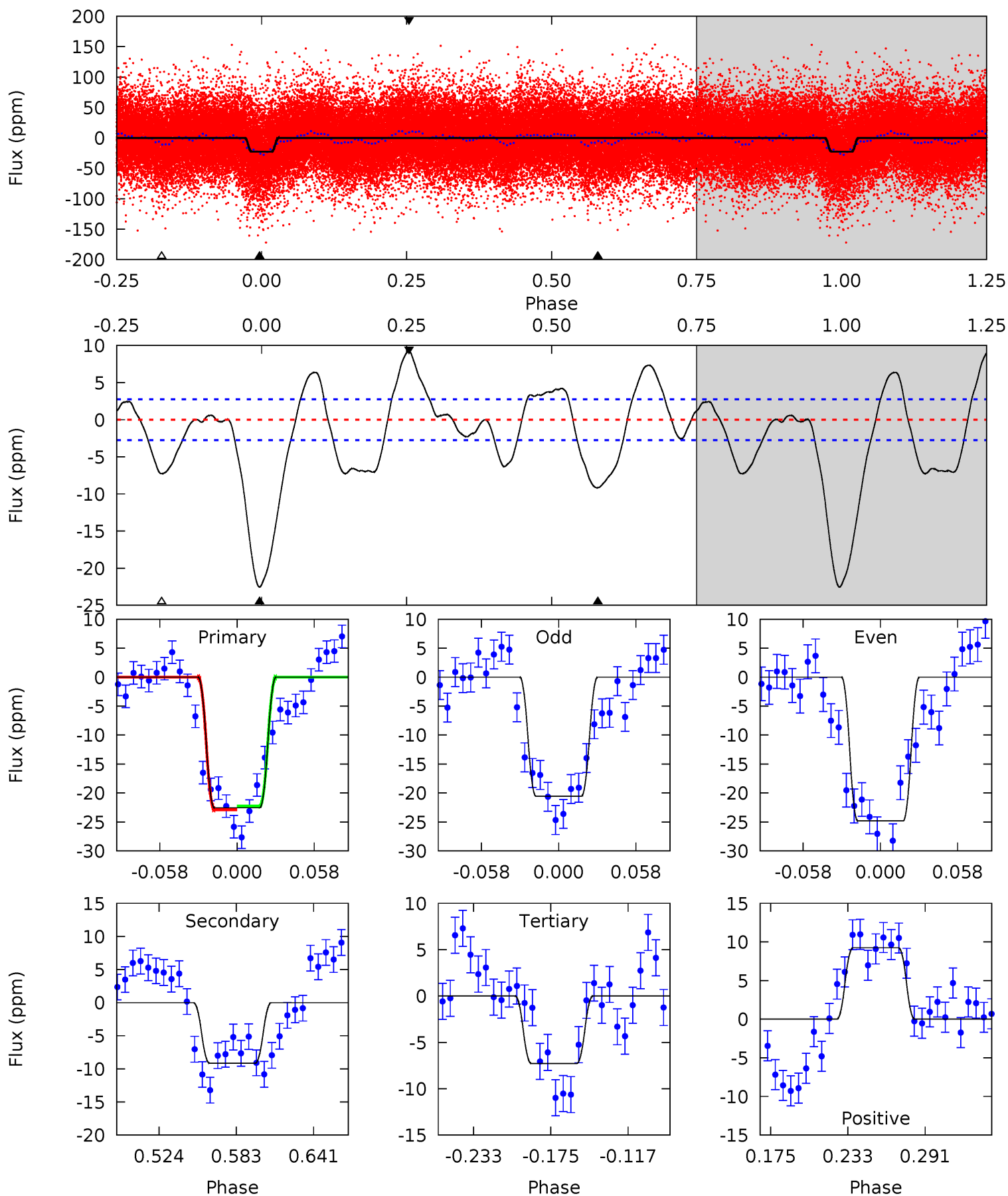
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.7	10.9	8.43	14.5	4.61	1.76	5.74	12.3	6.27	2.49	-3.55	3.73	1.12	0.41	5.07



Alt Model-Shift Uniqueness Test

008905010-01, P = 3.584672 Days, E = 129.261593 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.4	15.6	12.4	15.8	4.68	1.89	7.29	26.0	22.7	3.21	-0.15	3.63	1.01	0.29	0.54



Stellar Parameters For KIC 008905010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7244^{+226}_{-302}	$3.500^{+0.585}_{-0.065}$	$-0.140^{+0.250}_{-0.300}$	$4.199^{+0.411}_{-2.332}$	$2.033^{+0.068}_{-0.576}$	$0.039^{+0.303}_{-0.009}$
	+3%/-4%	+17%/-2%	+179%/-214%	+10%/-56%	+3%/-28%	+783%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008905010-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 1	$1.47^{+0.27}_{-0.39}$	3653^{+263}_{-479}	5833^{+372}_{-348}	$4.945^{+3.568}_{-1.518}$
Alt.	-9 ± 1	$2.15^{+0.33}_{-0.63}$	3631^{+271}_{-529}	5437^{+224}_{-263}	$3.620^{+3.284}_{-0.877}$

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

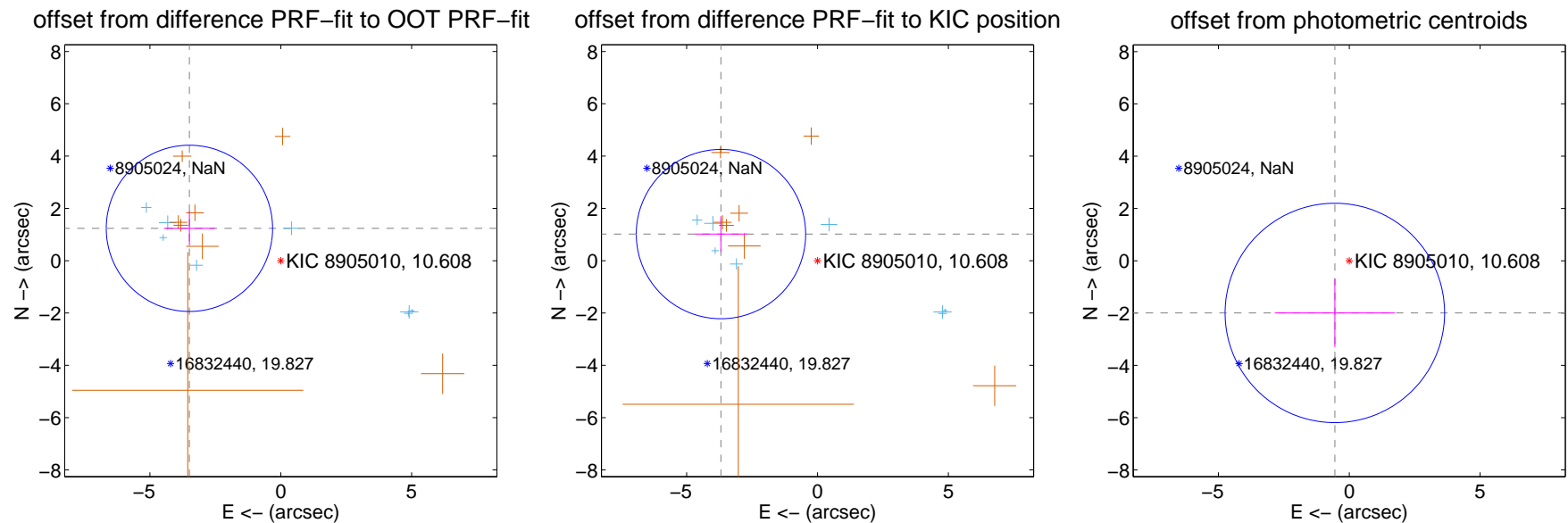
DV Centroid Data

Supplemental centroid analysis for 008905010-01. **Kepler magnitude: 10.61.** Transit SNR 13.91

There are 8 quarters with good PRF difference image offsets

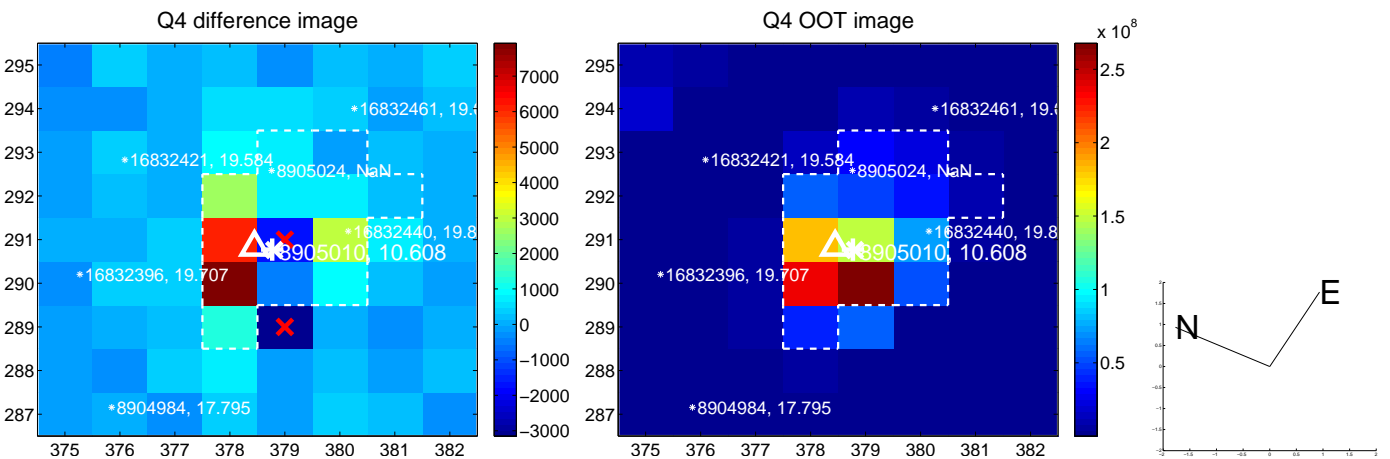
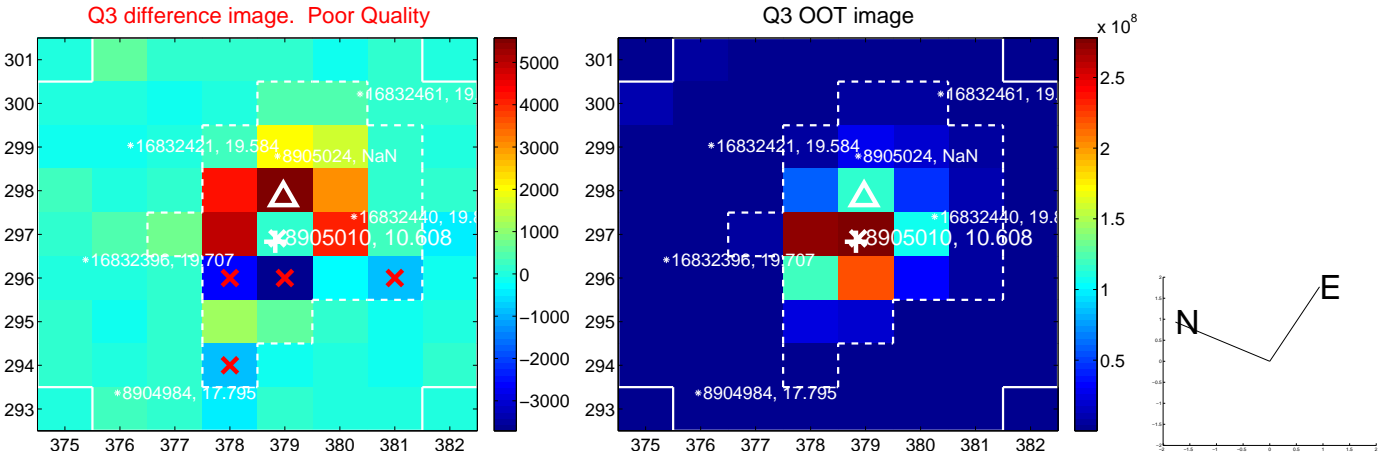
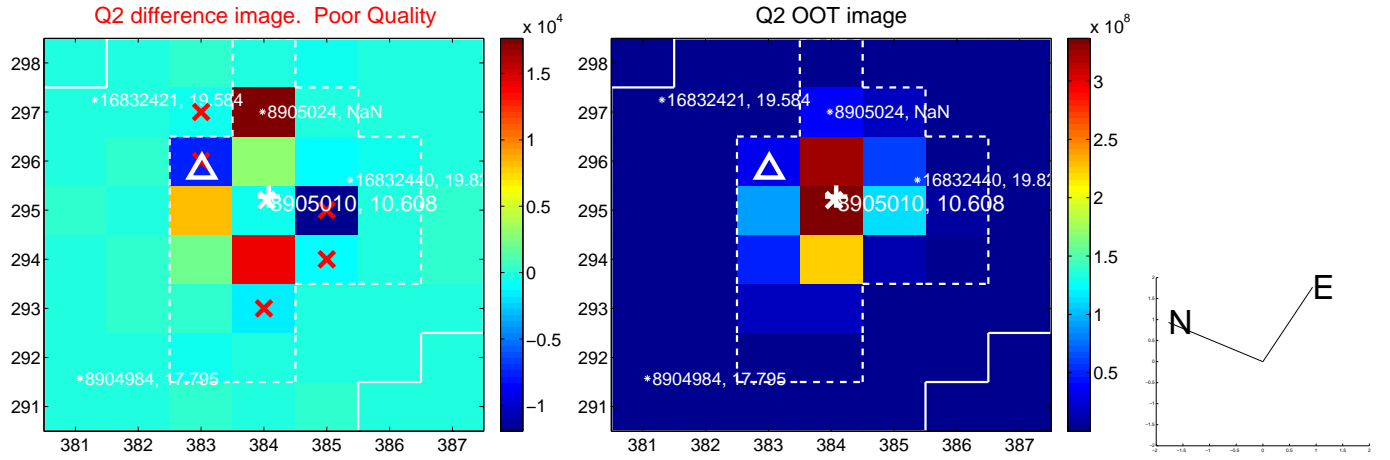
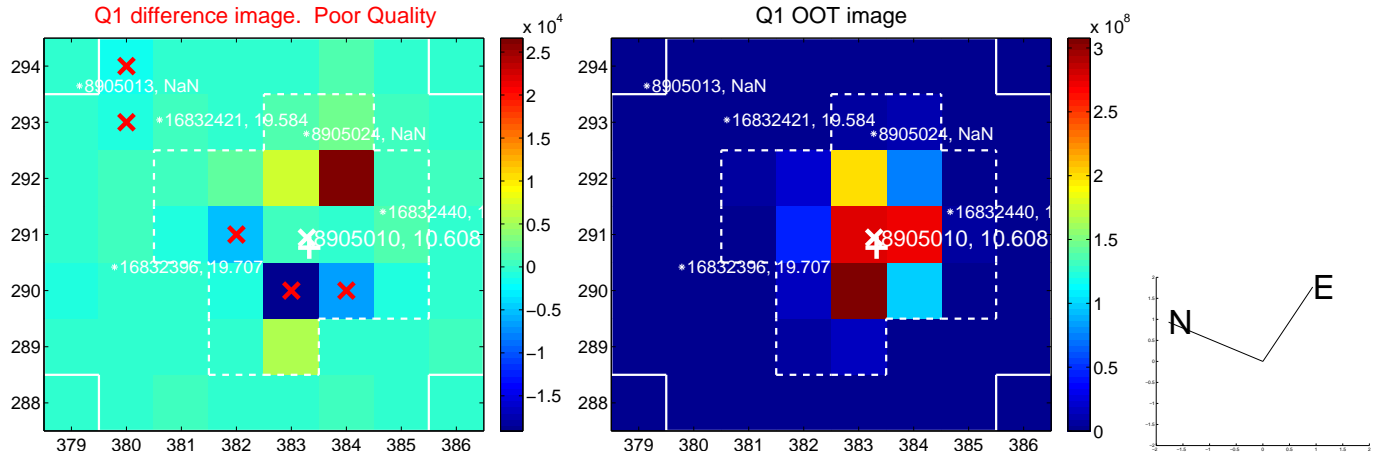
The direct PRF centroid is offset from the target star catalog position by about 0.74 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.704 ± 1.059	3.50	3.491 ± 0.971	1.237 ± 0.654
PRF-fit source offset from KIC position	3.827 ± 1.079	3.55	3.690 ± 0.998	1.017 ± 0.686
photometric centroid source offset	2.07 ± 1.40	1.48	0.55 ± 2.30	-2.00 ± 1.30

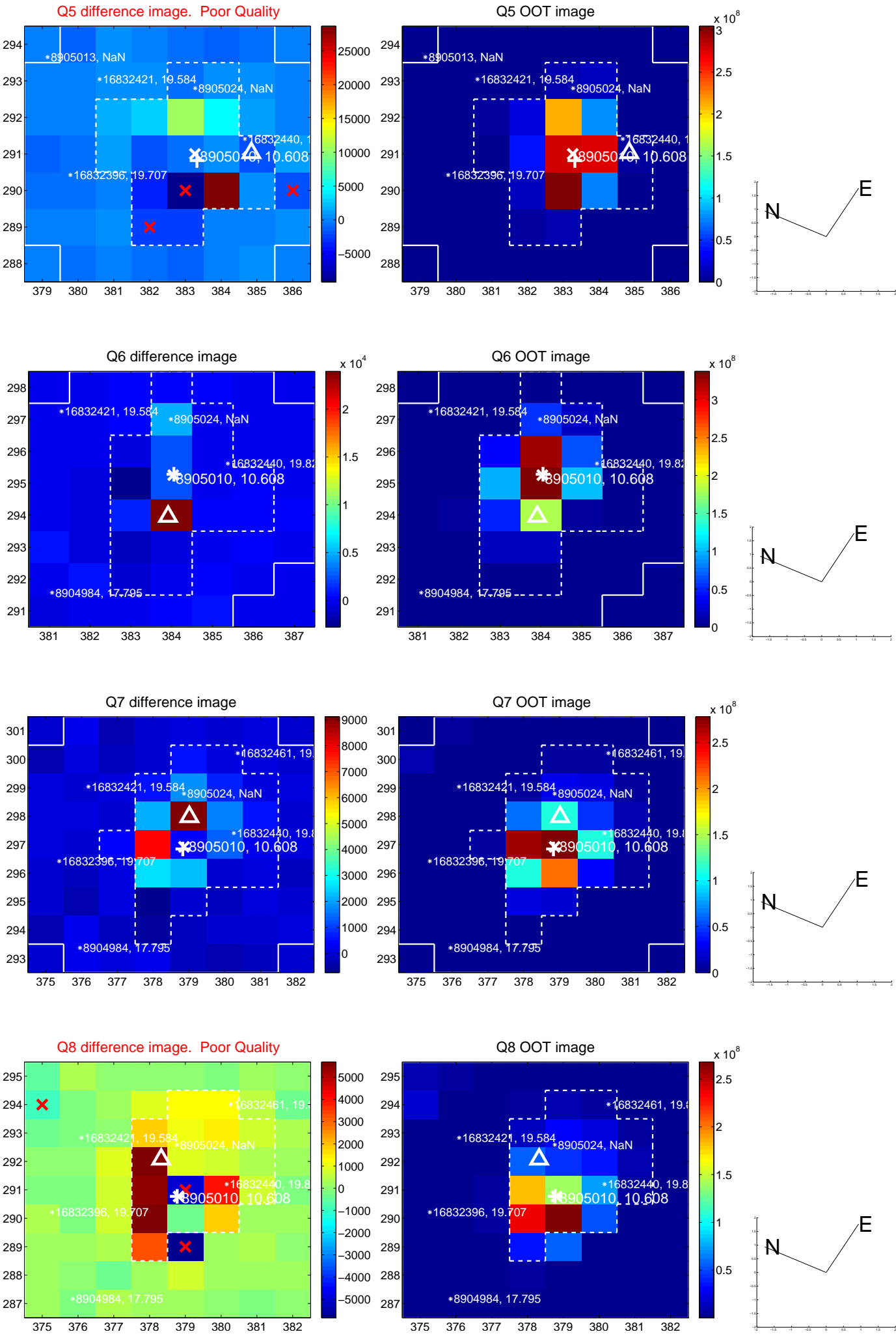


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

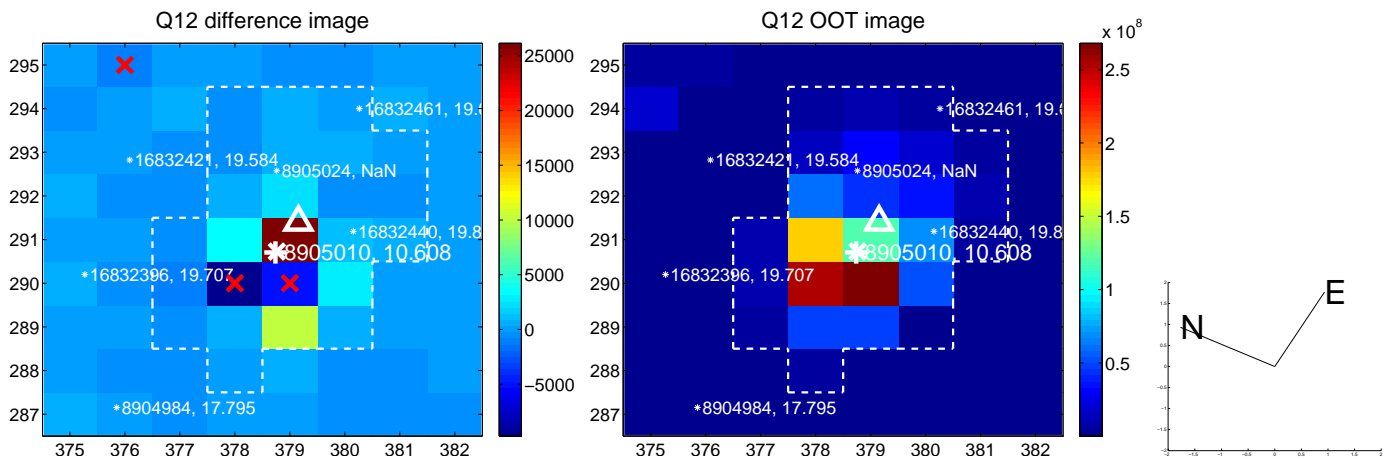
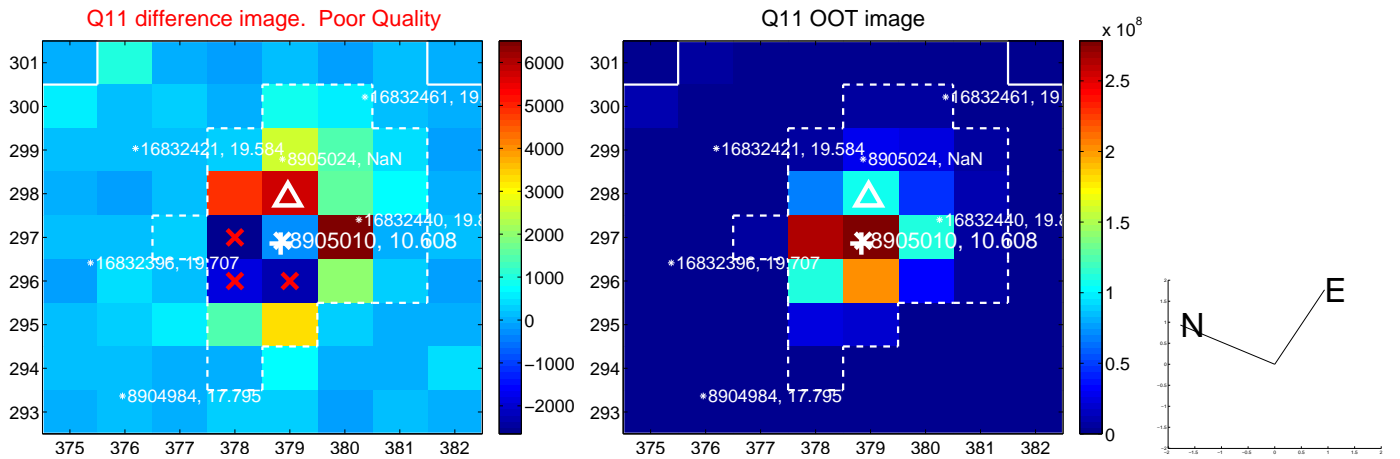
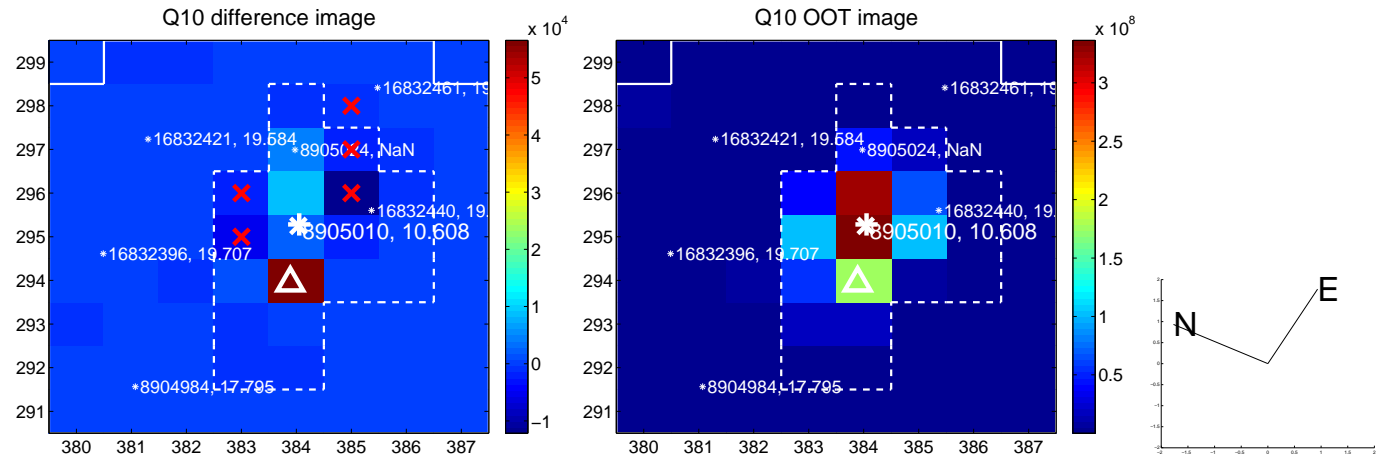
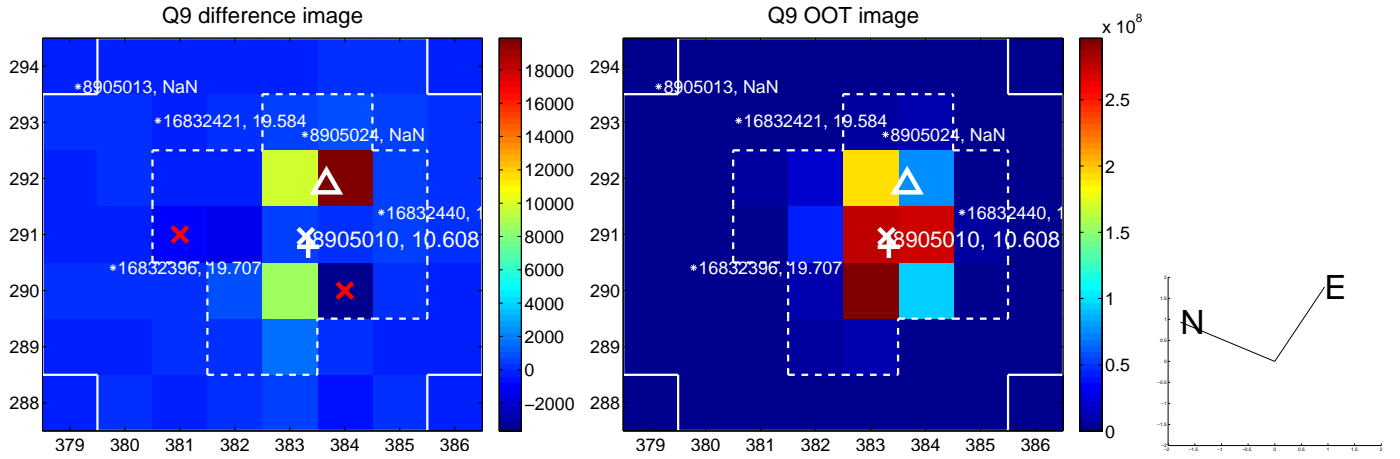
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



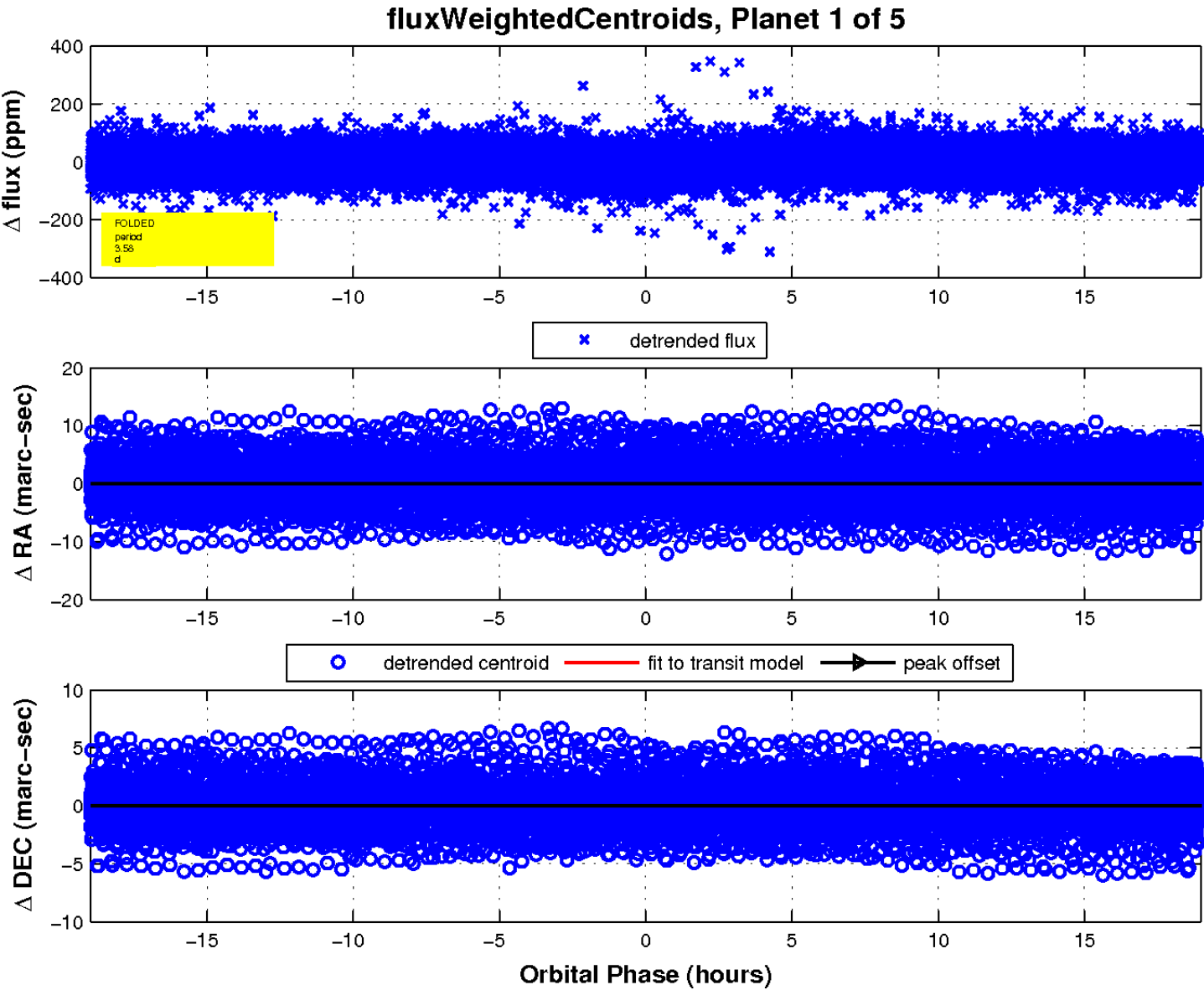
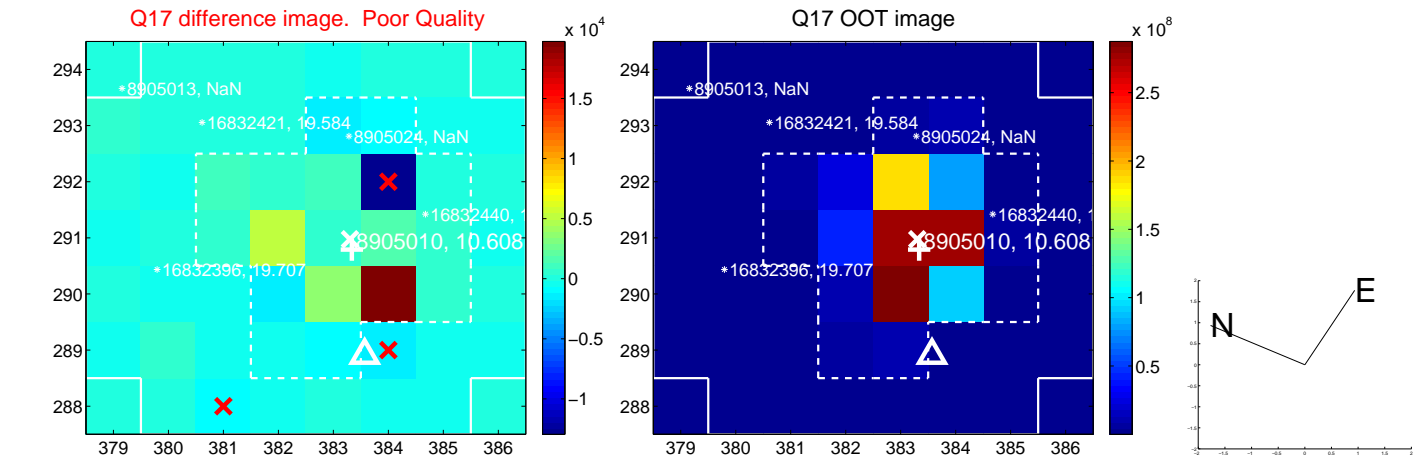
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



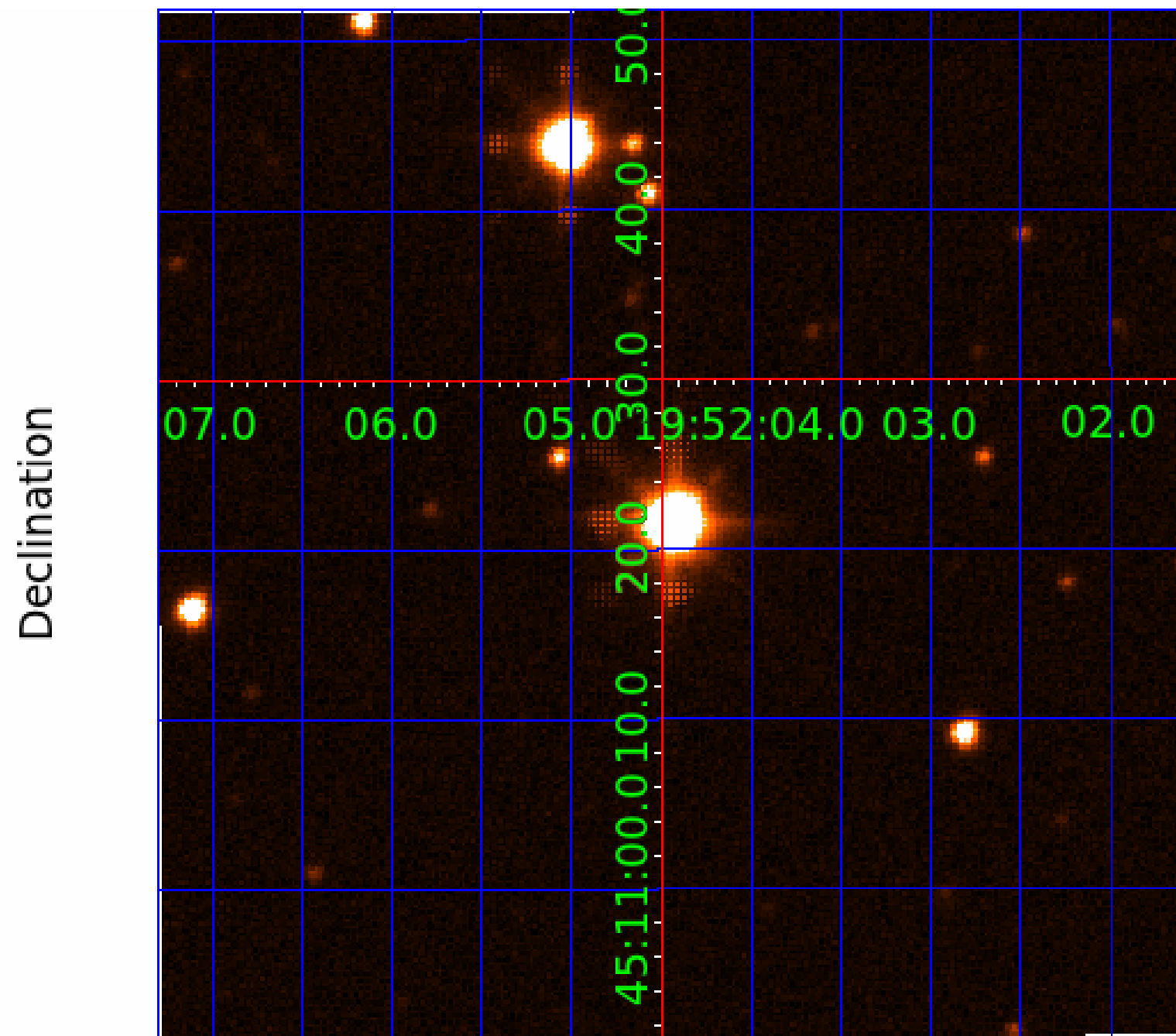
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008905010

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})
008905010-01	OBS	No	3.584899	132.815440	11.5	6.329	14.0	13.9	4.20	7244	1.61	12890.49
008905010-02	OBS	No	553.266427	205.150138	78.1	14.826	11.1	7.3	4.20	7244	4.02	15.57
008905010-03	OBS	No	3.584749	134.931910	7.1	7.551	8.4	9.4	4.20	7244	1.31	12891.21
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008905010-05	OBS	No	3.584582	134.381005	9.0	2.241	8.7	8.4	4.20	7244	1.34	12892.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008905010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008905010-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
008905010-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

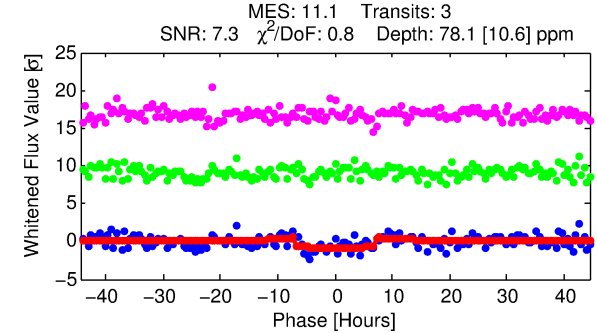
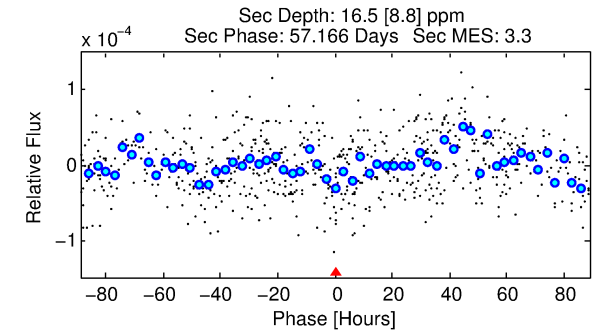
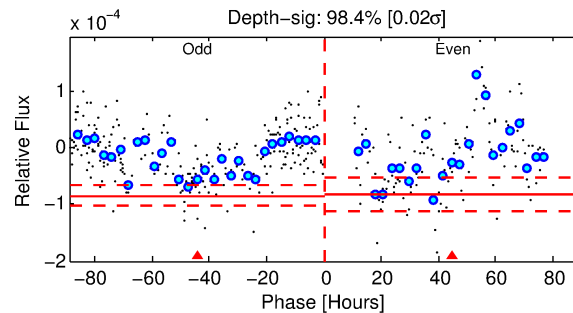
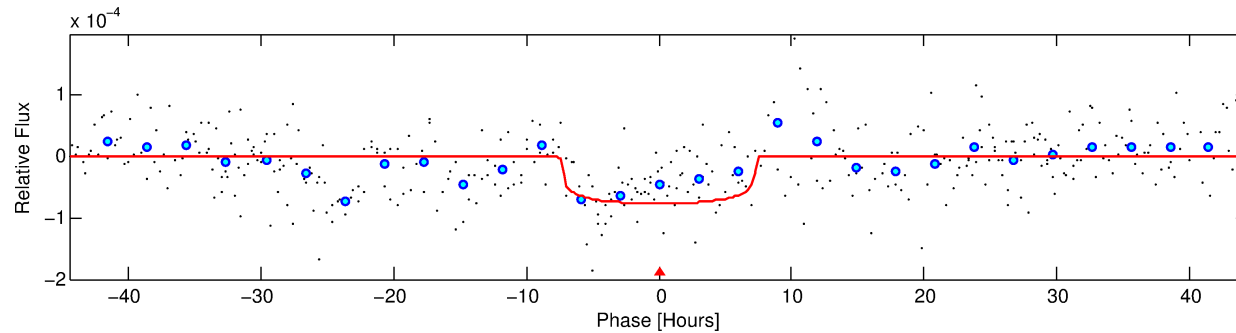
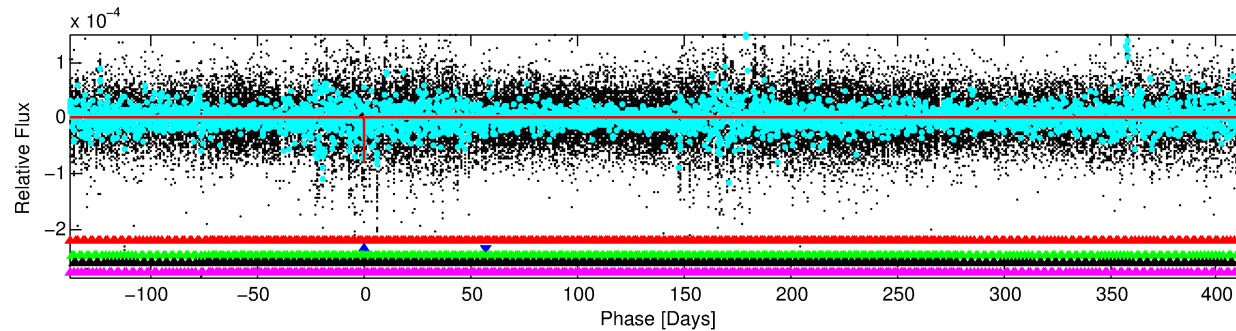
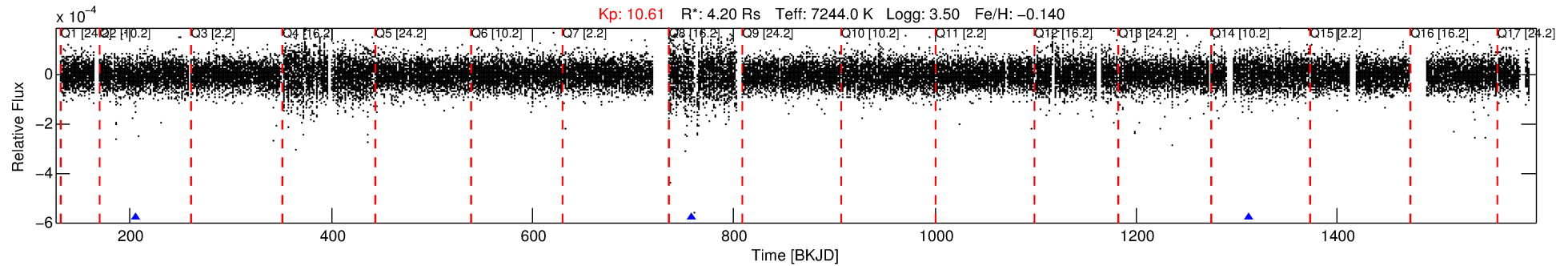
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008905010-02

