

KIC 010537907

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})
010537907-01	OBS	No	2.208968	132.610607	241.5	4.913	9.0	7.5	3.75	7693	6.34	25339.00
010537907-02	OBS	No	0.613632	132.037247	564.7	1.337	13.9	18.2	3.75	7693	9.58	0.00
010537907-03	OBS	No	0.613626	131.792964	483.2	1.261	13.3	15.2	3.75	7693	9.73	0.00
010537907-04	OBS	No	0.613628	131.670369	49.3	1.500	10.4	-1.0	3.75	7693	2.65	139798.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010537907-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010537907-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_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.

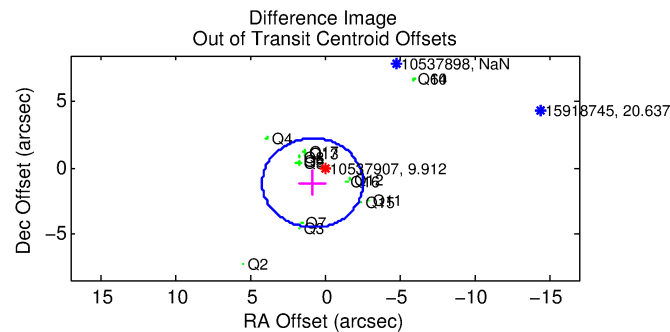
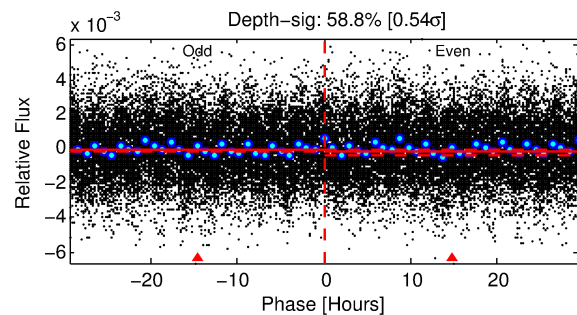
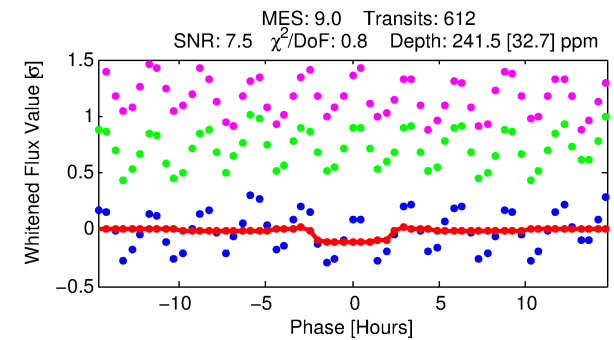
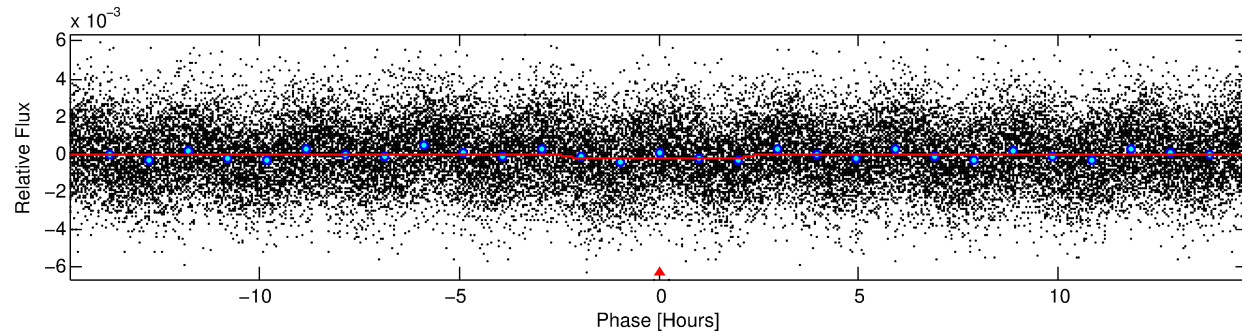
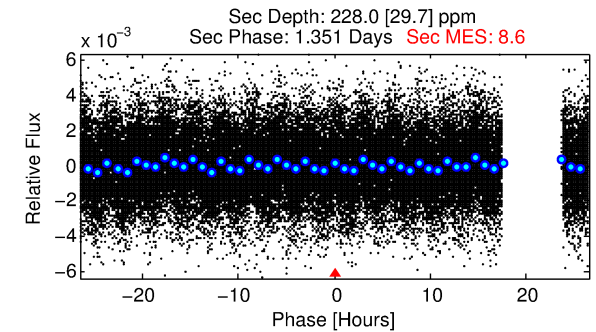
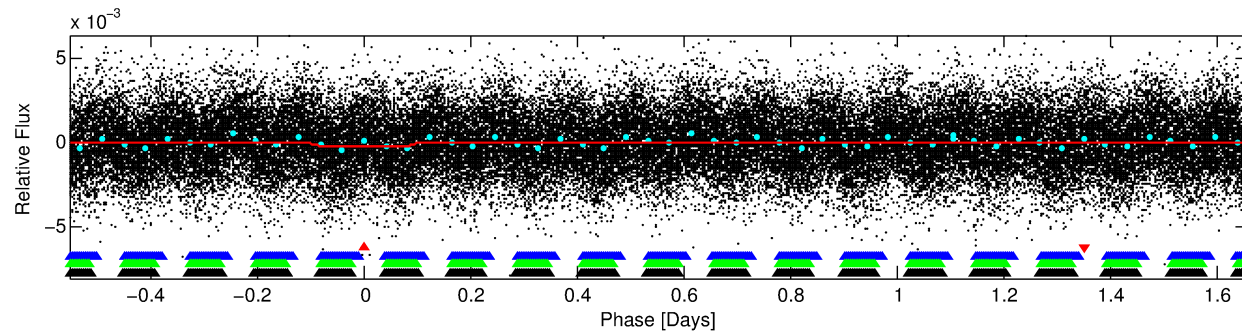
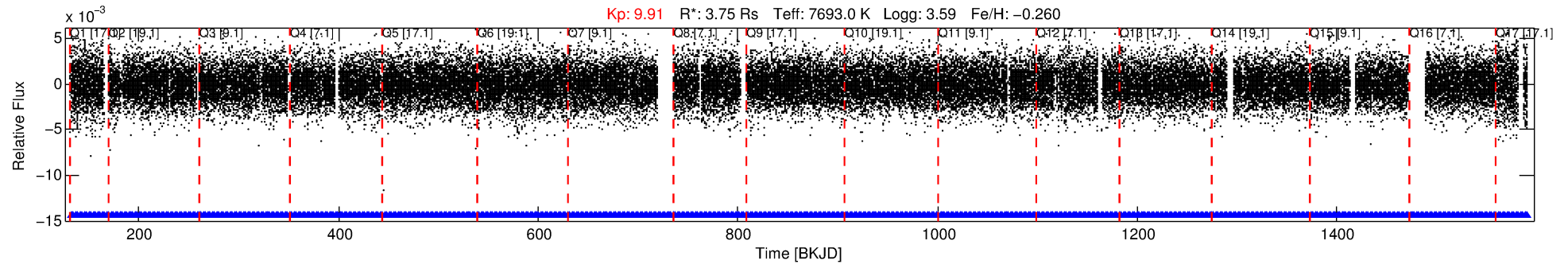
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010537907-01

No Significant Match Found

DV One-Page Summary

KIC: 10537907 Candidate: 1 of 4 Period: 2.209 d



DV Fit Results:

Period = 2.20897 [0.00003] d
Epoch = 132.6106 [0.0061] BKJD
Rp/R* = 0.0155 [0.0107]
a/R* = 2.48 [7.53]
b = 0.76 [2.08]
Seff = 25339.00 [22218.26]
Teq = 3217 [705] K
Rp = 6.34 [5.59] Re
a = 0.0417 [0.0223] AU
Ag = 5.43 [8.90] [0.50σ]
Teffp = 7594 [2661] K [1.59σ]

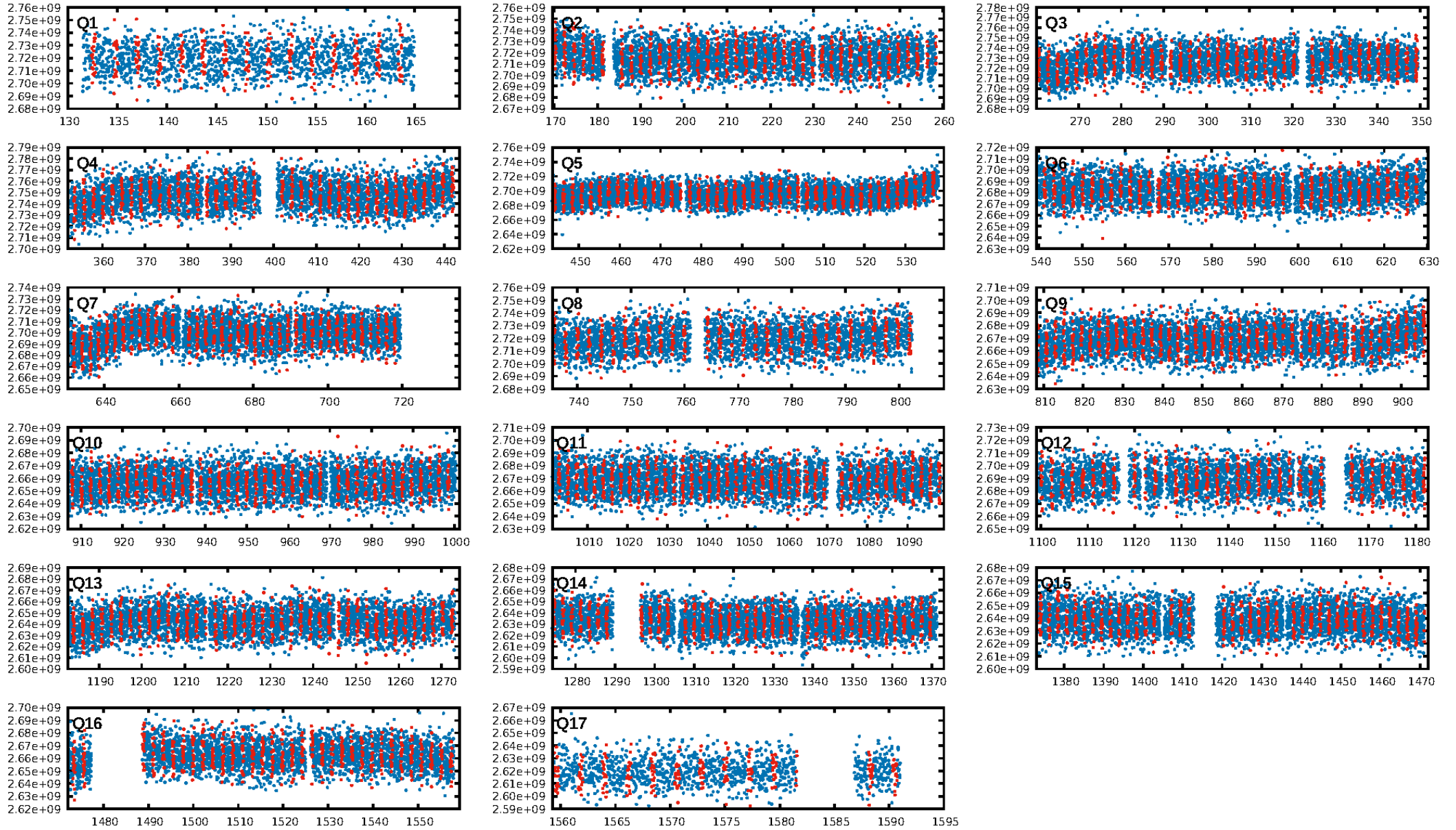
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.52σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareG-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [585/585]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.4%
Centroid-so: 0.479 arcsec [2.10σ]
OotOffset-rm: 1.405 arcsec [1.25σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 1.731 arcsec [1.66σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 0.00 [0/17]

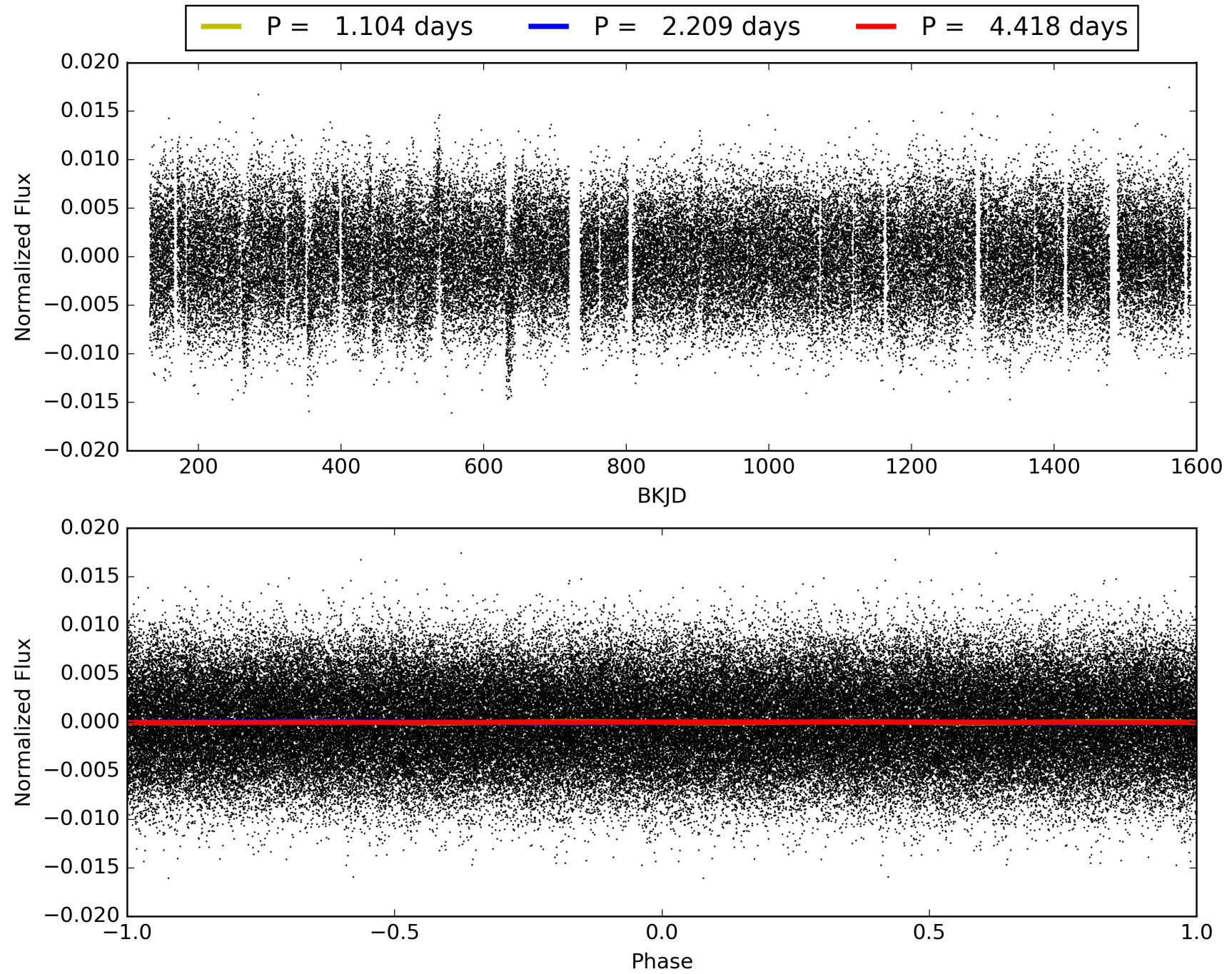
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:34 Z