No Significant Match Found

DV One-Page Summary

KIC: 8905010 Candidate: 2 of 5 Period: 553.266 d



DV Fit Results:

Period = 553.26643 [0.02302] d
Epoch = 205.1501 [0.0267] BKJD
Rp/R* = 0.0088 [0.0019]
a/R* = 194.05 [216.85]
b = 0.74 [0.66]
Seff = 15.57 [15.35]
Teq = 507 [125] K
Rp = 4.02 [2.40] Re
a = 1.6714 [0.9727] AU
Ag = 1569.18 [1863.81] [0.84σ]
Teffp = 4929 [867] K [5.05σ]

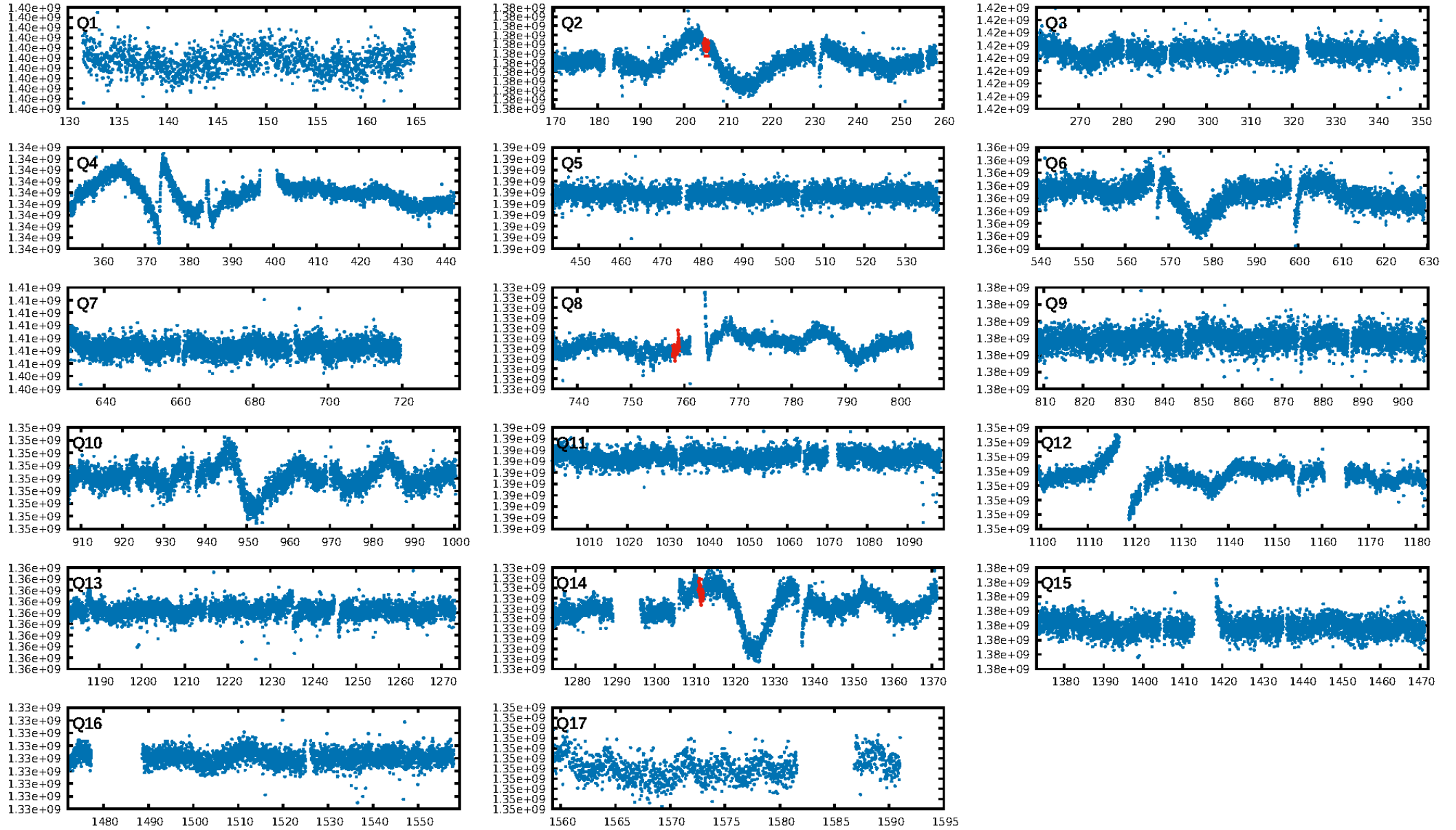
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [818.35σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 55.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.32e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.2571
Centroid-sig: 31.6%
Centroid-so: 2.371 arcsec [0.79σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/3]

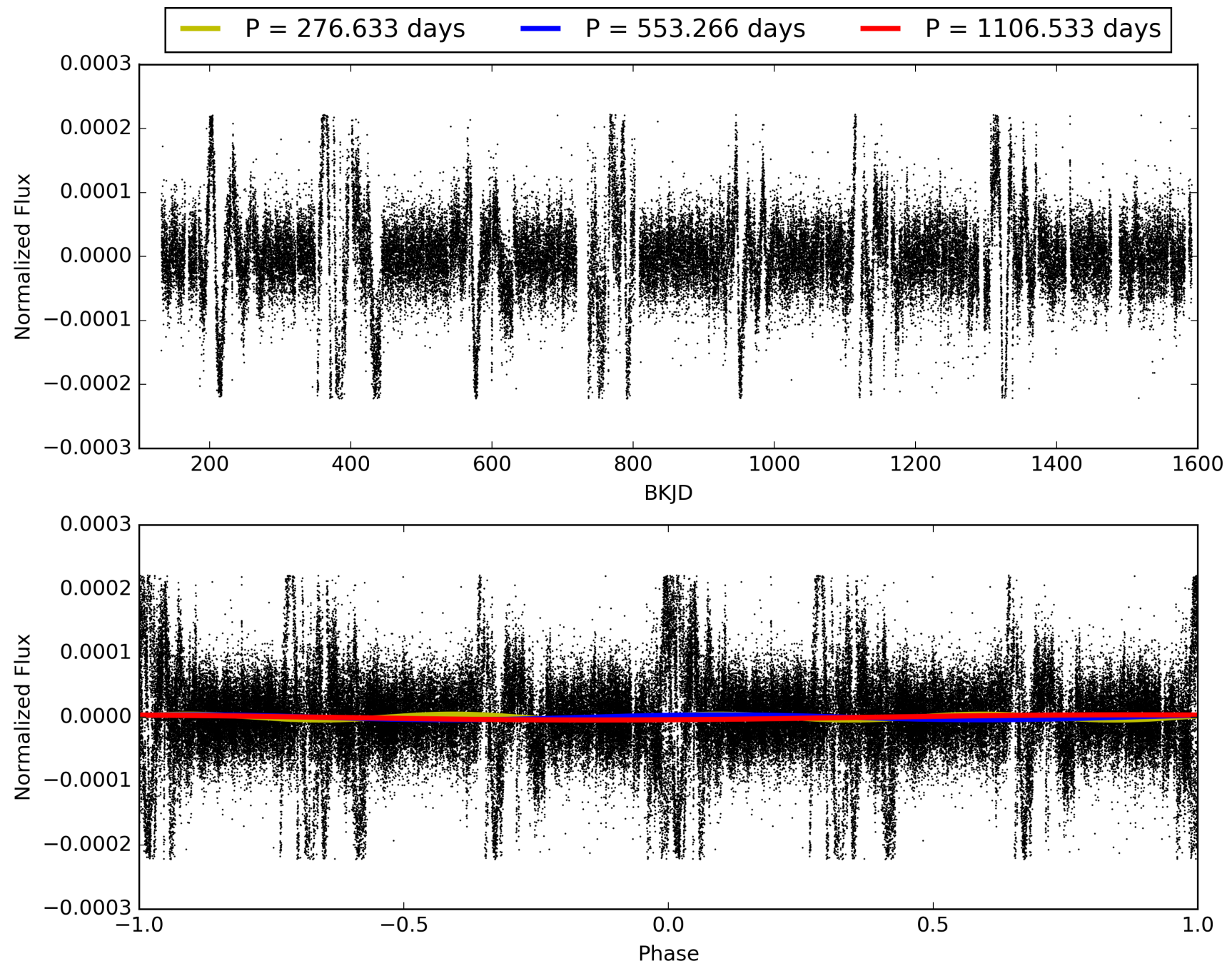
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:54:31 Z

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

TCE 008905010-02, PDC Light Curves

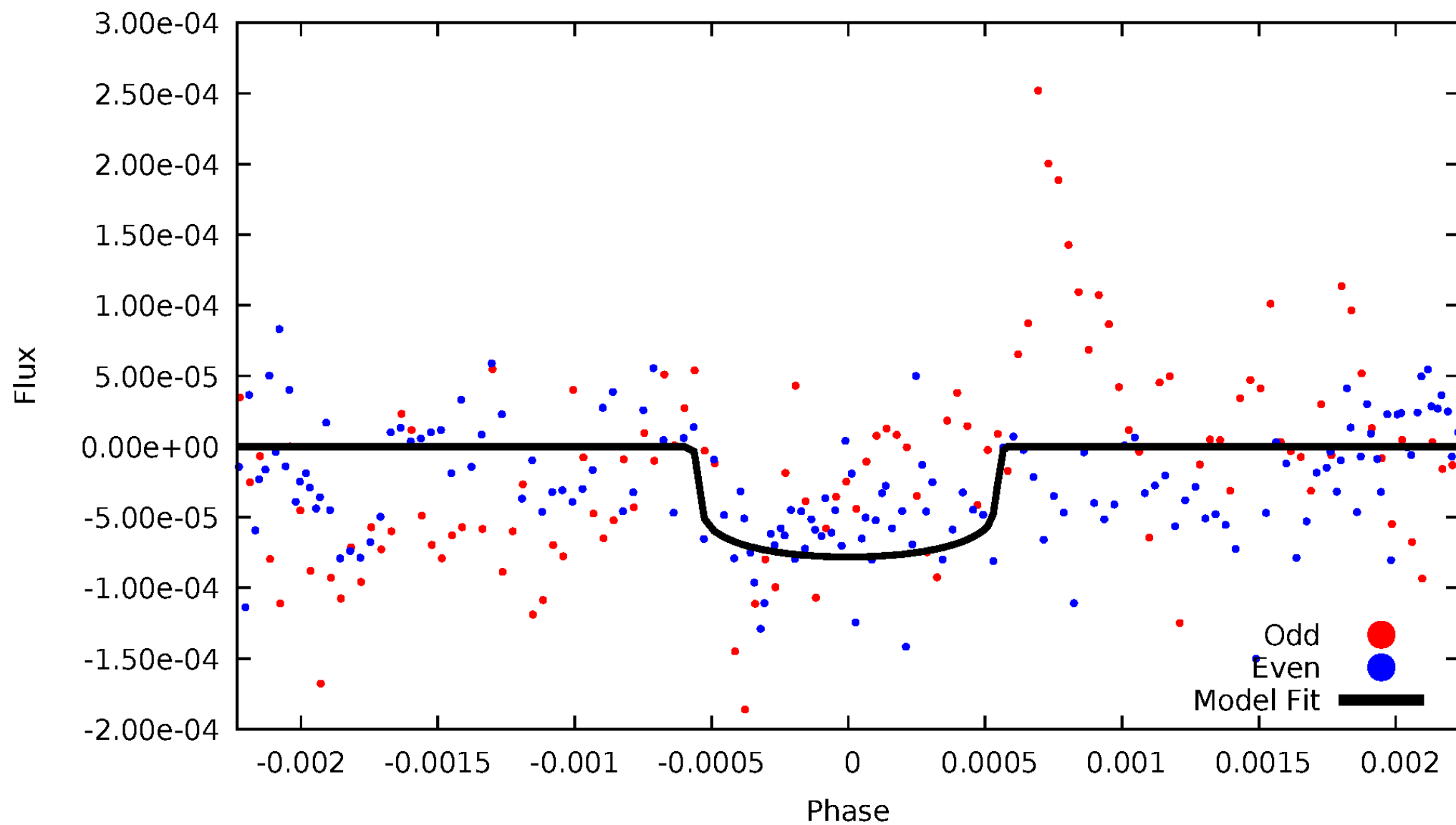


TCE 008905010-02



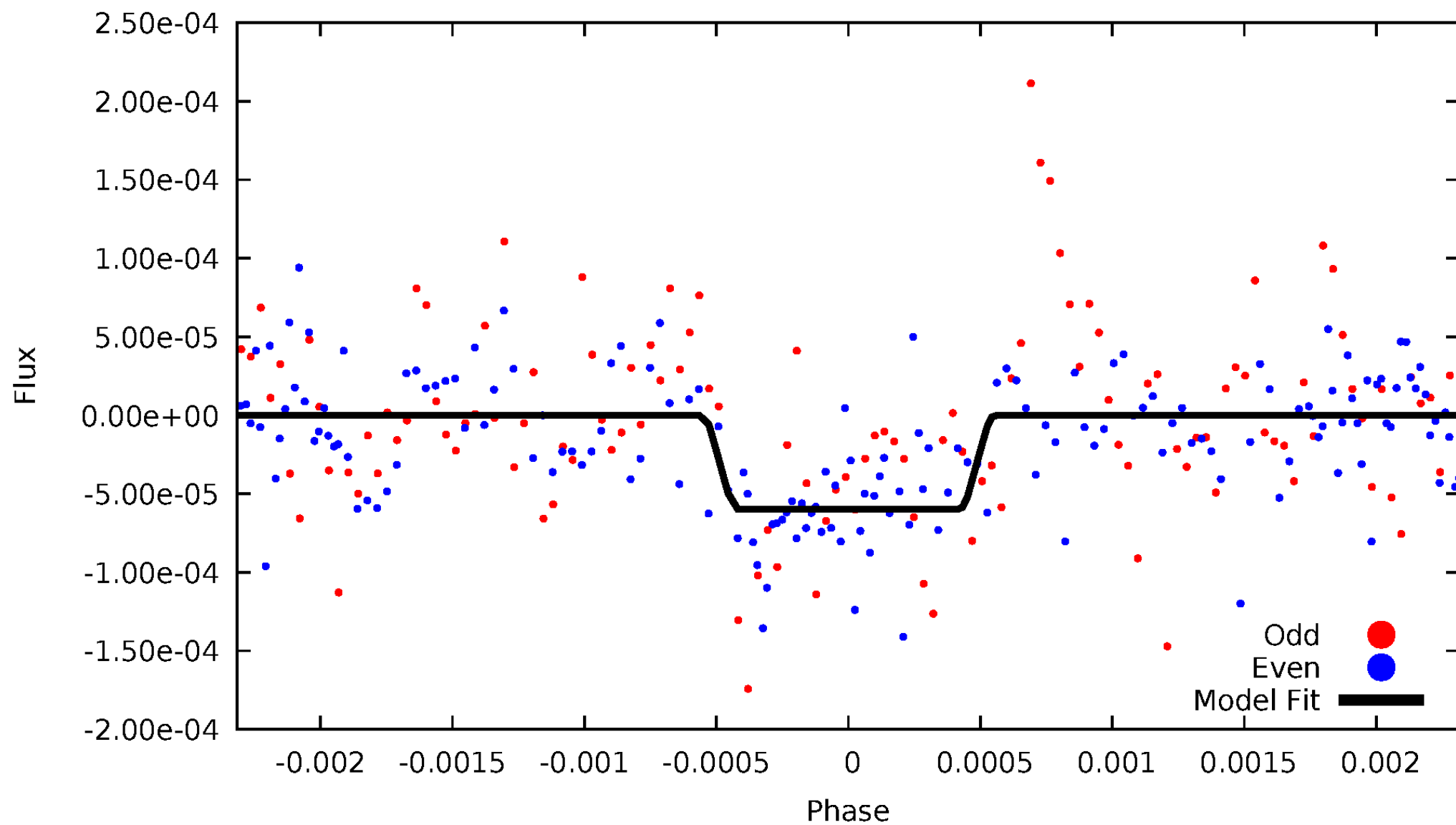
DV Odd/Even

TCE 008905010-02



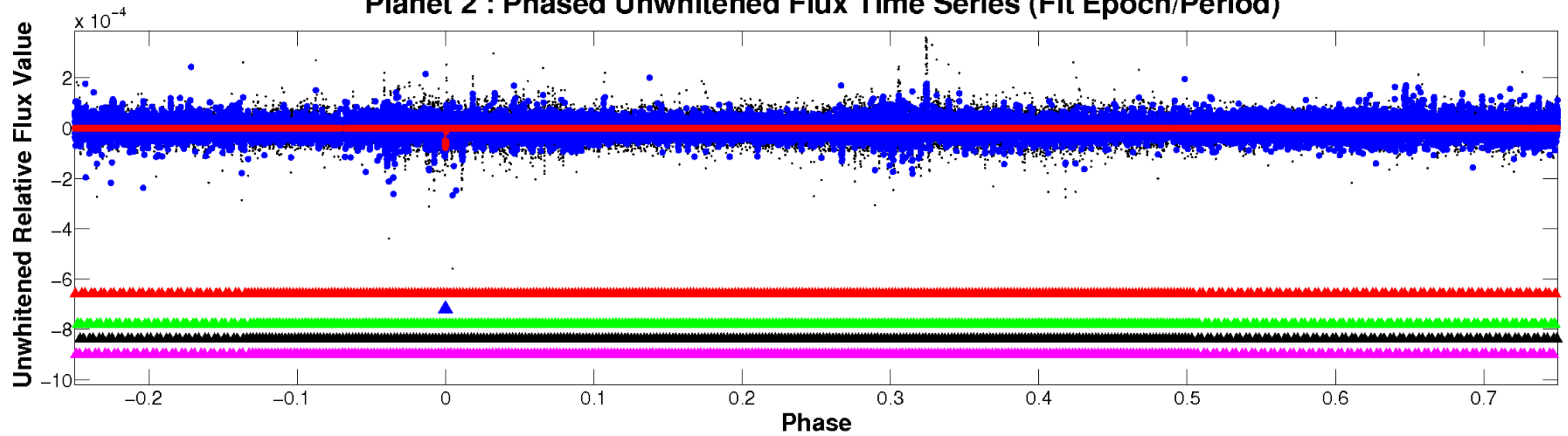
ALT Odd/Even

TCE 008905010-02

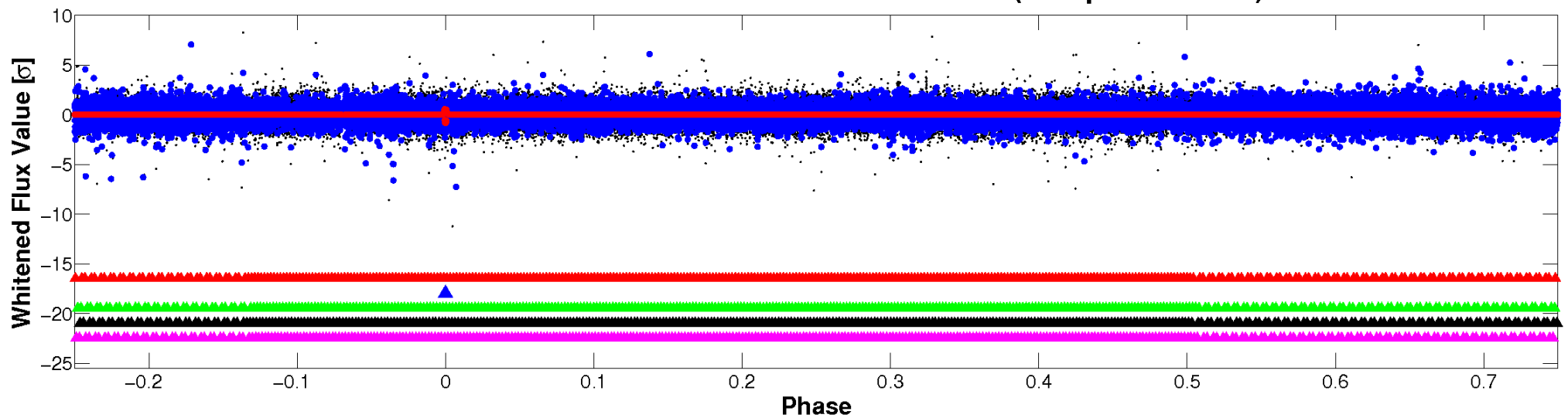


Non-Whitened Vs. Whitened Light Curve

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

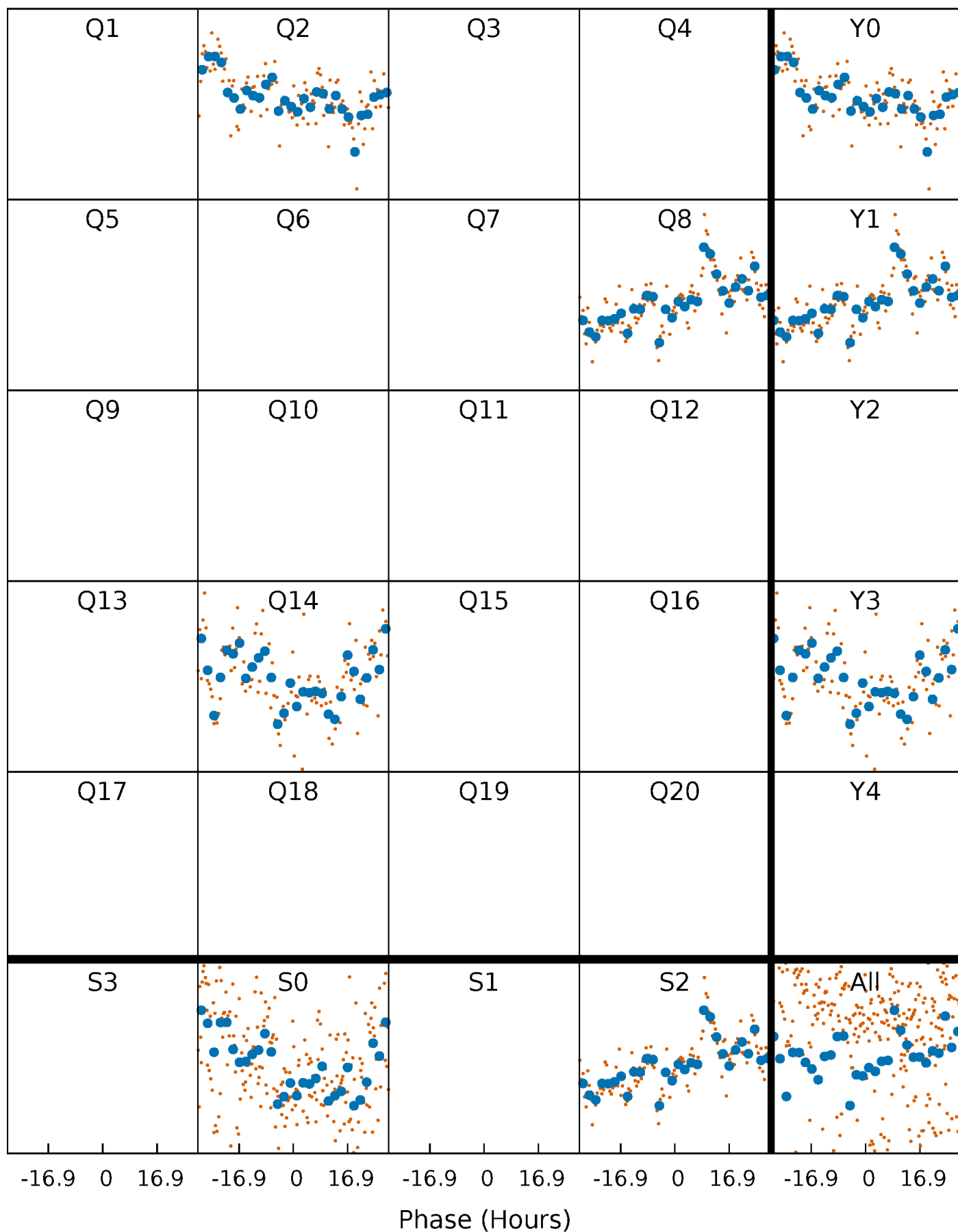


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



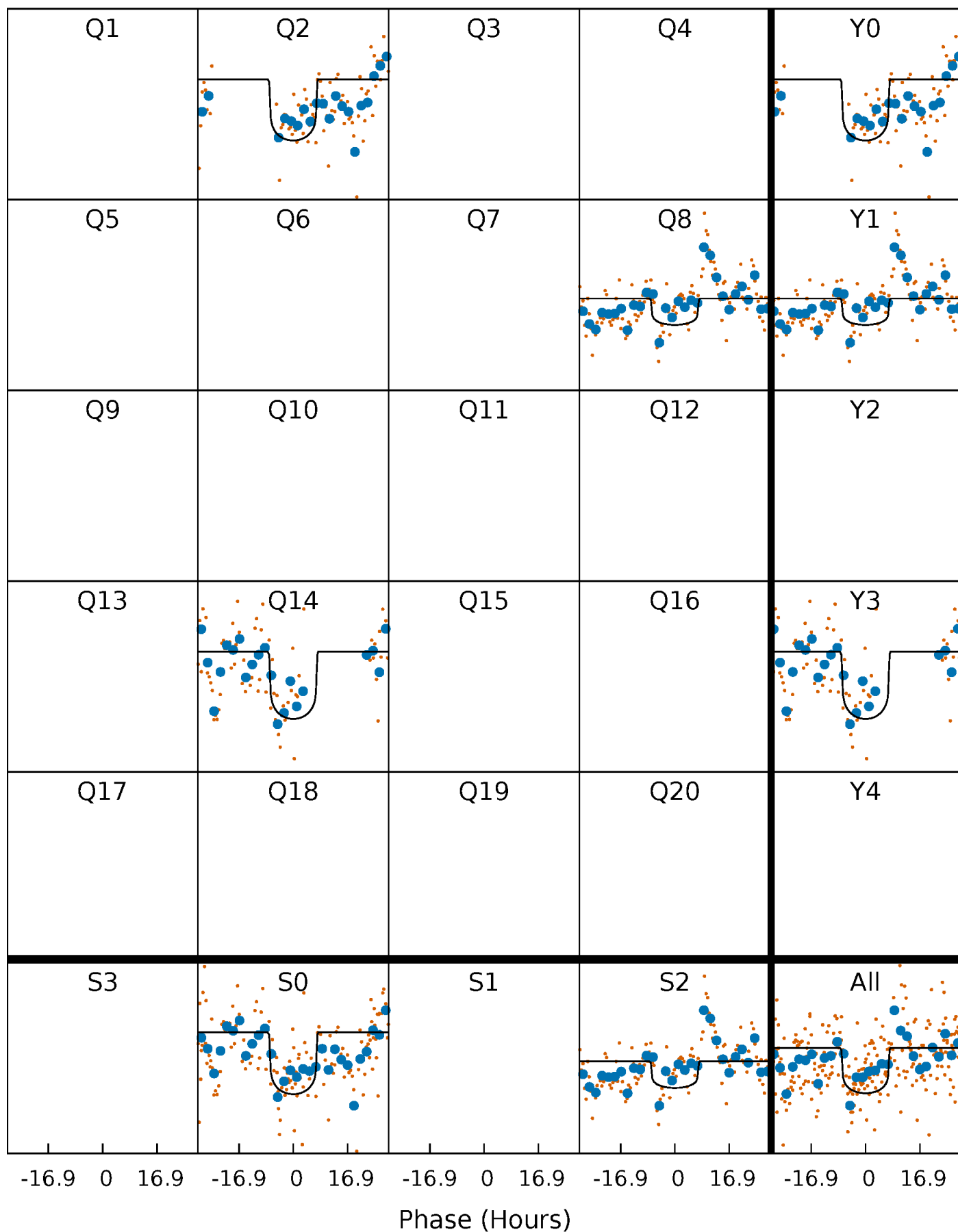
PDC Quarter-Phased Transit Curves

TCE 008905010-02 P=553.266427 Days $T_0=205.150138$ (BKJD)



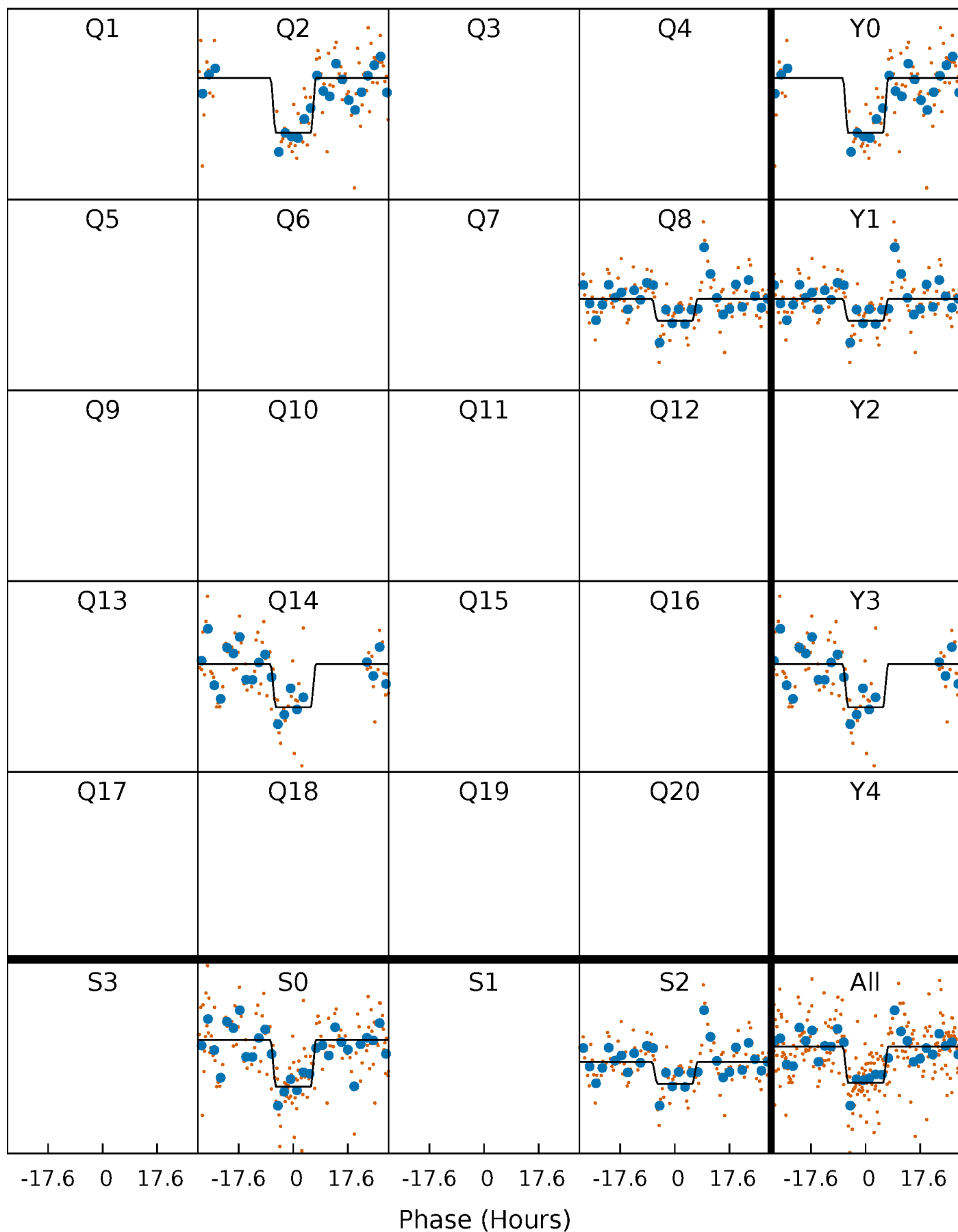
DV Quarter-Phased Transit Curves

TCE 008905010-02 P=553.266427 Days $T_0=205.150138$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

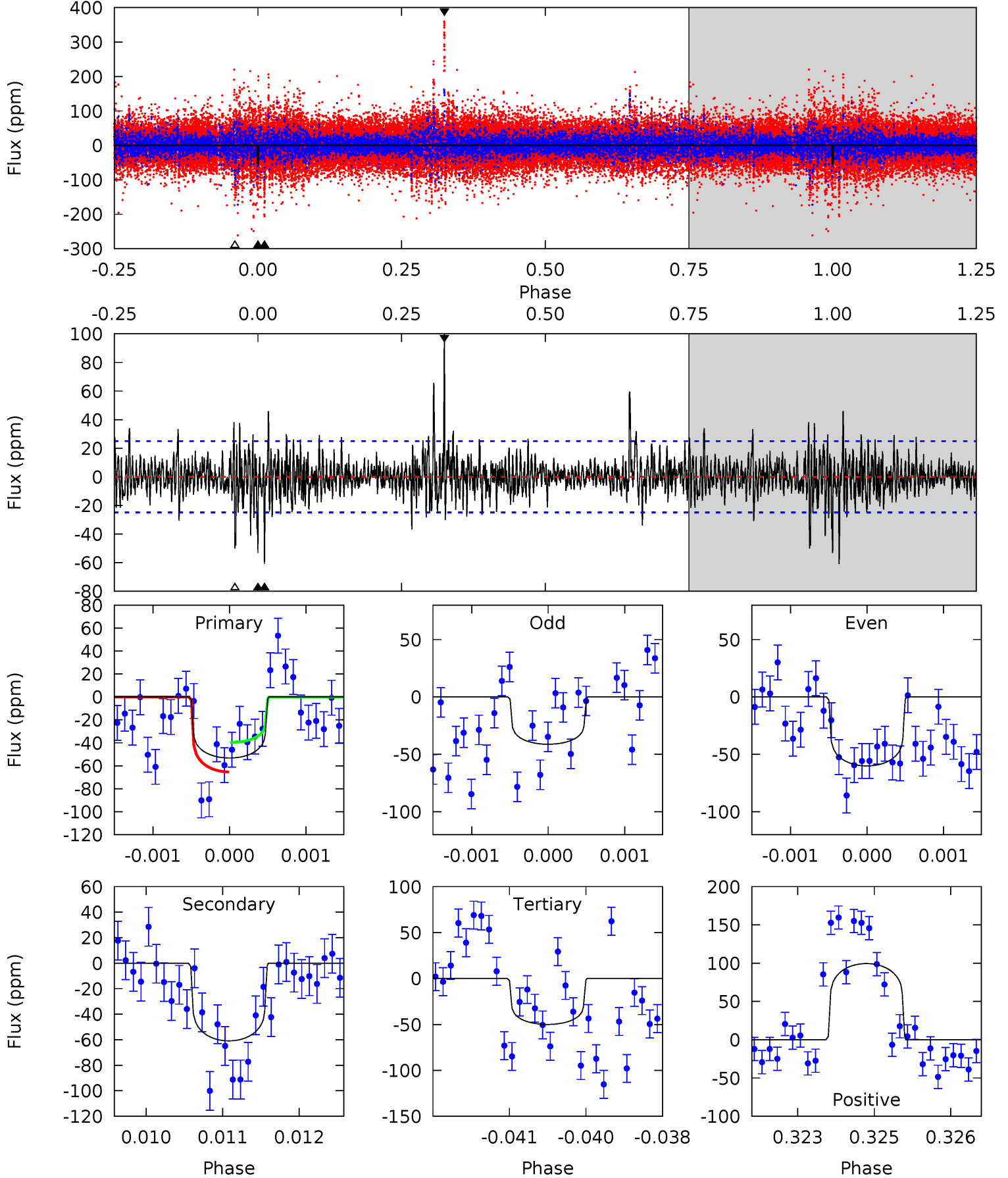
TCE 008905010-02 P=553.265882 Days $T_0=205.152125$ (BKJD)



DV Model-Shift Uniqueness Test

008905010-02, P = 553.266427 Days, E = 205.150138 Days

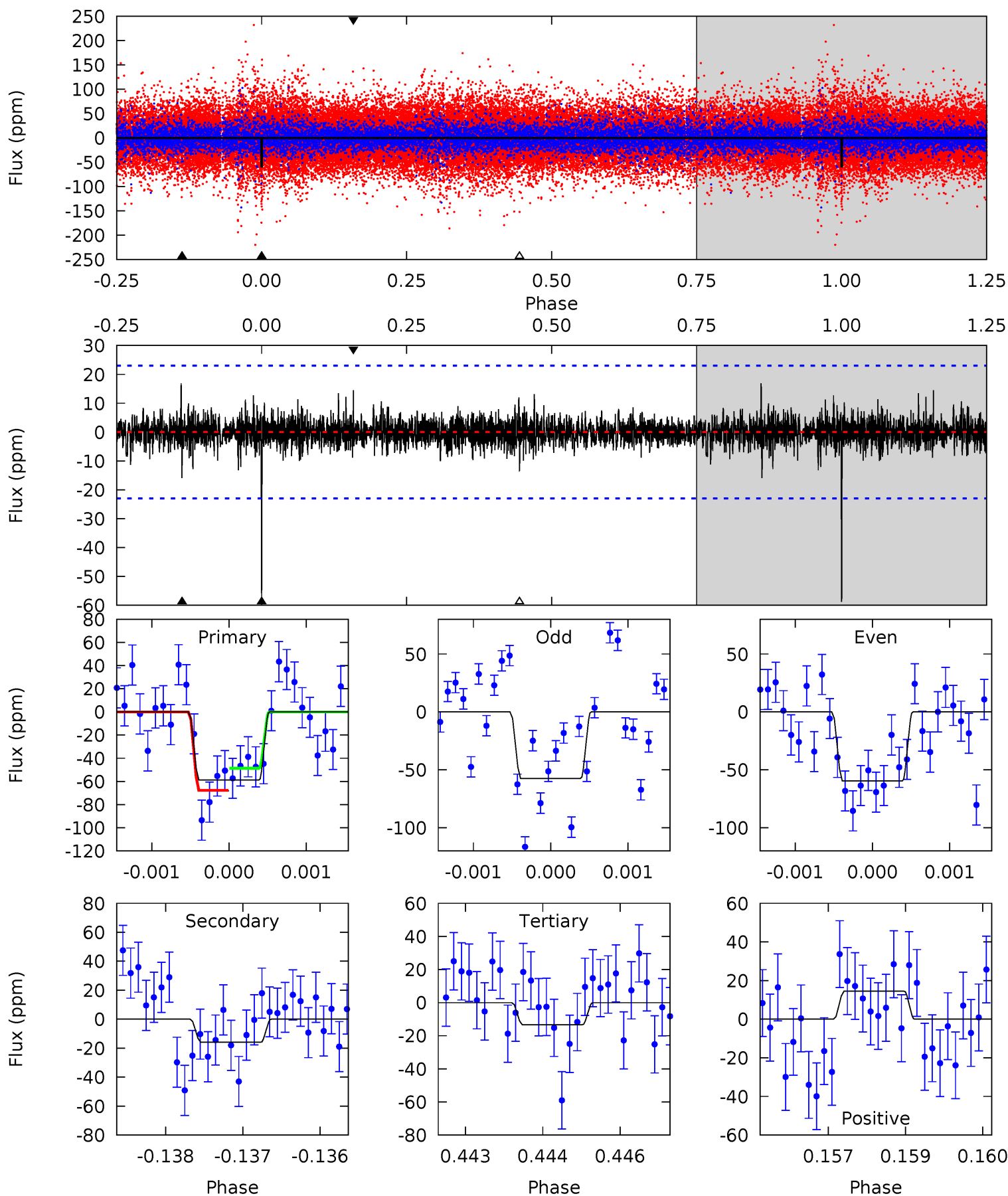
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	13.3	10.9	21.7	5.43	3.26	2.35	0.70	-10.1	2.37	-8.41	2.01	0.91	0.62	2.80



Alt Model-Shift Uniqueness Test

008905010-02, P = 553.265882 Days, E = 205.152125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	3.76	3.15	3.42	5.44	3.27	0.74	10.7	10.5	0.61	0.34	0.23	0.99	0.22	2.25



Stellar Parameters For KIC 008905010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7244^{+226}_{-302}	$3.500^{+0.585}_{-0.065}$	$-0.140^{+0.250}_{-0.300}$	$4.199^{+0.411}_{-2.332}$	$2.033^{+0.068}_{-0.576}$	$0.039^{+0.303}_{-0.009}$
	+3%/-4%	+17%/-2%	+179%/-214%	+10%/-56%	+3%/-28%	+783%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008905010-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-61 ± 5	$3.49^{+1.11}_{-1.14}$	675^{+52}_{-103}	6722^{+1086}_{-679}	7344^{+8875}_{-3090}
Alt.	-16 ± 4	$3.17^{+1.01}_{-1.09}$	678^{+51}_{-96}	5113^{+746}_{-516}	2347^{+2753}_{-1088}

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

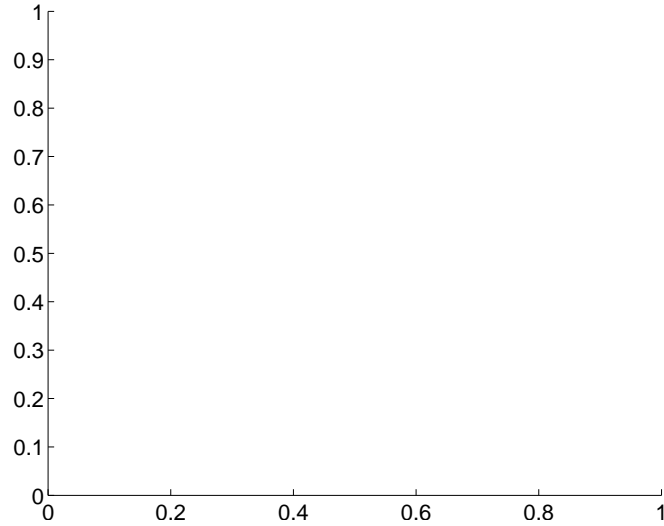
Supplemental centroid analysis for 008905010-02. **Kepler magnitude: 10.61.** Transit SNR 7.35

There are 0 quarters with good PRF difference image offsets

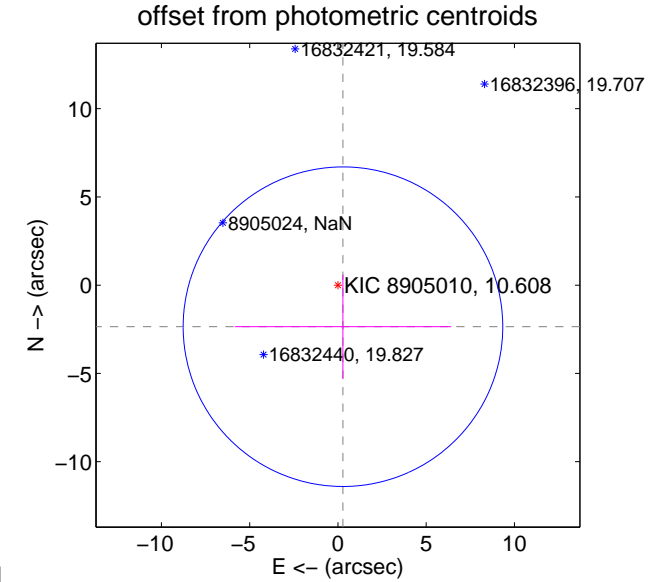
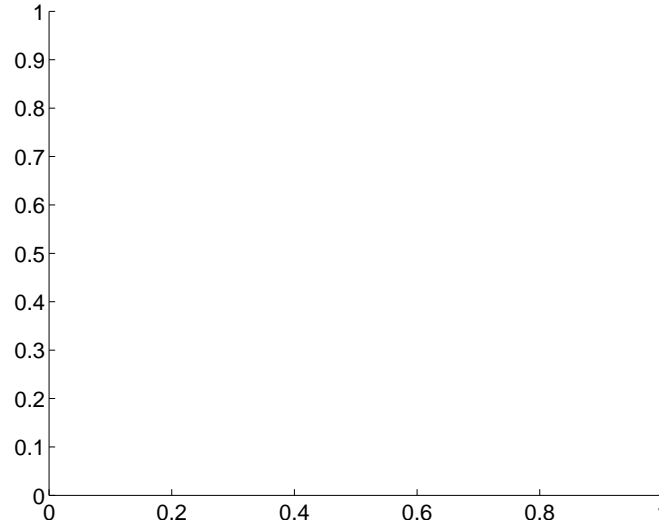
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	2.37 ± 3.02	0.79	-0.29 ± 6.13	-2.35 ± 2.95

There is no PRF-fit offset from OOT-fit

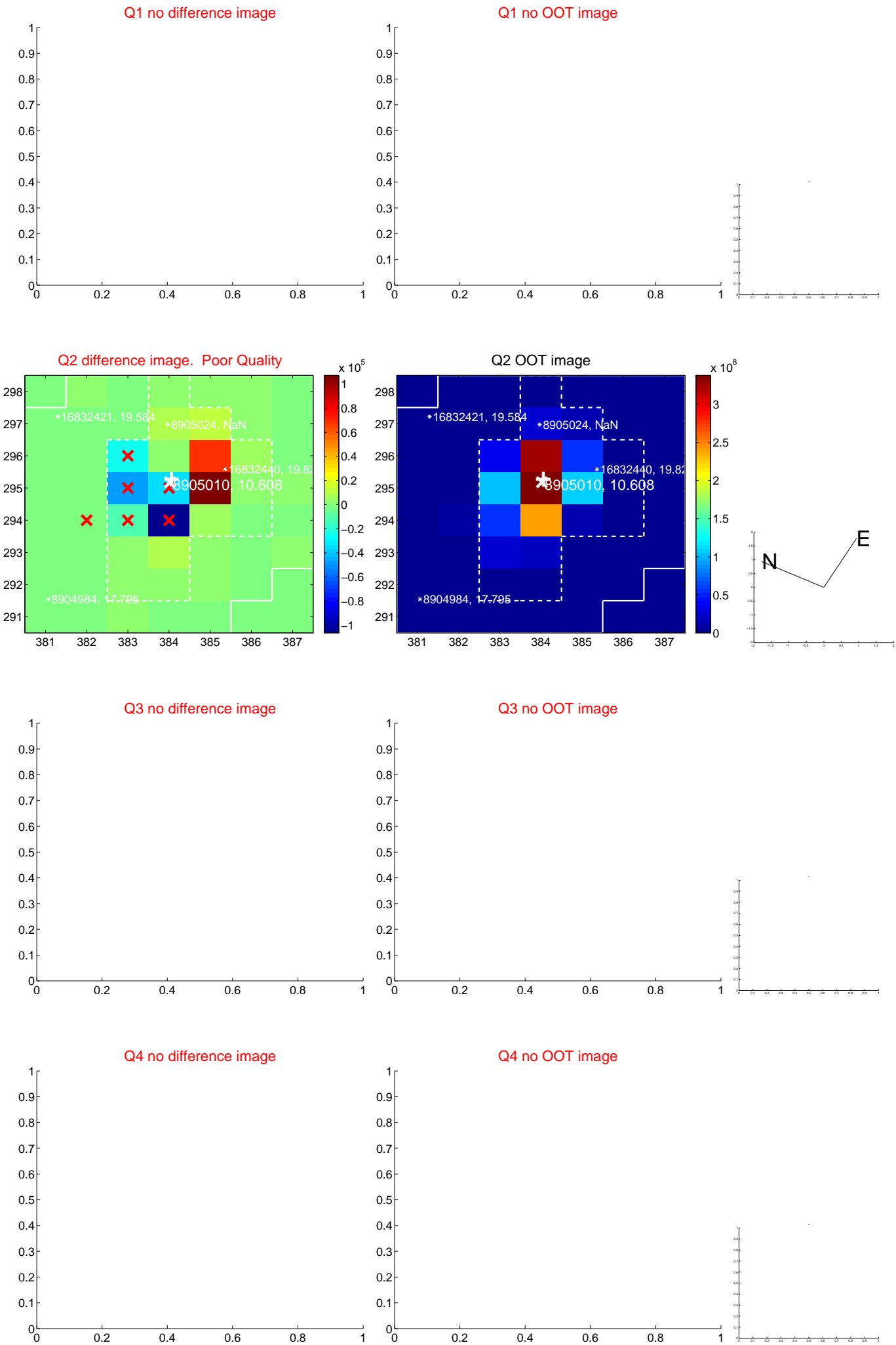


There is no PRF-fit offset from KIC

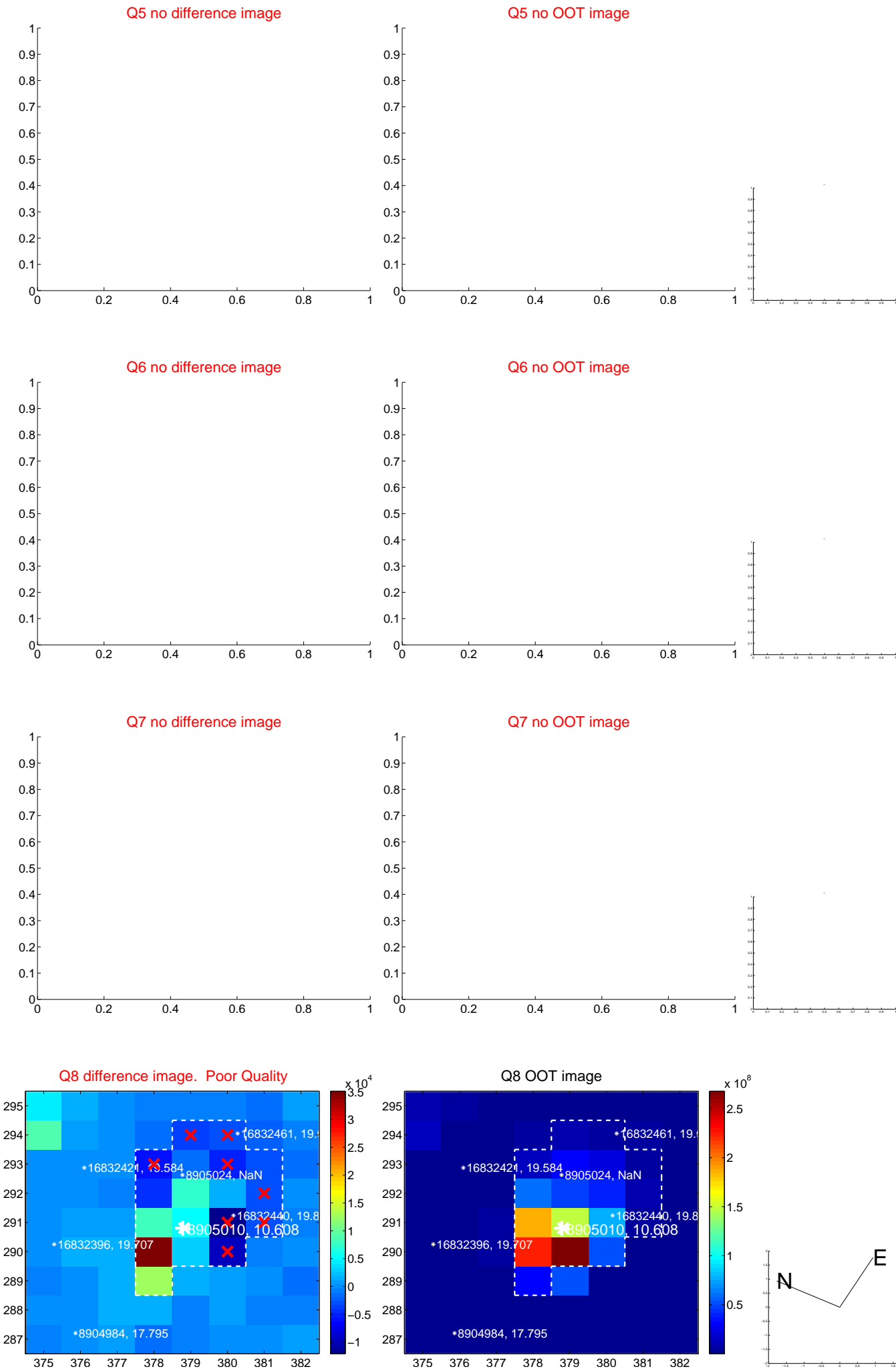


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



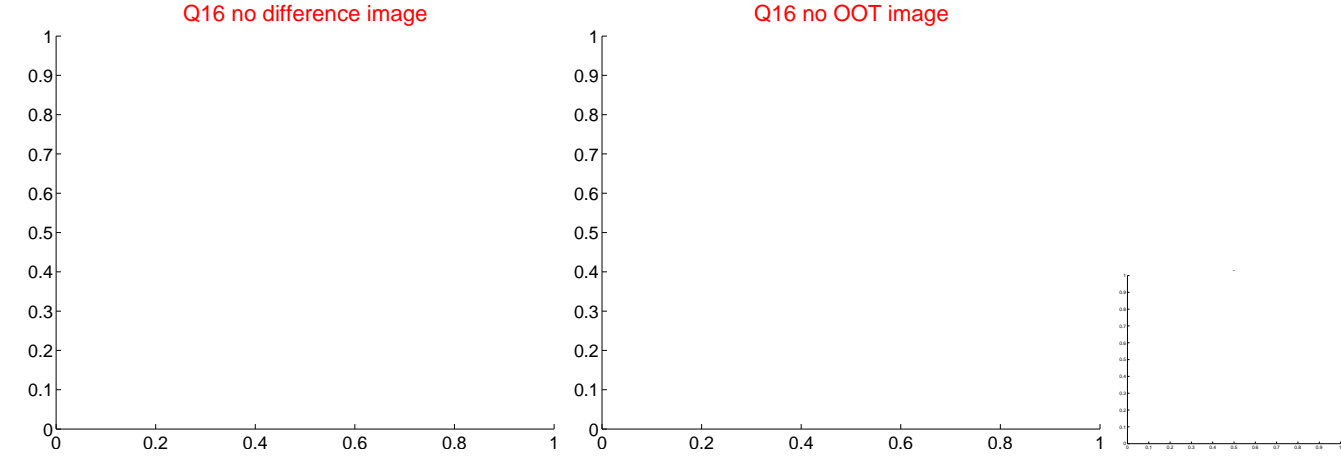
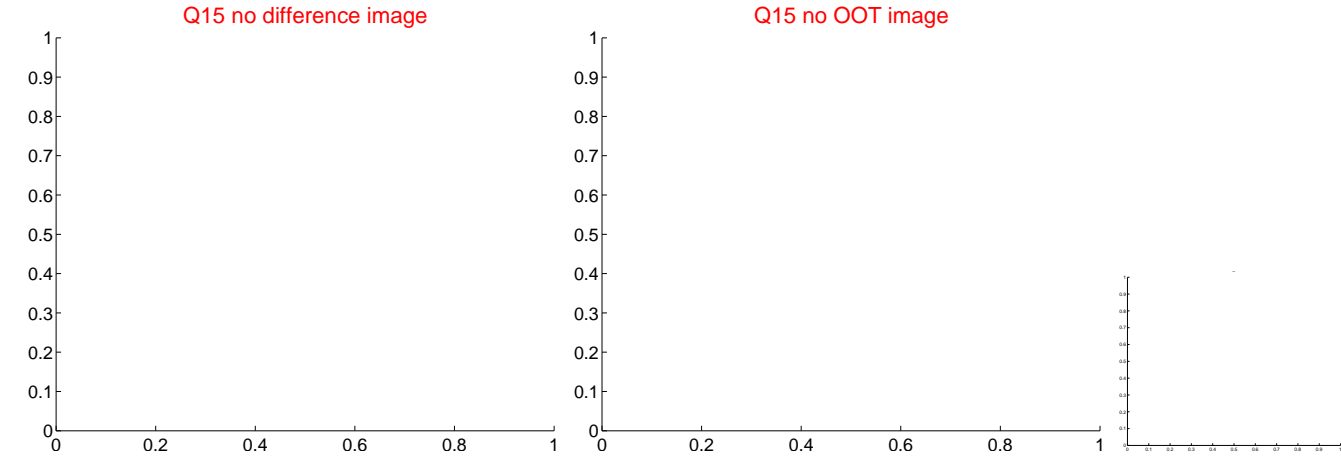
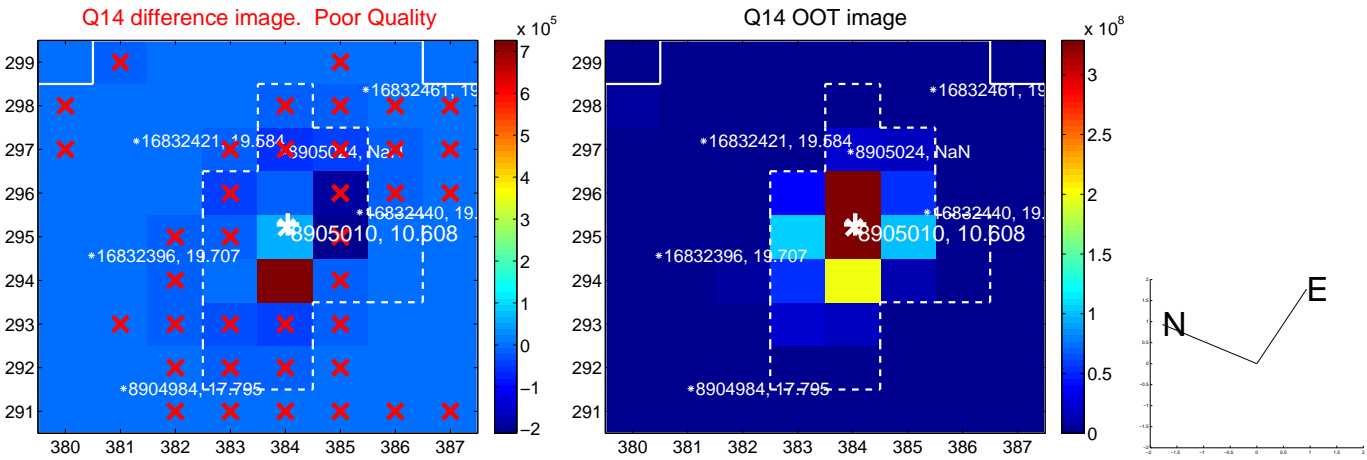
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



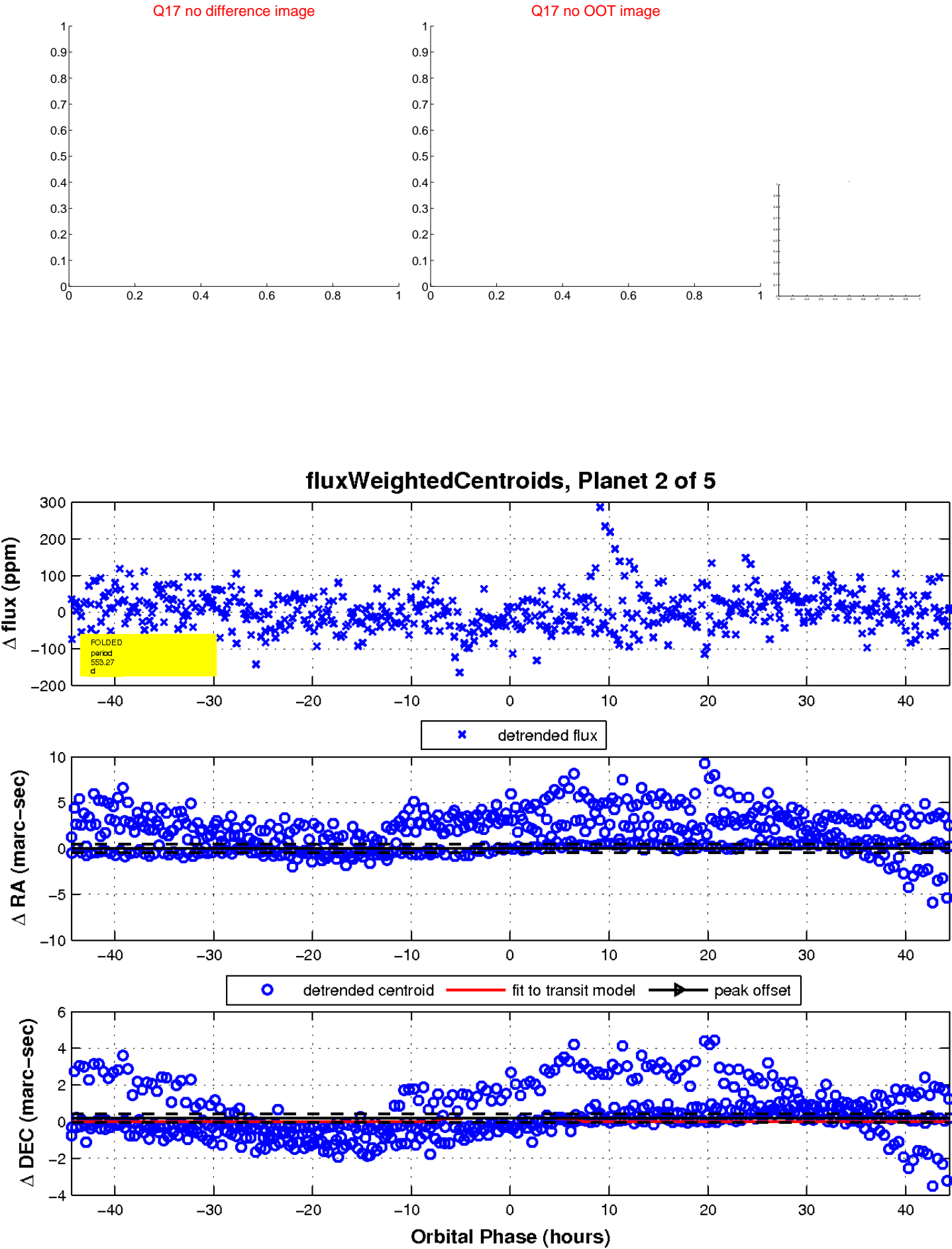
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



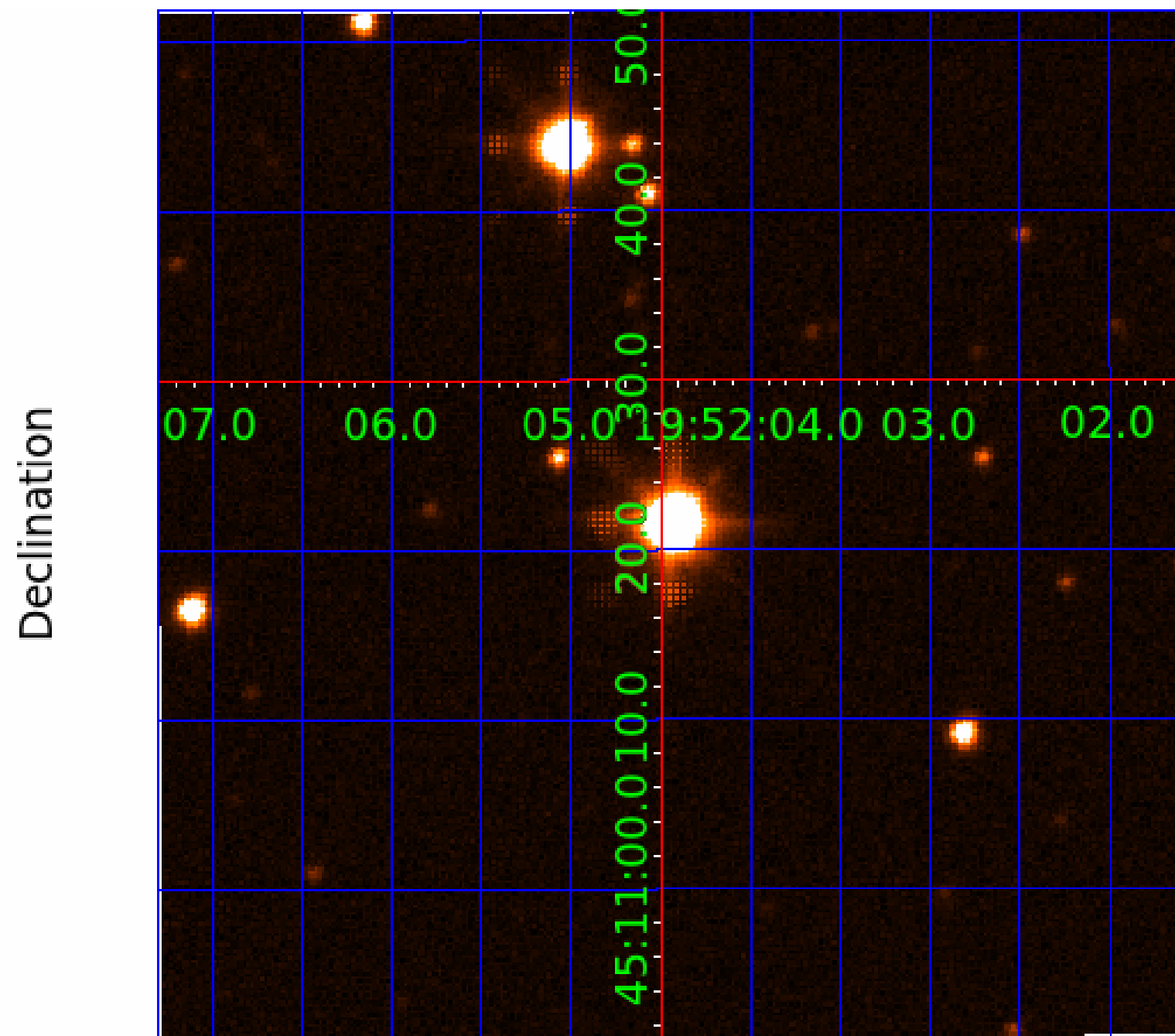
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008905010

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})
008905010-01	OBS	No	3.584899	132.815440	11.5	6.329	14.0	13.9	4.20	7244	1.61	12890.49
008905010-02	OBS	No	553.266427	205.150138	78.1	14.826	11.1	7.3	4.20	7244	4.02	15.57
008905010-03	OBS	No	3.584749	134.931910	7.1	7.551	8.4	9.4	4.20	7244	1.31	12891.21
008905010-04	OBS	No	3.584535	132.276887	10.0	2.678	8.7	10.0	4.20	7244	1.52	12892.24
008905010-05	OBS	No	3.584582	134.381005	9.0	2.241	8.7	8.4	4.20	7244	1.34	12892.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008905010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008905010-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
008905010-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

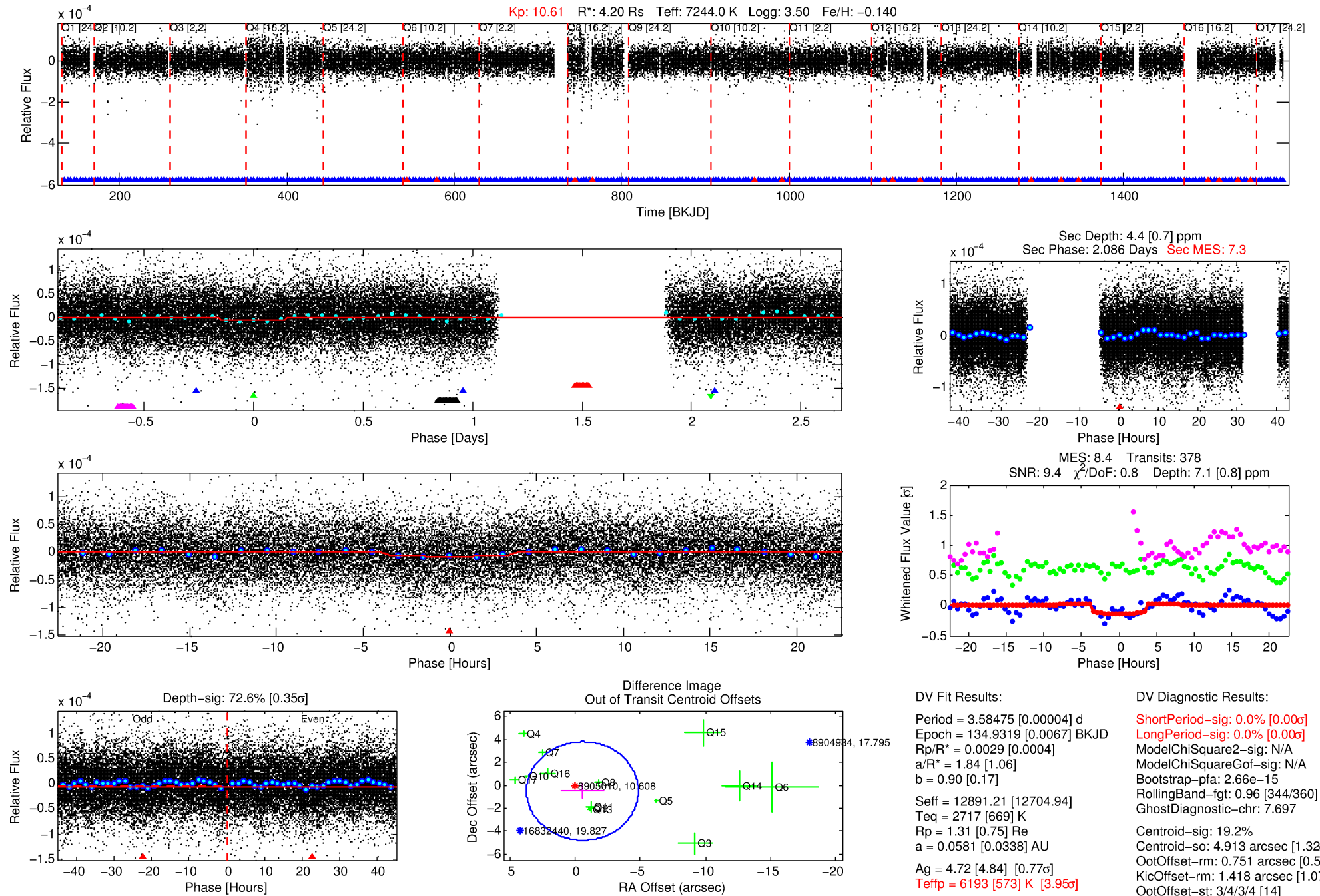
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008905010-03

No Significant Match Found

DV One-Page Summary

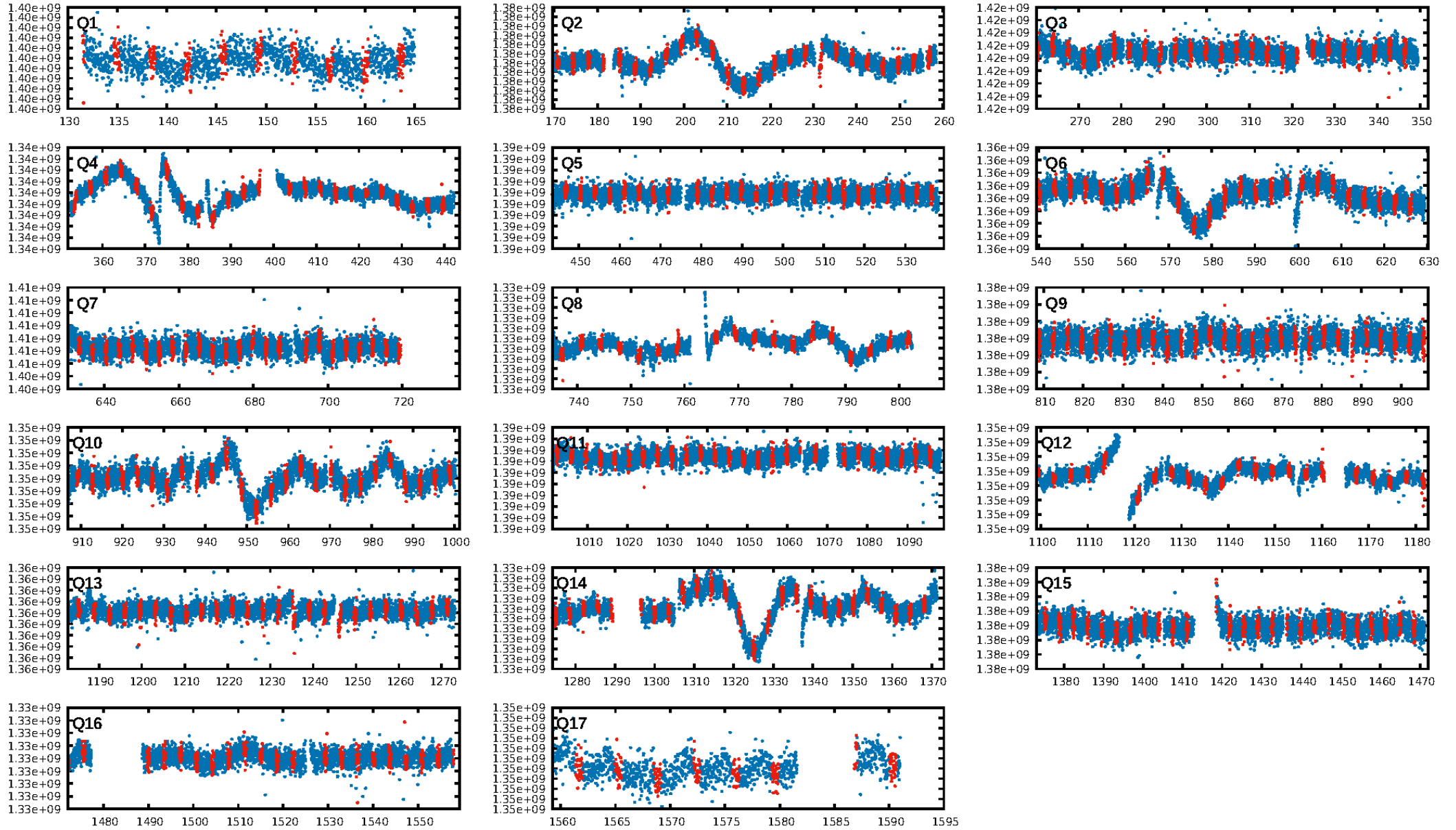
KIC: 8905010 Candidate: 3 of 5 Period: 3.585 d



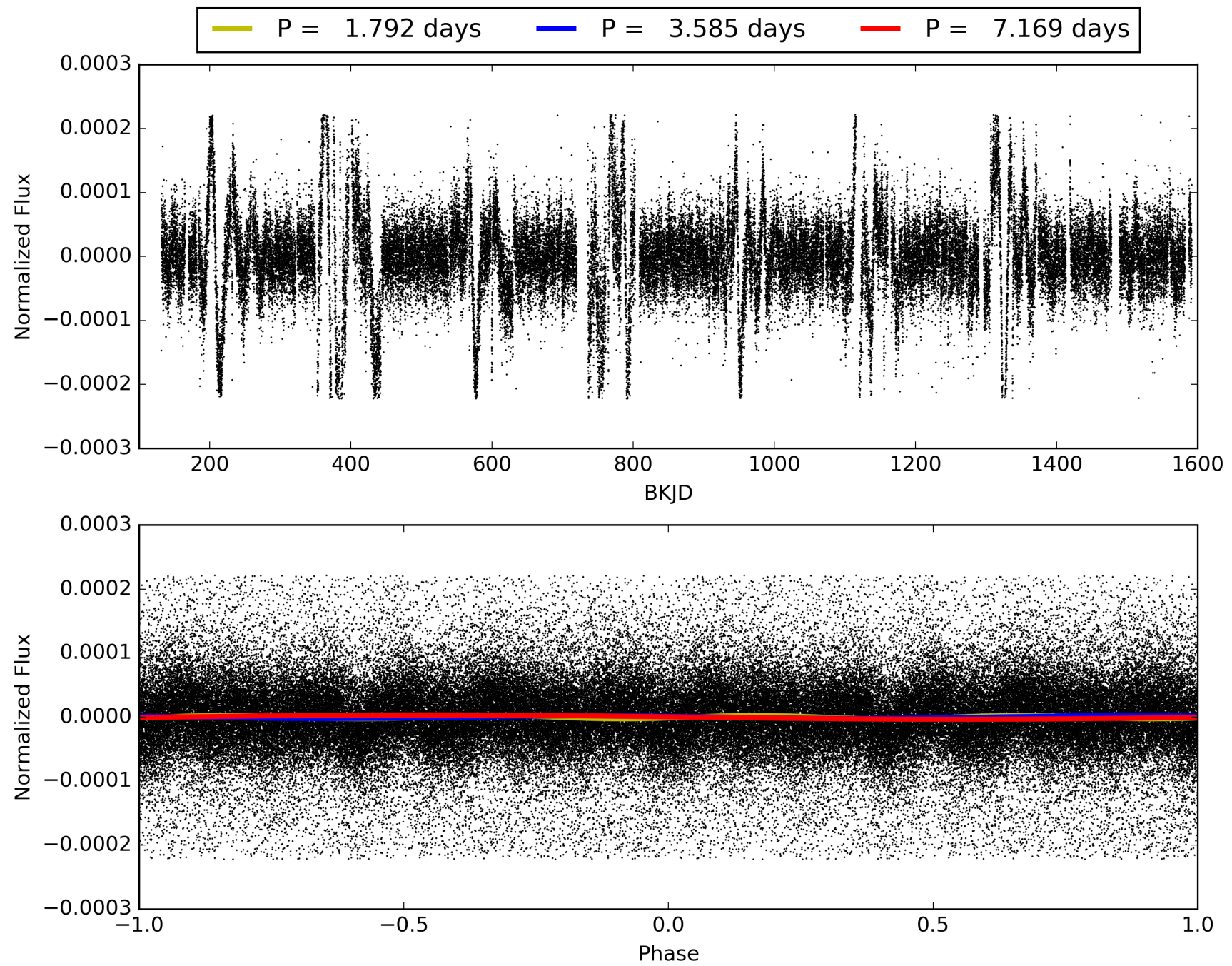
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:54:38 Z