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

TCE 010537907-01, PDC Light Curves

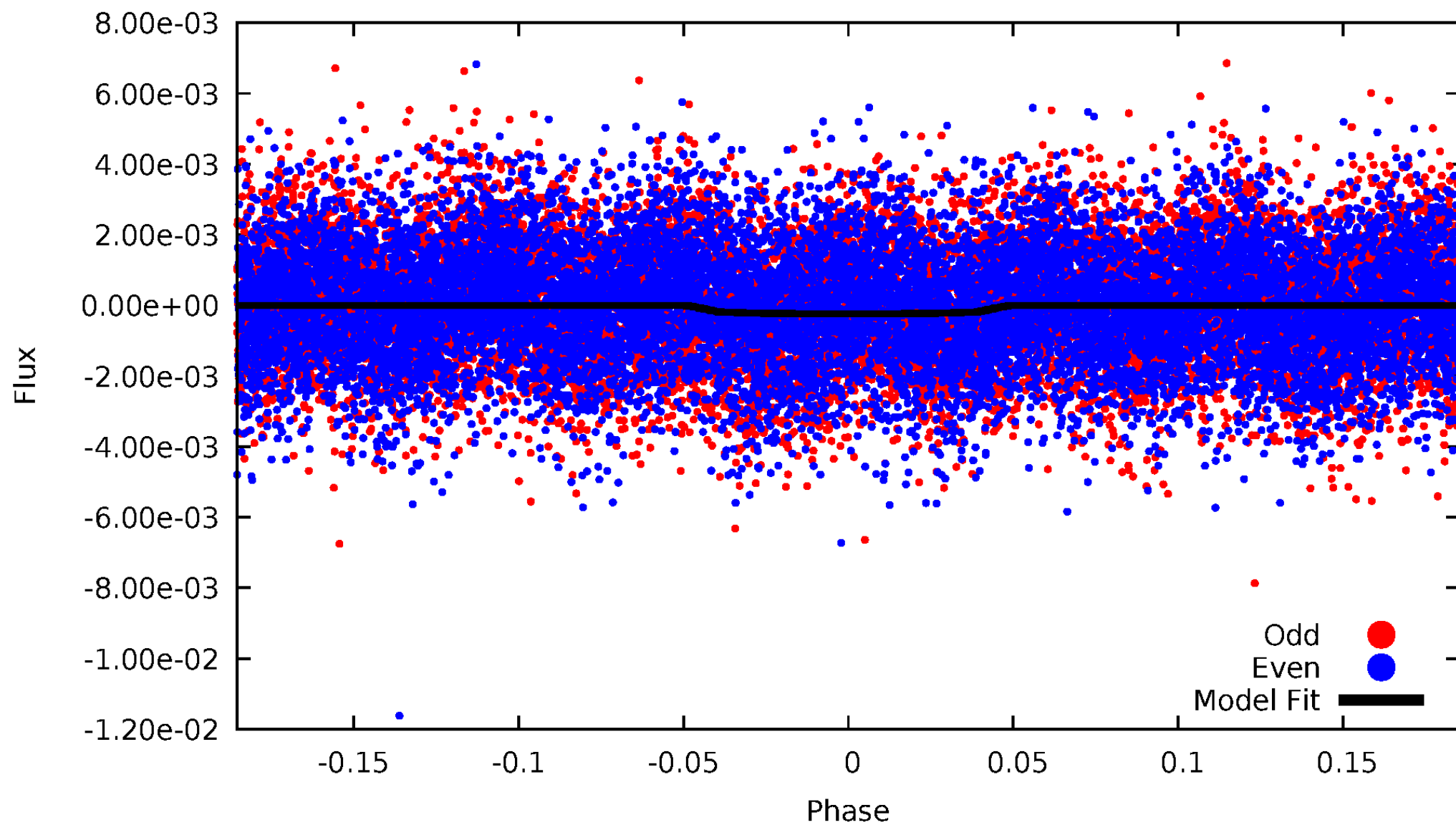


TCE 010537907-01



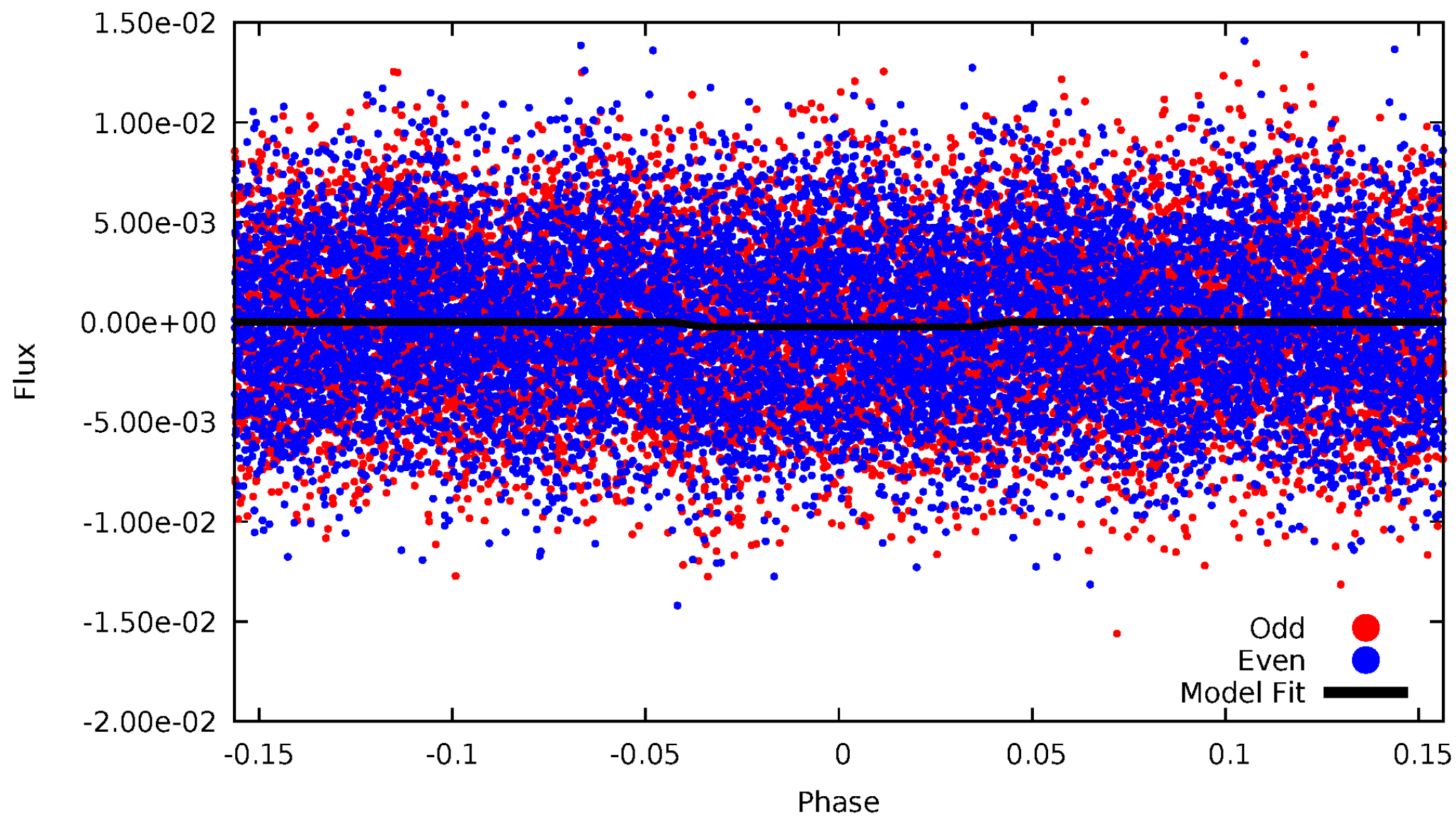
DV Odd/Even

TCE 010537907-01

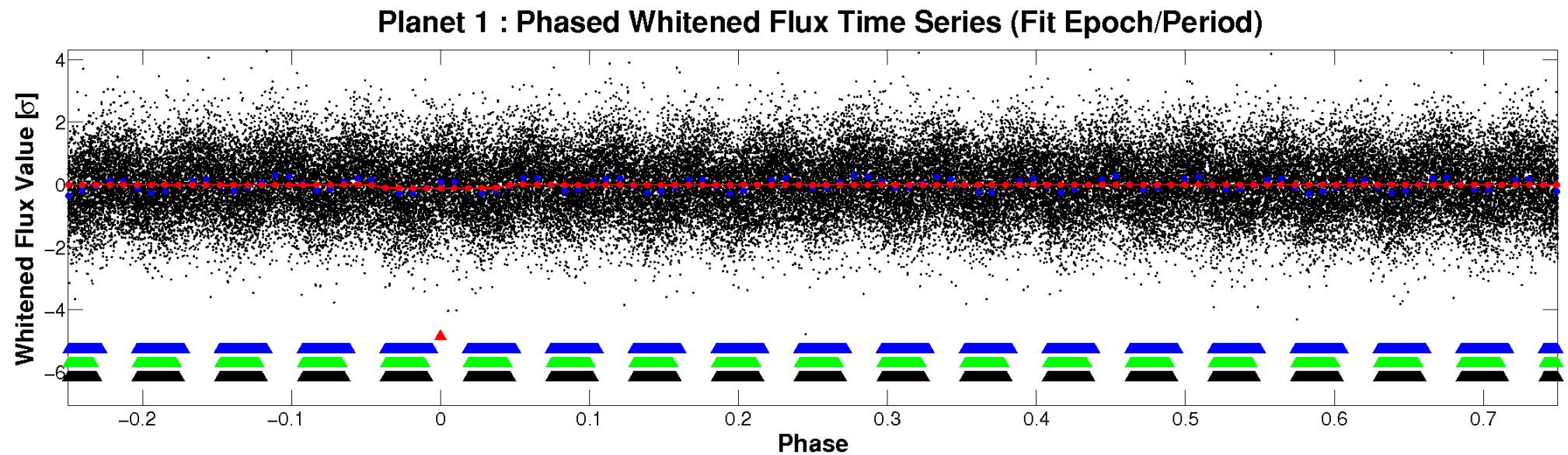
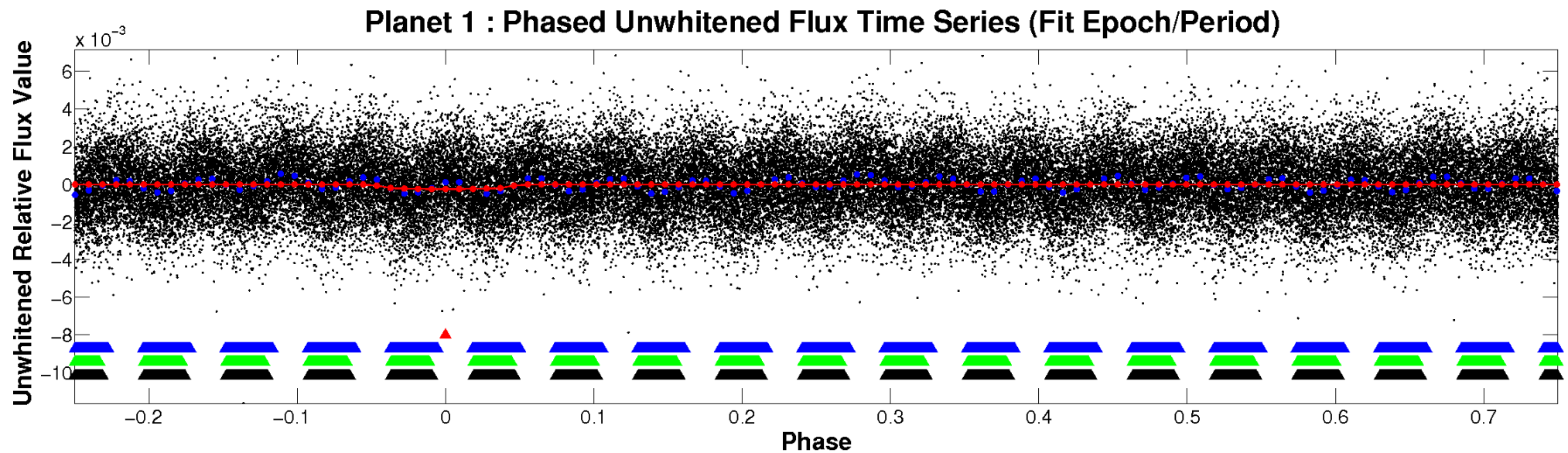