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

TCE 008905010-03, PDC Light Curves

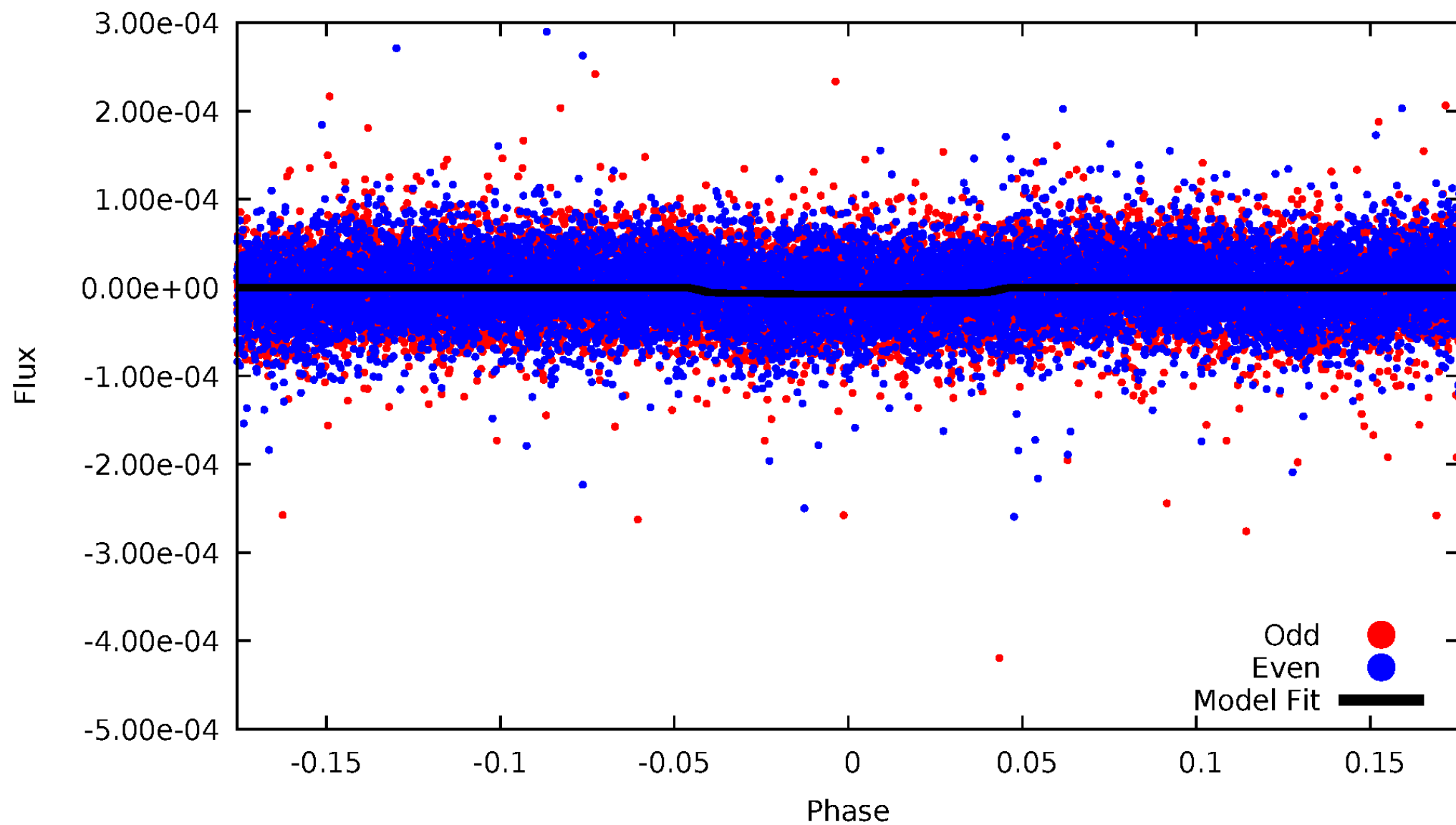


TCE 008905010-03



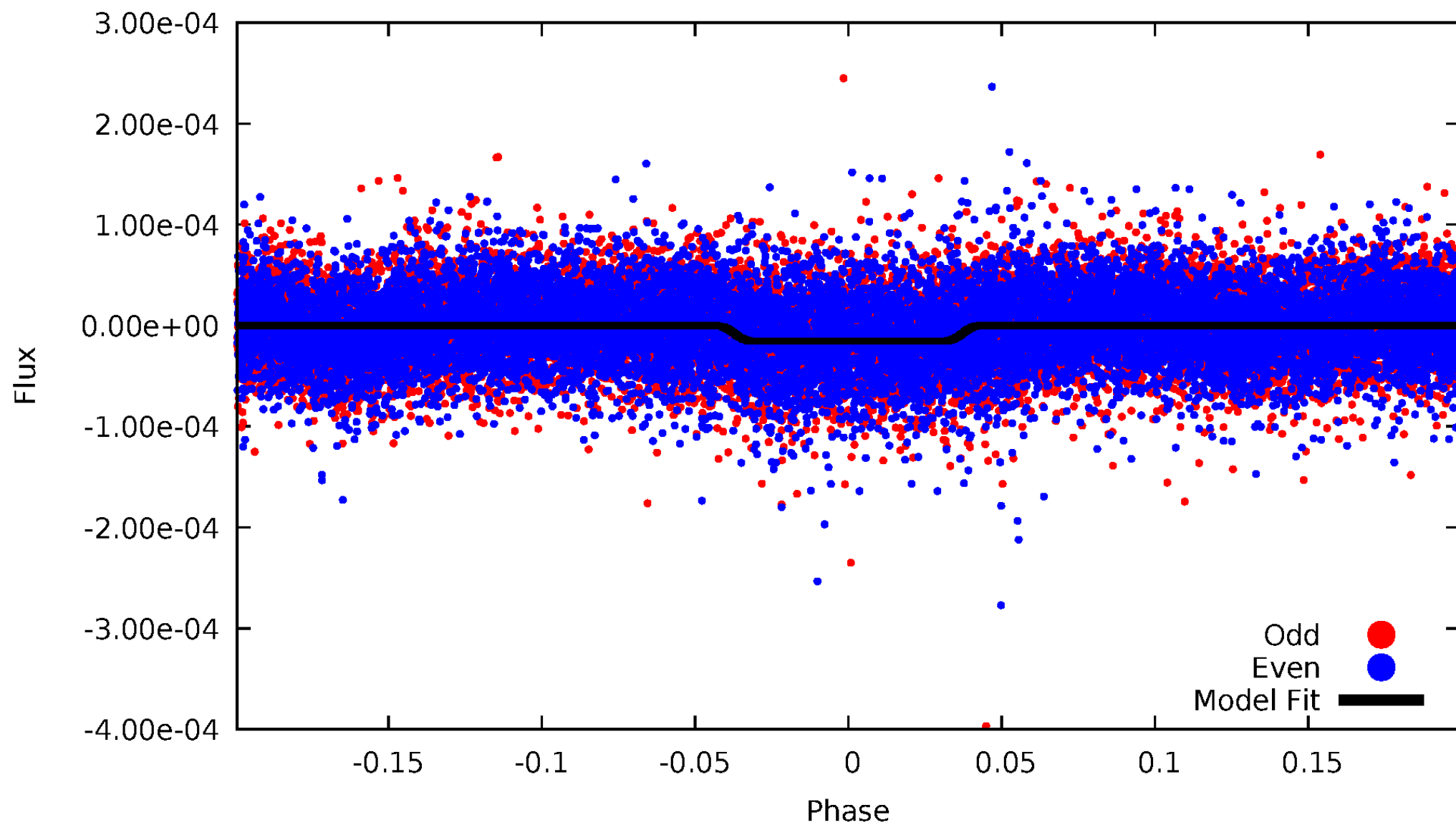
DV Odd/Even

TCE 008905010-03



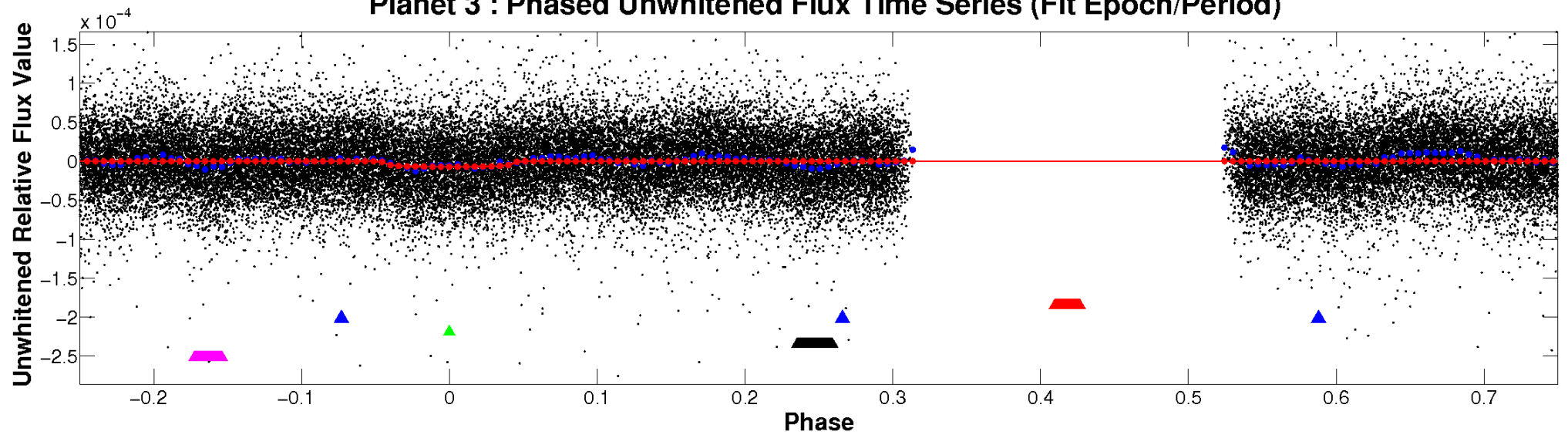
ALT Odd/Even

TCE 008905010-03

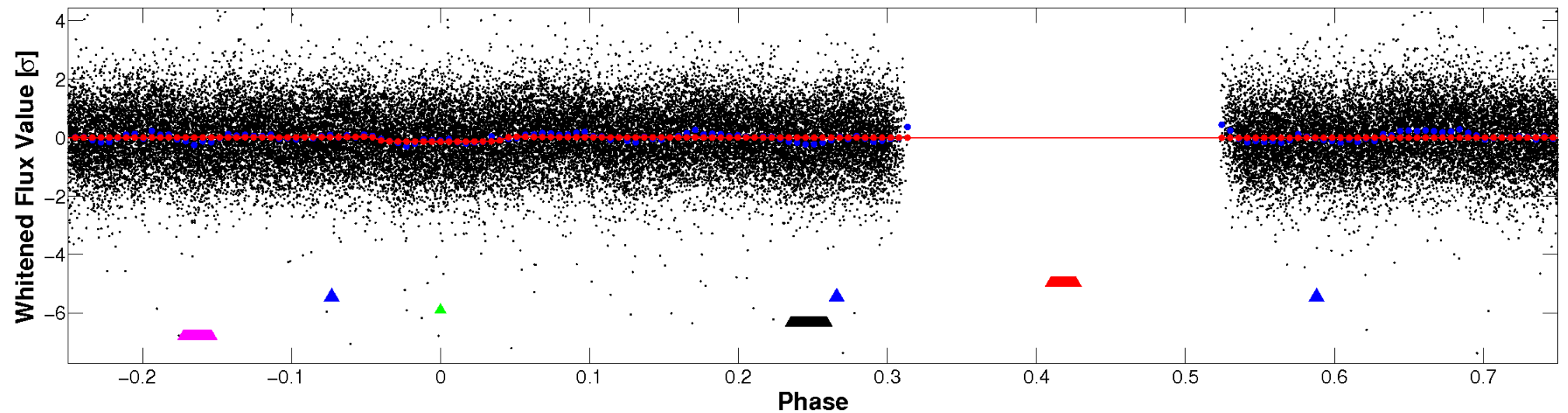


Non-Whitened Vs. Whitened Light Curve

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

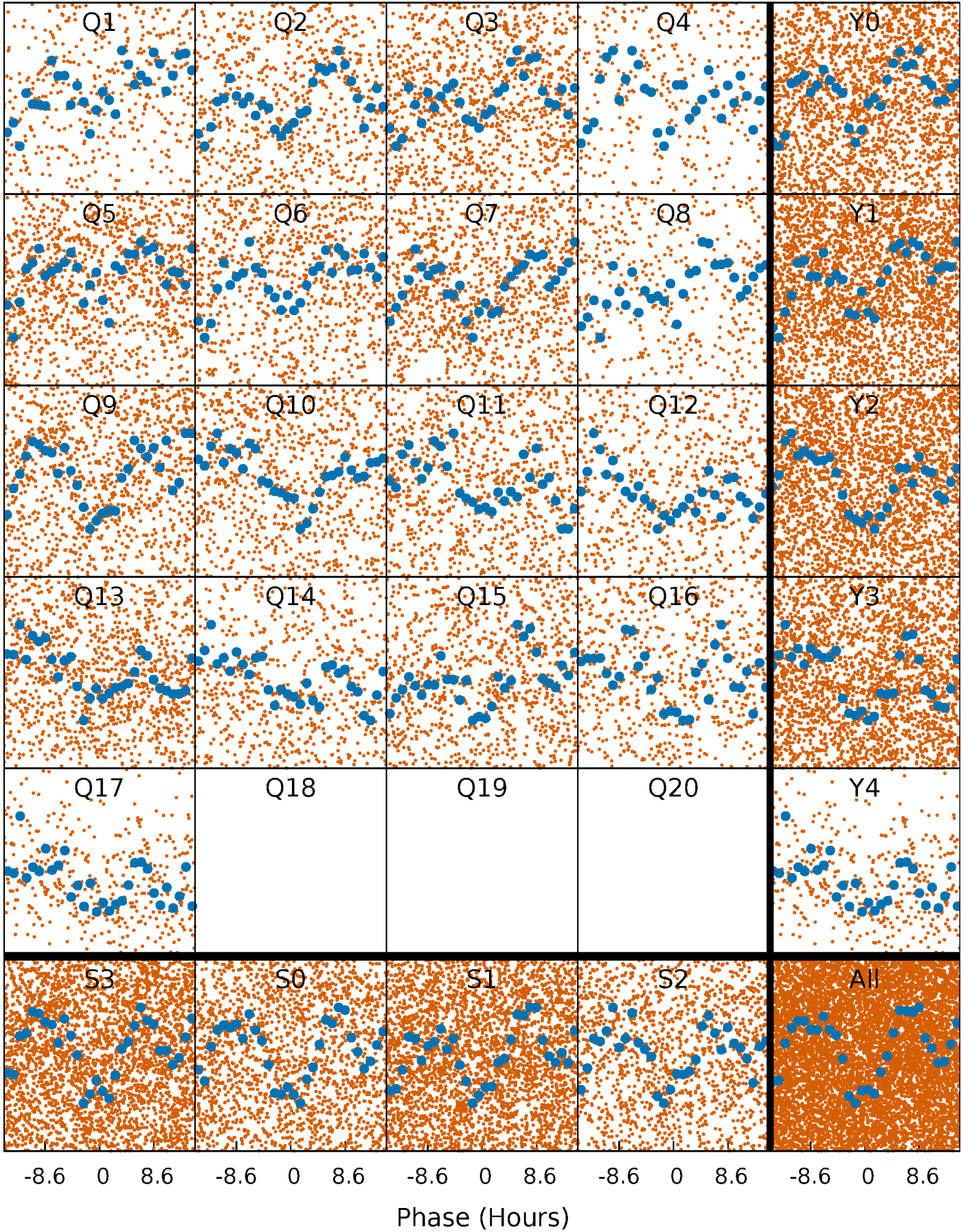


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



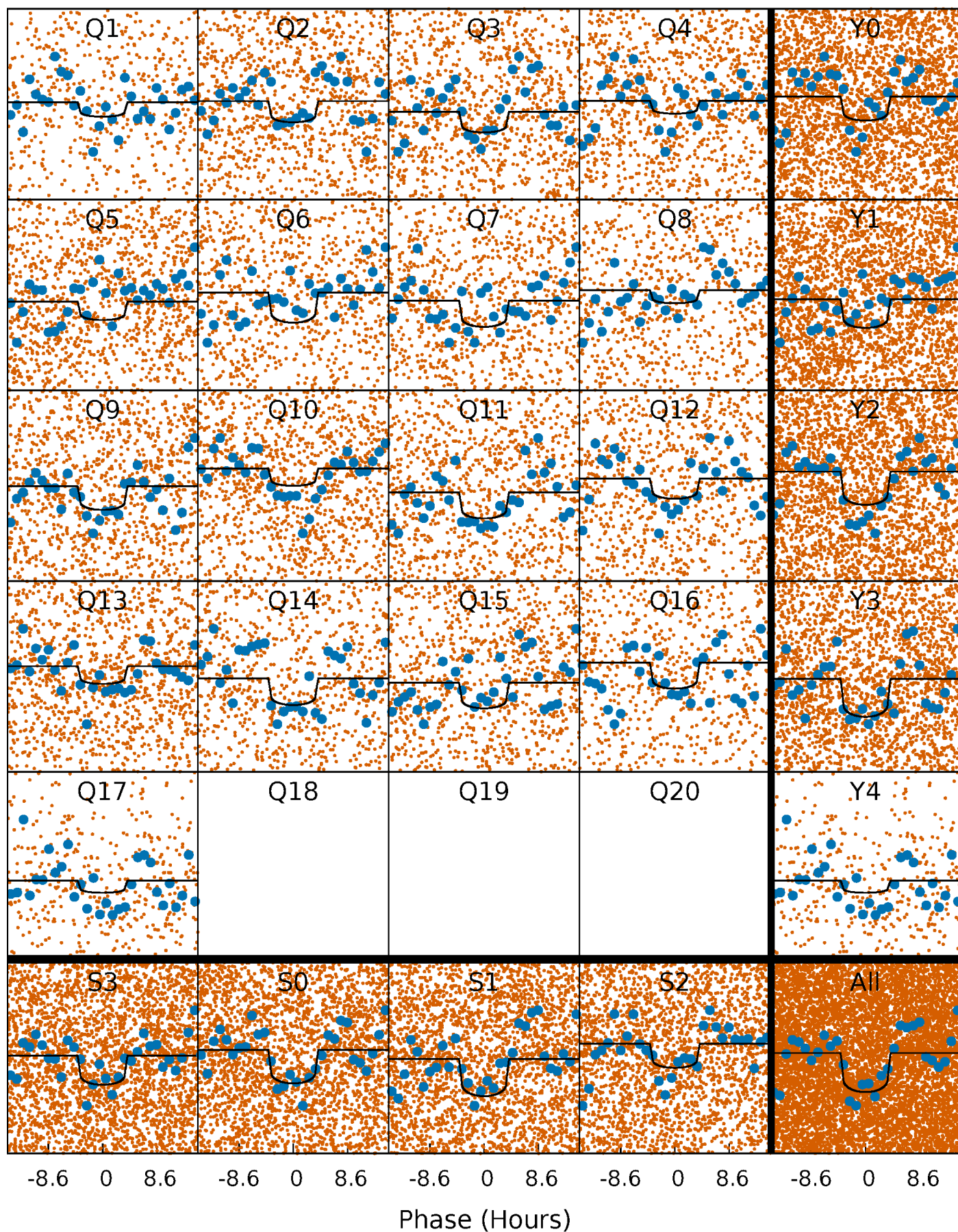
PDC Quarter-Phased Transit Curves

TCE 008905010-03 $P = 3.584749$ Days $T_0 = 134.931910$ (BKJD)



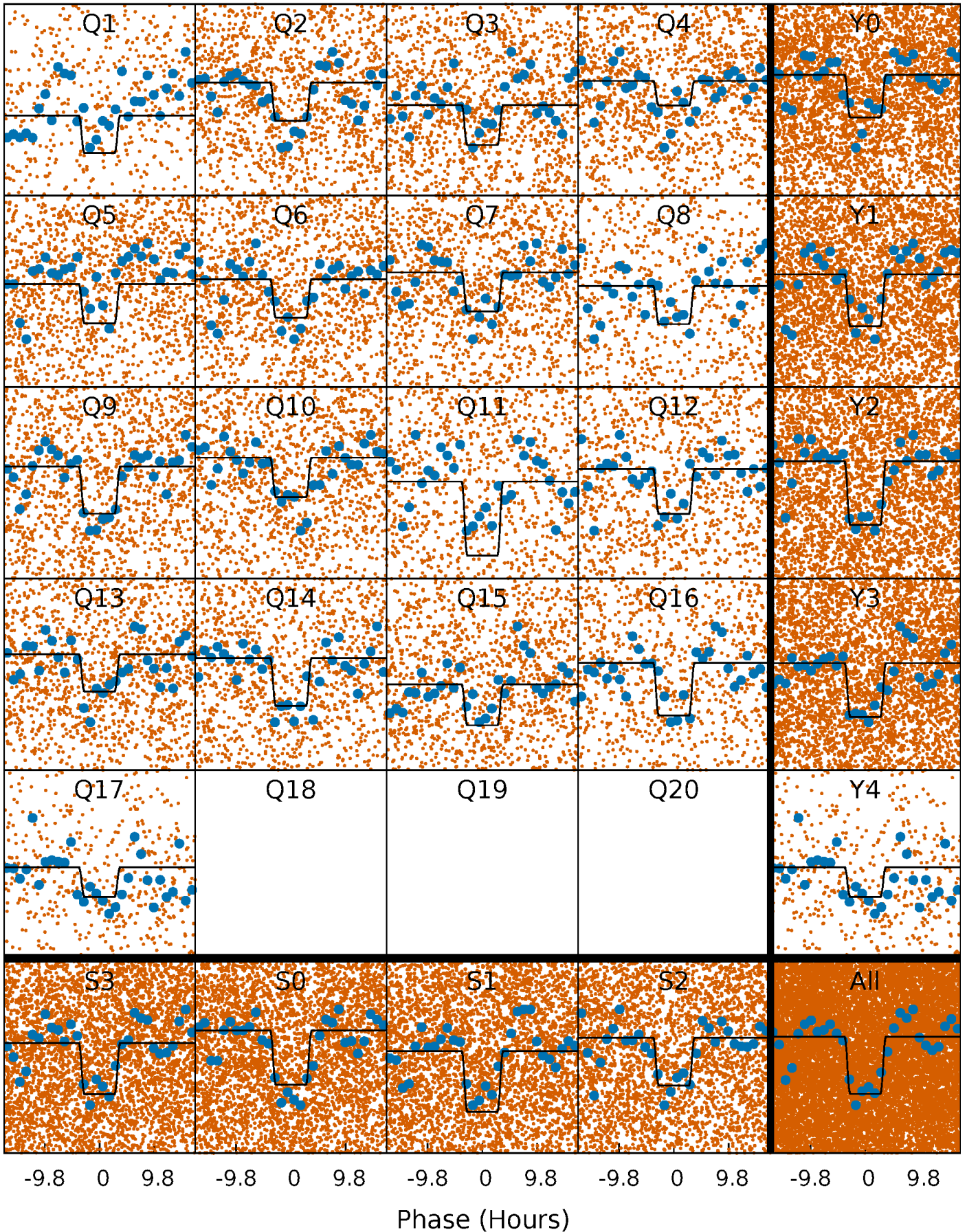
DV Quarter-Phased Transit Curves

TCE 008905010-03 P= 3.584749 Days $T_0=134.931910$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

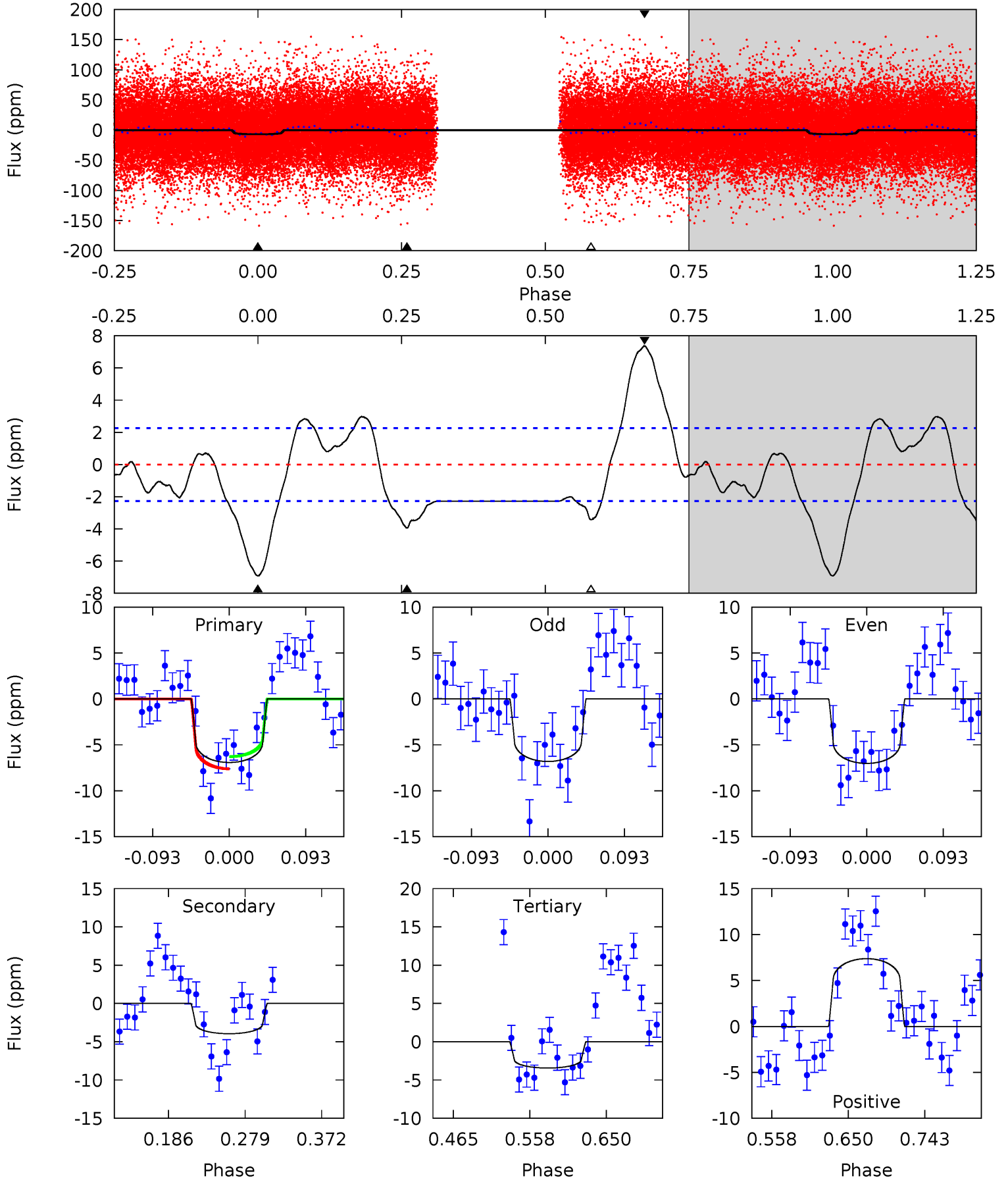
TCE 008905010-03 P= 3.584732 Days $T_0=134.929212$ (BKJD)



DV Model-Shift Uniqueness Test

008905010-03, P = 3.584749 Days, E = 131.347161 Days

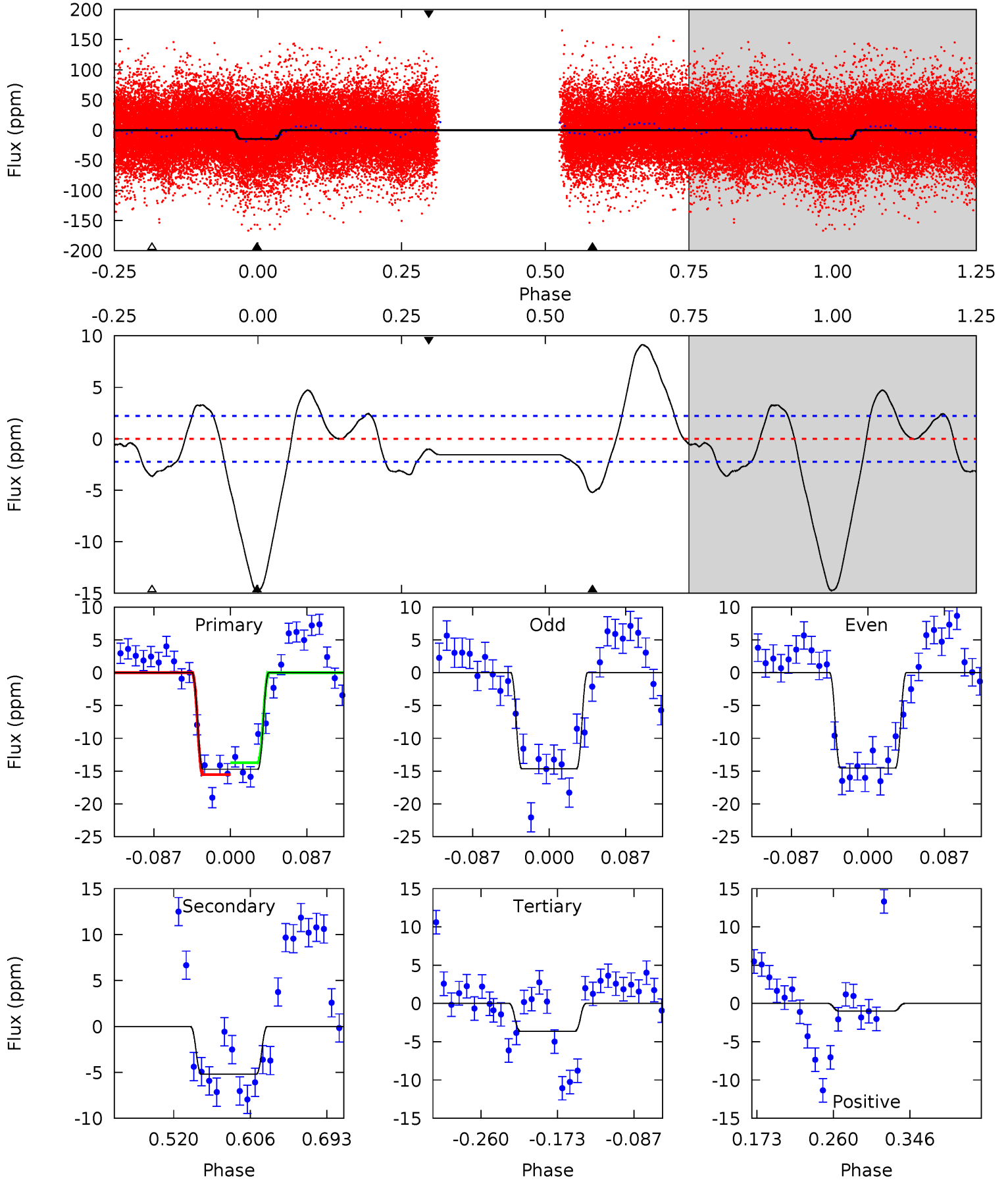
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	7.99	6.94	14.9	4.58	1.68	5.67	7.05	-0.92	1.05	-6.92	0.21	1.08	0.52	1.35



Alt Model-Shift Uniqueness Test

008905010-03, P = 3.584732 Days, E = 131.344480 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.3	10.7	7.49	-2.07	4.59	1.71	6.45	22.9	32.4	3.23	12.8	0.10	1.13	0.38	1.89



Stellar Parameters For KIC 008905010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7244^{+226}_{-302}	$3.500^{+0.585}_{-0.065}$	$-0.140^{+0.250}_{-0.300}$	$4.199^{+0.411}_{-2.332}$	$2.033^{+0.068}_{-0.576}$	$0.039^{+0.303}_{-0.009}$
	+3%/-4%	+17%/-2%	+179%/-214%	+10%/-56%	+3%/-28%	+783%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008905010-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 0	$1.15^{+0.28}_{-0.34}$	3637^{+280}_{-519}	5889^{+542}_{-454}	$5.396^{+4.427}_{-1.977}$
Alt.	-5 ± 0	$1.61^{+0.35}_{-0.47}$	3621^{+285}_{-556}	5369^{+377}_{-343}	$3.619^{+3.532}_{-1.142}$

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

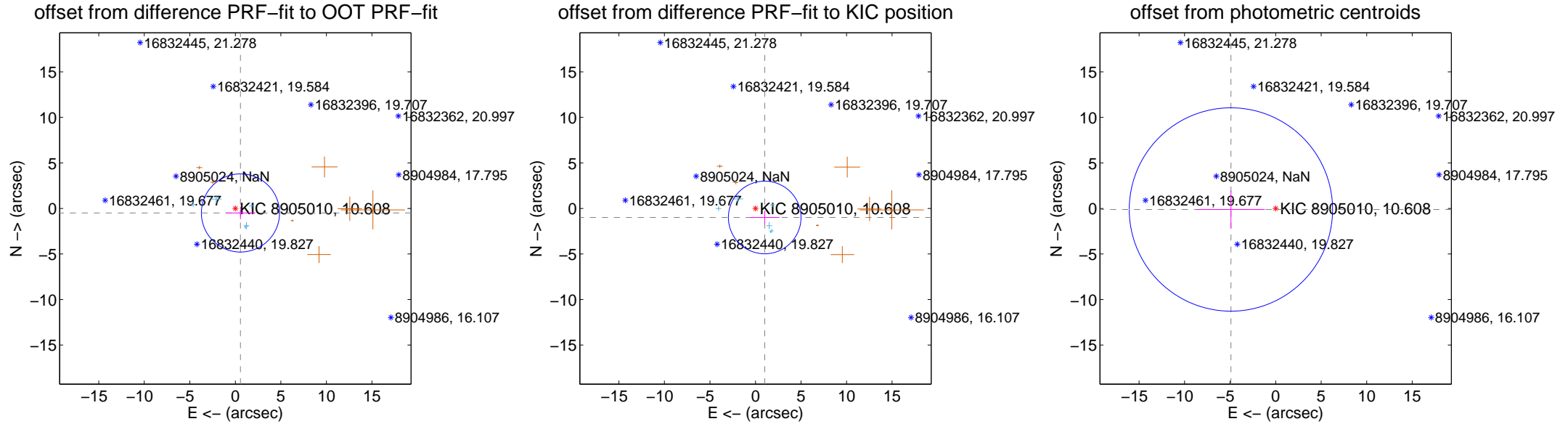
DV Centroid Data

Supplemental centroid analysis for 008905010-03. **Kepler magnitude: 10.61.** Transit SNR 9.45

There are 7 quarters with good PRF difference image offsets

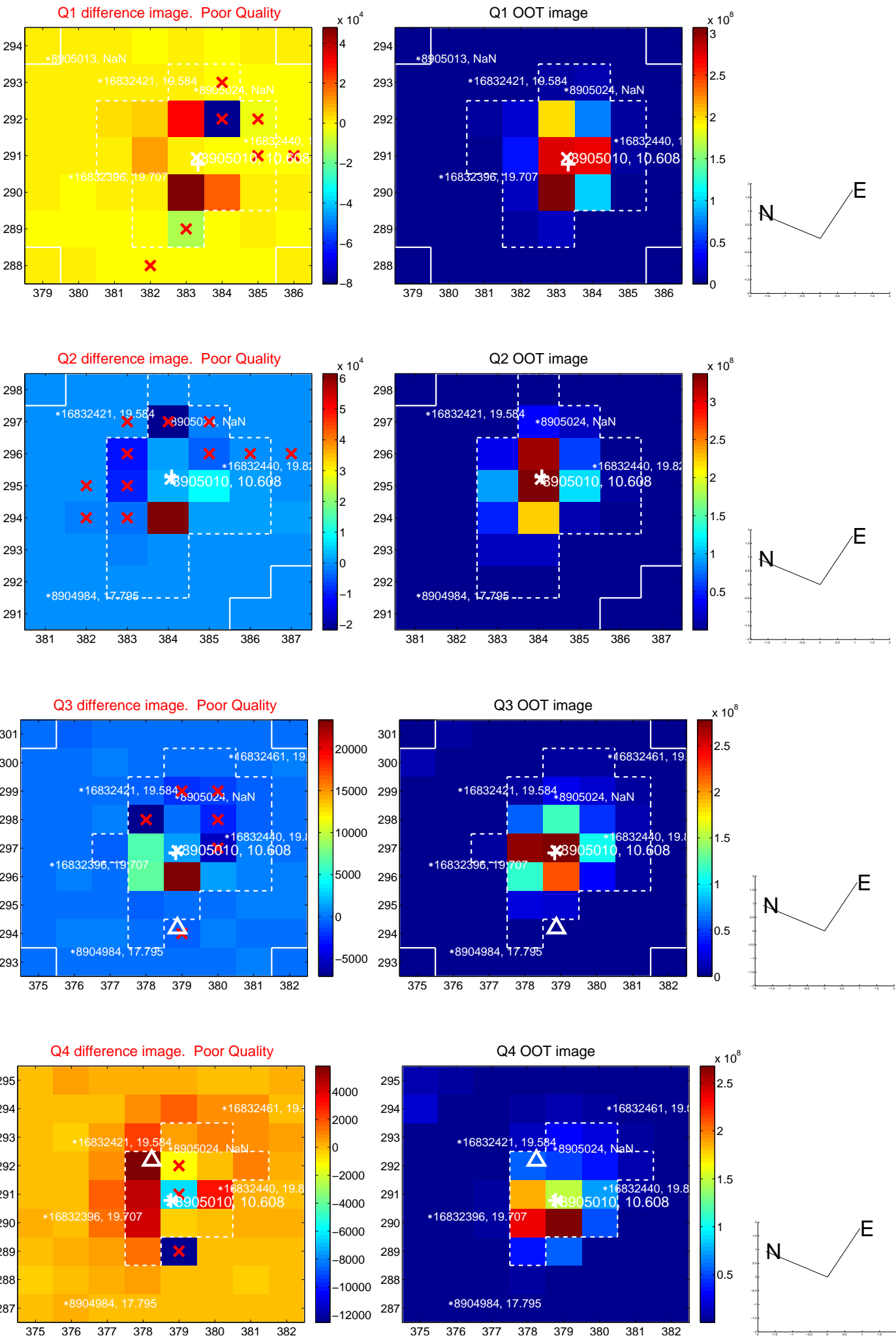
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.751 ± 1.430	0.53	-0.563 ± 1.598	-0.497 ± 0.682
PRF-fit source offset from KIC position	1.418 ± 1.329	1.07	-1.014 ± 1.618	-0.991 ± 0.704
photometric centroid source offset	4.91 ± 3.72	1.32	4.91 ± 3.72	-0.12 ± 2.08

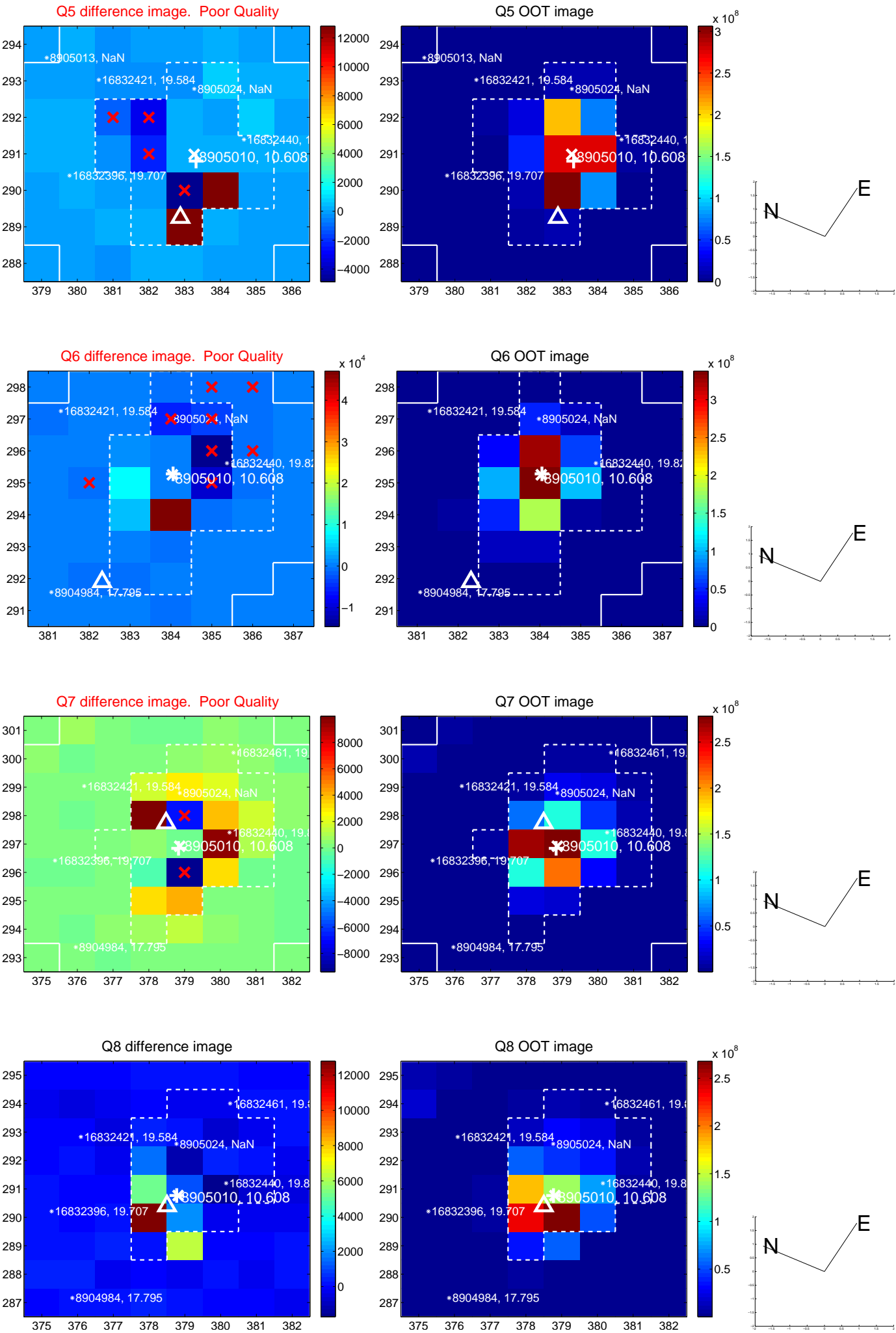


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

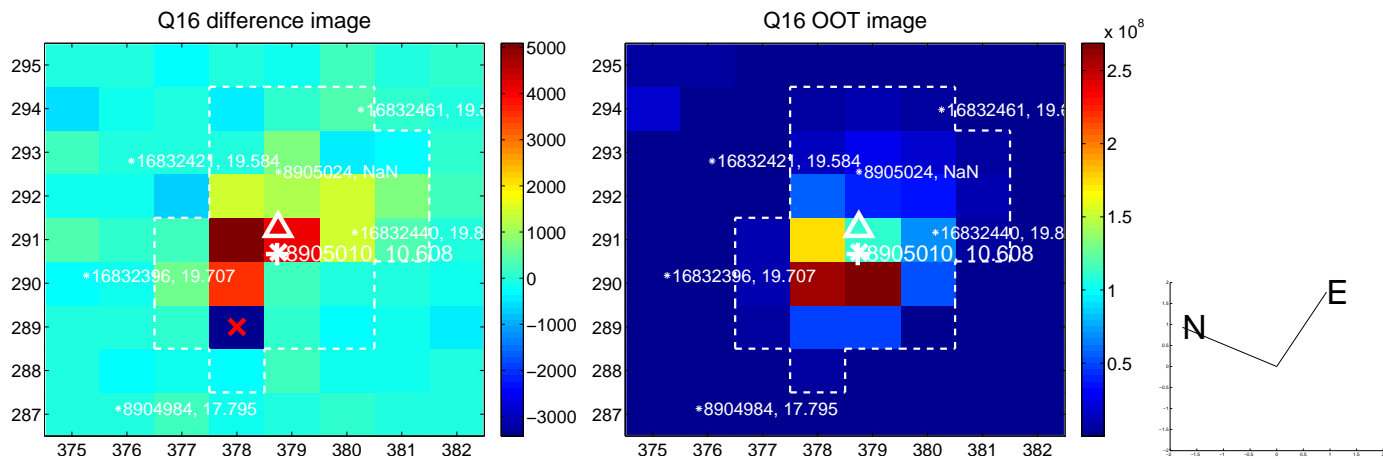
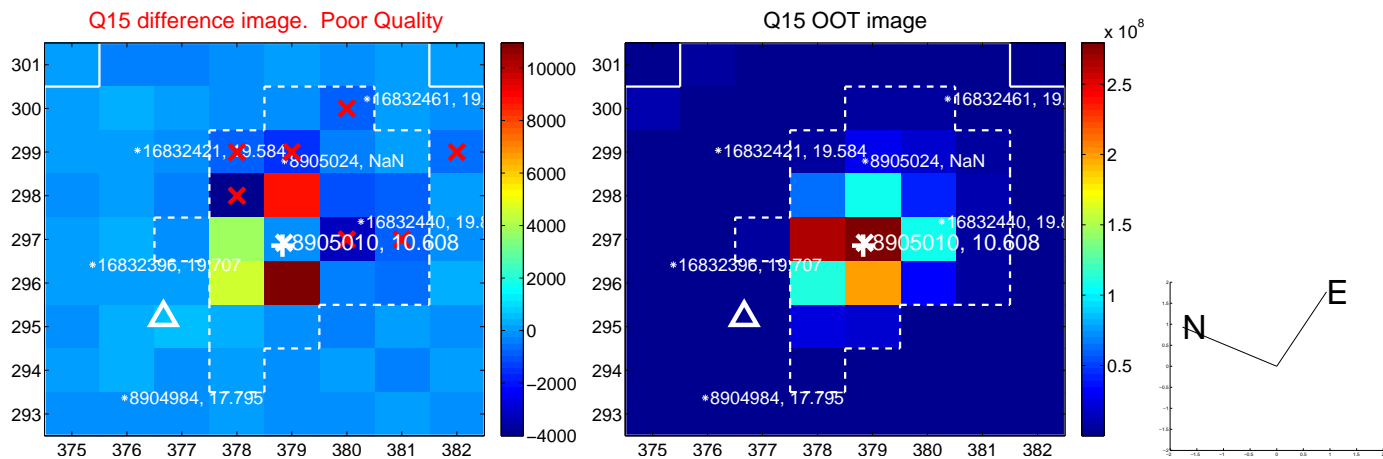
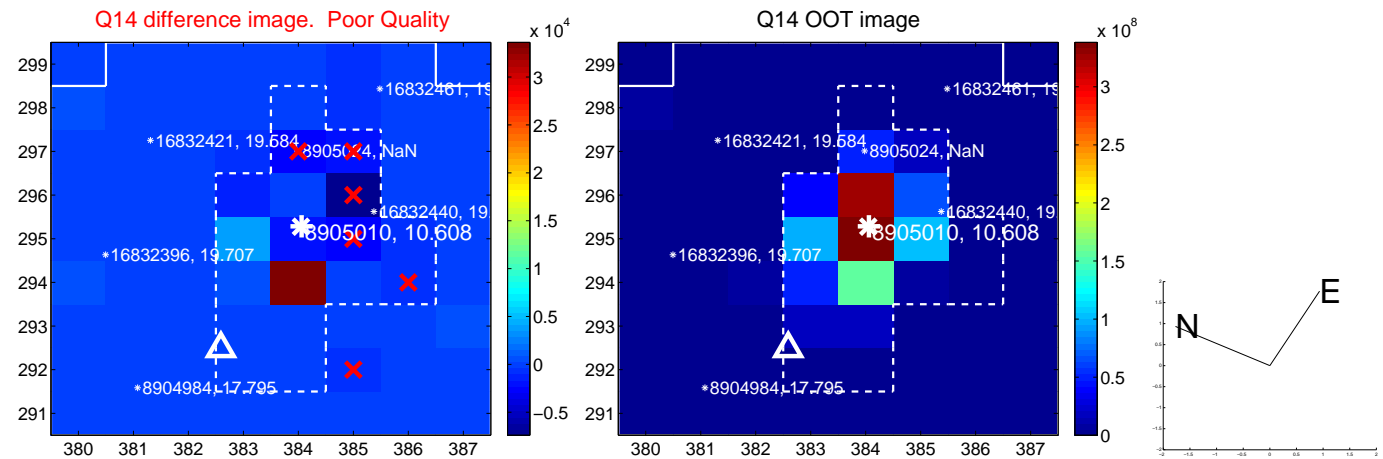
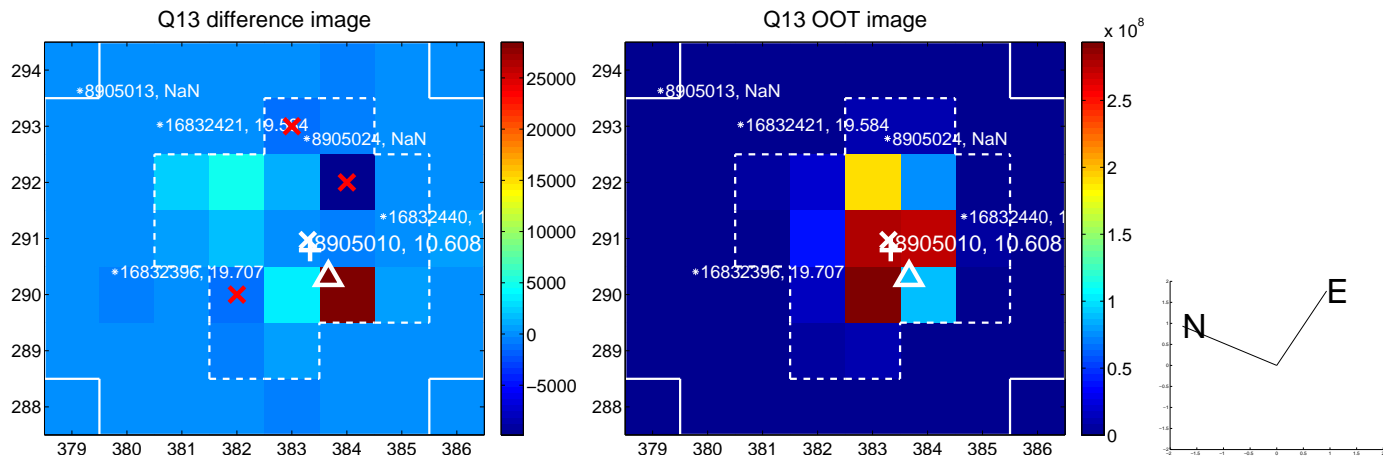
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



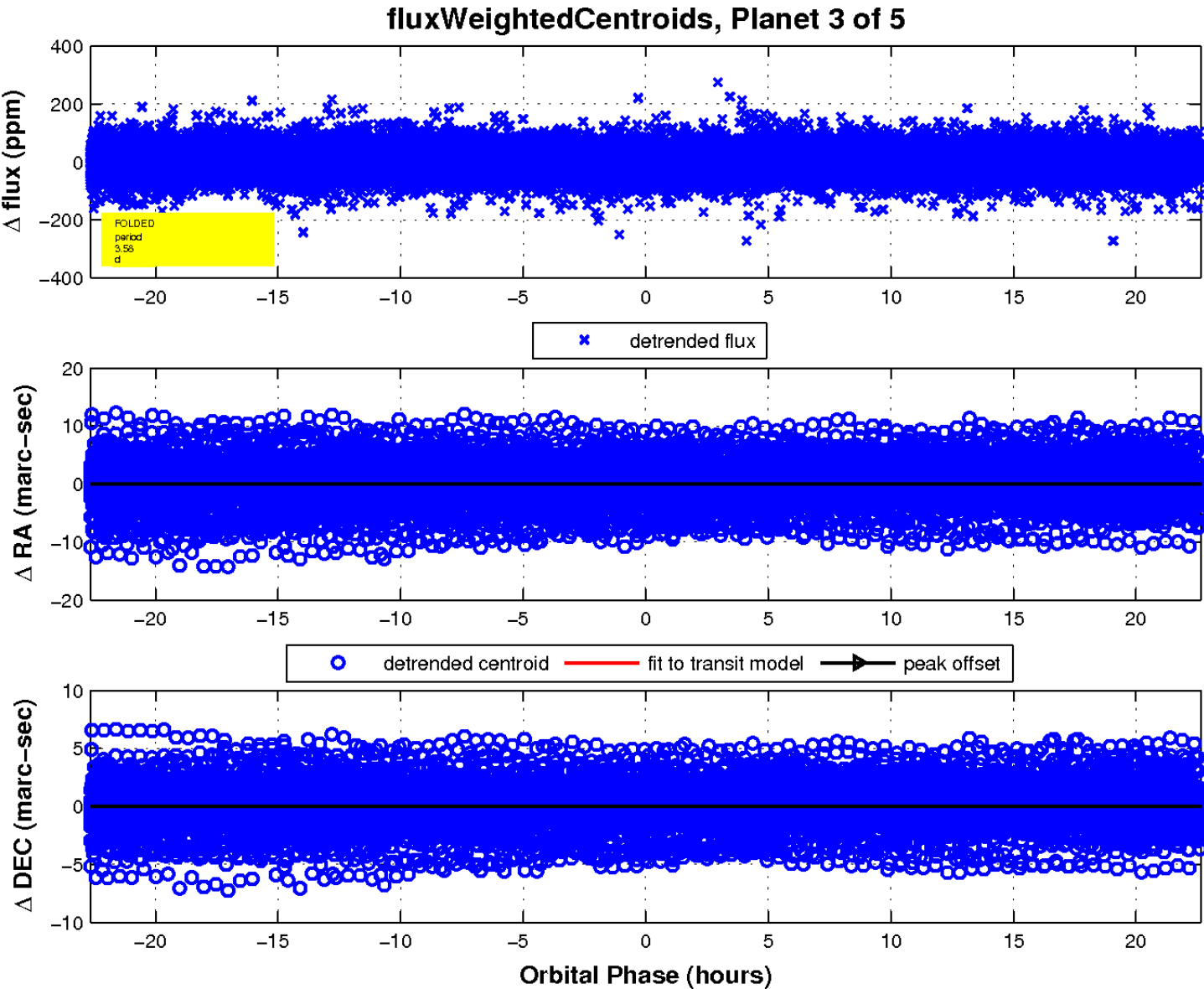
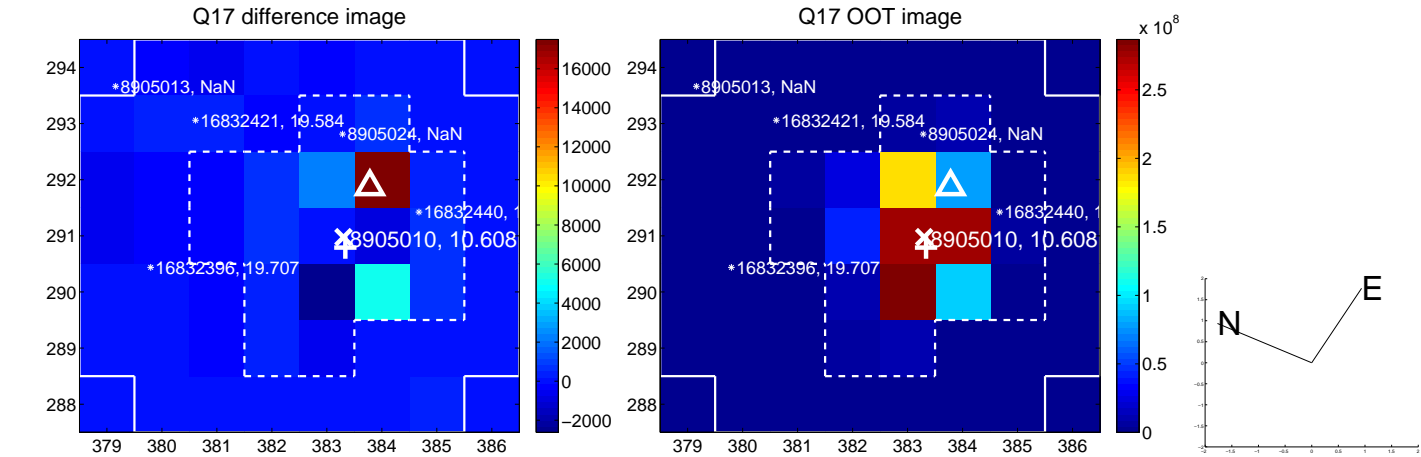
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



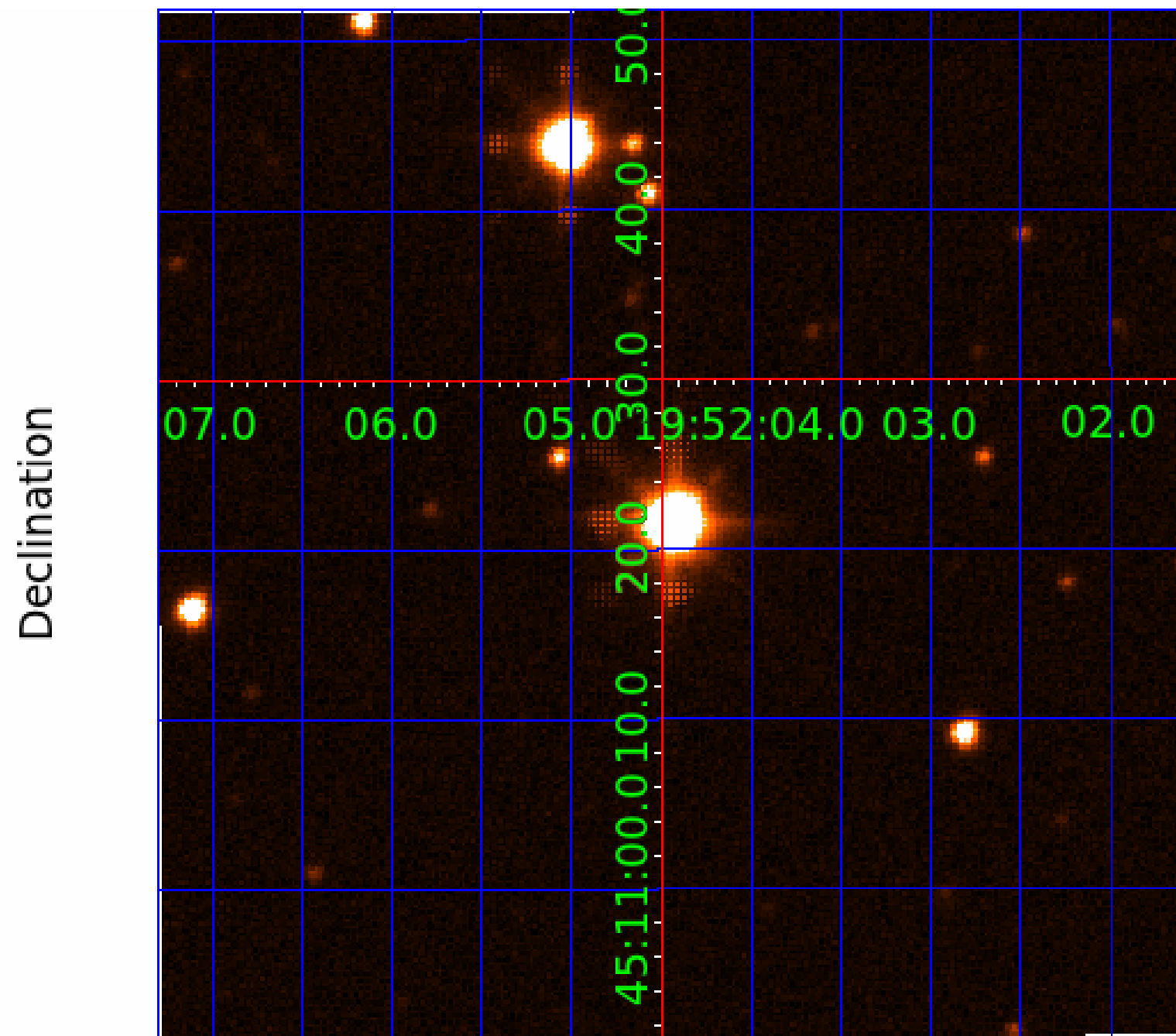
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008905010

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})
008905010-01	OBS	No	3.584899	132.815440	11.5	6.329	14.0	13.9	4.20	7244	1.61	12890.49
008905010-02	OBS	No	553.266427	205.150138	78.1	14.826	11.1	7.3	4.20	7244	4.02	15.57
008905010-03	OBS	No	3.584749	134.931910	7.1	7.551	8.4	9.4	4.20	7244	1.31	12891.21
008905010-04	OBS	No	3.584535	132.276887	10.0	2.678	8.7	10.0	4.20	7244	1.52	12892.24
008905010-05	OBS	No	3.584582	134.381005	9.0	2.241	8.7	8.4	4.20	7244	1.34	12892.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008905010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008905010-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
008905010-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

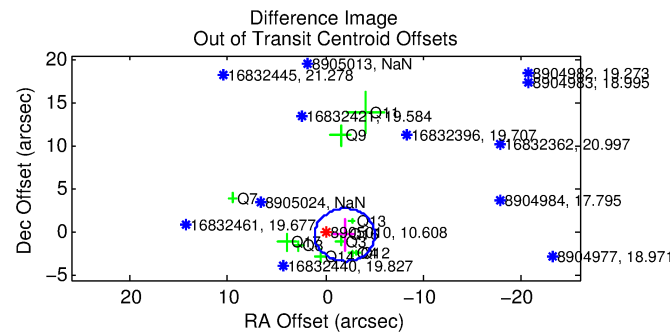
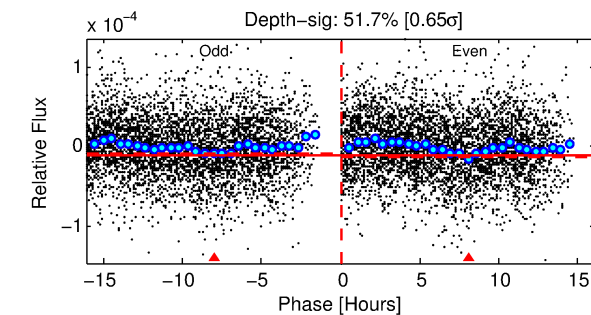
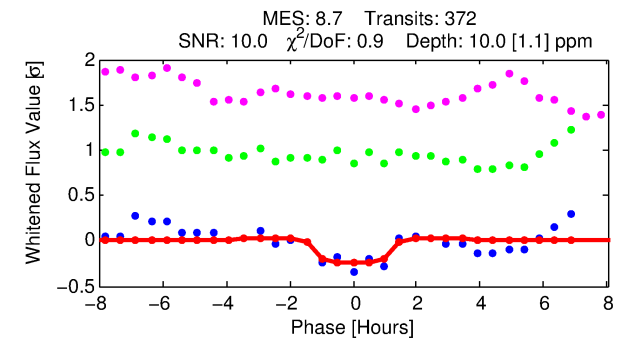
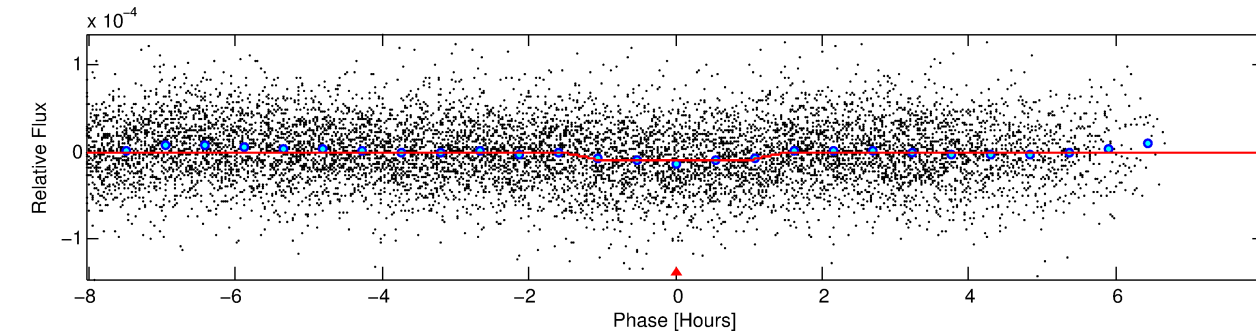
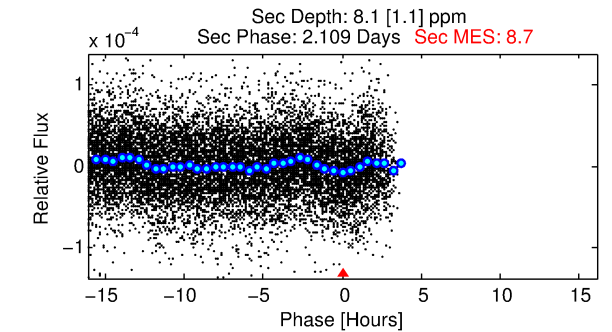
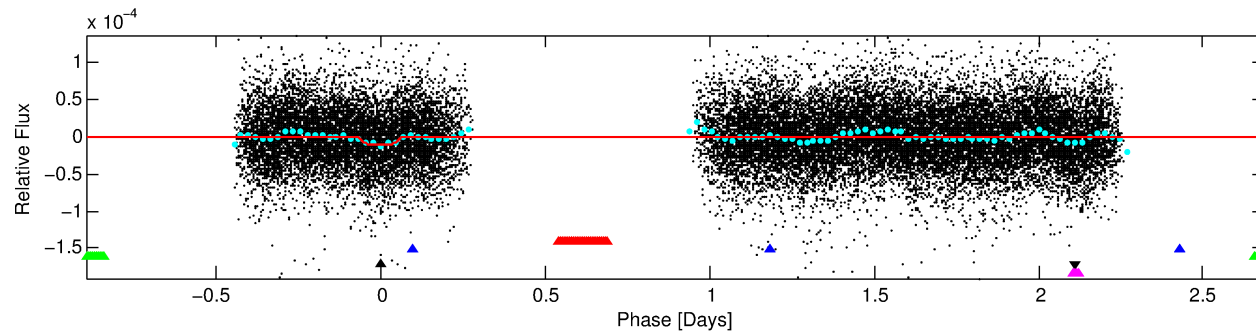
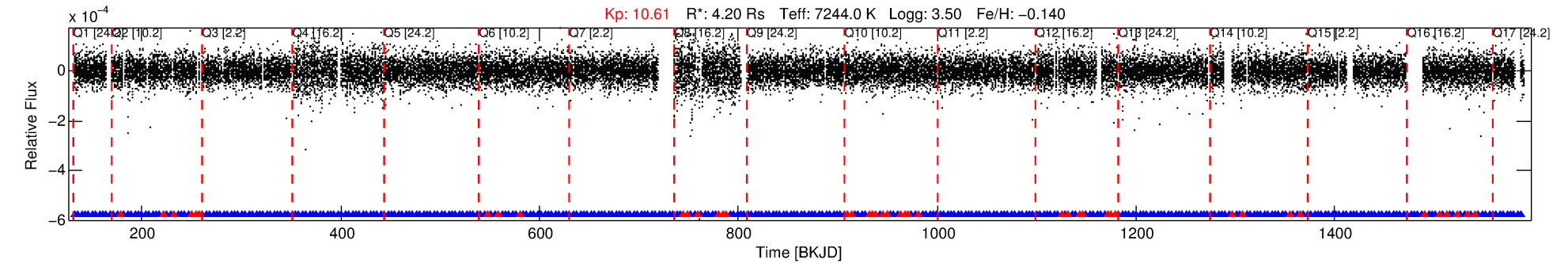
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008905010-04

No Significant Match Found

DV One-Page Summary

KIC: 8905010 Candidate: 4 of 5 Period: 3.585 d



DV Fit Results:

Period = 3.58453 [0.00002] d
Epoch = 132.2769 [0.0040] BKJD
Rp/R* = 0.0033 [0.0004]
a/R* = 5.16 [3.15]
b = 0.87 [0.18]
Seff = 12892.24 [12705.95]
Teff = 2717 [669] K
Rp = 1.52 [0.87] Re
a = 0.0581 [0.0338] AU
Ag = 6.50 [6.56] [0.84σ]
Teffp = 6708 [537] K [4.65σ]

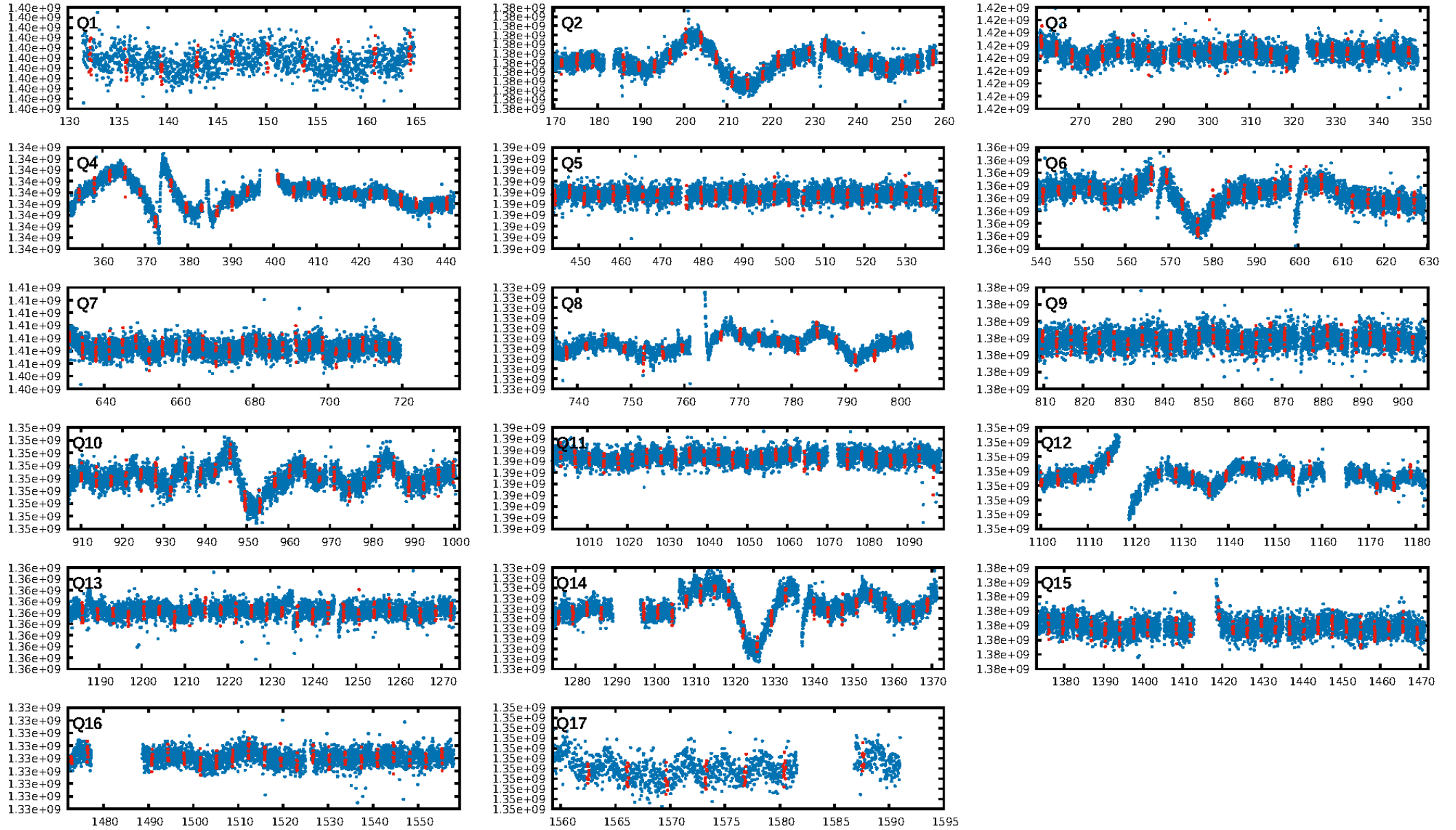
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.97e-15
RollingBand-fgt: 0.88 [312/355]
GhostDiagnostic-chr: 2.064
Centroid-sig: 17.6%
Centroid-so: 1.867 arcsec [0.99σ]
OotOffset-rm: 1.978 arcsec [1.94σ]
KicOffset-rm: 2.208 arcsec [2.18σ]
OotOffset-st: 1/3/4/3 [11]
KicOffset-st: 1/3/4/3 [11]
DiffImageQuality-fgm: 0.18 [2/11]
DiffImageOverlap-fno: 1.00 [17/17]

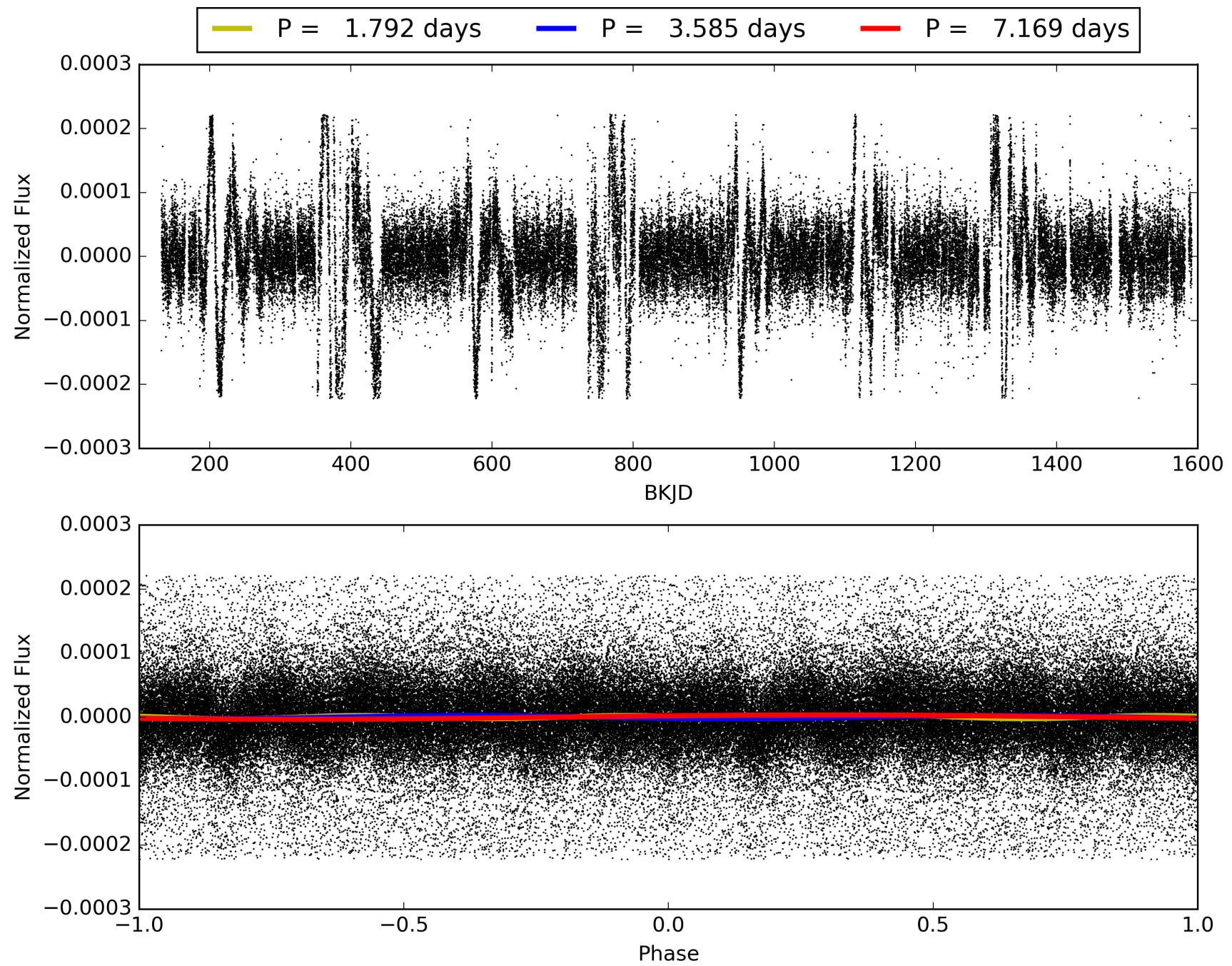
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:54:46 Z

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

TCE 008905010-04, PDC Light Curves

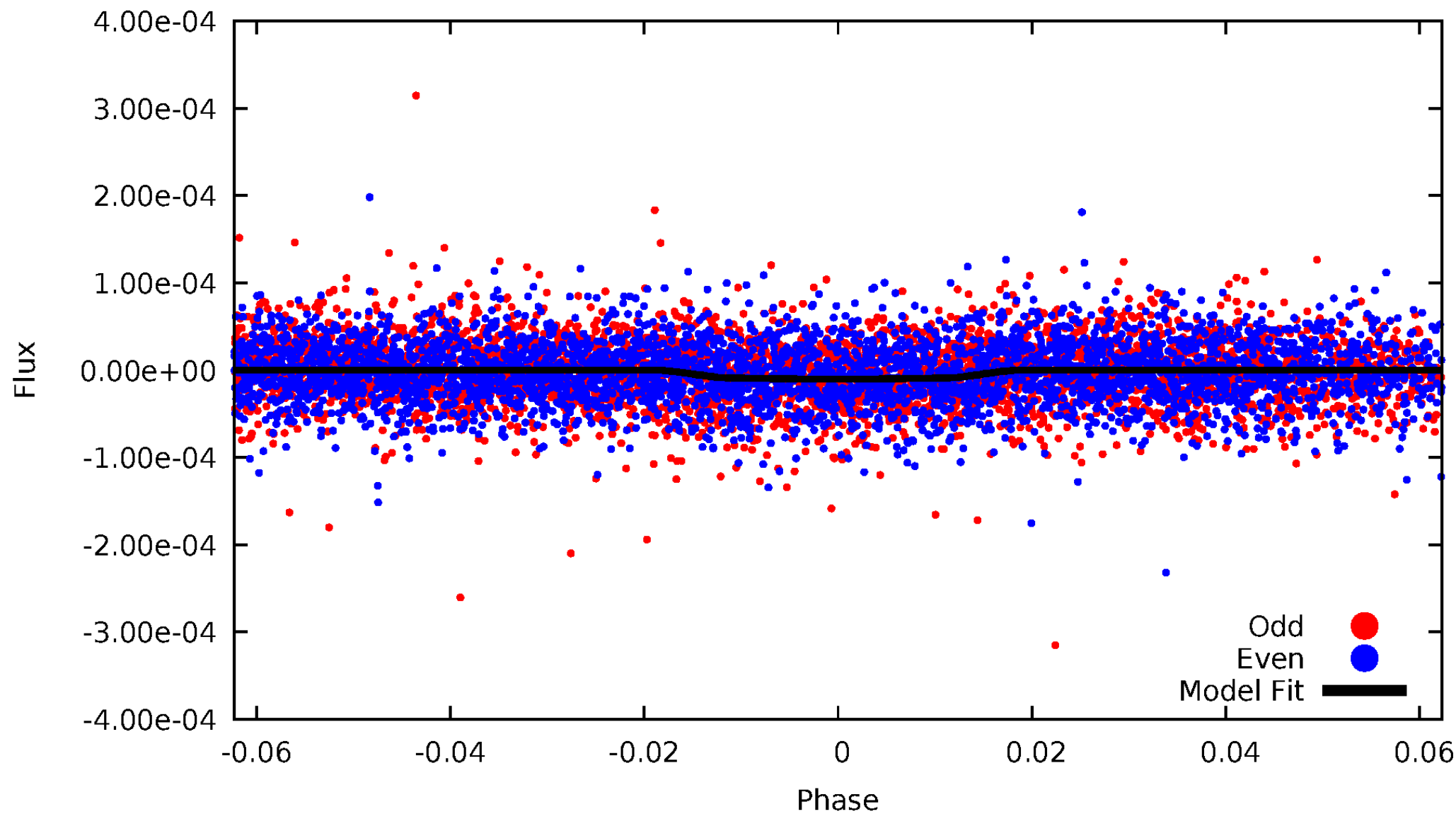


TCE 008905010-04



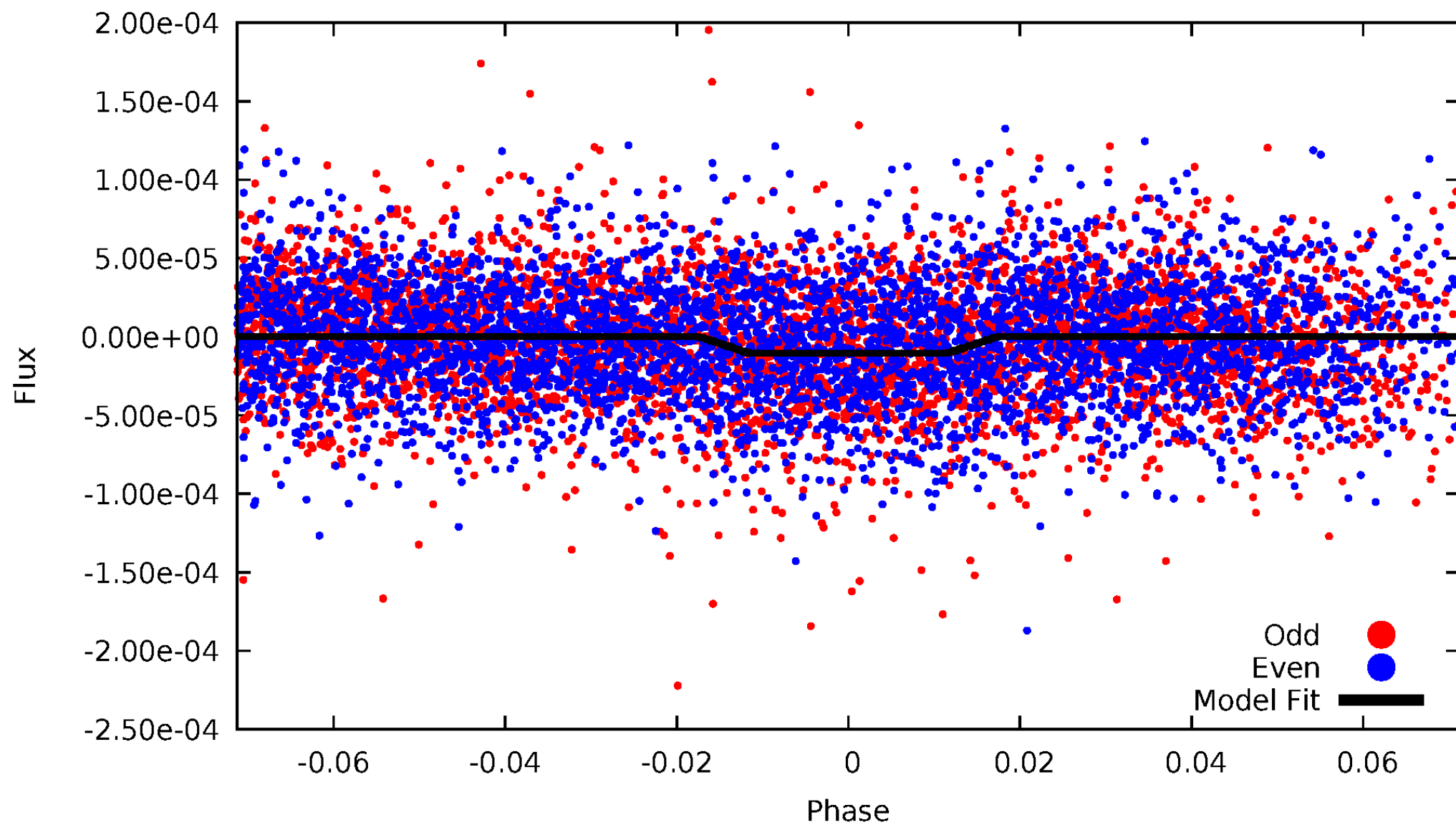
DV Odd/Even

TCE 008905010-04



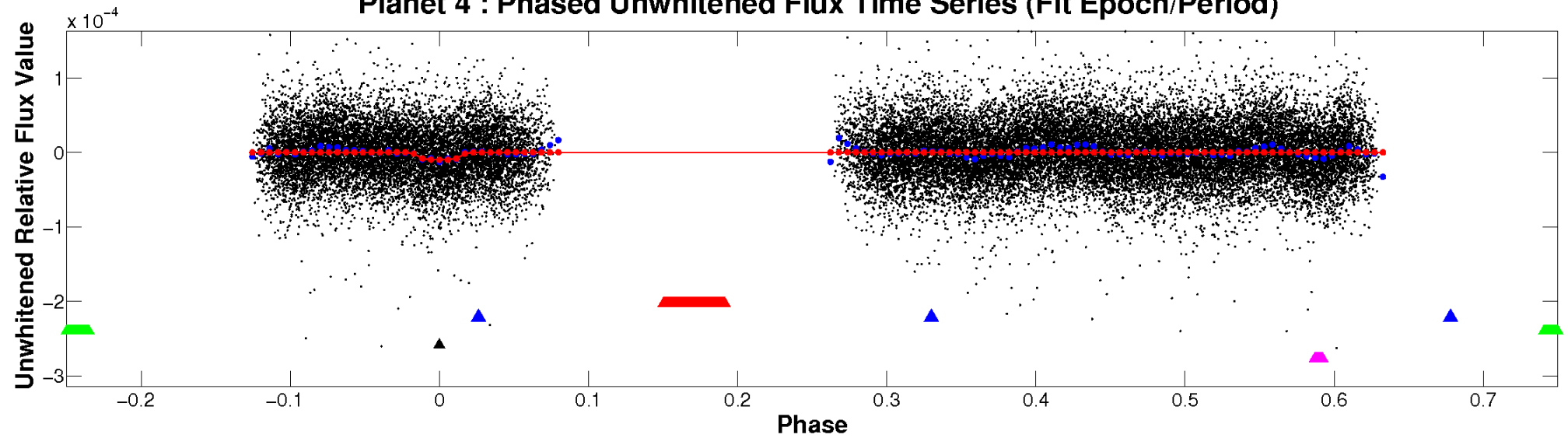
ALT Odd/Even

TCE 008905010-04

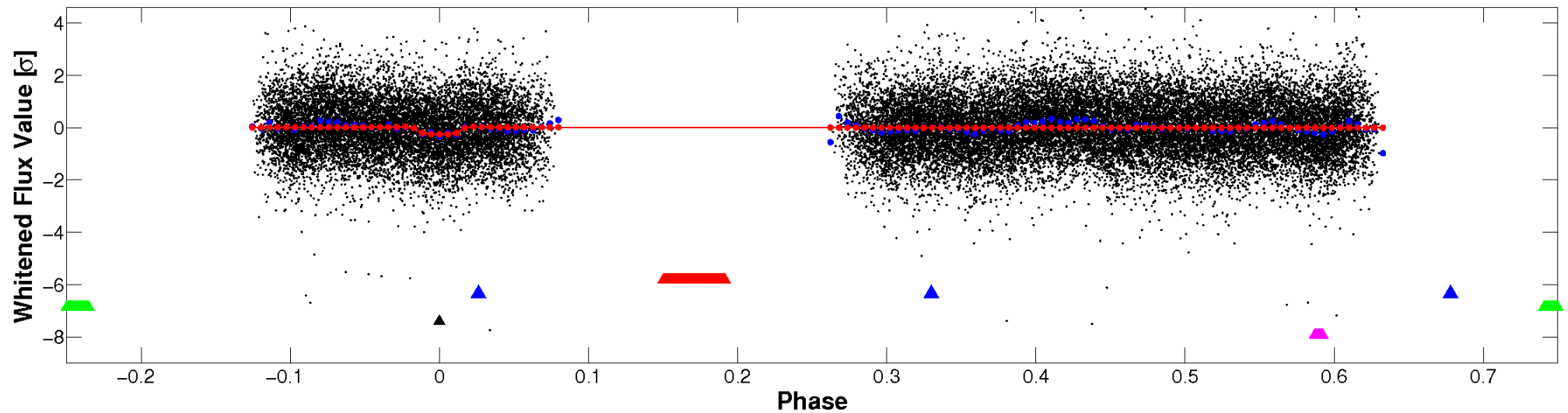


Non-Whitened Vs. Whitened Light Curve

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

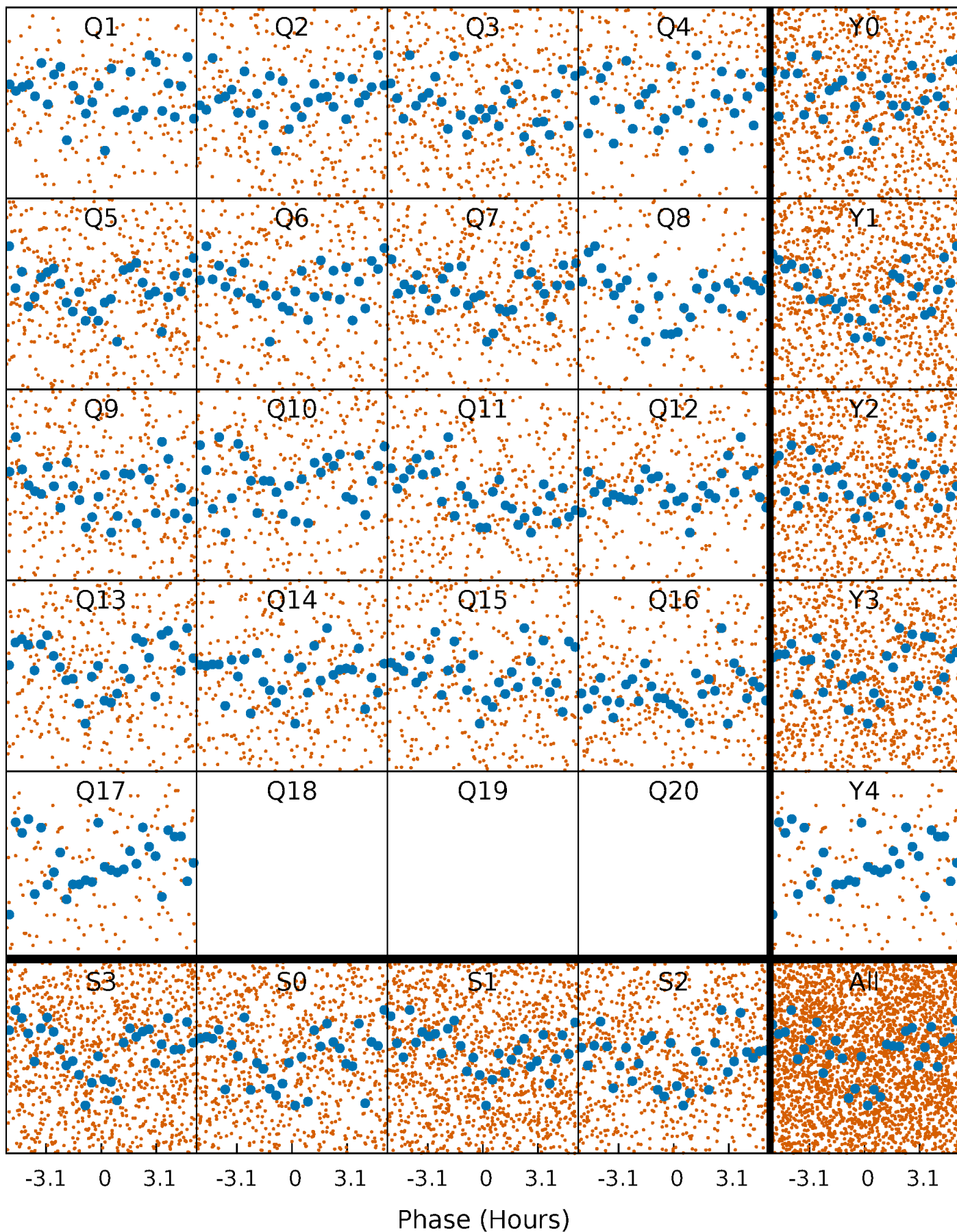


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



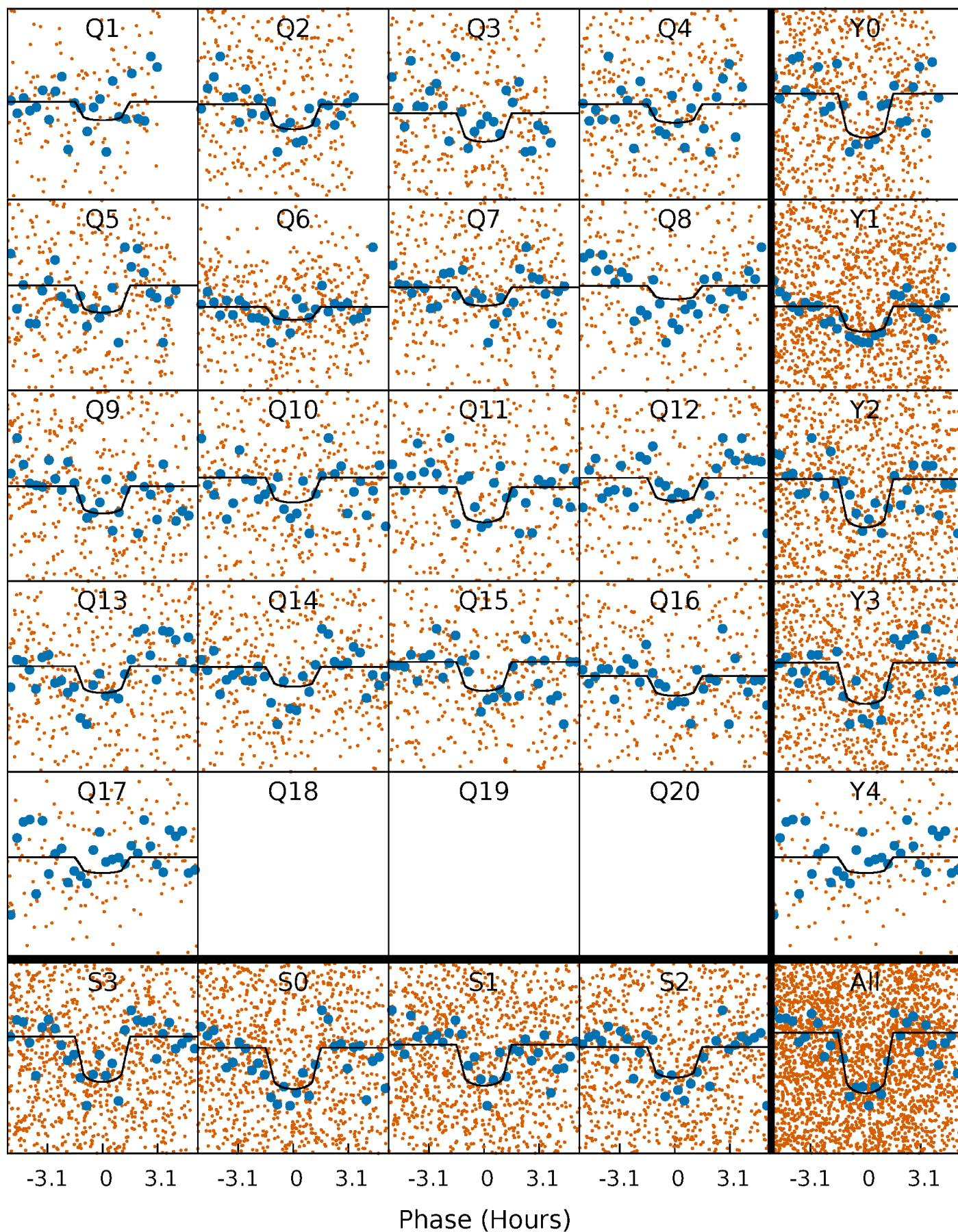
PDC Quarter-Phased Transit Curves

TCE 008905010-04 P= 3.584535 Days $T_0=132.276887$ (BKJD)