ALT Odd/Even

TCE 010537907-01

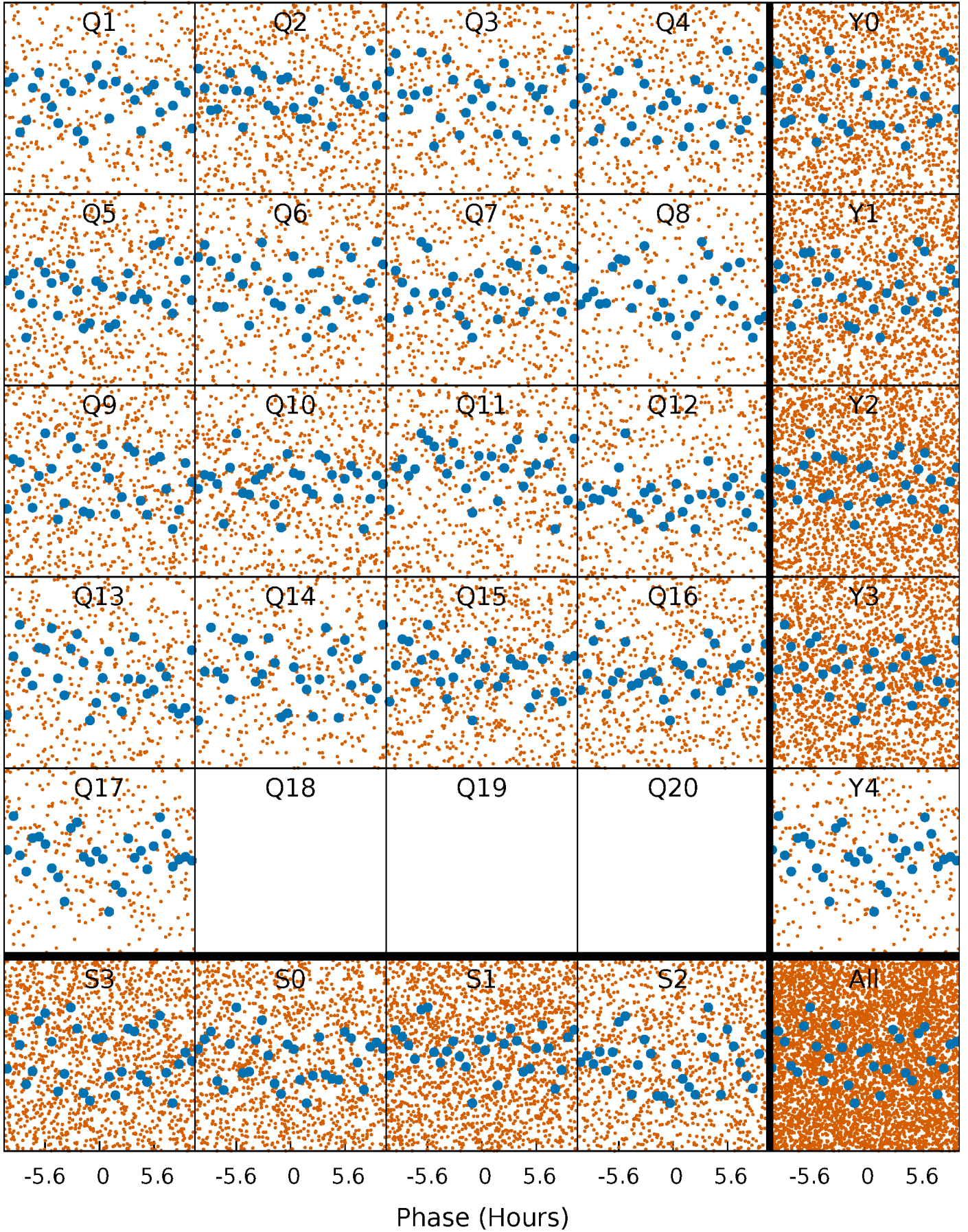


Non-Whitened Vs. Whitened Light Curve



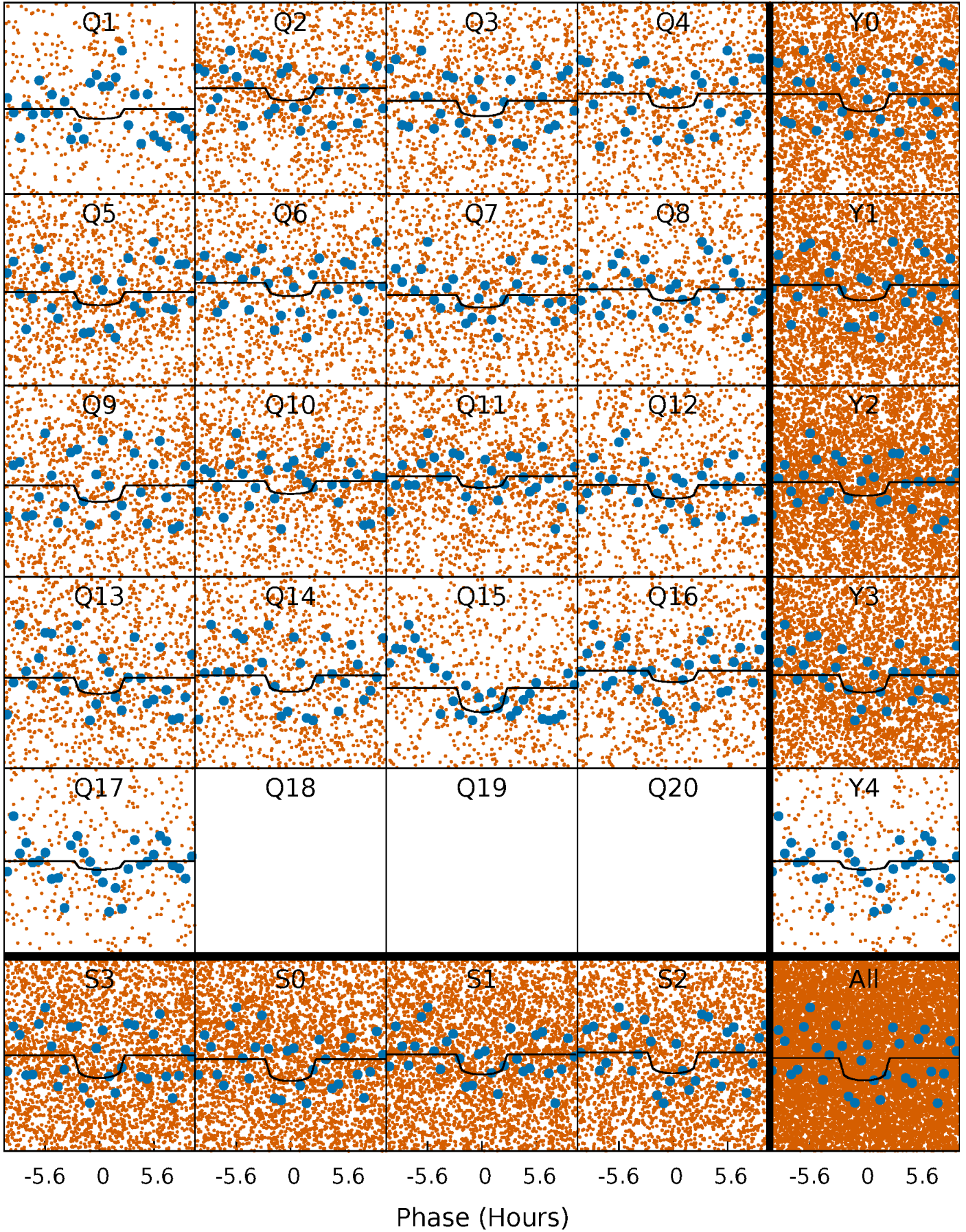
PDC Quarter-Phased Transit Curves

TCE 010537907-01 P= 2.208968 Days $T_0=132.610607$ (BKJD)



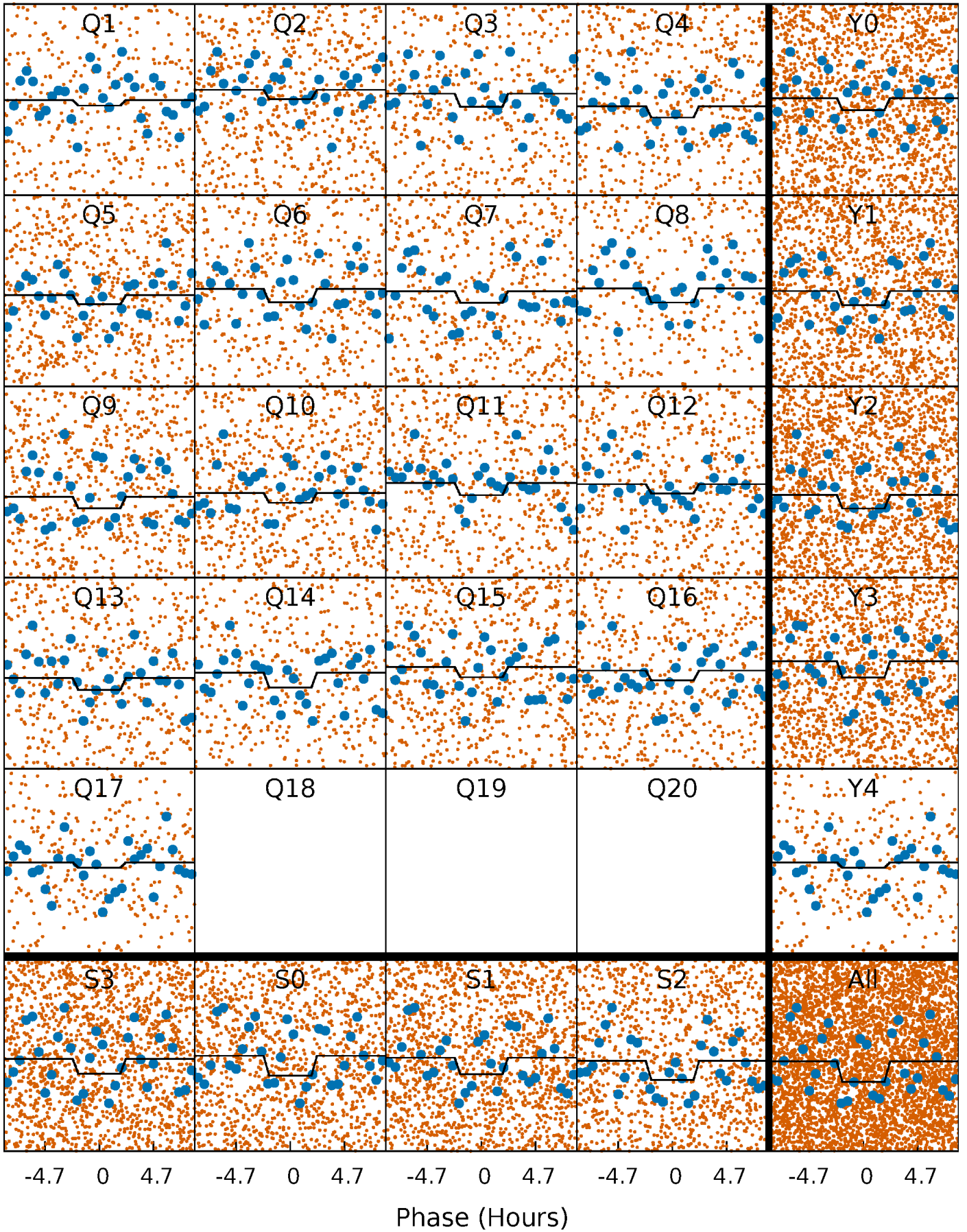
DV Quarter-Phased Transit Curves

TCE 010537907-01 P= 2.208968 Days $T_0=132.610607$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

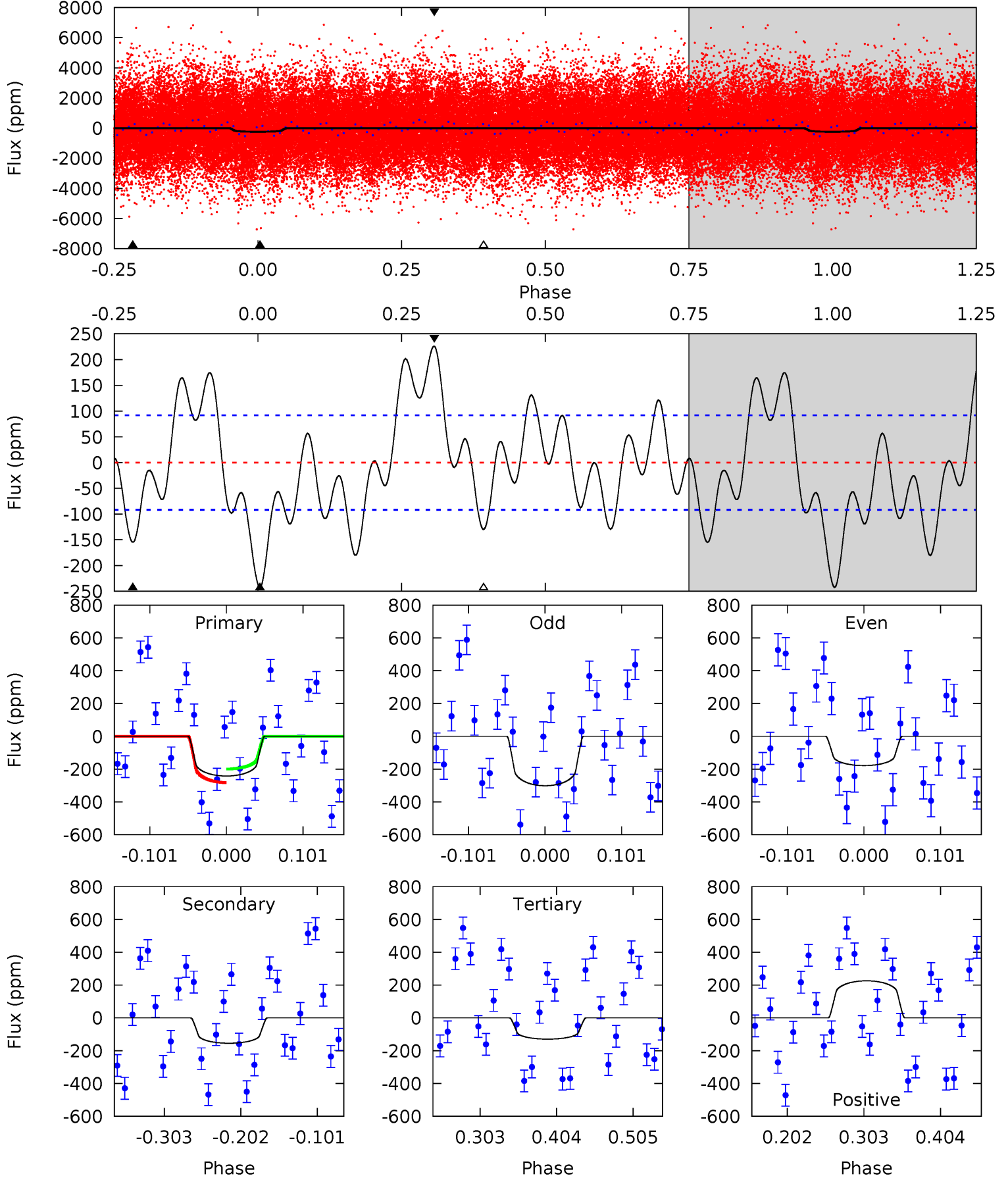
TCE 010537907-01 P= 2.208990 Days $T_0=132.617343$ (BKJD)