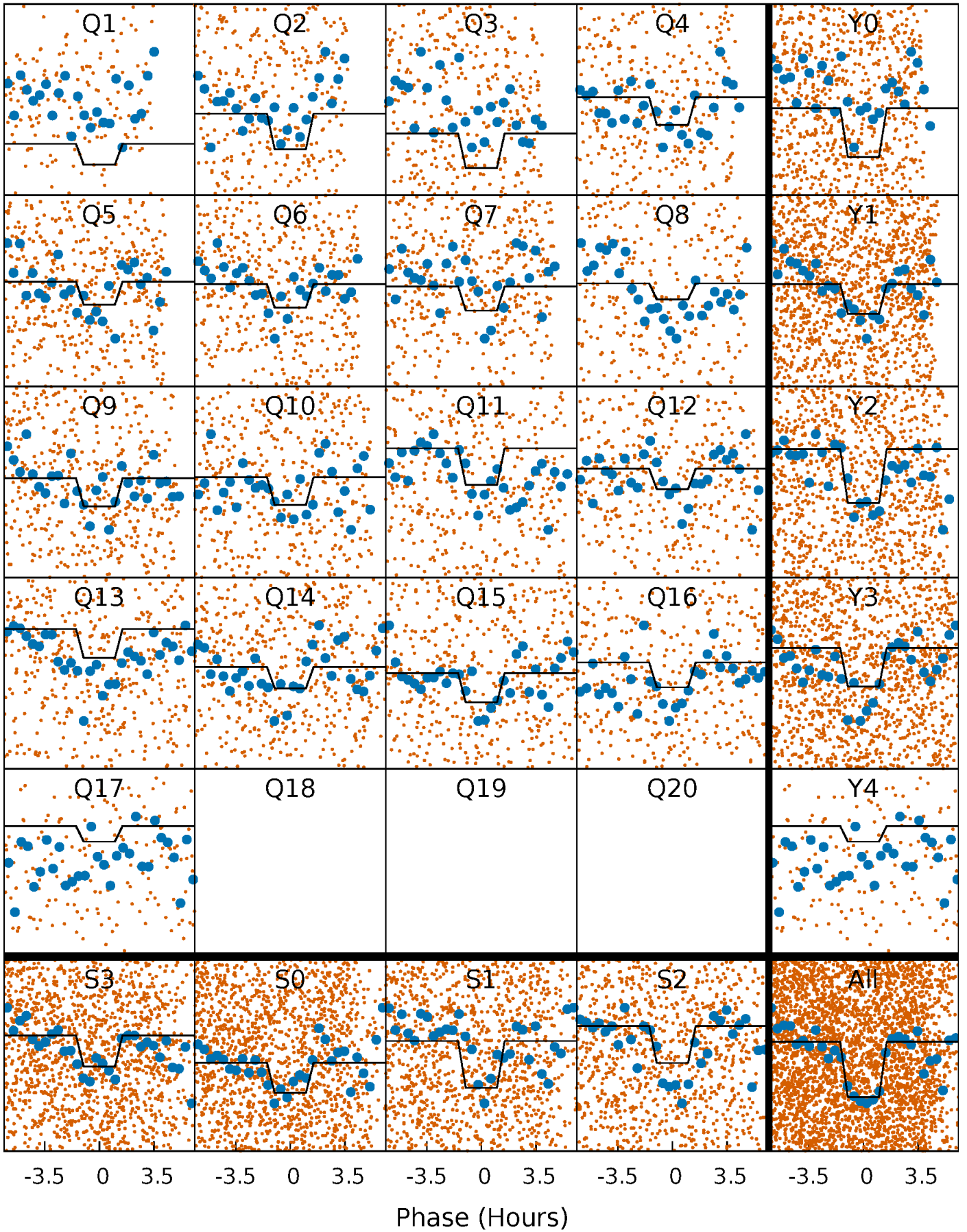
DV Quarter-Phased Transit Curves

TCE 008905010-04 P= 3.584535 Days $T_0=132.276887$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

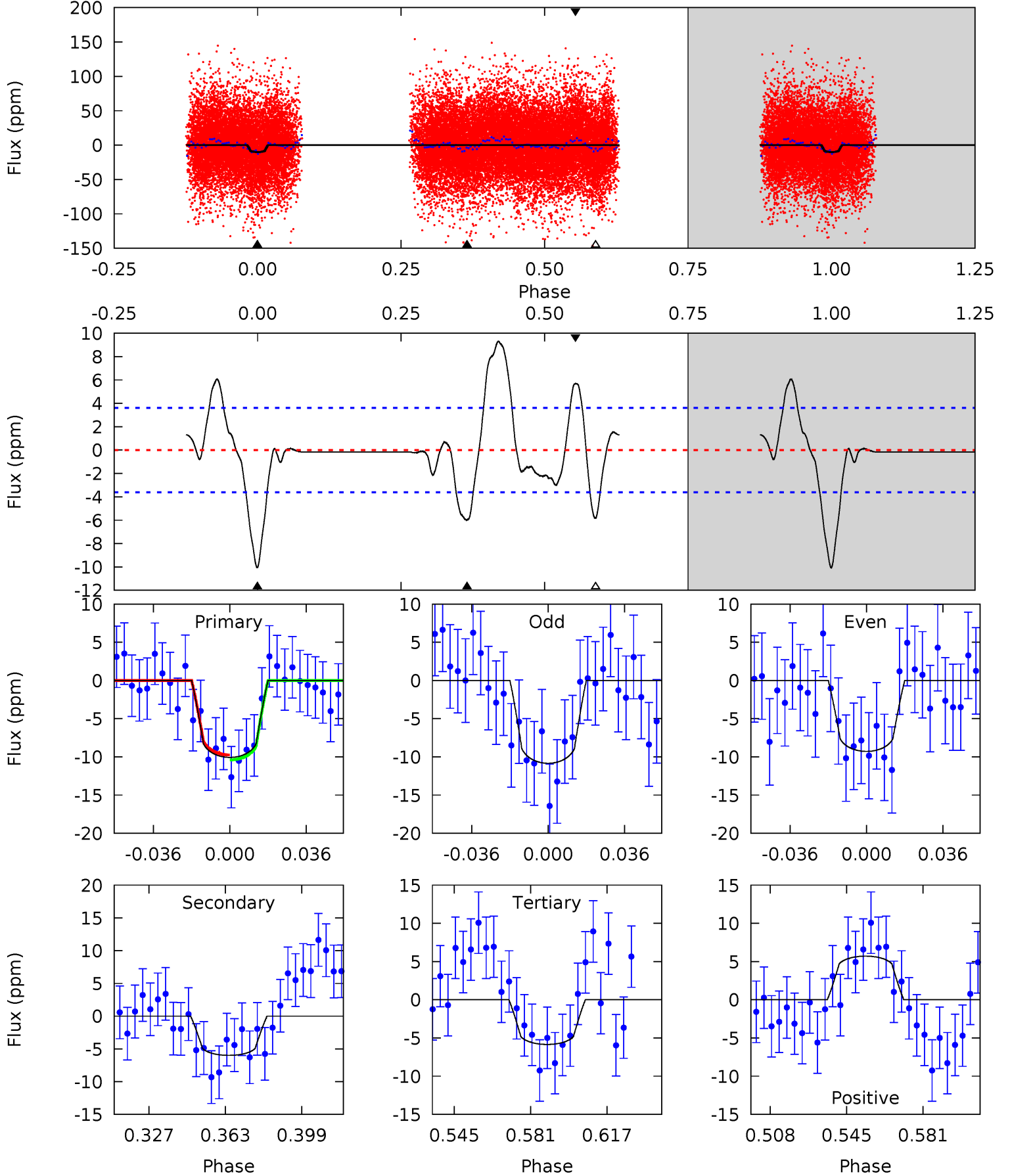
TCE 008905010-04 P= 3.584580 Days $T_0=132.265318$ (BKJD)



DV Model-Shift Uniqueness Test

008905010-04, P = 3.584535 Days, E = 128.692352 Days

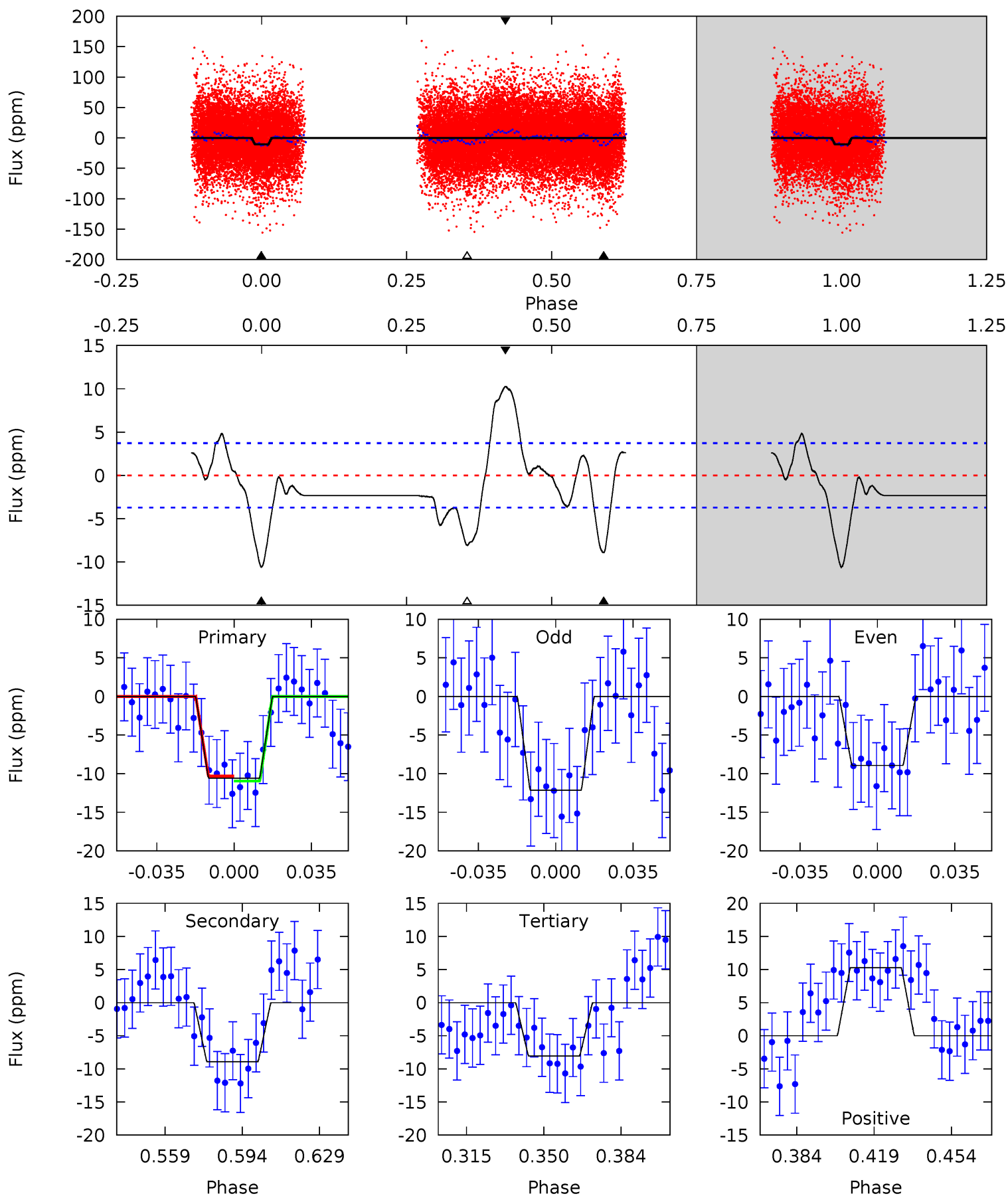
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	7.91	7.72	7.54	4.77	2.09	4.80	5.57	5.76	0.19	0.37	1.03	1.03	0.48	0.43



Alt Model-Shift Uniqueness Test

008905010-04, P = 3.584580 Days, E = 128.680738 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	11.5	10.4	13.2	4.78	2.11	5.77	3.24	0.40	1.12	-1.72	2.08	1.03	0.49	0.41



Stellar Parameters For KIC 008905010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7244^{+226}_{-302}	$3.500^{+0.585}_{-0.065}$	$-0.140^{+0.250}_{-0.300}$	$4.199^{+0.411}_{-2.332}$	$2.033^{+0.068}_{-0.576}$	$0.039^{+0.303}_{-0.009}$
	+3%/-4%	+17%/-2%	+179%/-214%	+10%/-56%	+3%/-28%	+783%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008905010-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 1	$1.37^{+0.29}_{-0.44}$	3621^{+283}_{-578}	6049^{+498}_{-468}	$5.902^{+6.141}_{-1.977}$
Alt.	-9 ± 1	$1.34^{+0.29}_{-0.41}$	3644^{+265}_{-513}	6868^{+613}_{-513}	$9.216^{+8.993}_{-3.037}$

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

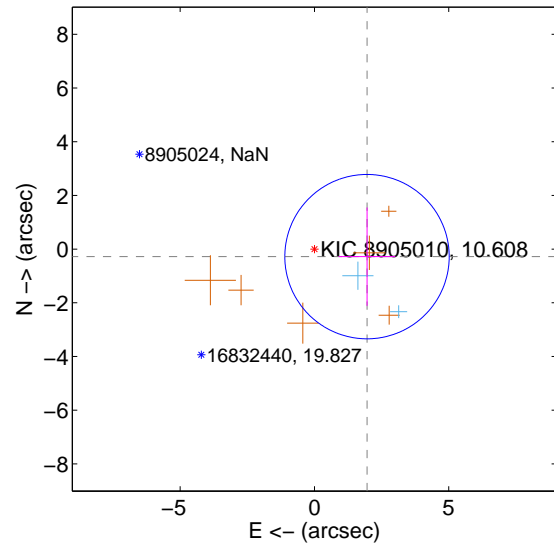
Supplemental centroid analysis for 008905010-04. **Kepler magnitude: 10.61.** Transit SNR 9.98

There are 2 quarters with good PRF difference image offsets

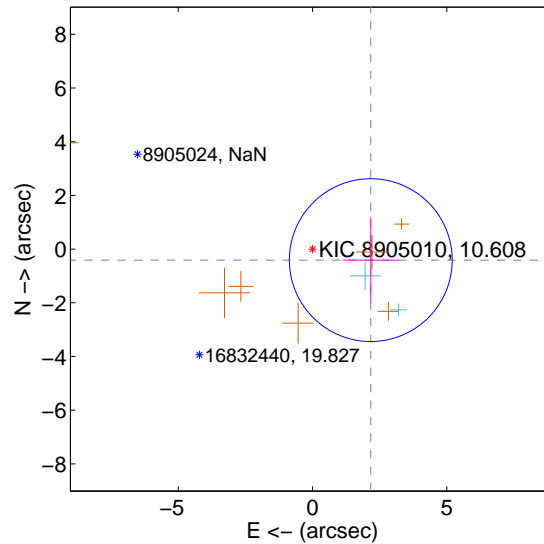
The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.978 ± 1.020	1.94	-1.958 ± 1.057	-0.281 ± 1.833
PRF-fit source offset from KIC position	2.208 ± 1.010	2.18	-2.169 ± 1.031	-0.411 ± 1.589
photometric centroid source offset	1.87 ± 1.88	0.99	0.66 ± 2.82	1.75 ± 1.71

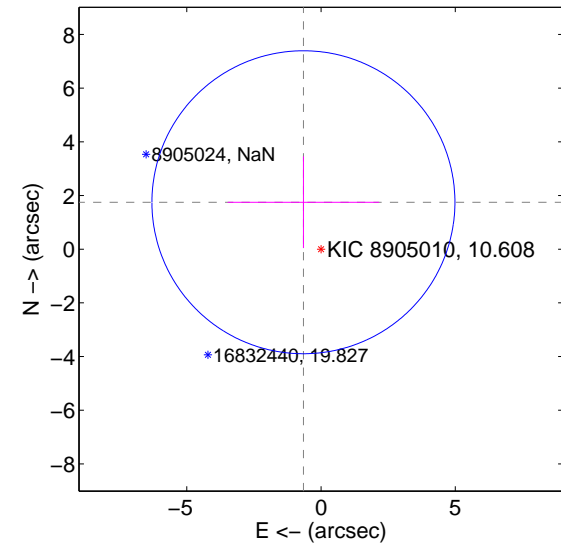
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

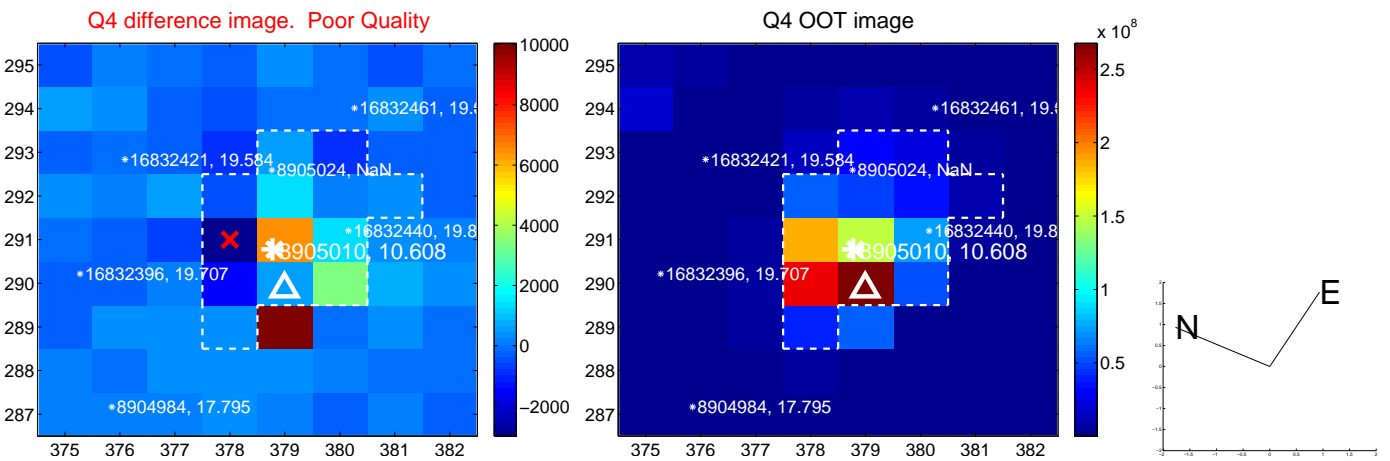
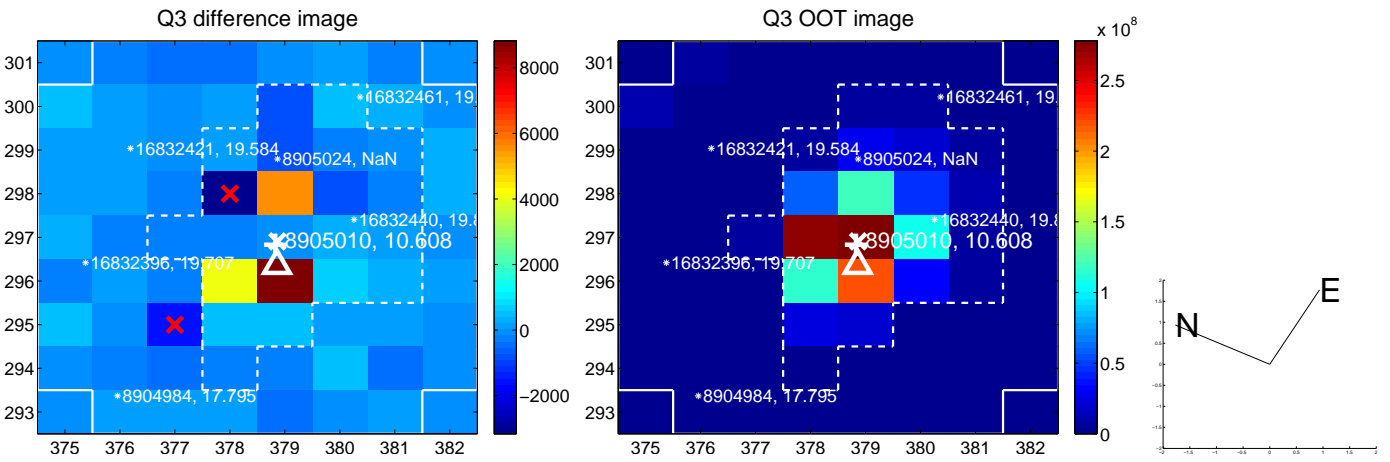
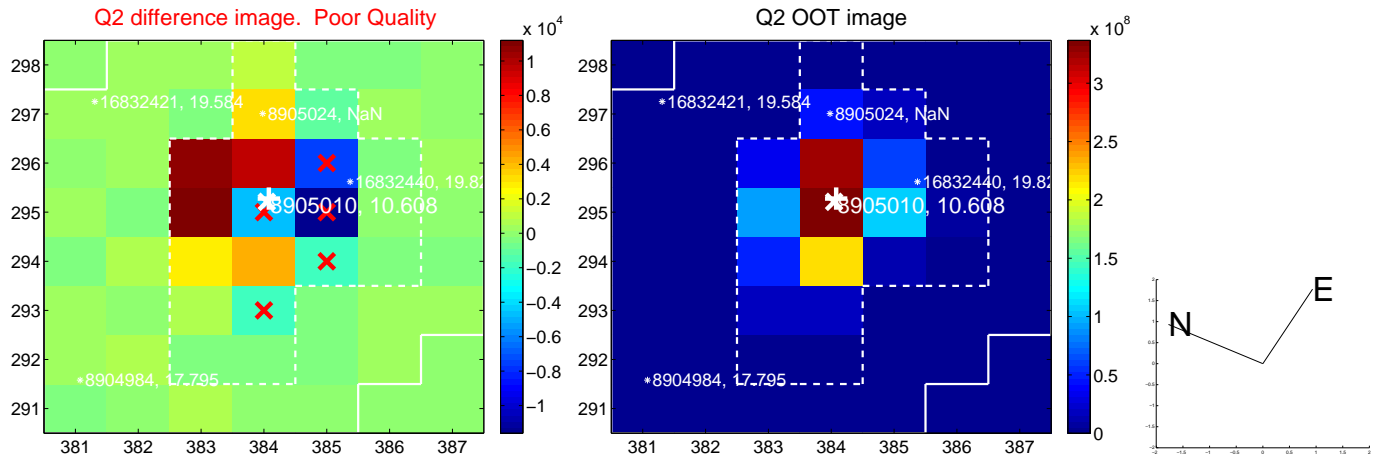
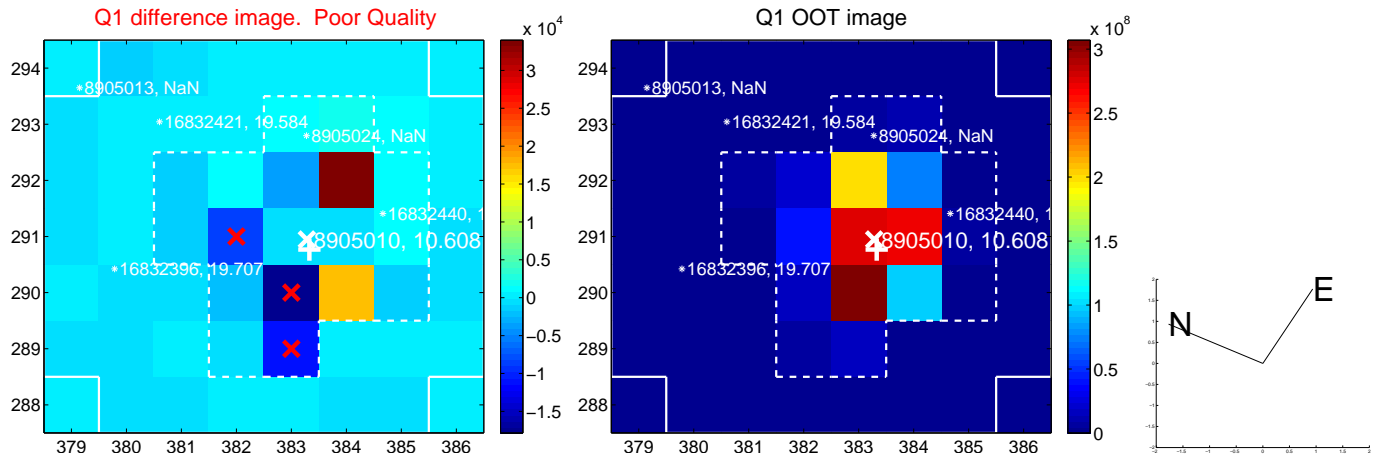


offset from photometric centroids

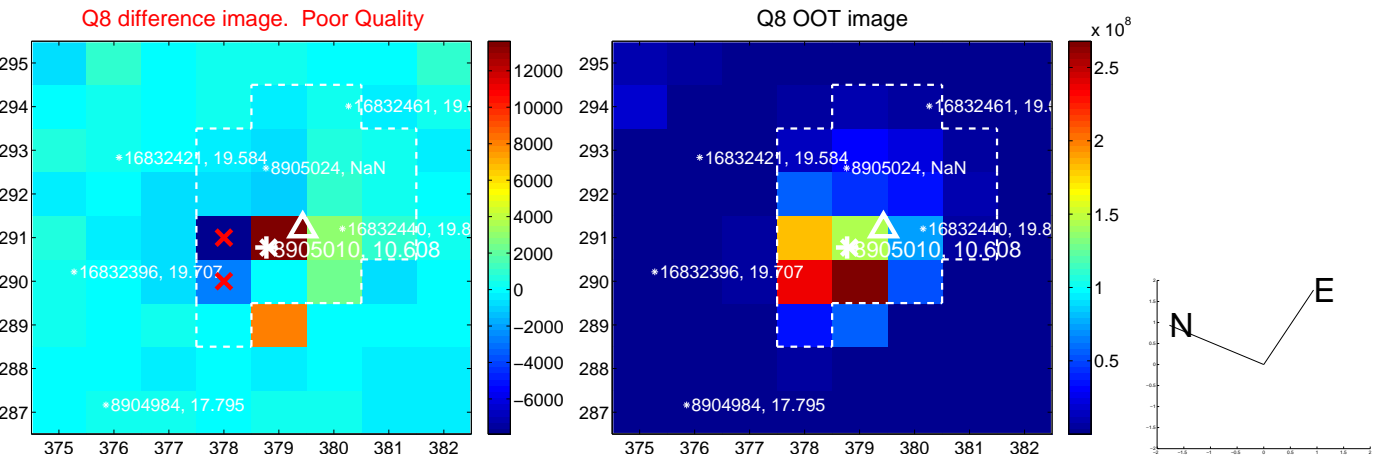
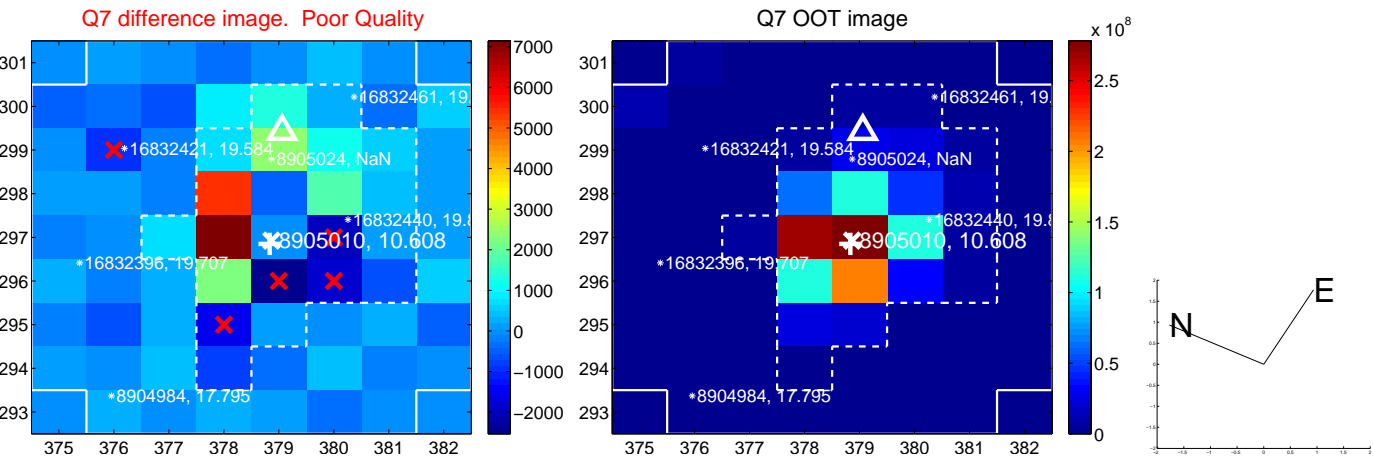
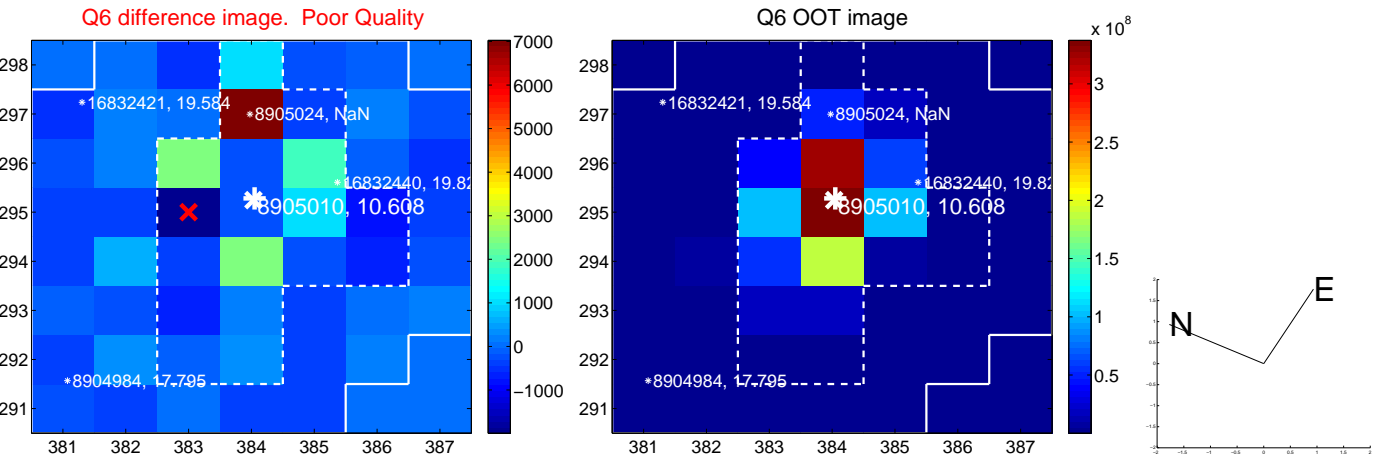
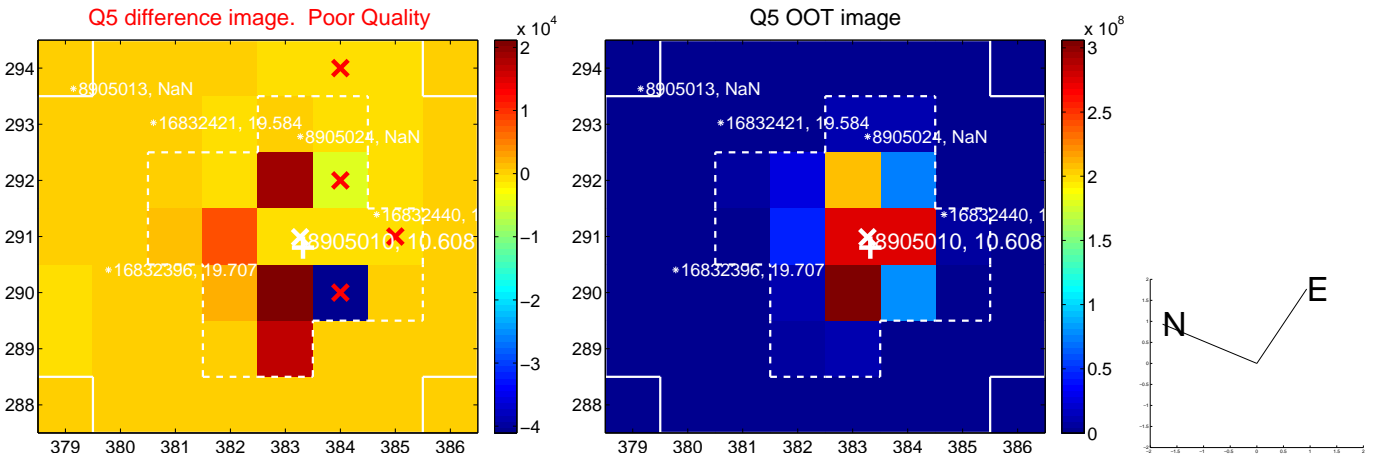


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

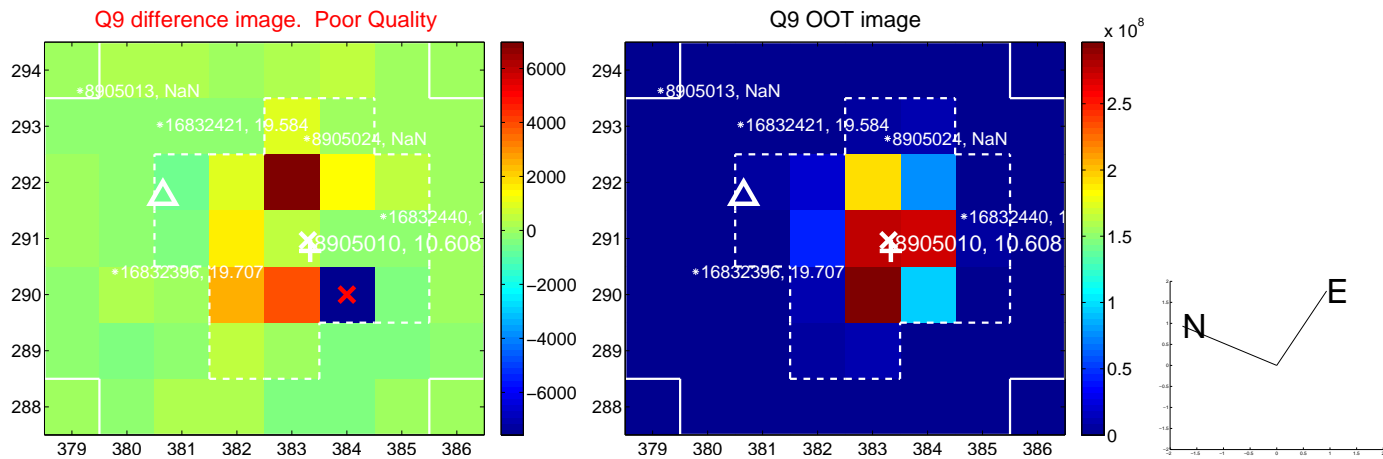
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



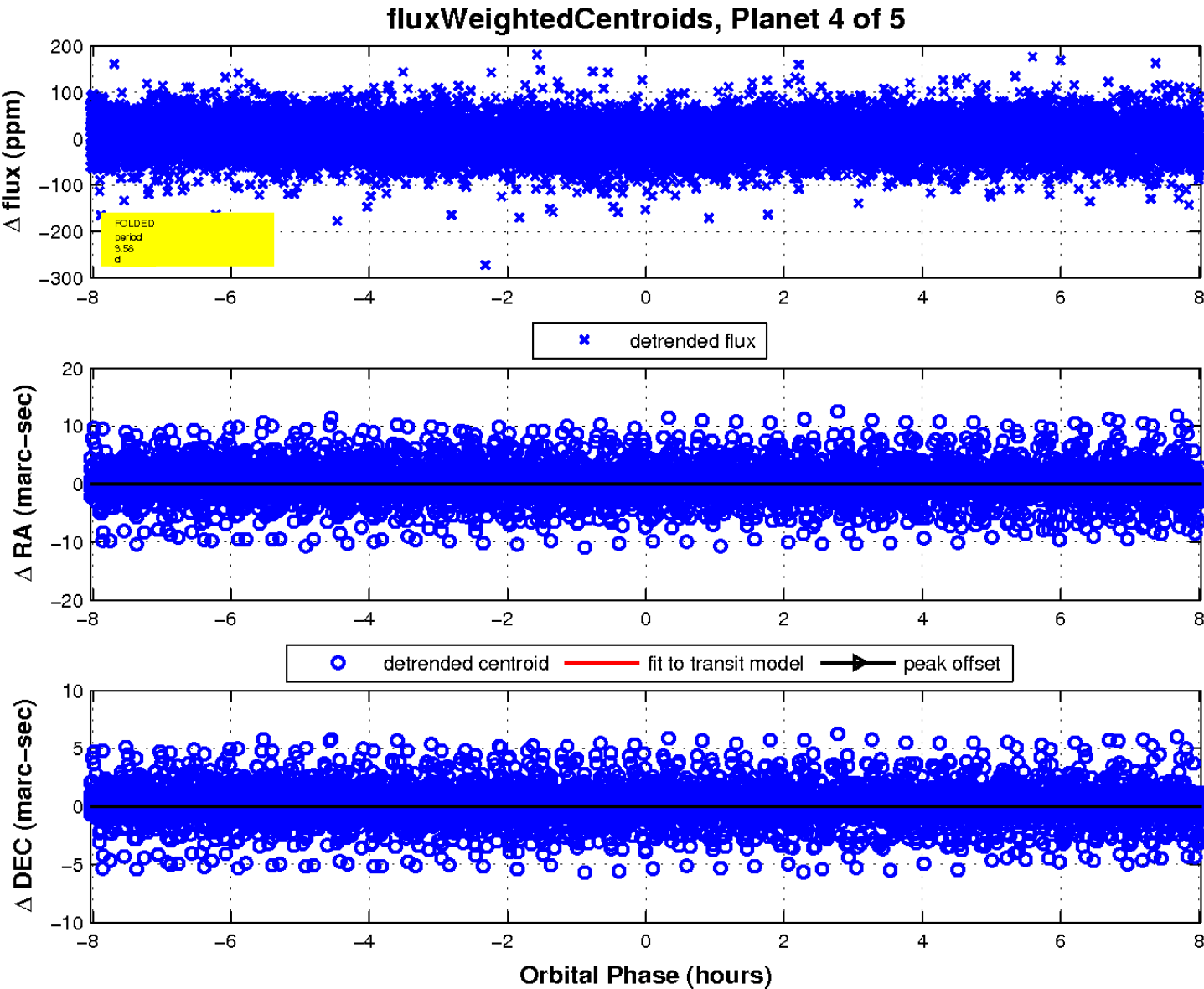
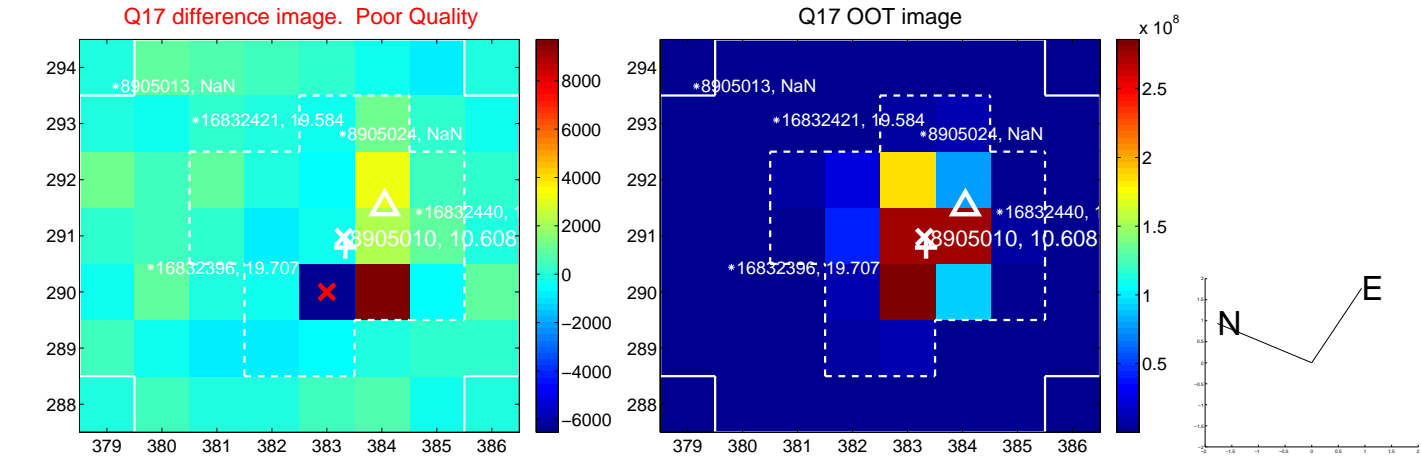
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



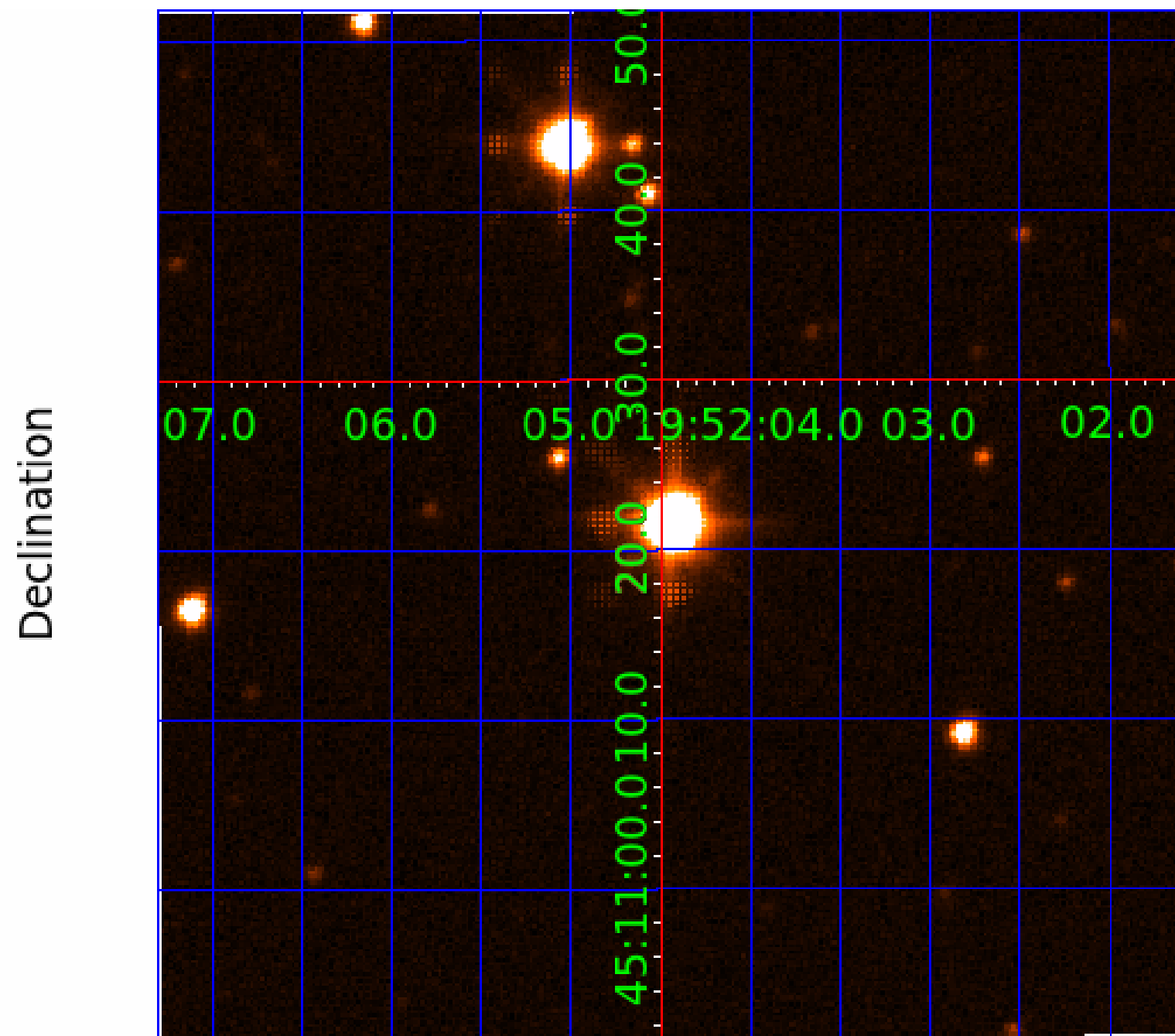
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008905010

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})
008905010-01	OBS	No	3.584899	132.815440	11.5	6.329	14.0	13.9	4.20	7244	1.61	12890.49
008905010-02	OBS	No	553.266427	205.150138	78.1	14.826	11.1	7.3	4.20	7244	4.02	15.57
008905010-03	OBS	No	3.584749	134.931910	7.1	7.551	8.4	9.4	4.20	7244	1.31	12891.21
008905010-04	OBS	No	3.584535	132.276887	10.0	2.678	8.7	10.0	4.20	7244	1.52	12892.24
008905010-05	OBS	No	3.584582	134.381005	9.0	2.241	8.7	8.4	4.20	7244	1.34	12892.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008905010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
008905010-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
008905010-03	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_SATURATED
008905010-05	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

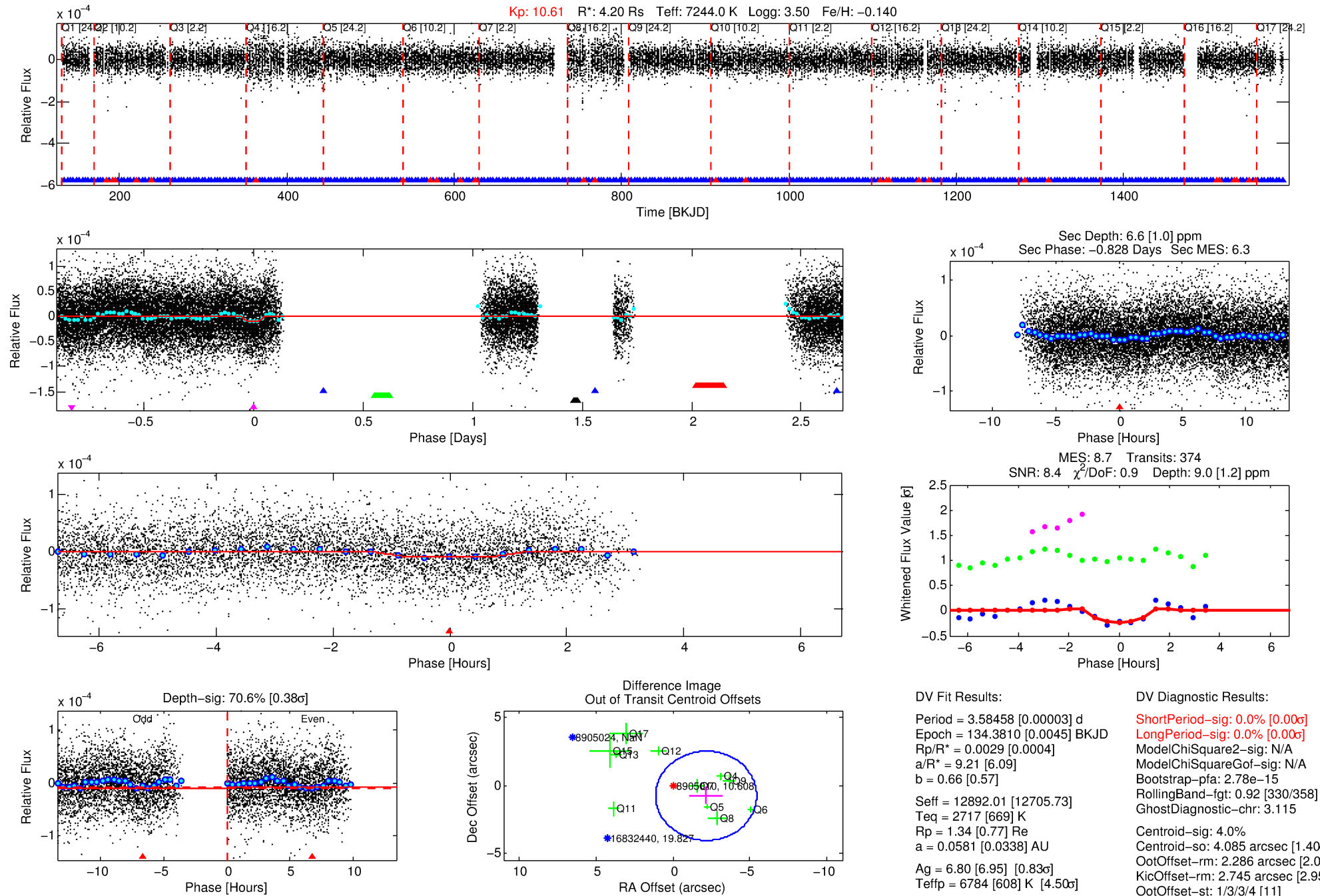
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008905010-05

No Significant Match Found

DV One-Page Summary

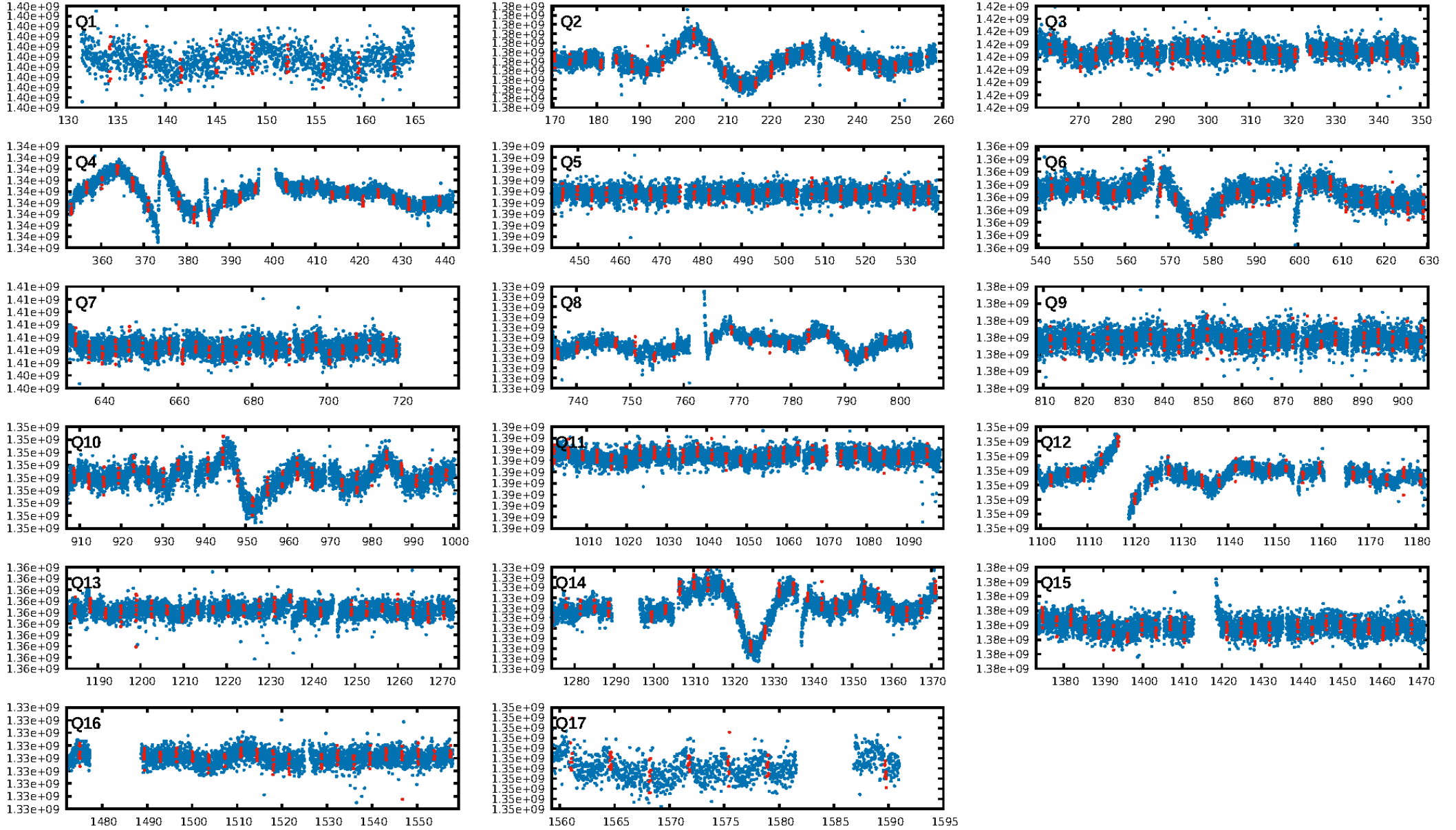
KIC: 8905010 Candidate: 5 of 5 Period: 3.585 d



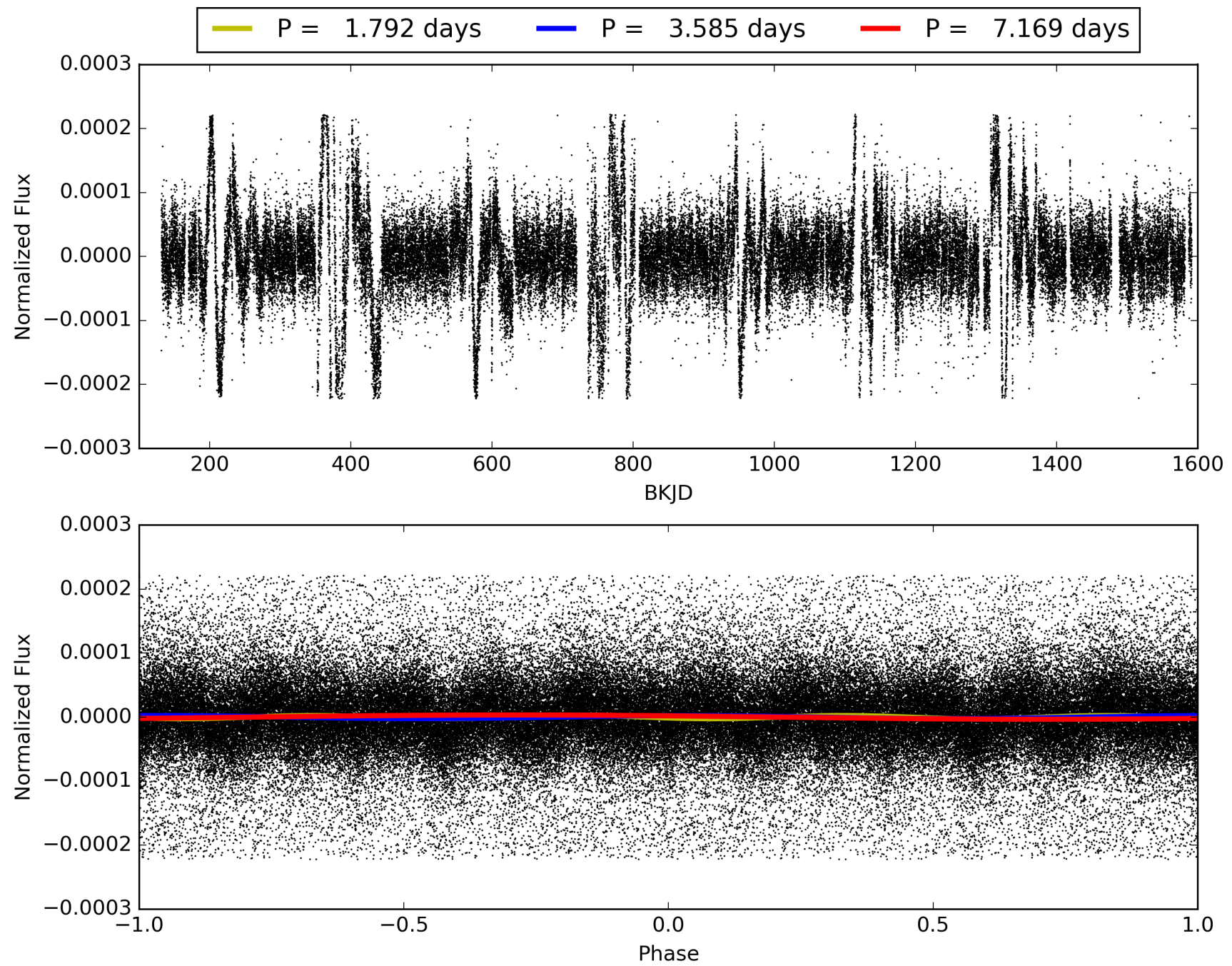
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:54:51 Z

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

TCE 008905010-05, PDC Light Curves

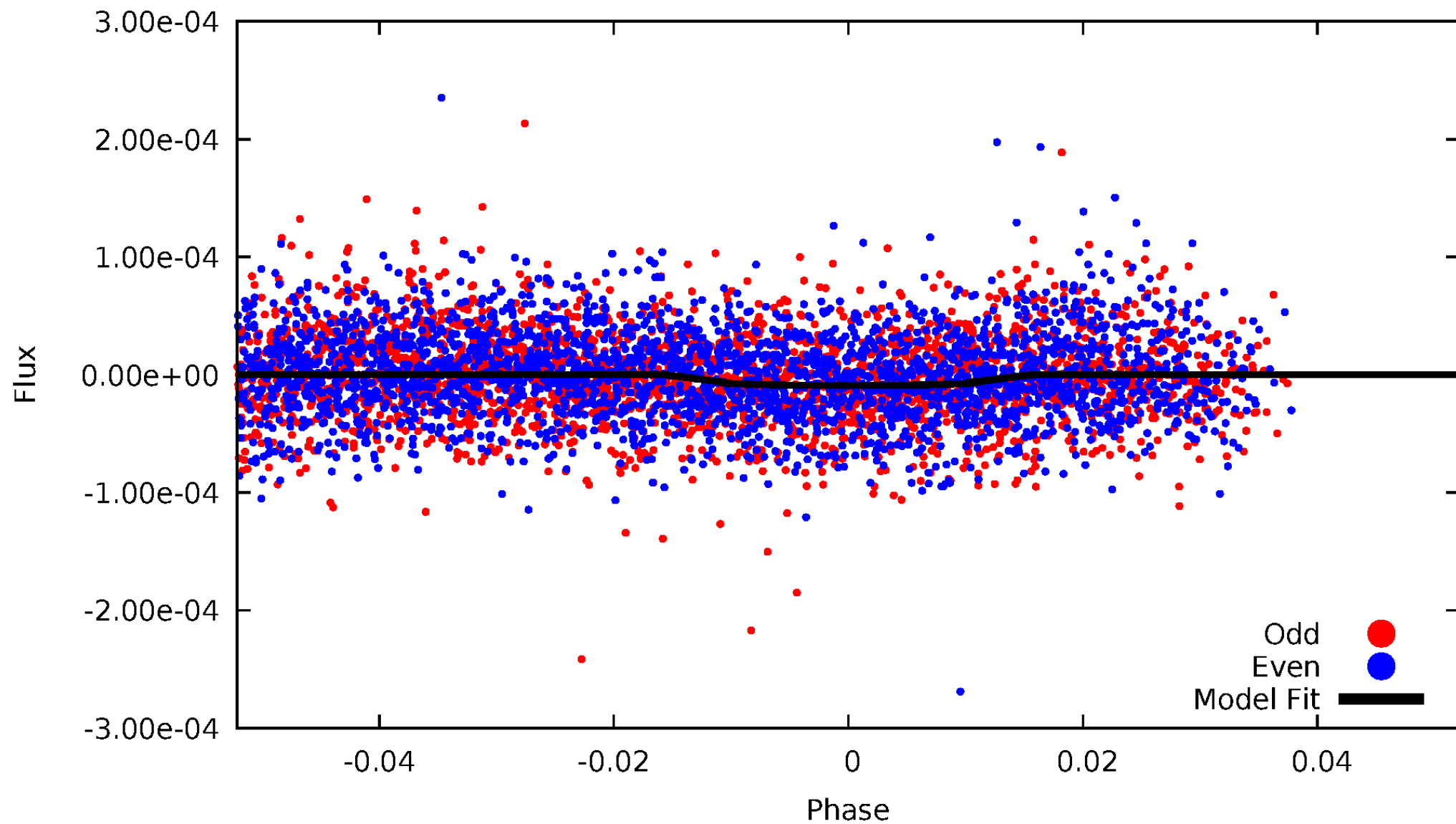


TCE 008905010-05



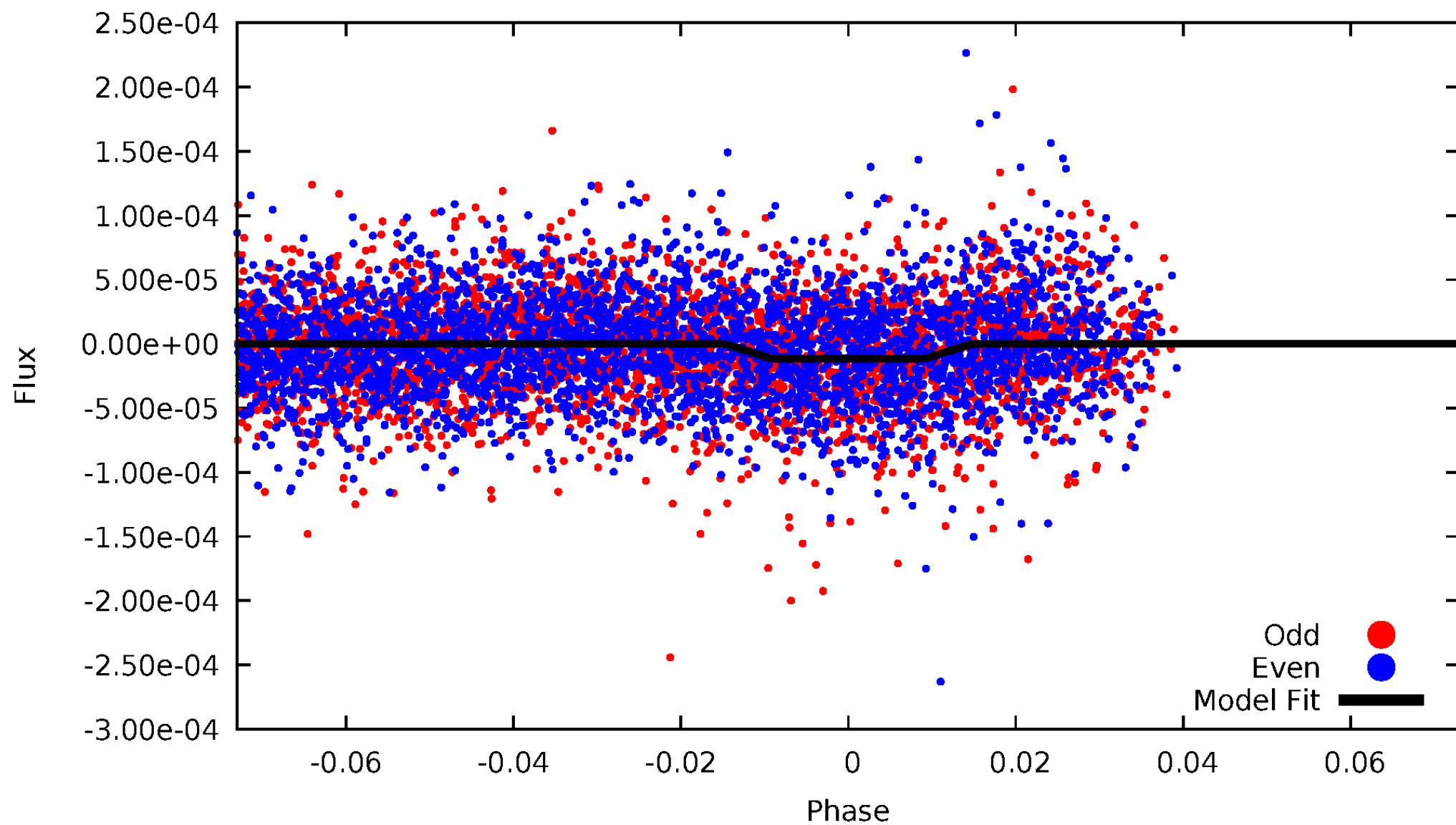
DV Odd/Even

TCE 008905010-05



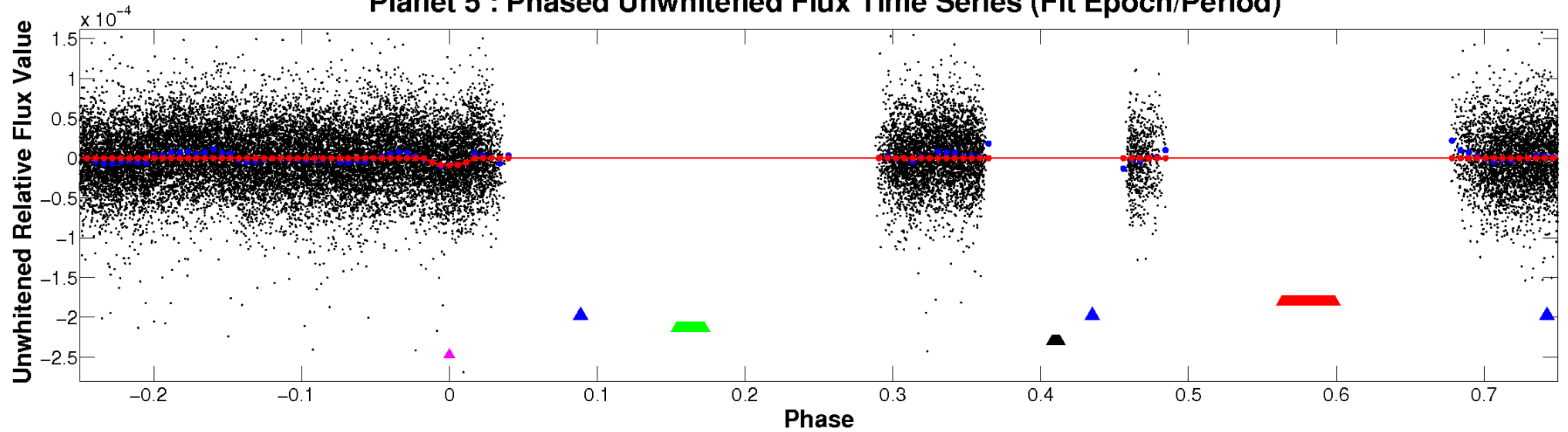
ALT Odd/Even

TCE 008905010-05

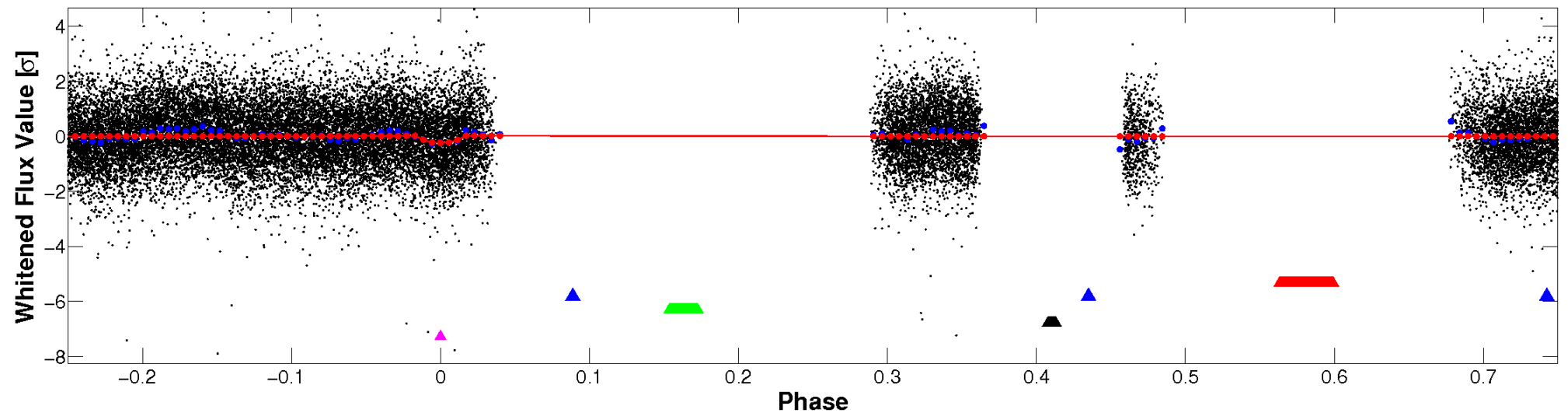


Non-Whitened Vs. Whitened Light Curve

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

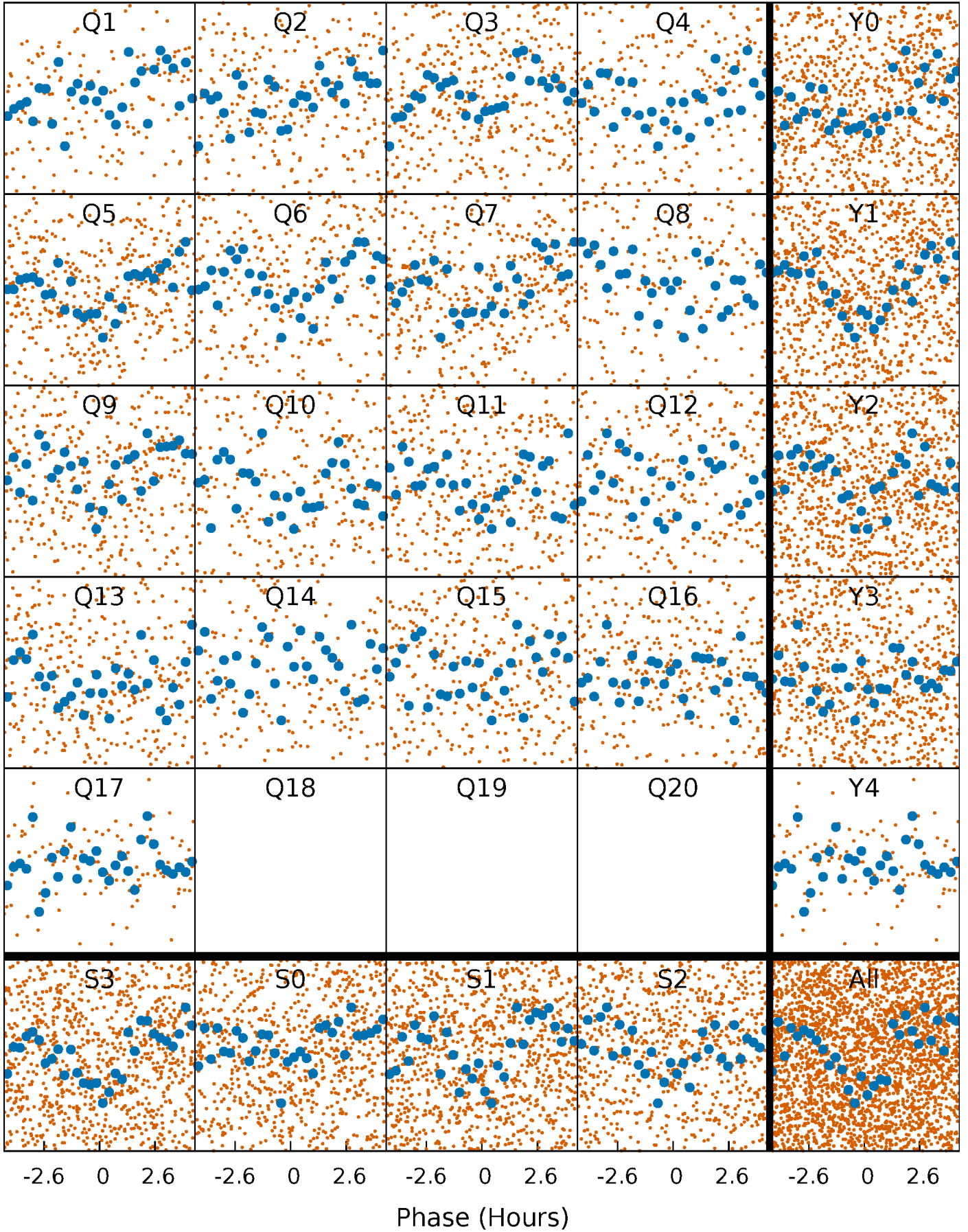


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



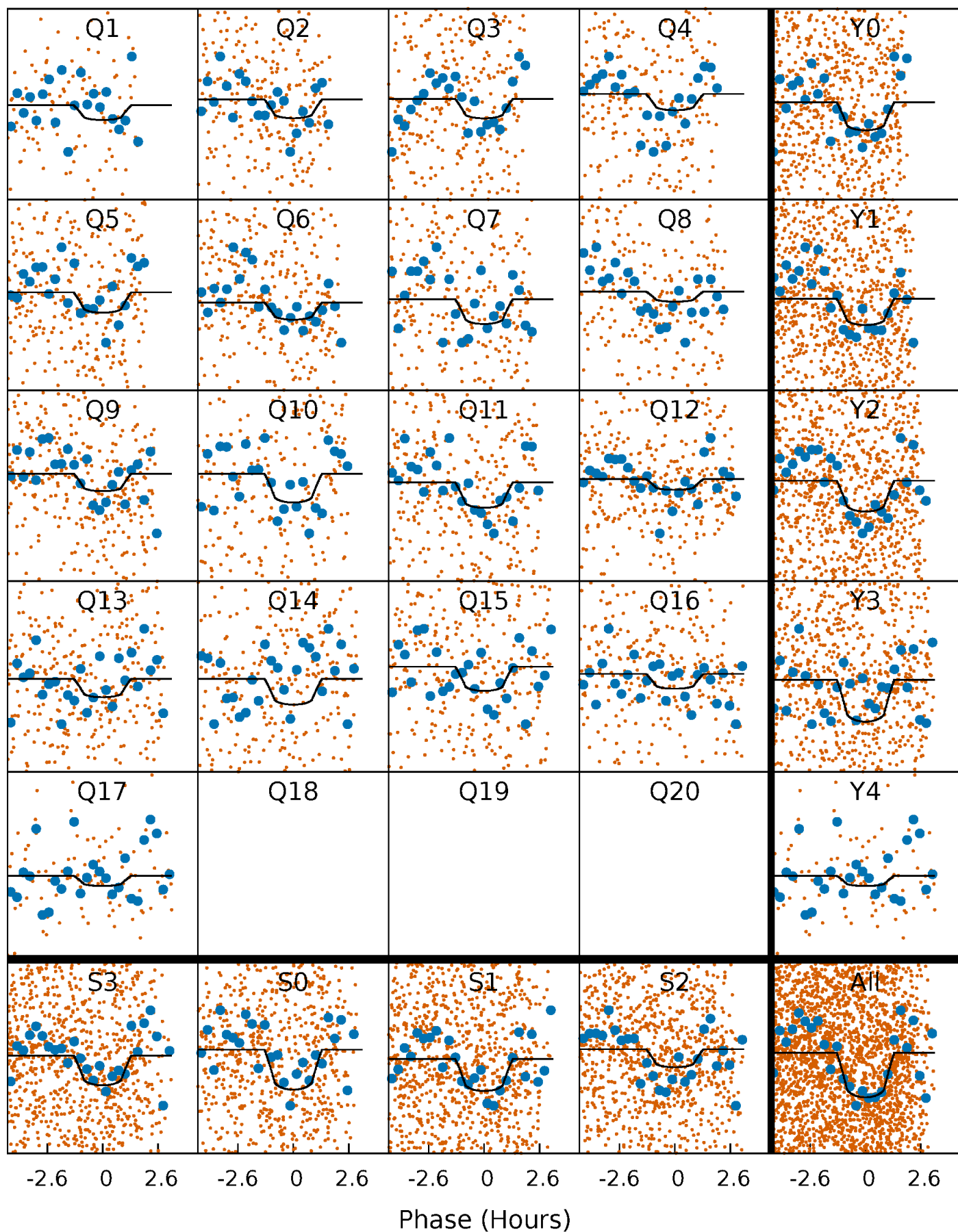
PDC Quarter-Phased Transit Curves

TCE 008905010-05 P= 3.584582 Days $T_0=134.381005$ (BKJD)



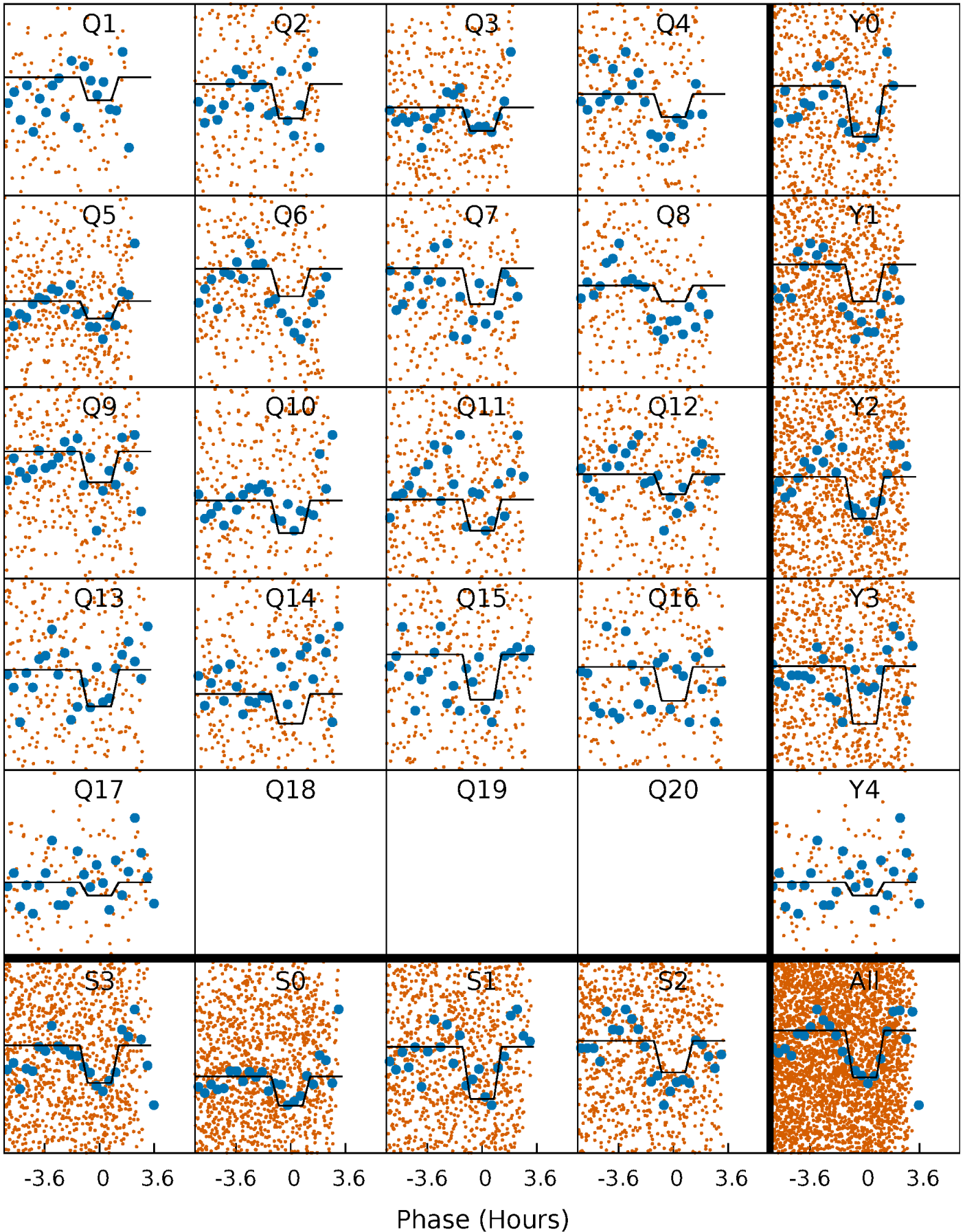
DV Quarter-Phased Transit Curves

TCE 008905010-05 $P = 3.584582$ Days $T_0 = 134.381005$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

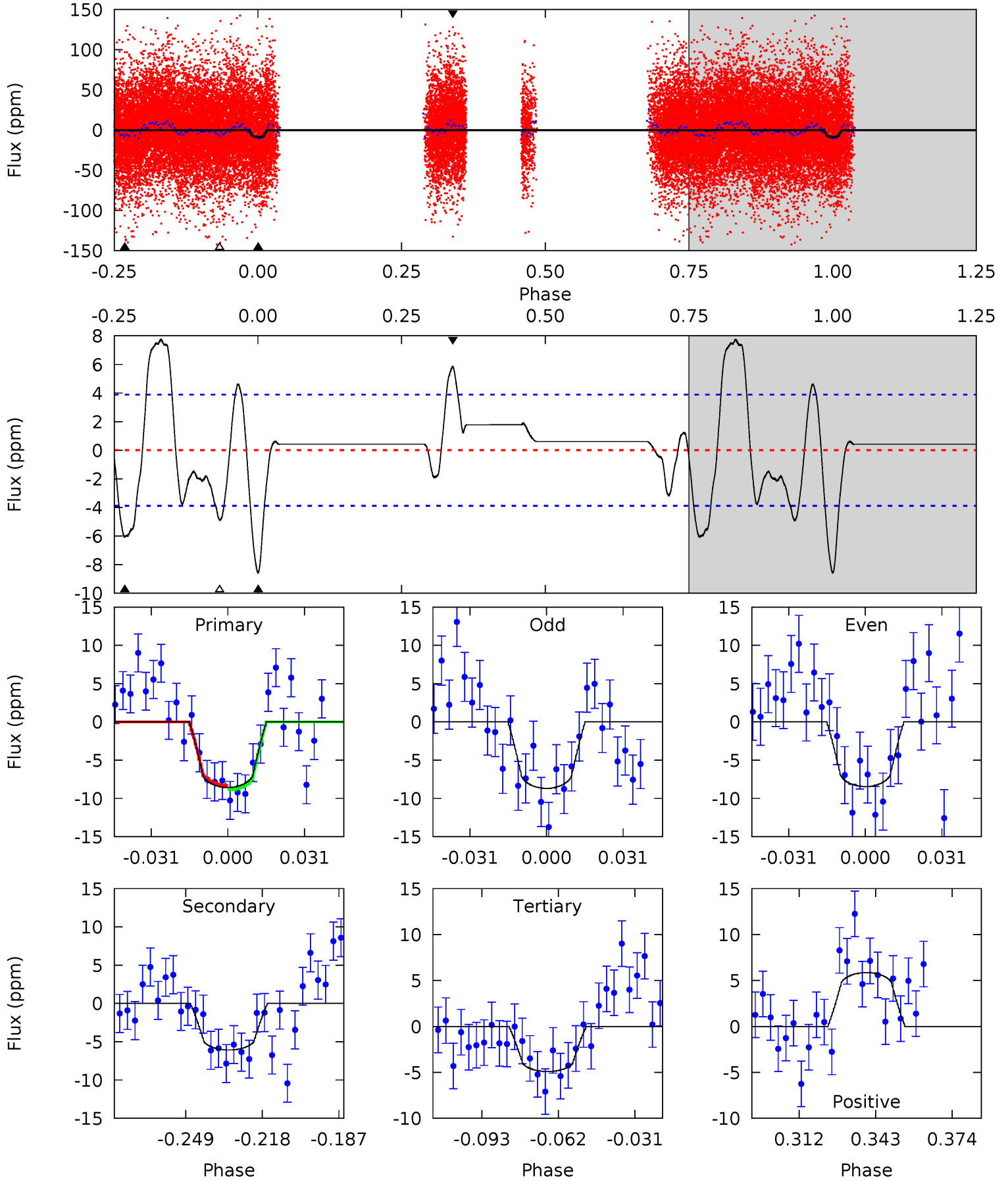
TCE 008905010-05 $P = 3.584580$ Days $T_0 = 134.376296$ (BKJD)



DV Model-Shift Uniqueness Test

008905010-05, P = 3.584582 Days, E = 130.796423 Days

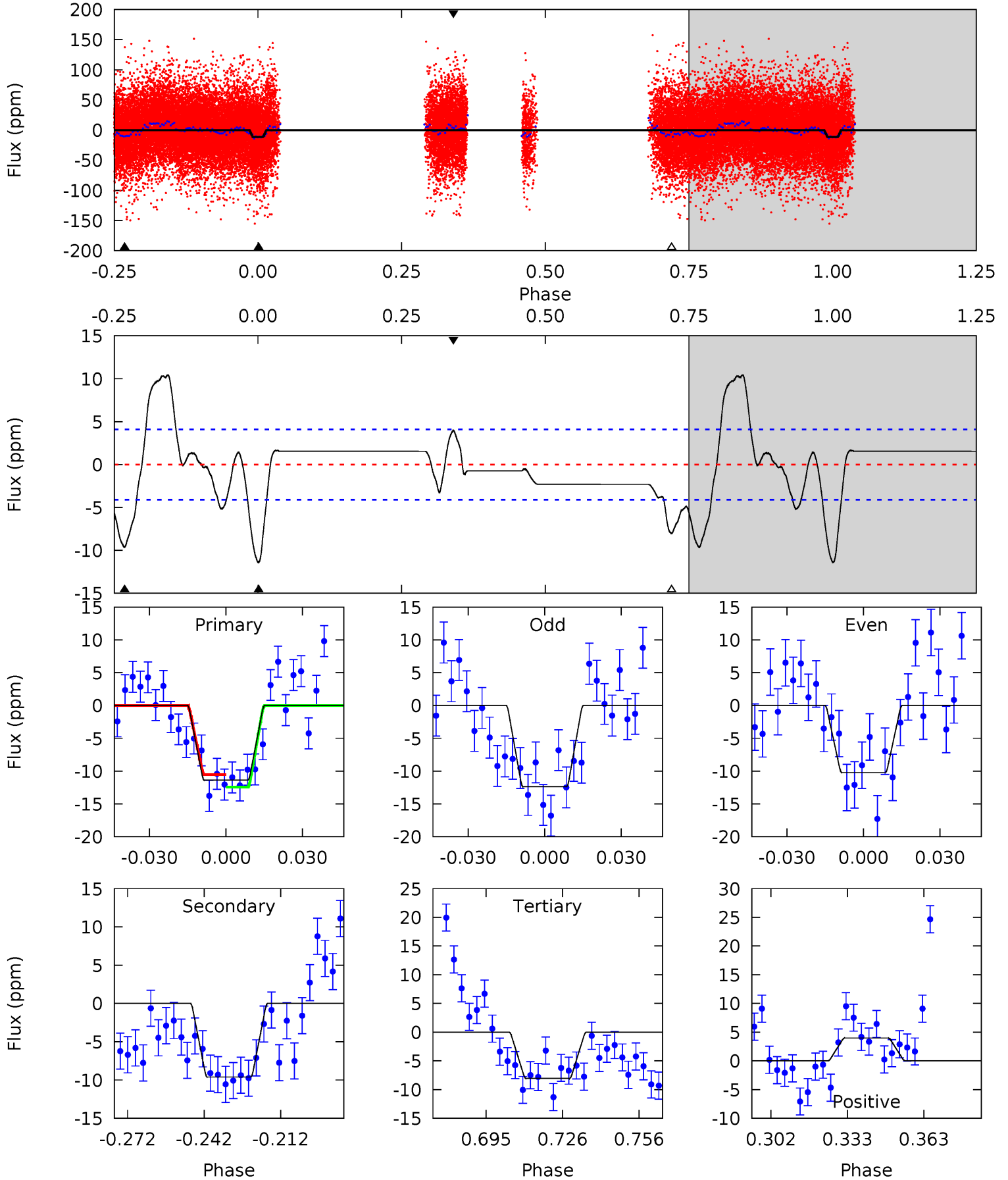
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	7.50	6.06	7.23	4.80	2.16	4.44	4.52	3.35	1.44	0.26	0.14	0.94	0.47	0.36