DV Model-Shift Uniqueness Test

010537907-01, P = 2.208968 Days, E = 130.401639 Days

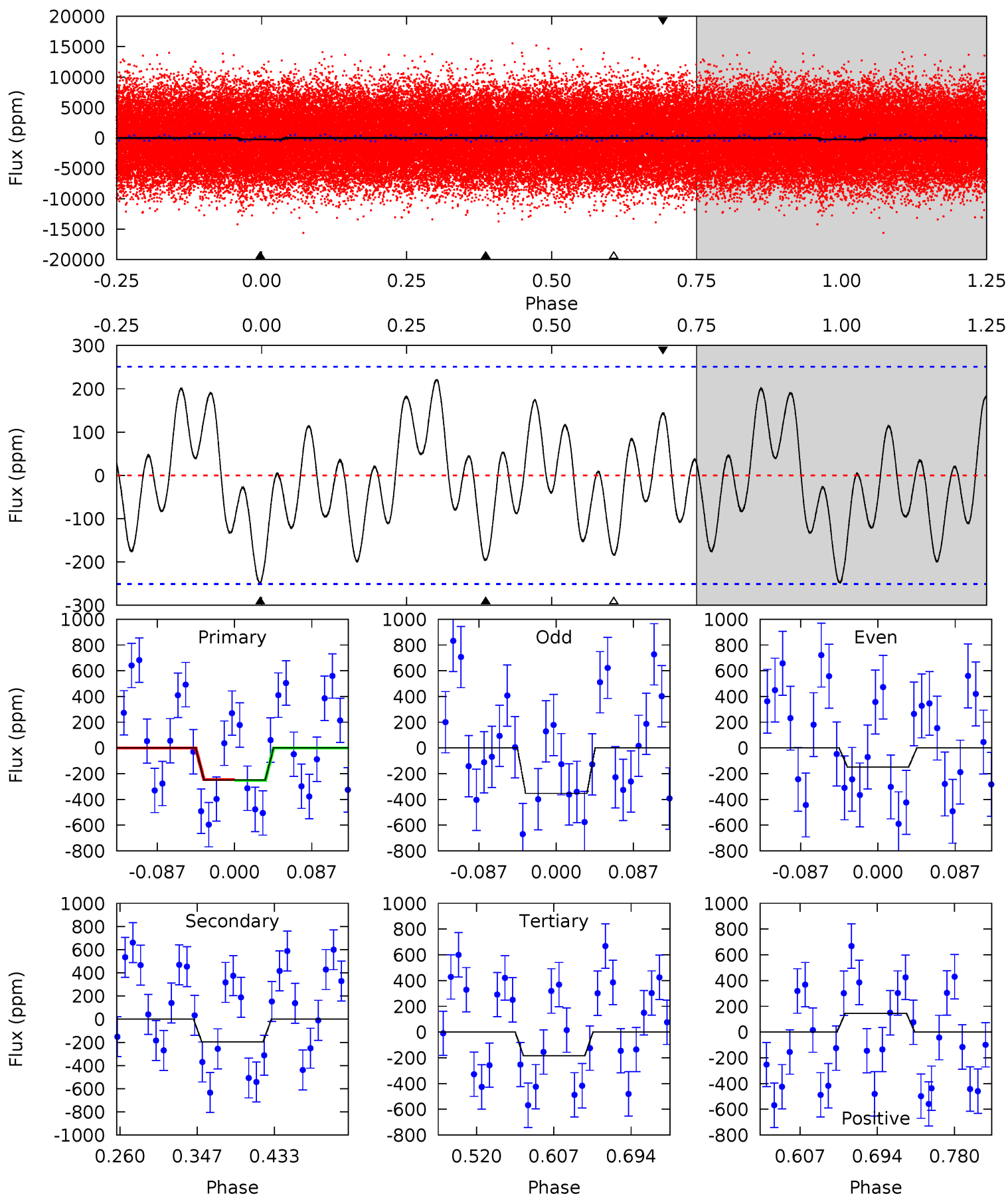
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	7.69	6.44	11.2	4.56	1.64	4.46	5.59	0.81	1.25	-3.53	3.05	0.97	0.48	2.05



Alt Model-Shift Uniqueness Test

010537907-01, P = 2.208990 Days, E = 130.408353 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.56	3.60	3.38	2.66	4.59	1.71	1.81	1.18	1.90	0.22	0.93	1.87	0.82	0.47	0.06



Stellar Parameters For KIC 010537907

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7693^{+243}_{-297}	$3.588^{+0.510}_{-0.090}$	$-0.260^{+0.250}_{-0.300}$	$3.751^{+0.511}_{-2.045}$	$1.987^{+0.124}_{-0.526}$	$0.053^{+0.351}_{-0.015}$
	+3%/-4%	+14%/-3%	+96%/-115%	+14%/-55%	+6%/-26%	+661%/-29%
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 010537907-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-155 ± 20	$5.78^{+3.88}_{-3.35}$	4330^{+348}_{-557}	6429^{+4531}_{-1413}	$4.335^{+19.854}_{-2.802}$
Alt.	-196 ± 55	$6.29^{+3.94}_{-3.40}$	4359^{+325}_{-543}	6691^{+3827}_{-1608}	$4.448^{+17.924}_{-2.805}$

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

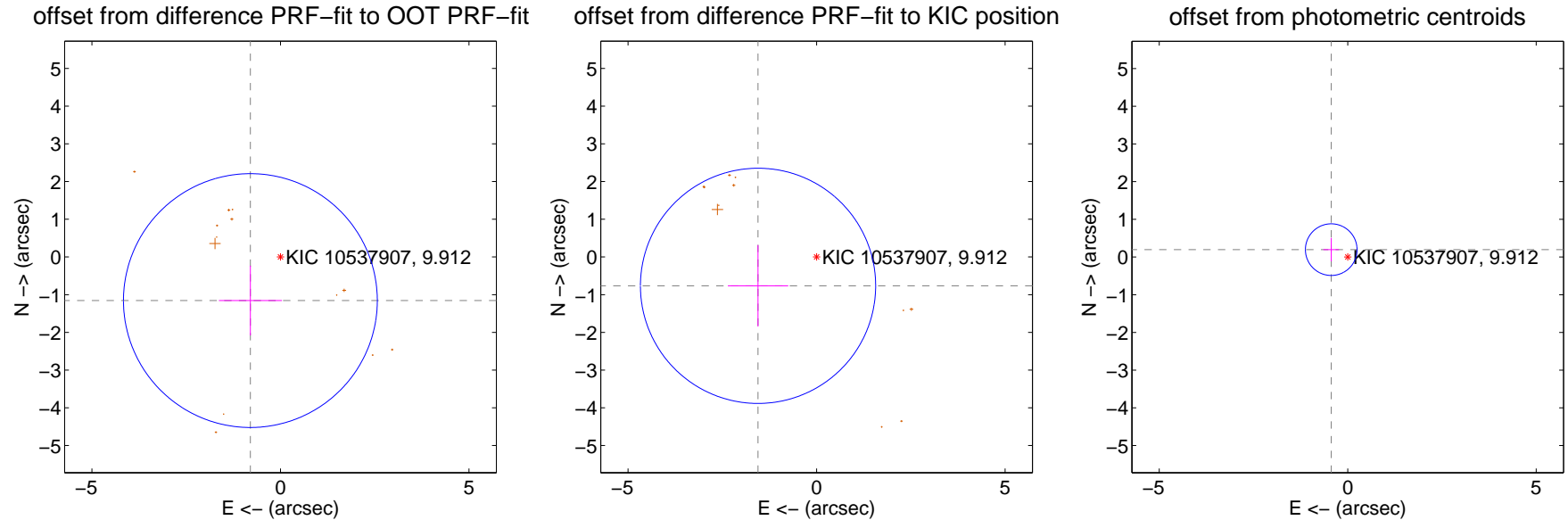
DV Centroid Data

Supplemental centroid analysis for 010537907-01. **Kepler magnitude: 9.91.** Transit SNR 7.54

There are 2 quarters with good PRF difference image offsets

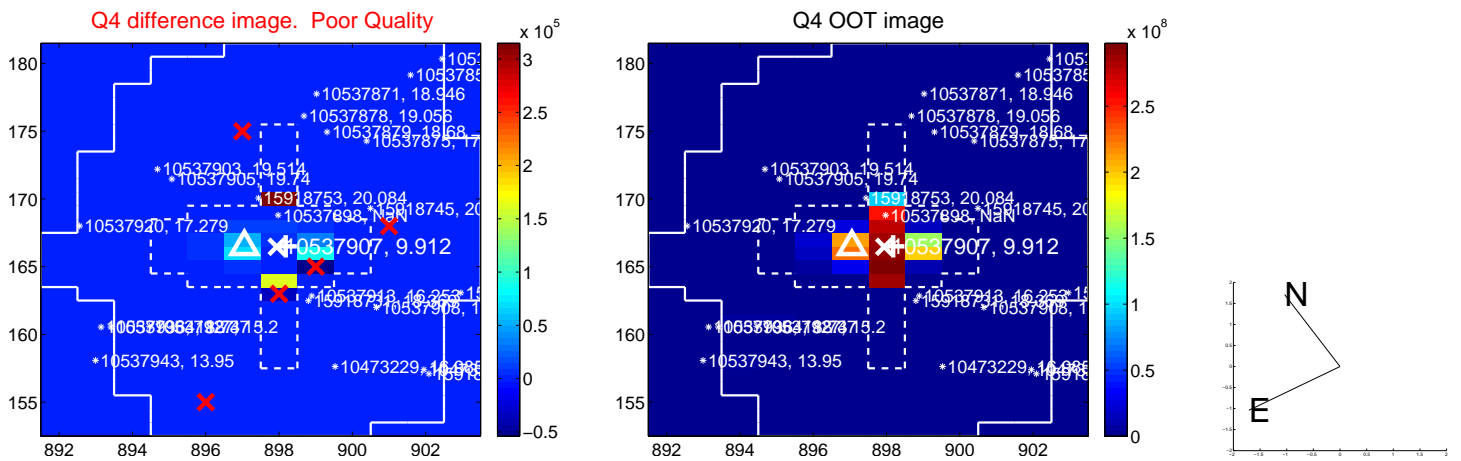
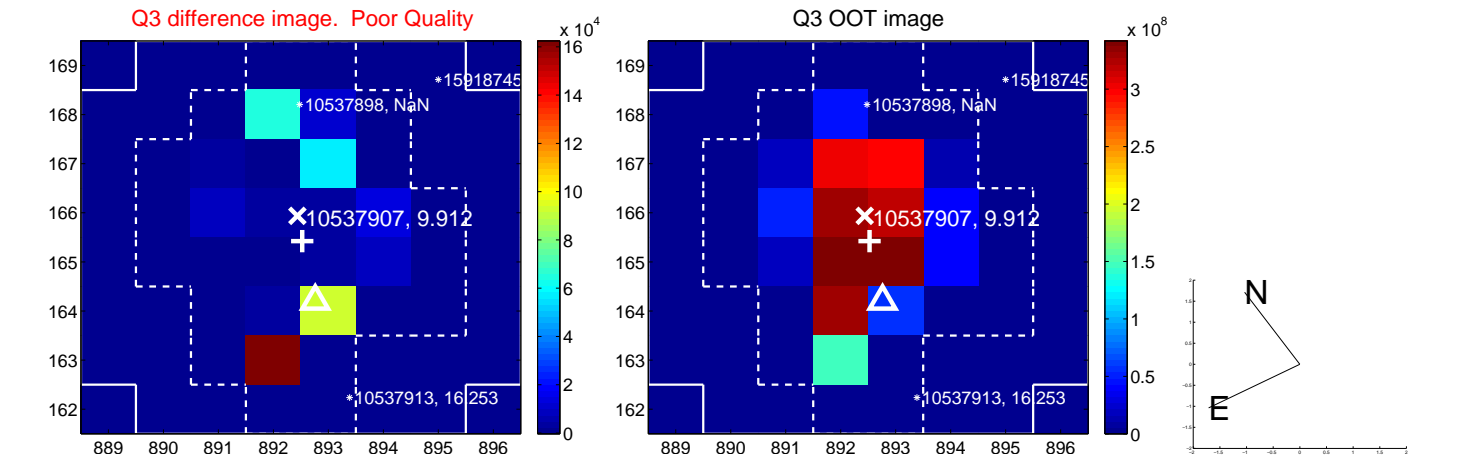
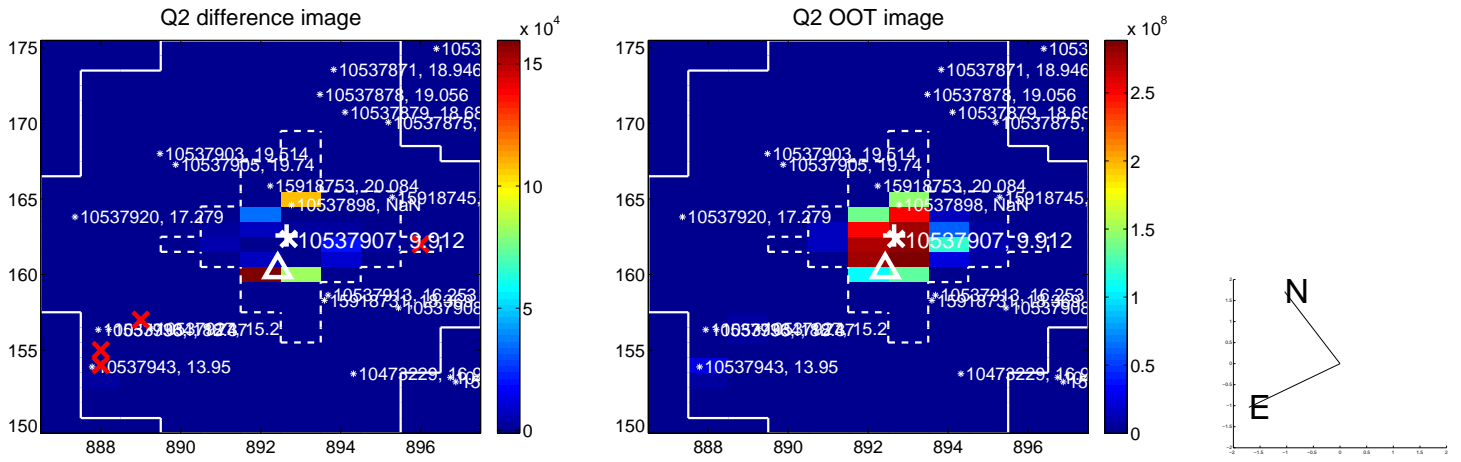
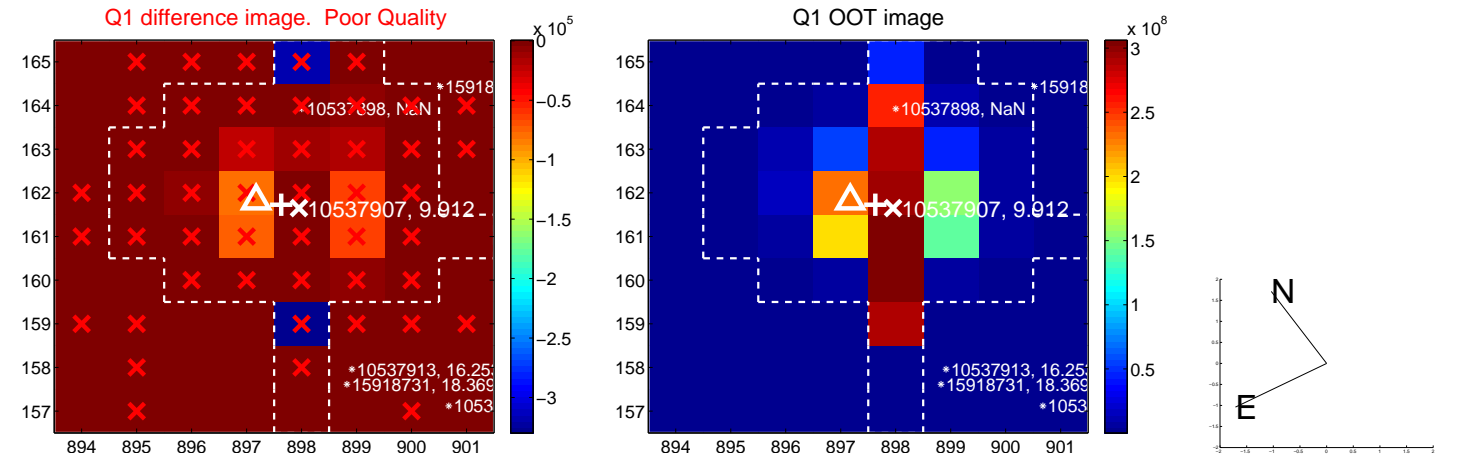
The direct PRF centroid is offset from the target star catalog position by about 1.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.405 ± 1.122	1.25	0.797 ± 0.836	-1.157 ± 0.924
PRF-fit source offset from KIC position	1.731 ± 1.040	1.66	1.553 ± 0.802	-0.766 ± 1.082
photometric centroid source offset	0.48 ± 0.23	2.10	0.44 ± 0.21	0.20 ± 0.31

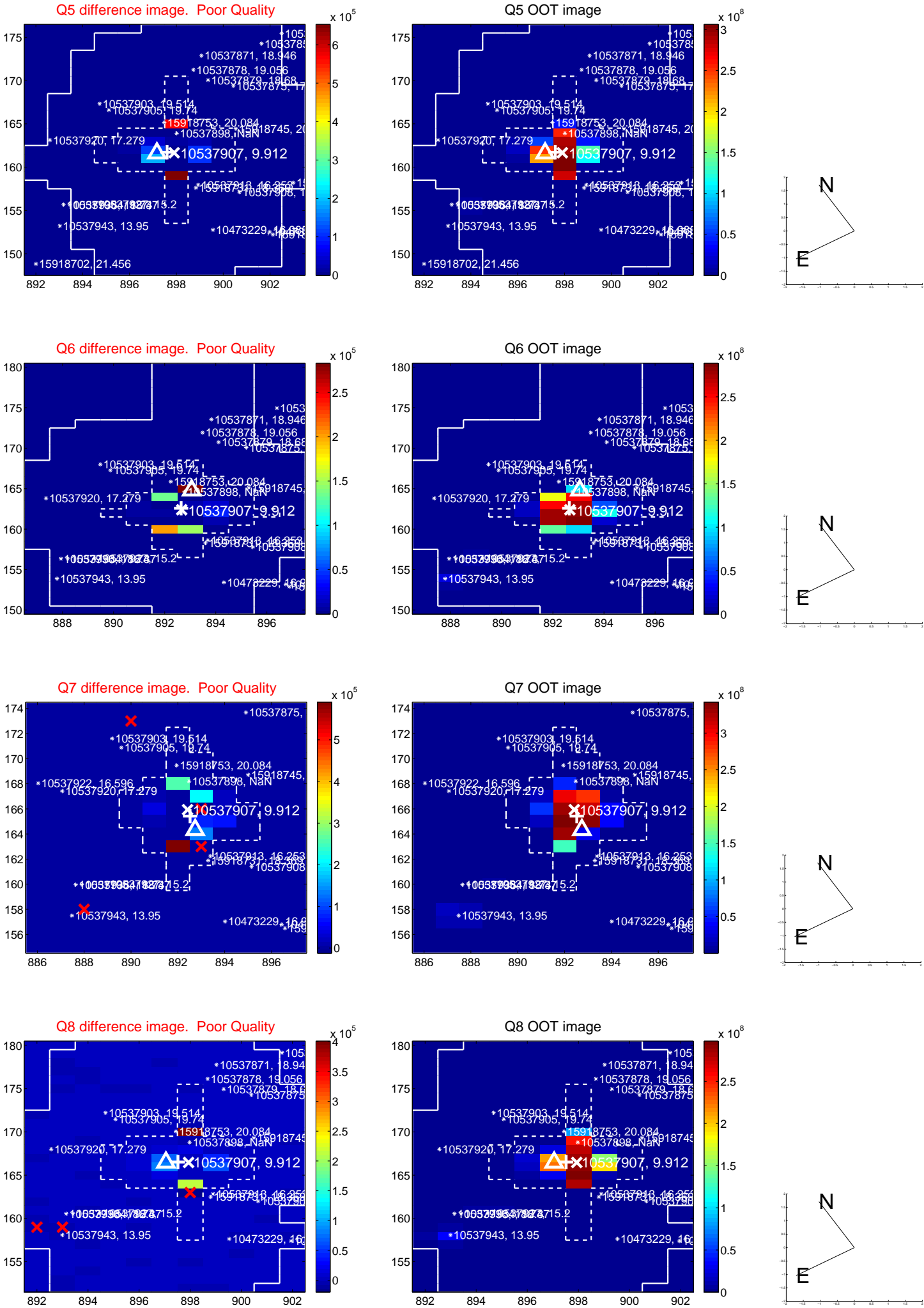


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

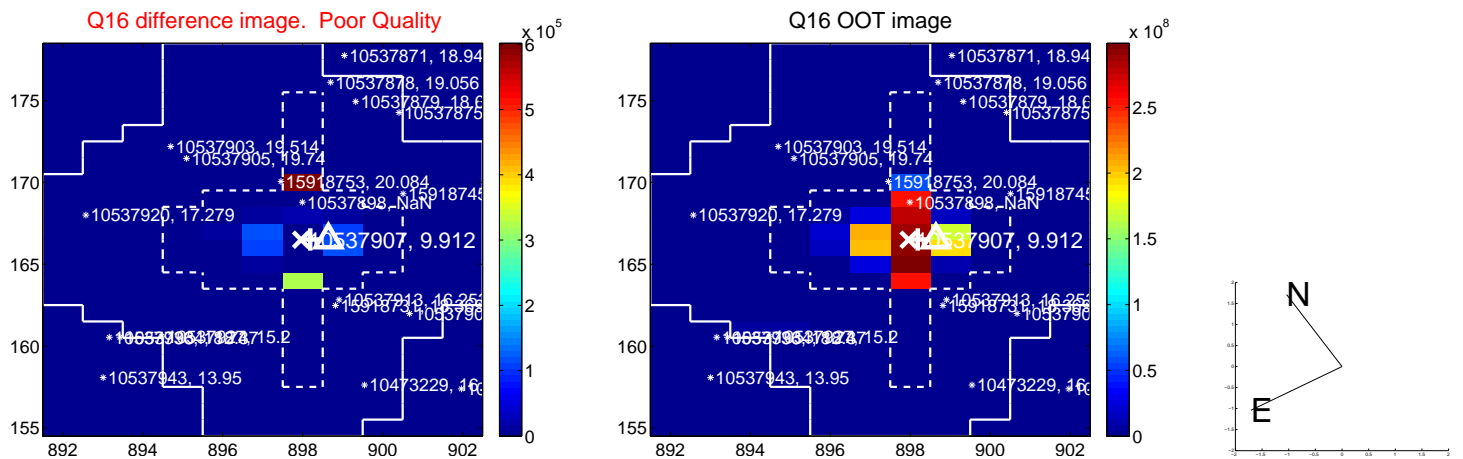
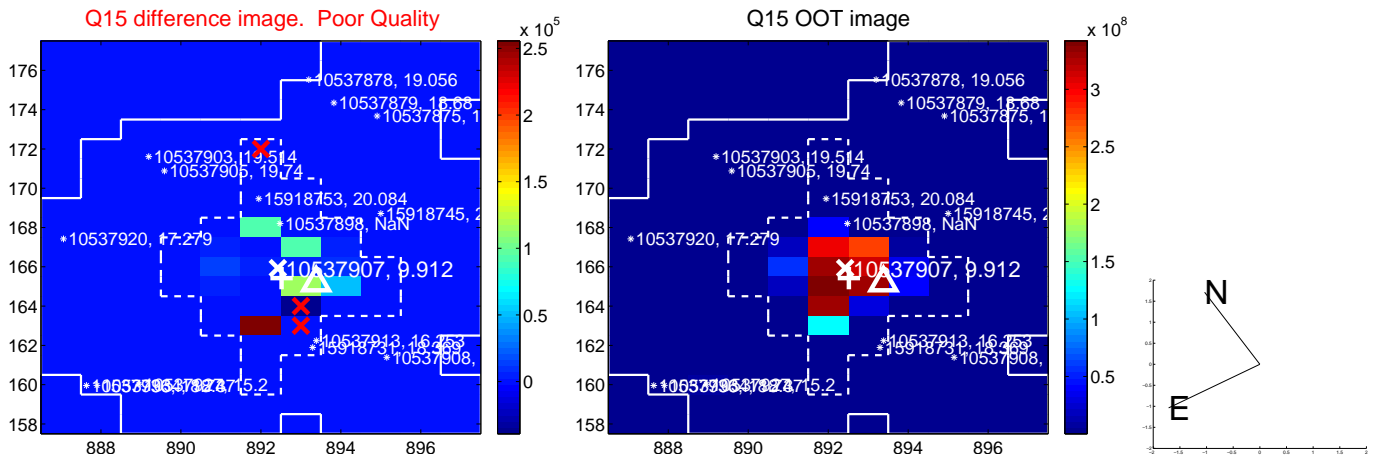
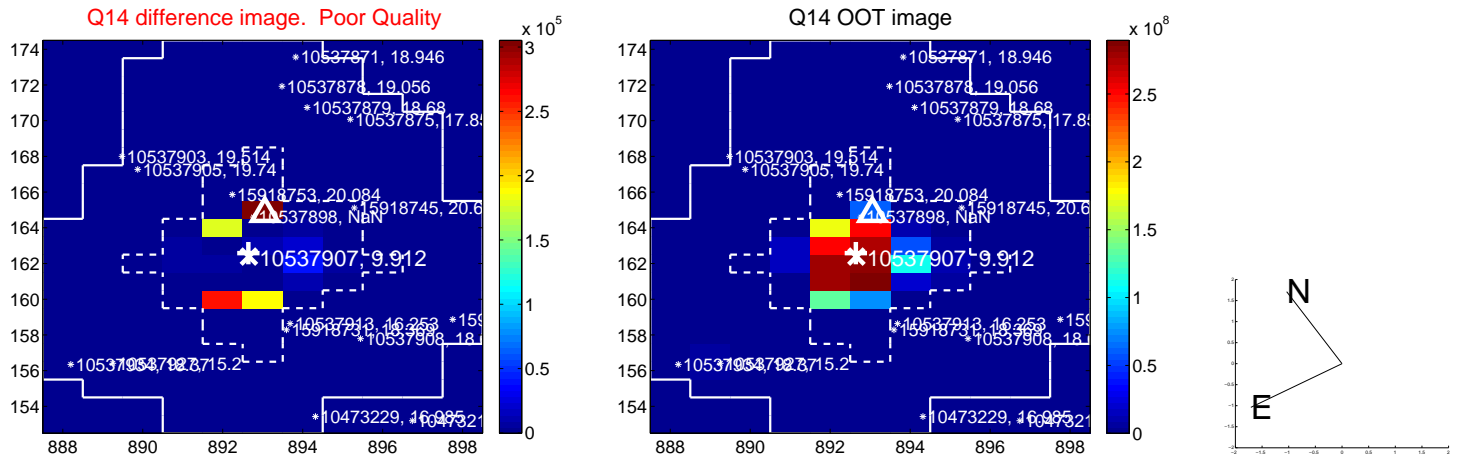
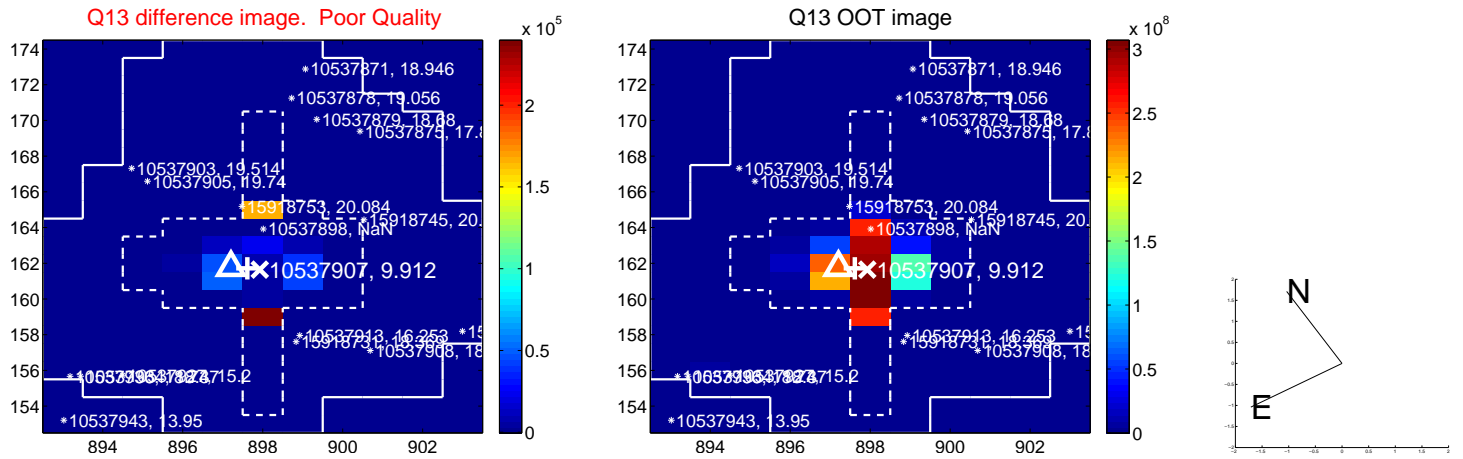
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