Alt Model-Shift Uniqueness Test

008905010-05, P = 3.584580 Days, E = 130.791716 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	11.3	9.45	4.67	4.81	2.17	5.71	3.93	8.71	1.84	6.62	1.28	1.09	0.48	1.11



Stellar Parameters For KIC 008905010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7244^{+226}_{-302}	$3.500^{+0.585}_{-0.065}$	$-0.140^{+0.250}_{-0.300}$	$4.199^{+0.411}_{-2.332}$	$2.033^{+0.068}_{-0.576}$	$0.039^{+0.303}_{-0.009}$
	+3%/-4%	+17%/-2%	+179%/-214%	+10%/-56%	+3%/-28%	+783%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008905010-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 1	$1.18^{+0.29}_{-0.35}$	3632^{+266}_{-558}	6514^{+623}_{-533}	$7.976^{+6.960}_{-2.892}$
Alt.	-10 ± 1	$1.42^{+0.30}_{-0.43}$	3648^{+276}_{-539}	6761^{+578}_{-502}	$8.581^{+8.404}_{-2.661}$

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 $A_{obs} \gg 1.0$

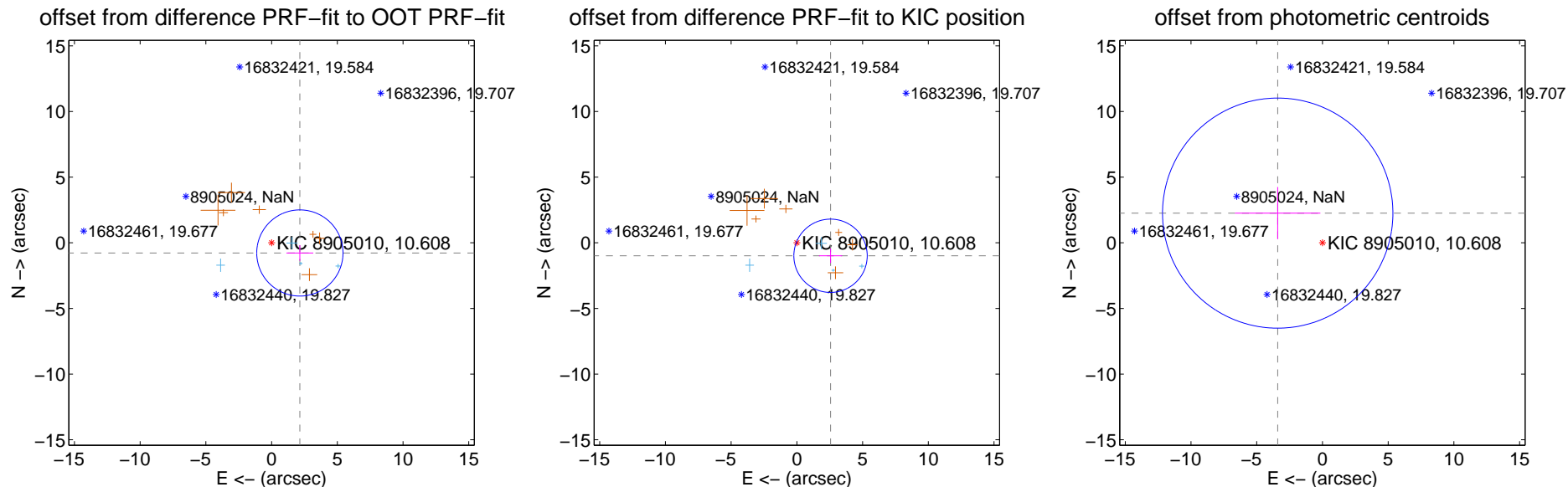
DV Centroid Data

Supplemental centroid analysis for 008905010-05. **Kepler magnitude: 10.61.** Transit SNR 8.36

There are 4 quarters with good PRF difference image offsets

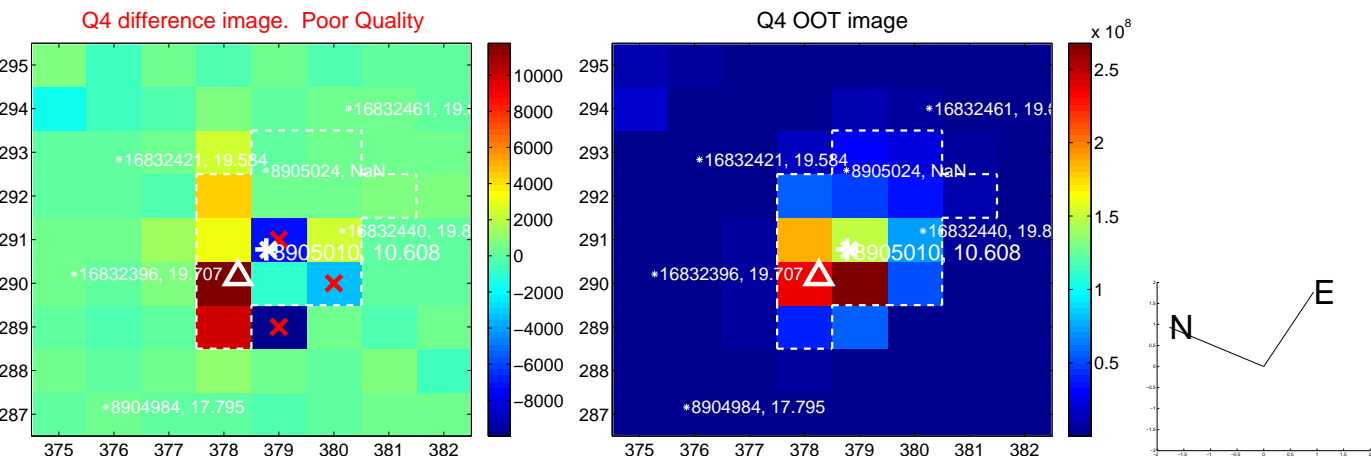
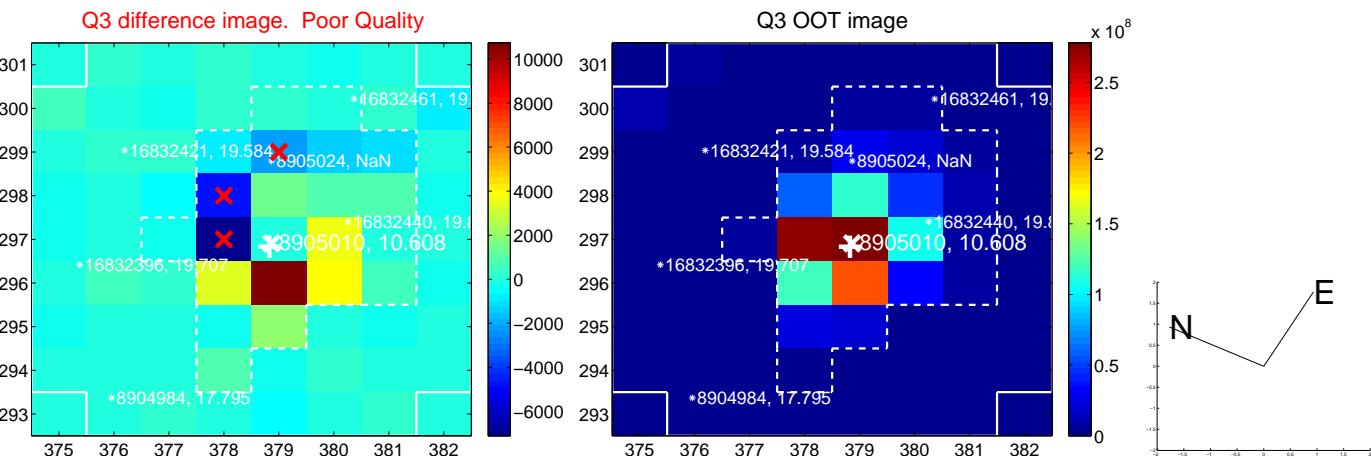
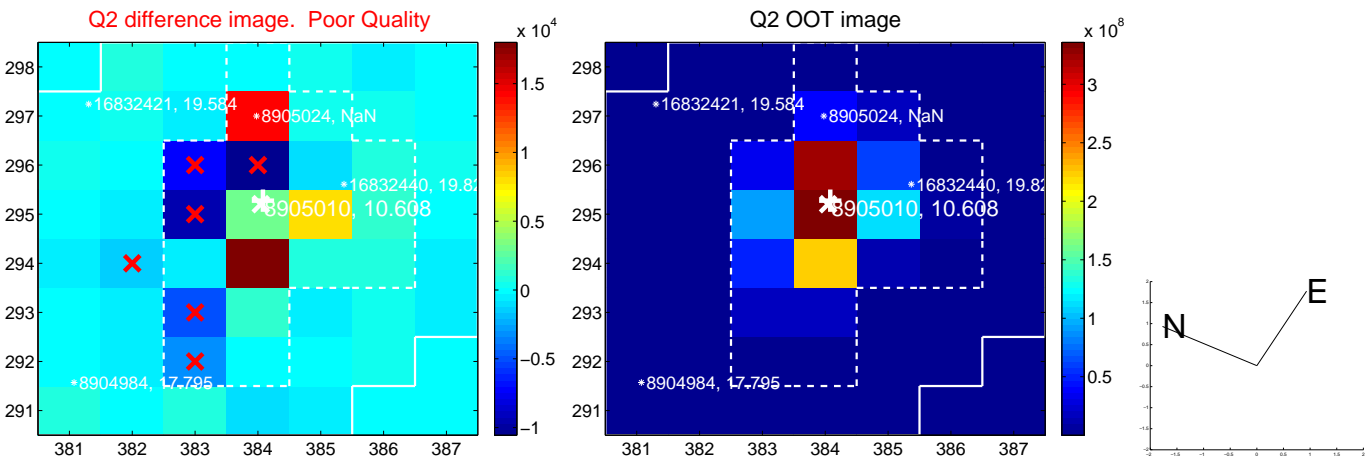
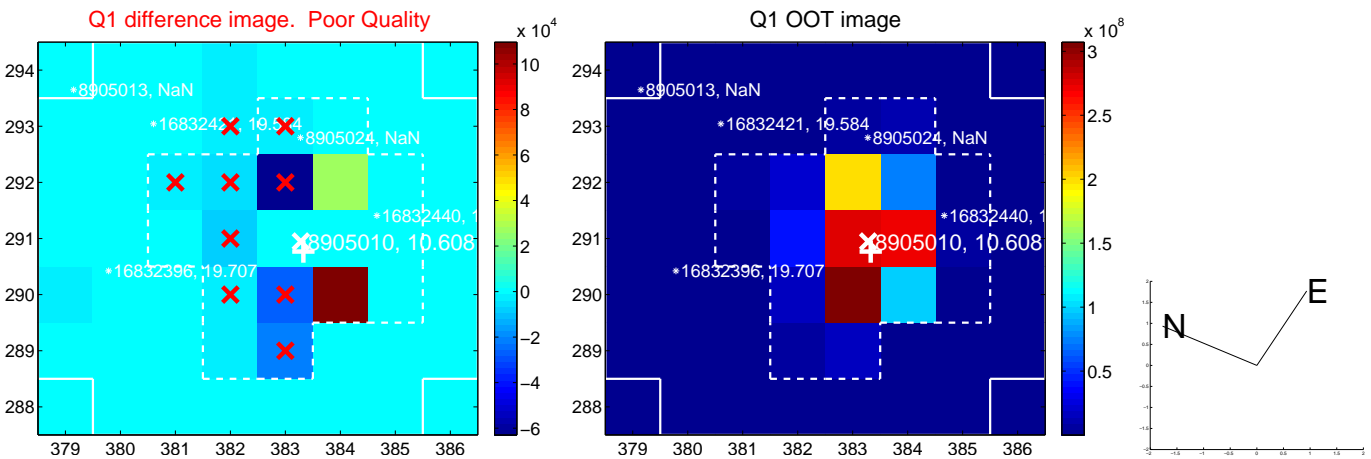
The direct PRF centroid is offset from the target star catalog position by about 0.74 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.286 ± 1.094	2.09	-2.151 ± 1.023	-0.775 ± 0.593
PRF-fit source offset from KIC position	2.745 ± 0.930	2.95	-2.561 ± 0.882	-0.987 ± 0.550
photometric centroid source offset	4.09 ± 2.92	1.40	3.40 ± 3.25	2.26 ± 1.99

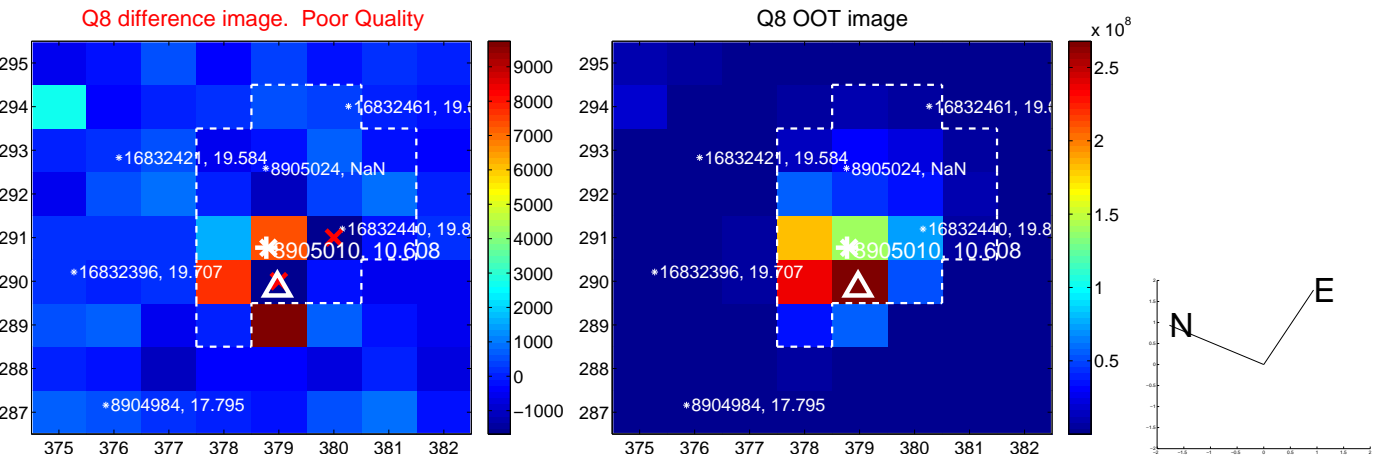
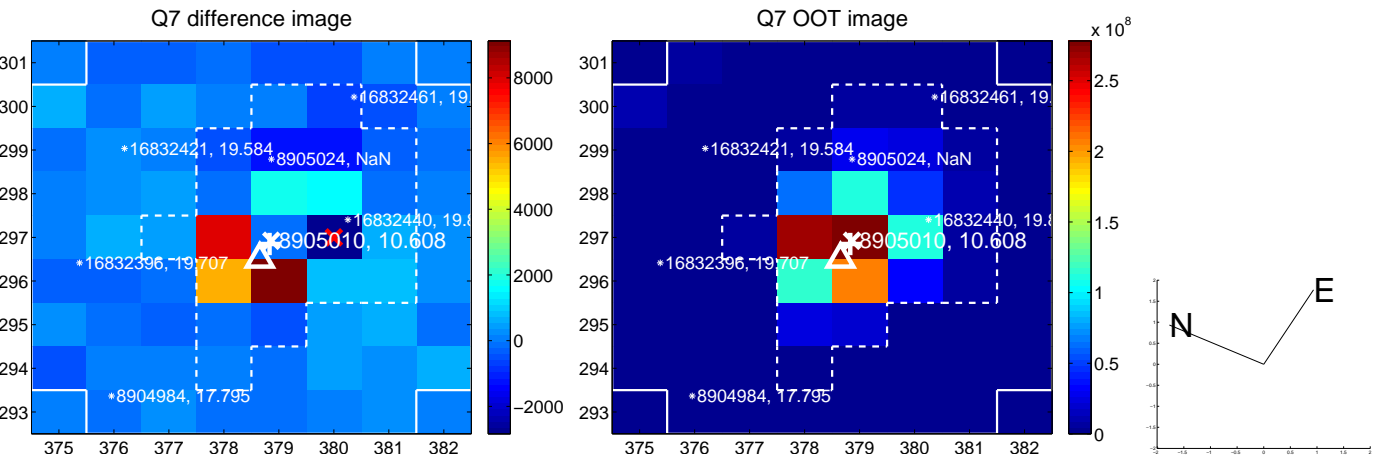
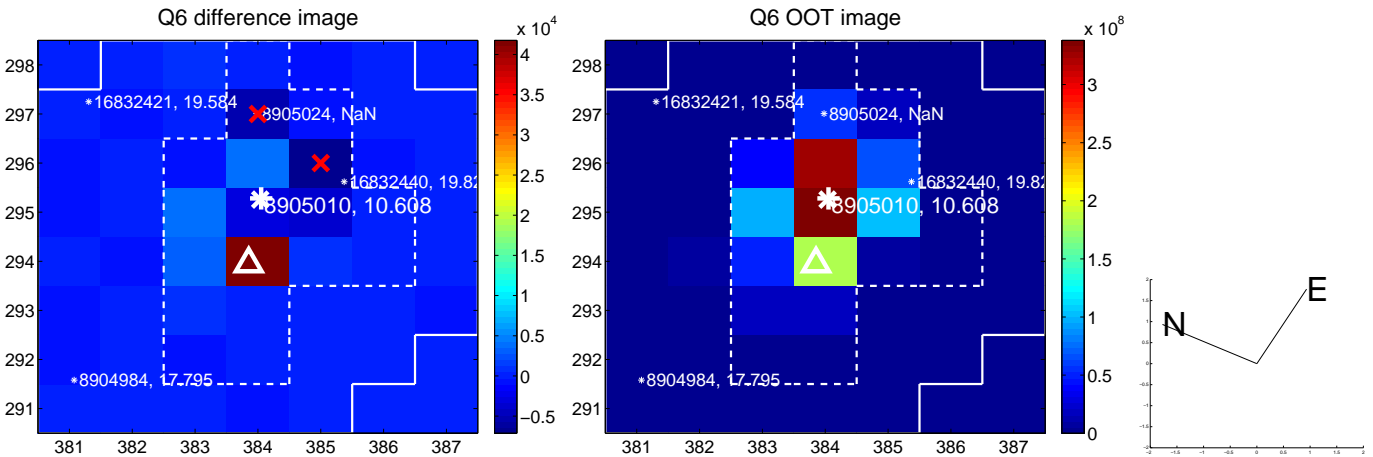
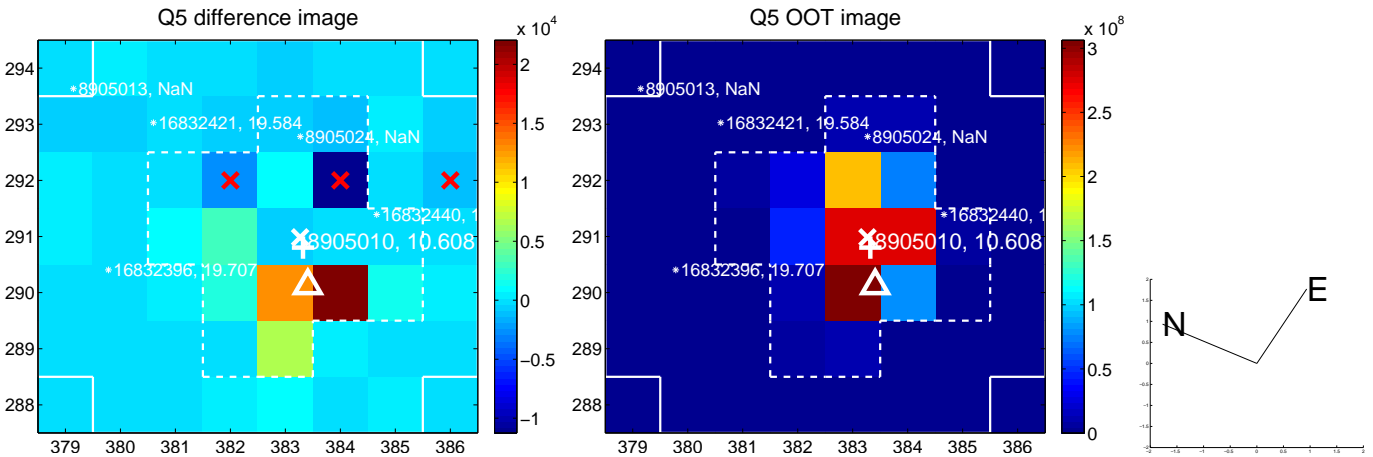


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

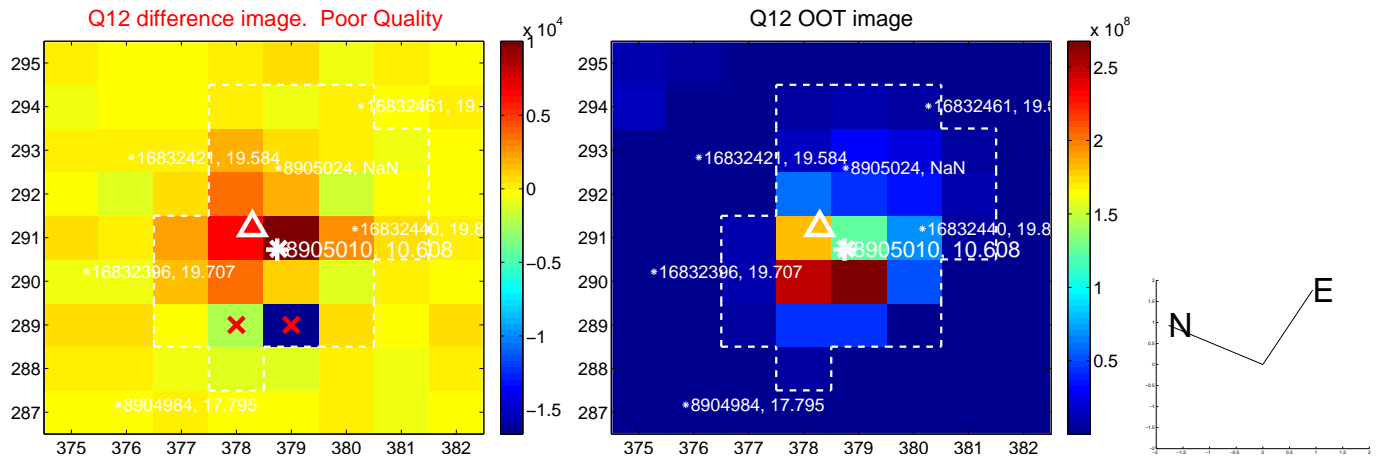
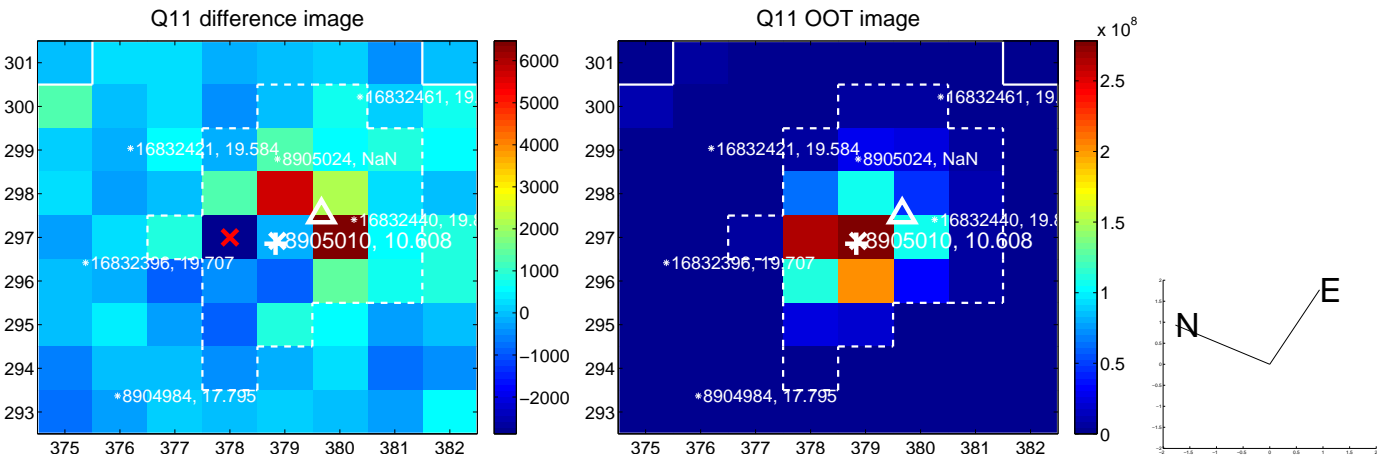
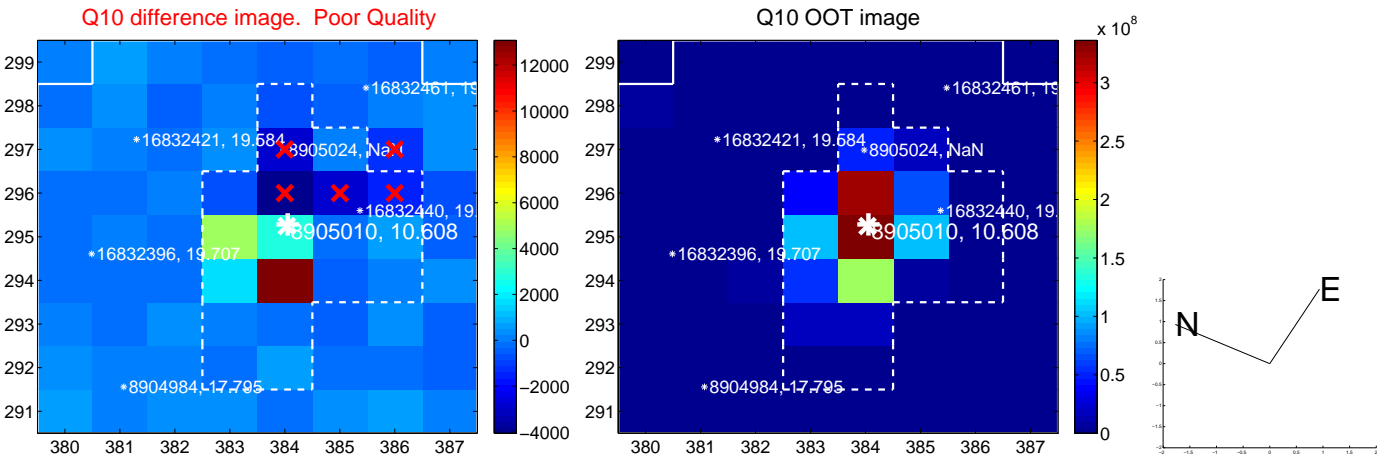
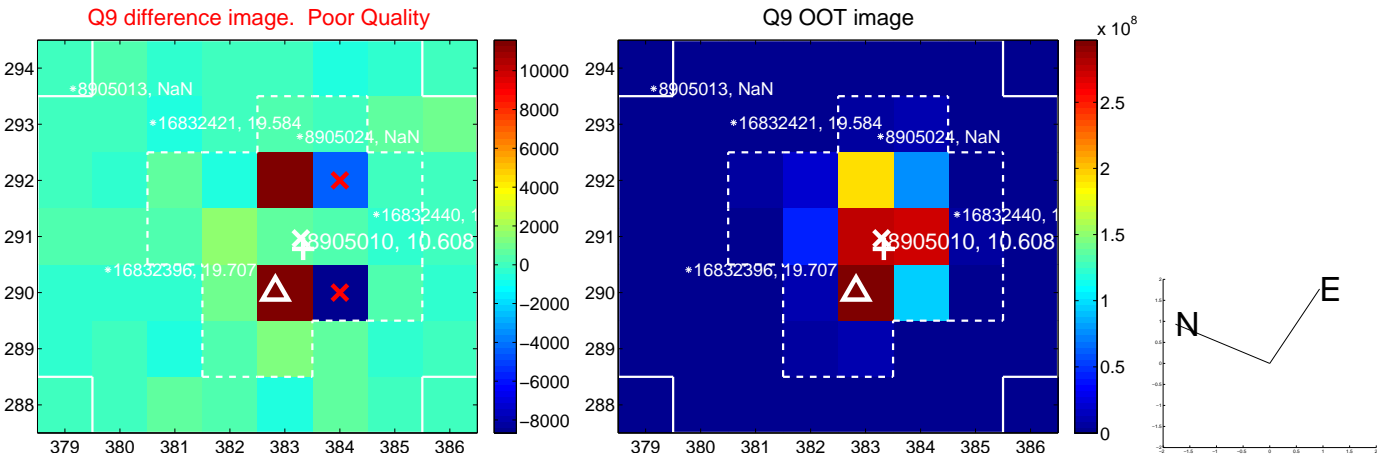
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



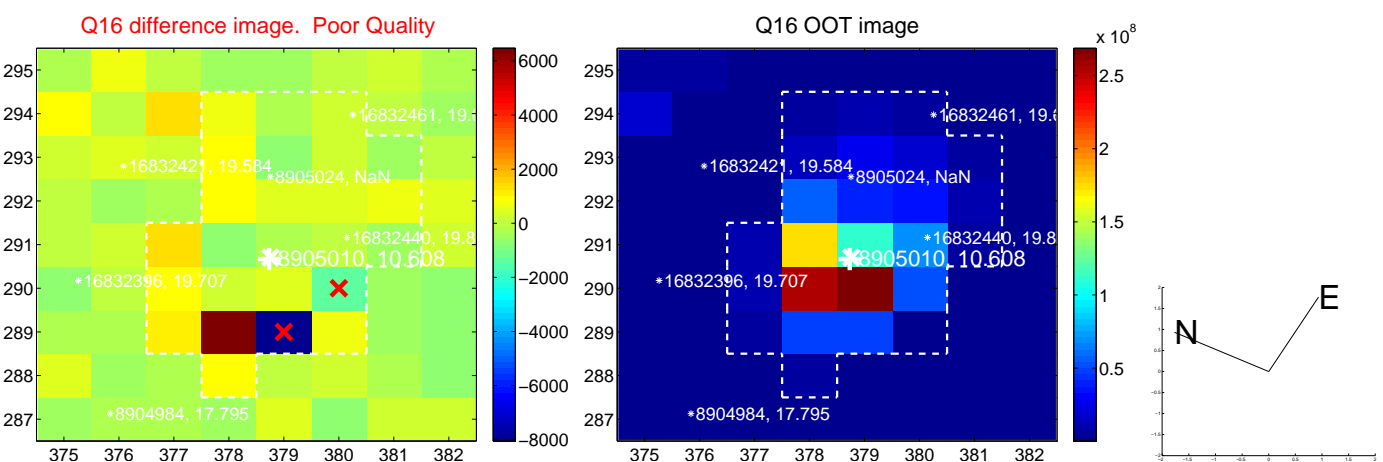
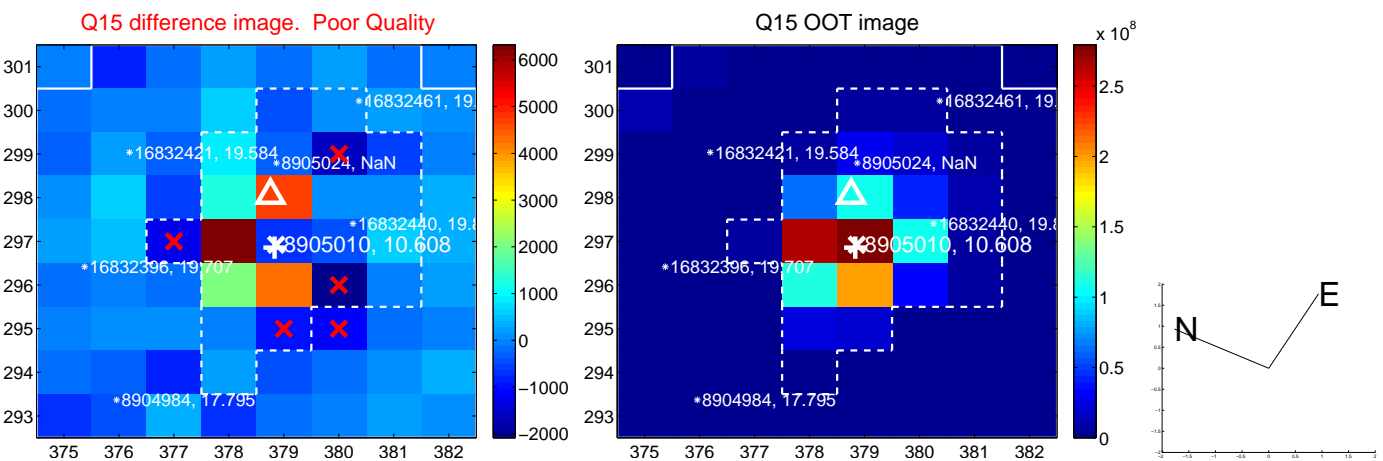
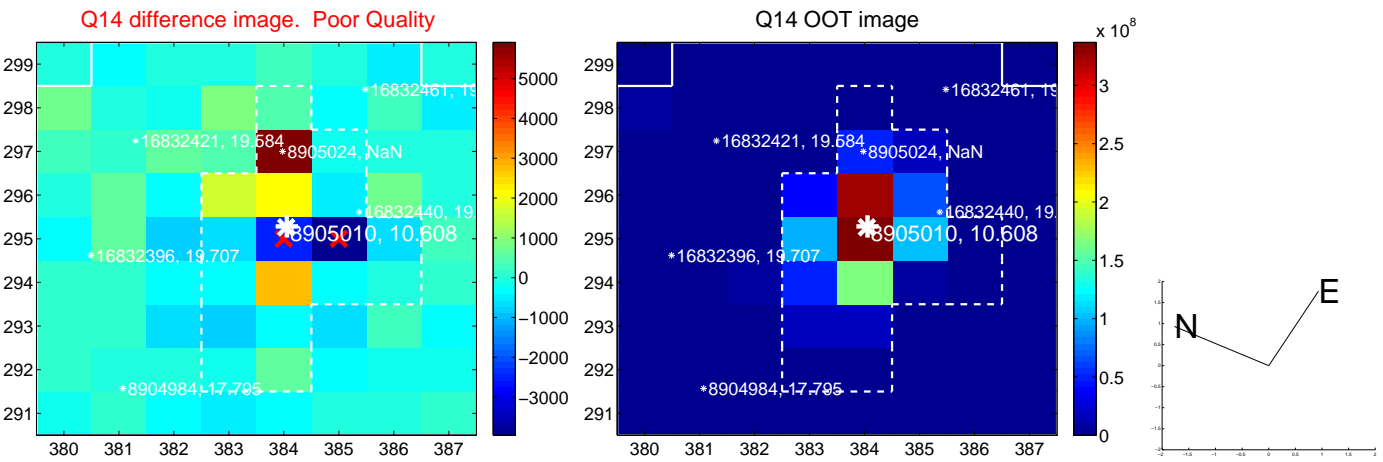
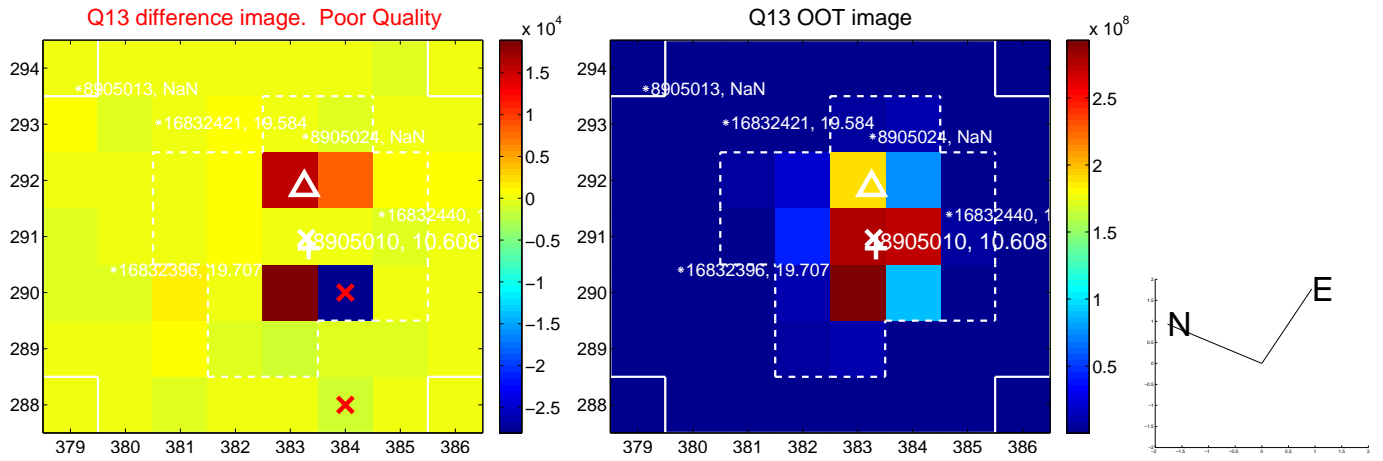
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



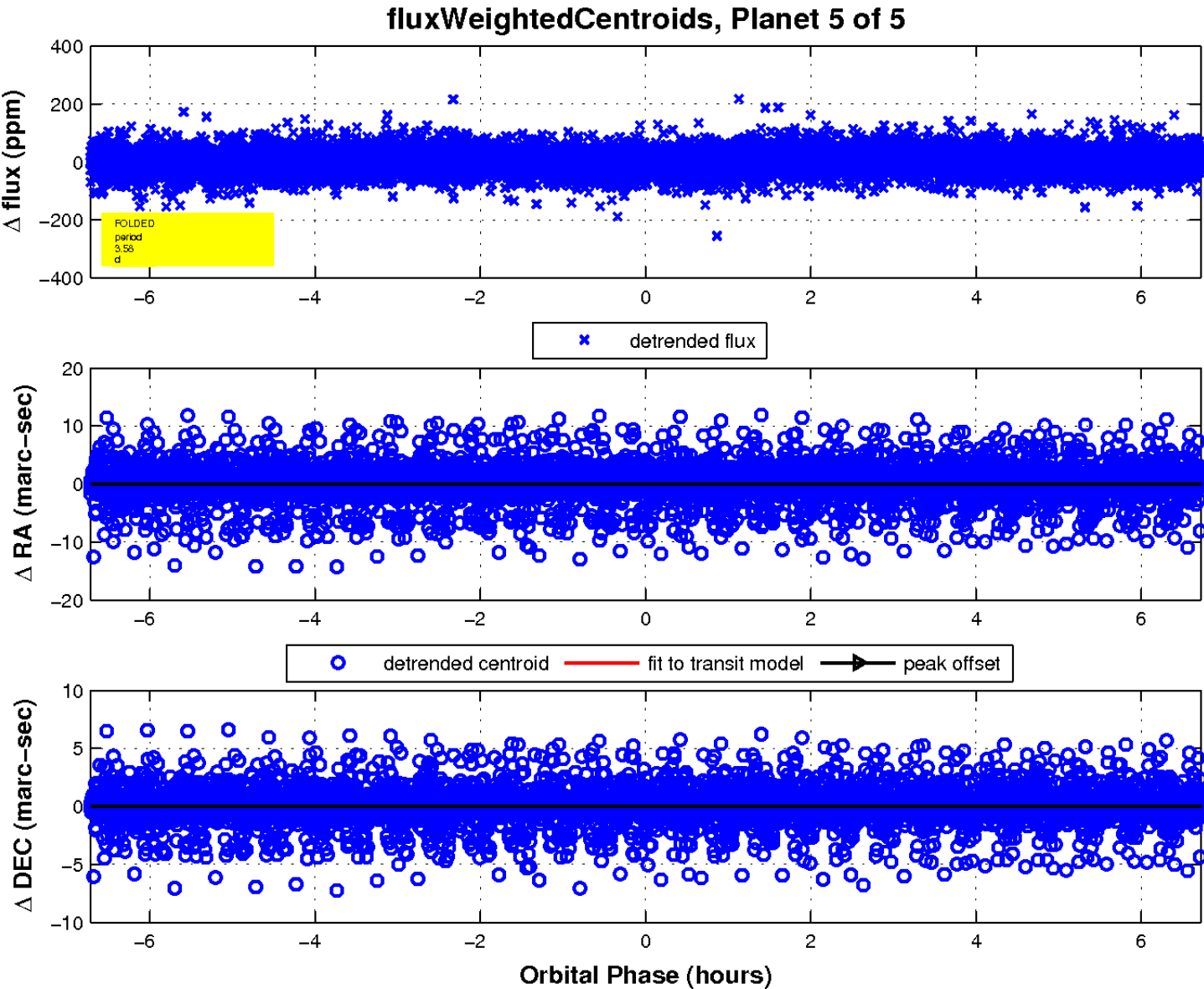
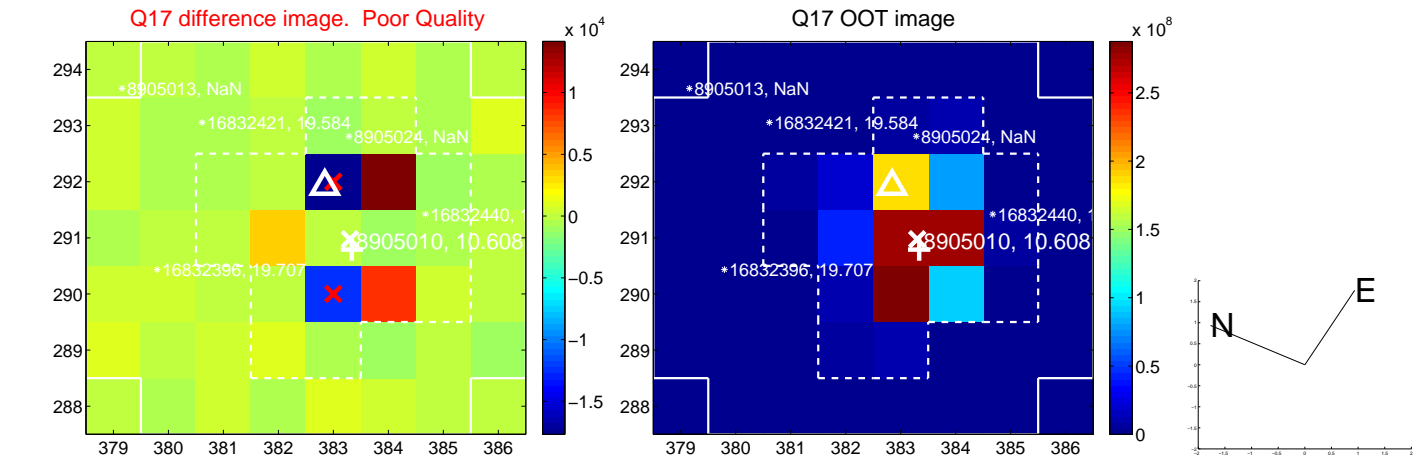
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