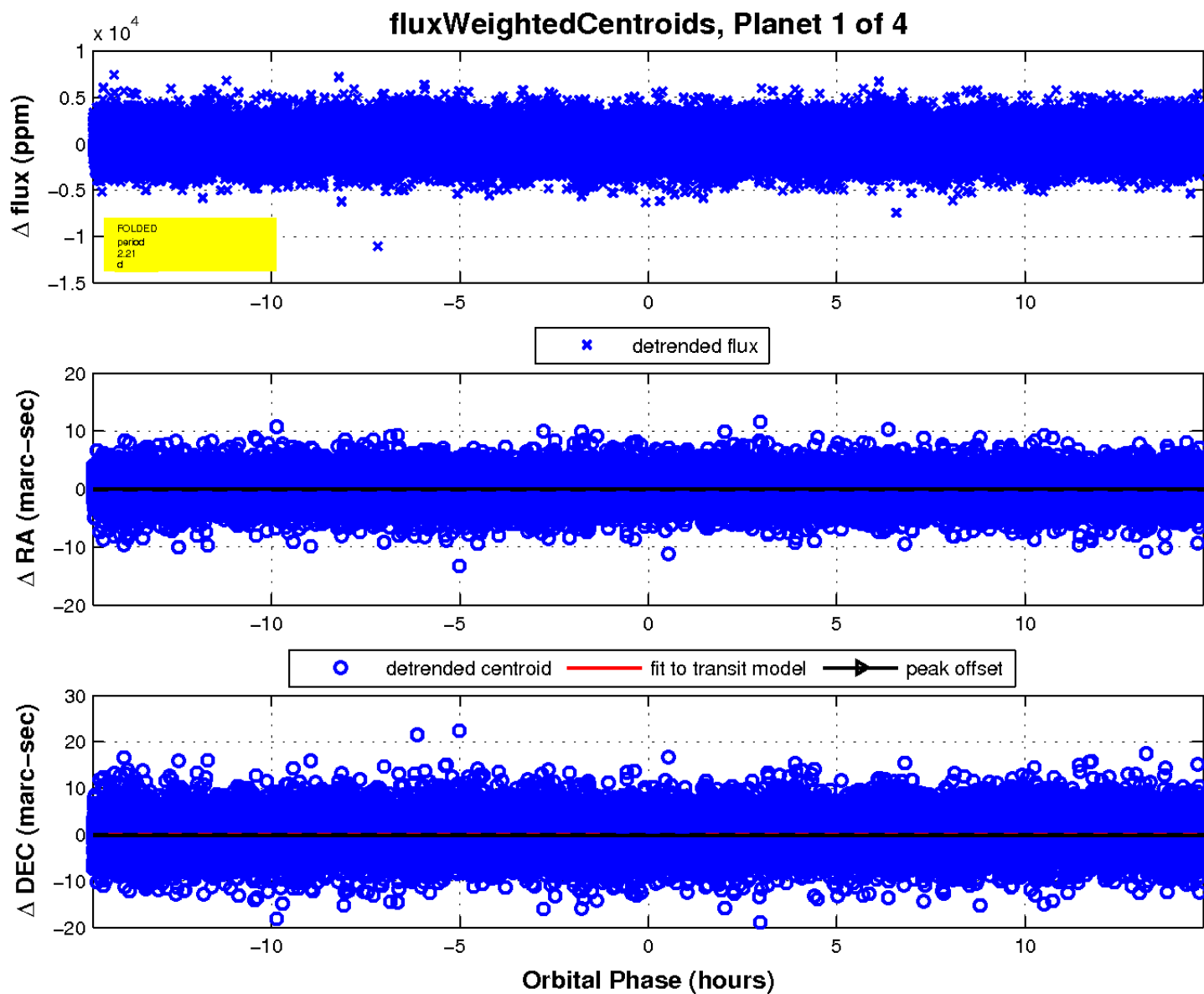
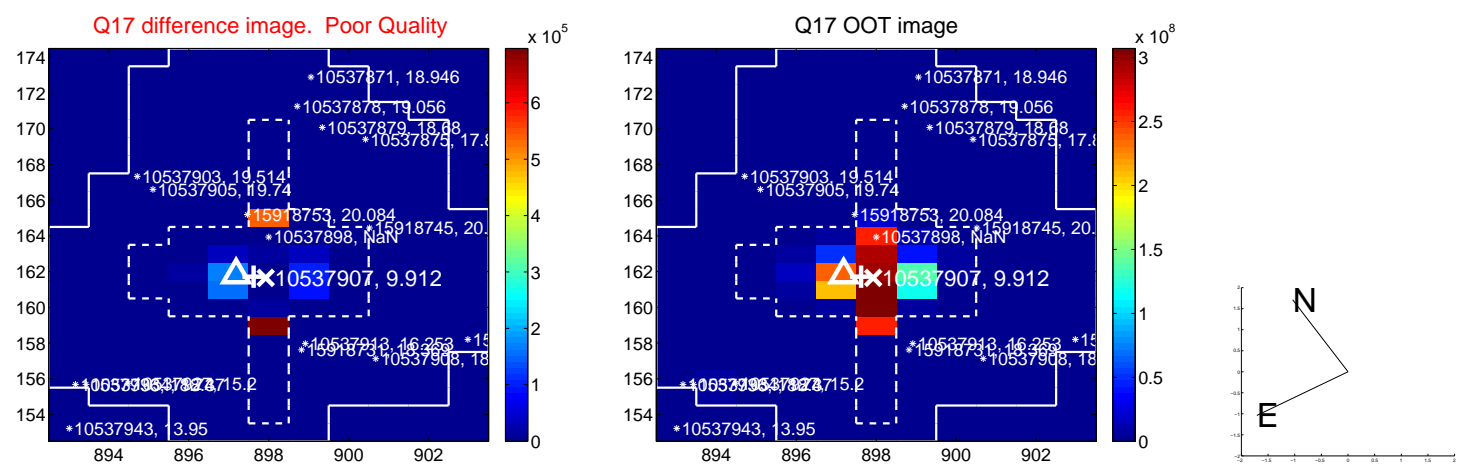
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

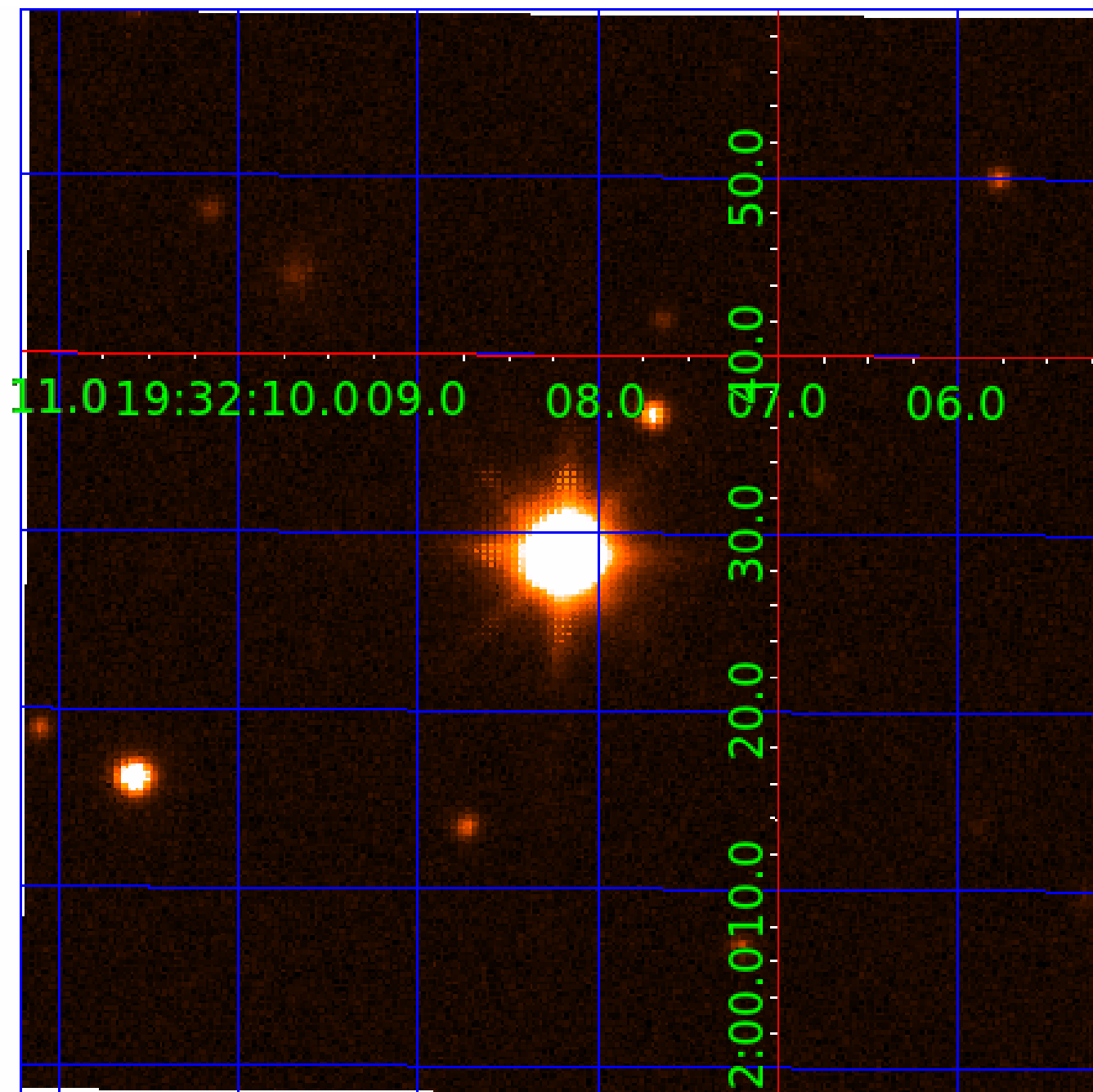


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010537907

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})
010537907-01	OBS	No	2.208968	132.610607	241.5	4.913	9.0	7.5	3.75	7693	6.34	25339.00
010537907-02	OBS	No	0.613632	132.037247	564.7	1.337	13.9	18.2	3.75	7693	9.58	0.00
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010537907-04	OBS	No	0.613628	131.670369	49.3	1.500	10.4	-1.0	3.75	7693	2.65	139798.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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010537907-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010537907-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_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.

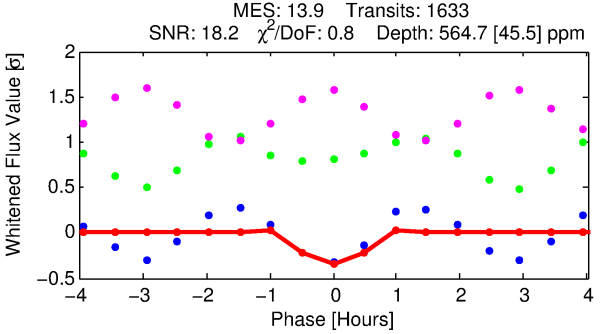
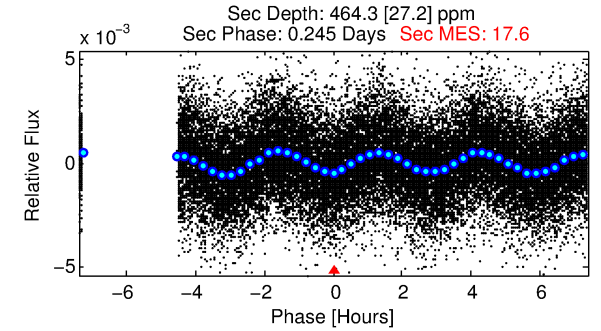
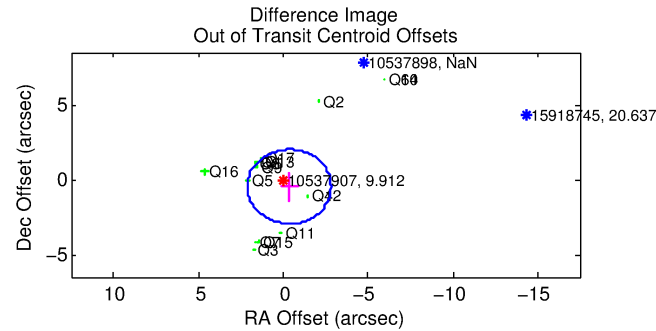
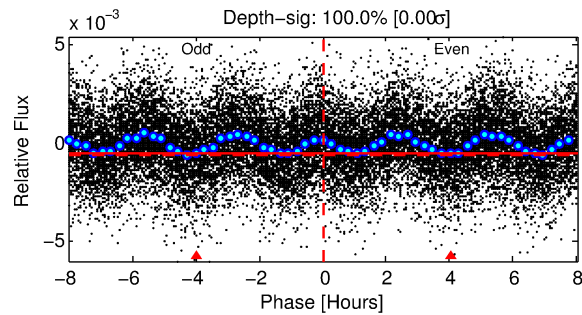
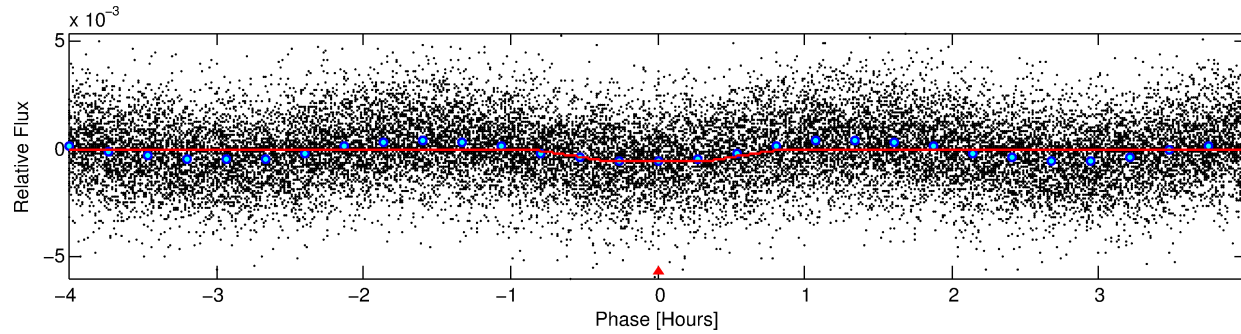
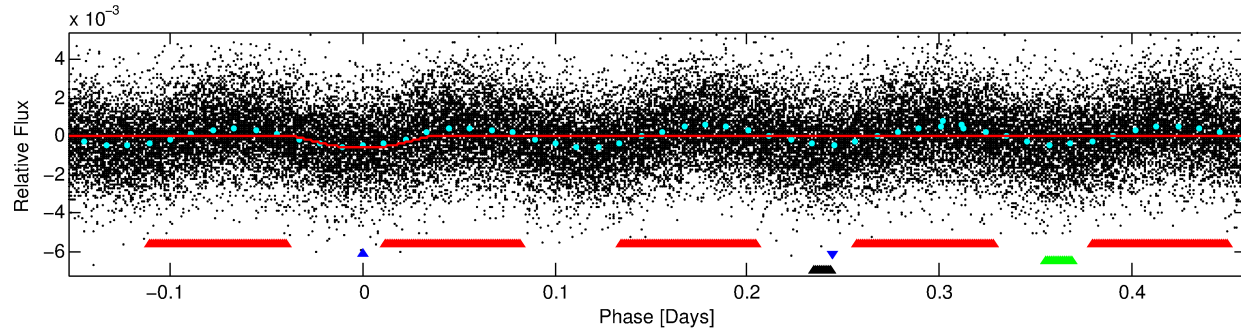
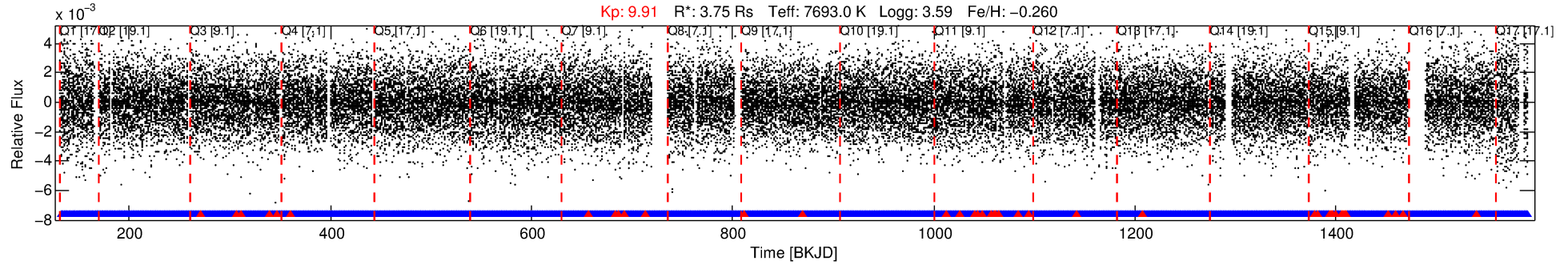
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010537907-02

No Significant Match Found

DV One-Page Summary

KIC: 10537907 Candidate: 2 of 4 Period: 0.614 d



DV Fit Results:

Period = 0.61363 [0.00001] d
Epoch = 132.0372 [0.0010] BKJD
 $R_p/R^* = 0.0234$ [0.0111]
 $a/R^* = 2.74$ [5.77]
 $b = 0.70$ [1.80]
 $\text{Seff} = \text{N/A}$
 $\text{Teq} = \text{N/A}$
 $R_p = 9.58$ [6.92] Re
 $a = \text{N/A}$
 $\text{Ag} = \text{N/A}$
 $\text{Teffp} = \text{N/A}$

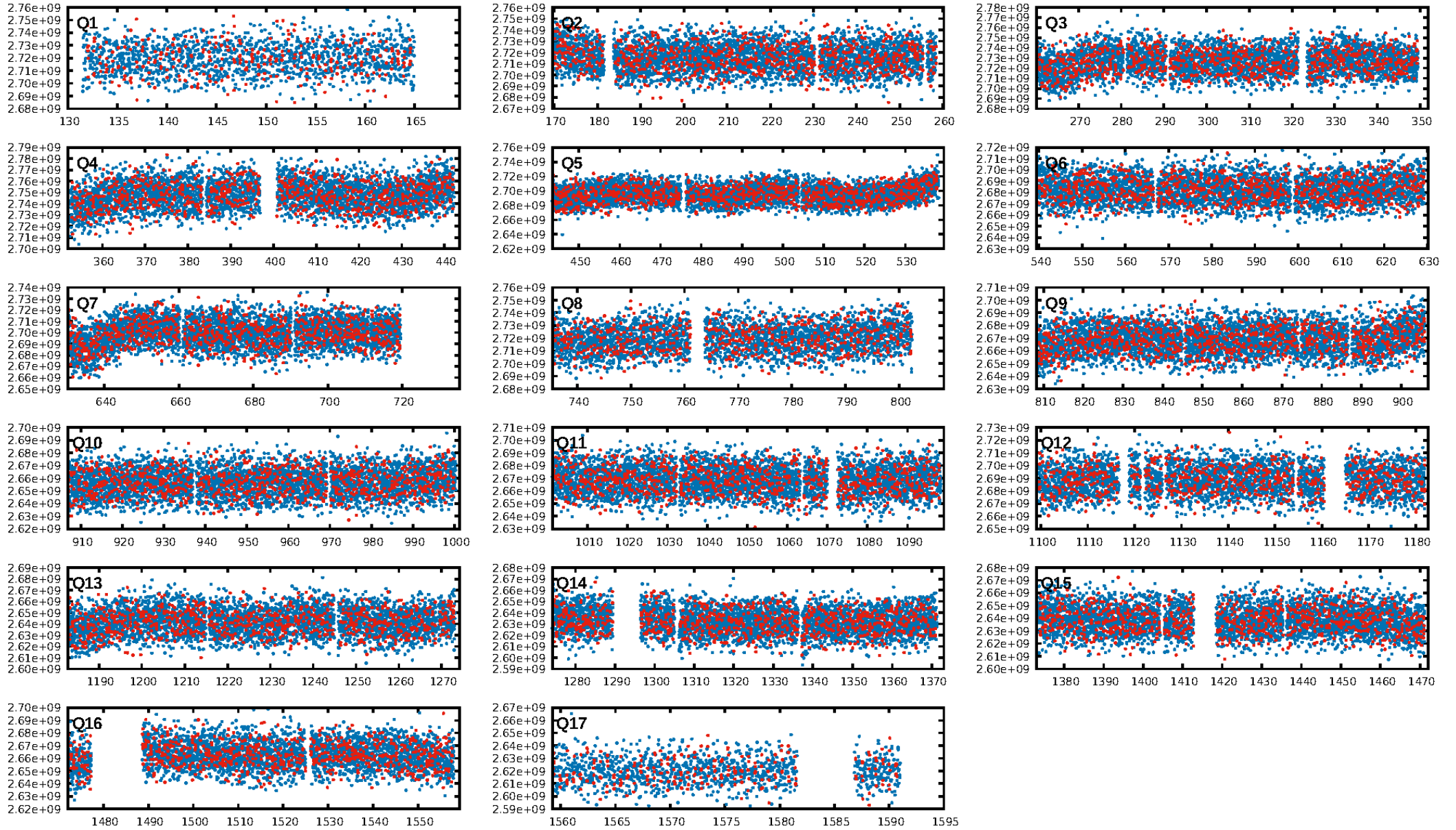
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [7.52 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [1522/1562]
GhostDiagnostic-chr: N/A
Centroid-sig: 2.0%
Centroid-so: 0.269 arcsec [2.74 σ]
OotOffset-rm: 0.591 arcsec [0.72 σ]
KicOffset-rm: 1.372 arcsec [1.03 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 0.00 [0/17]

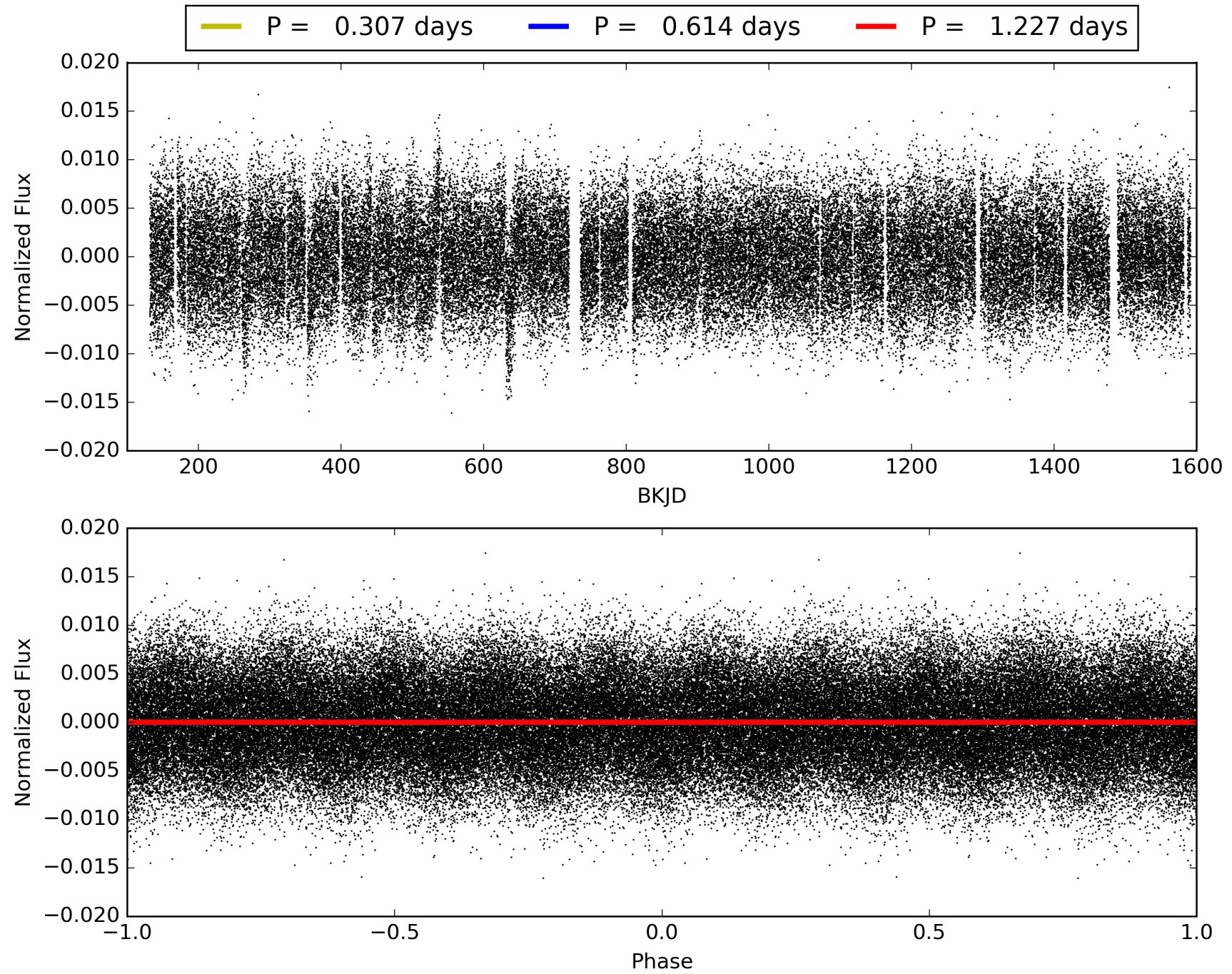
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:45 Z

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

TCE 010537907-02, PDC Light Curves

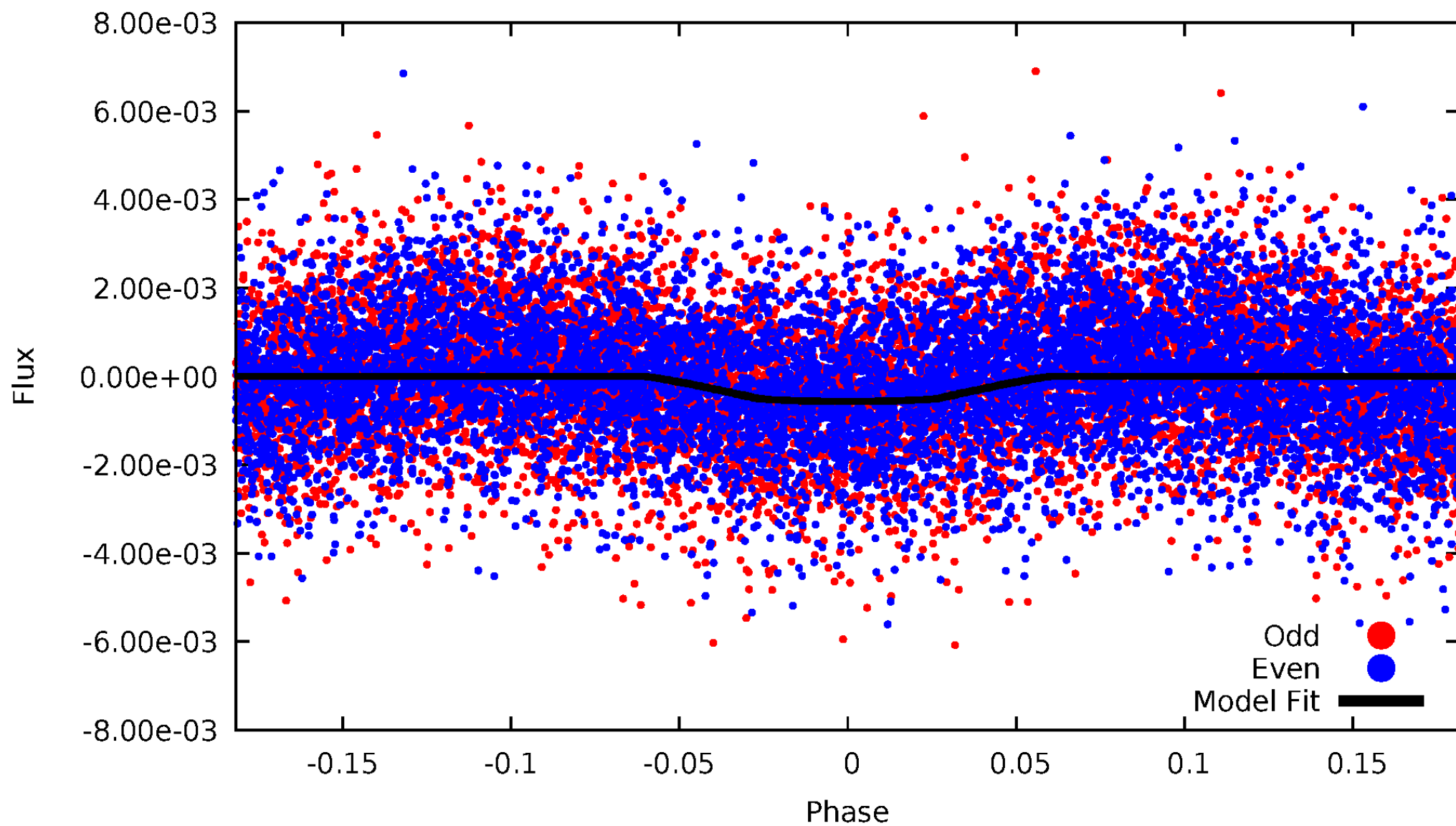


TCE 010537907-02



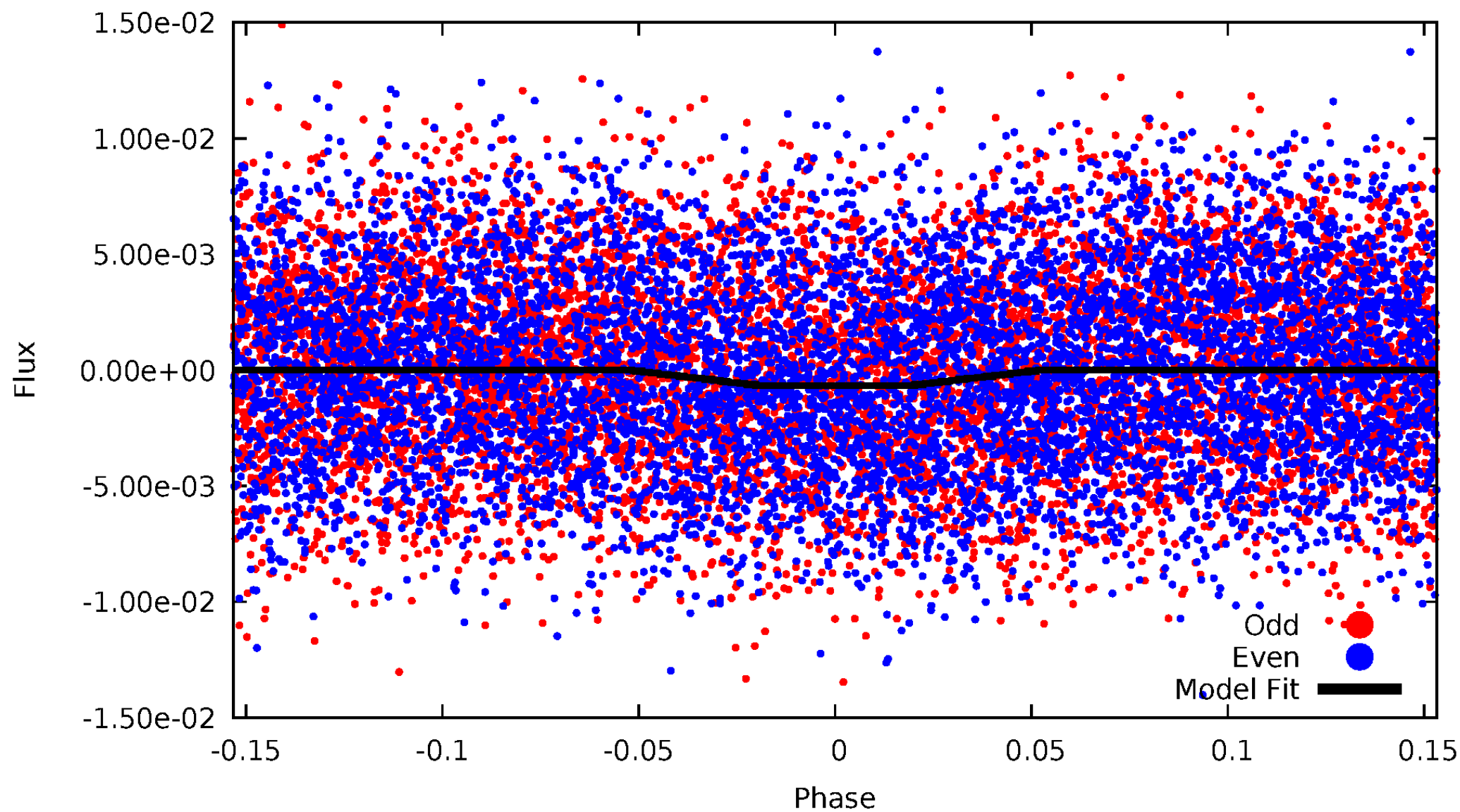
DV Odd/Even

TCE 010537907-02



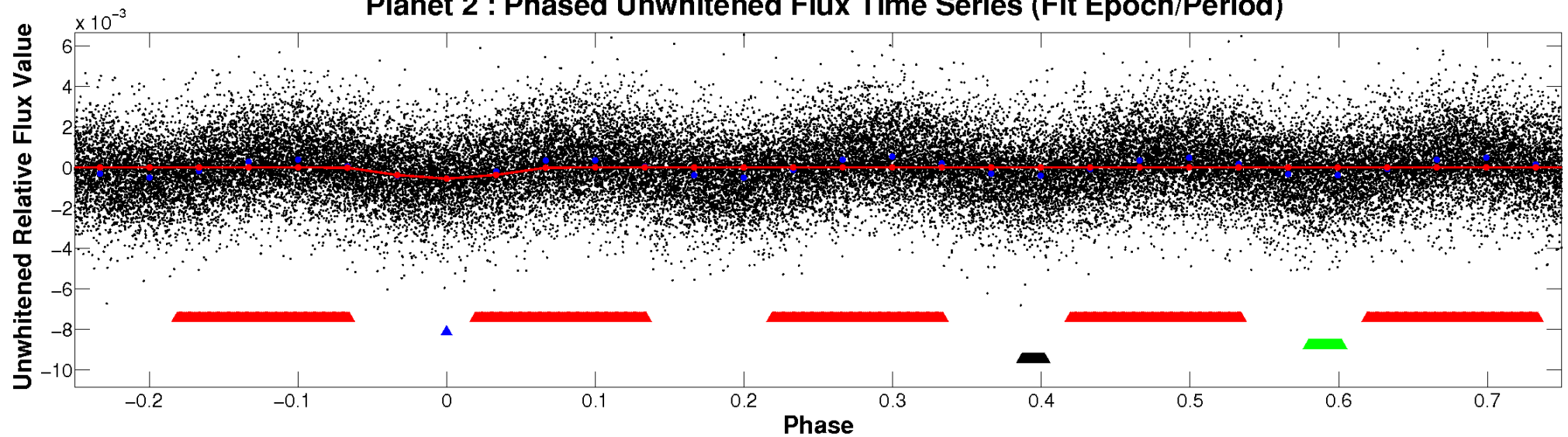
ALT Odd/Even

TCE 010537907-02

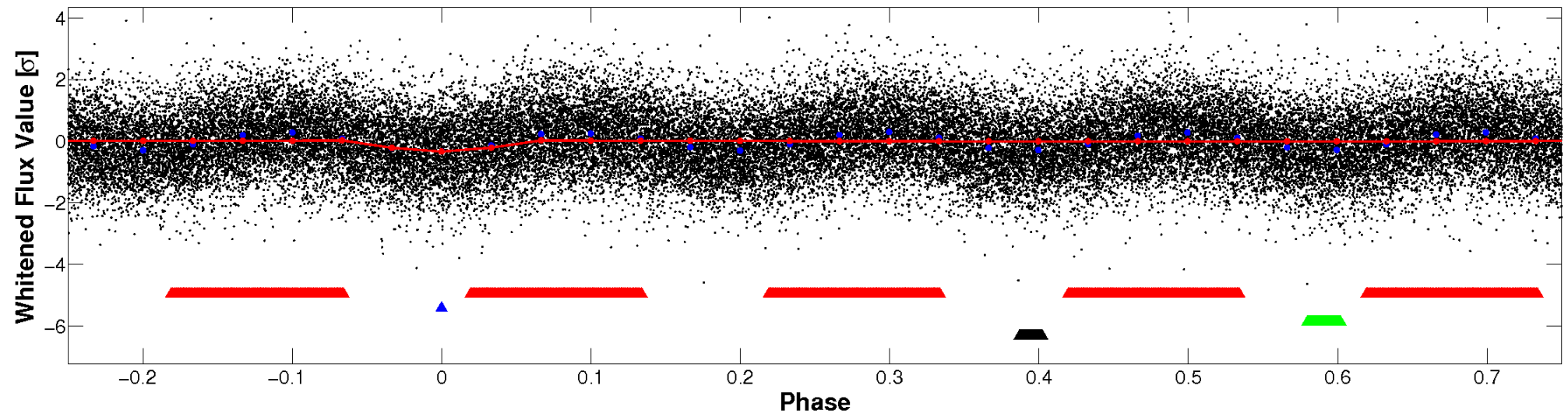


Non-Whitened Vs. Whitened Light Curve

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

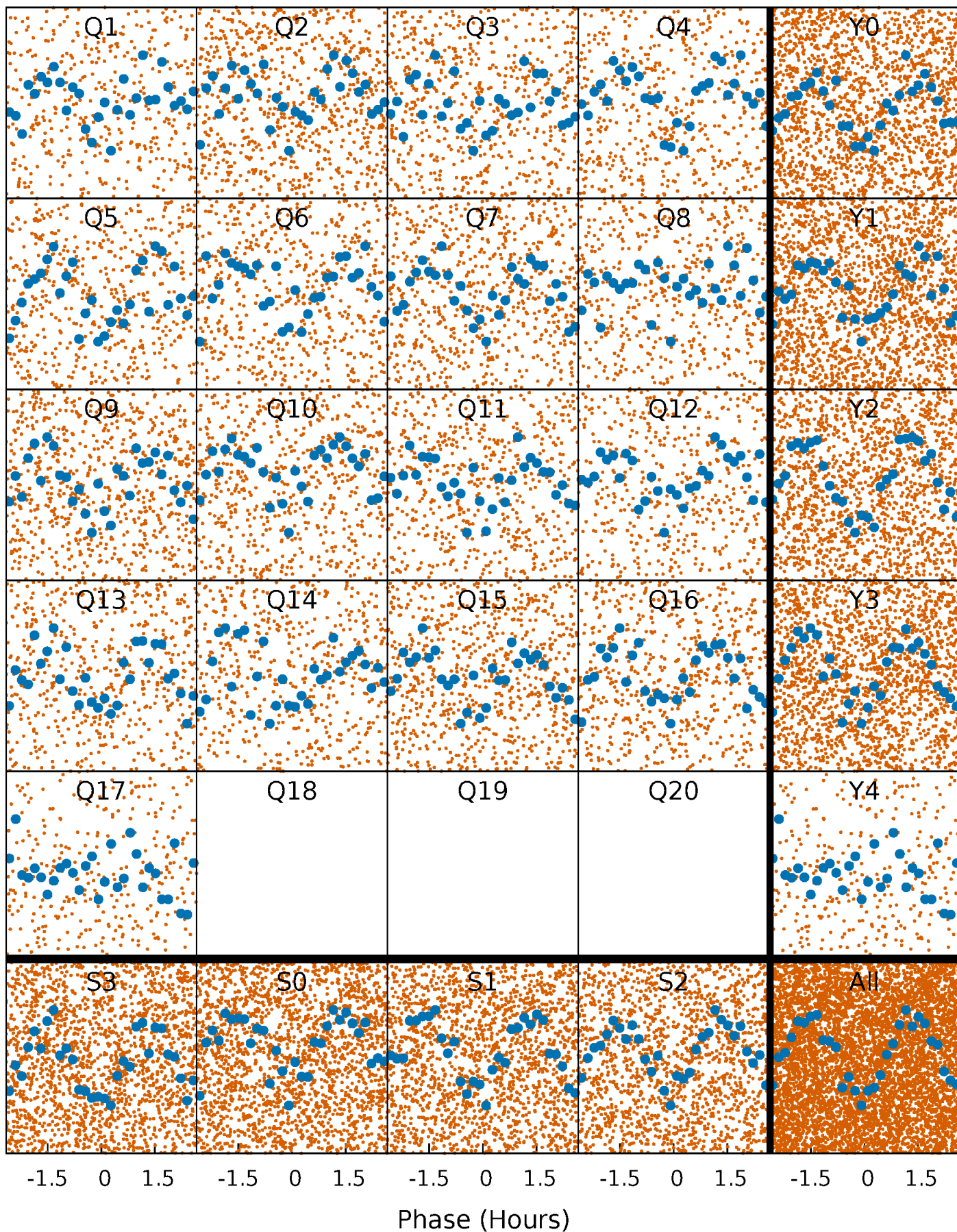


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



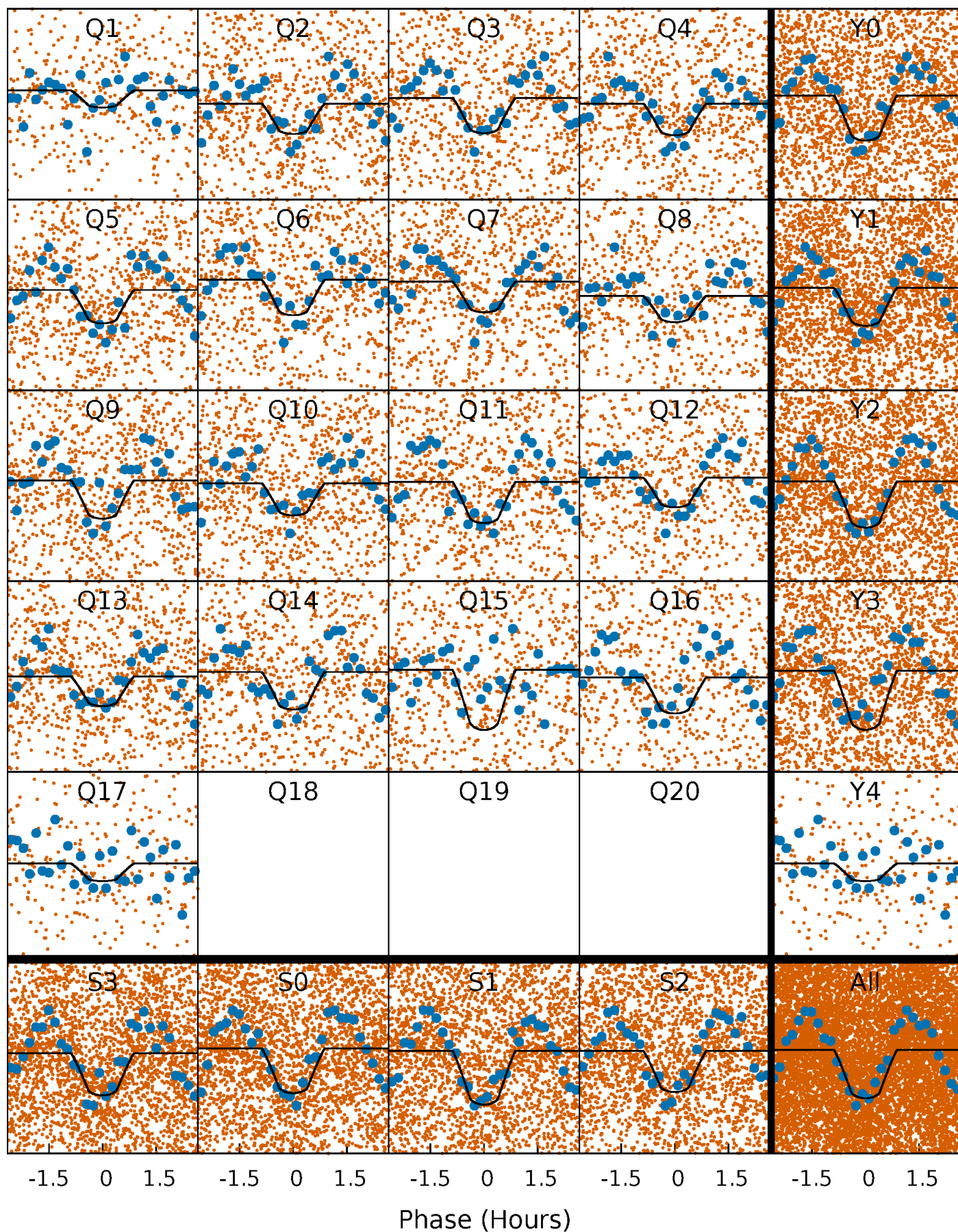
PDC Quarter-Phased Transit Curves

TCE 010537907-02 P= 0.613632 Days $T_0=132.037247$ (BKJD)



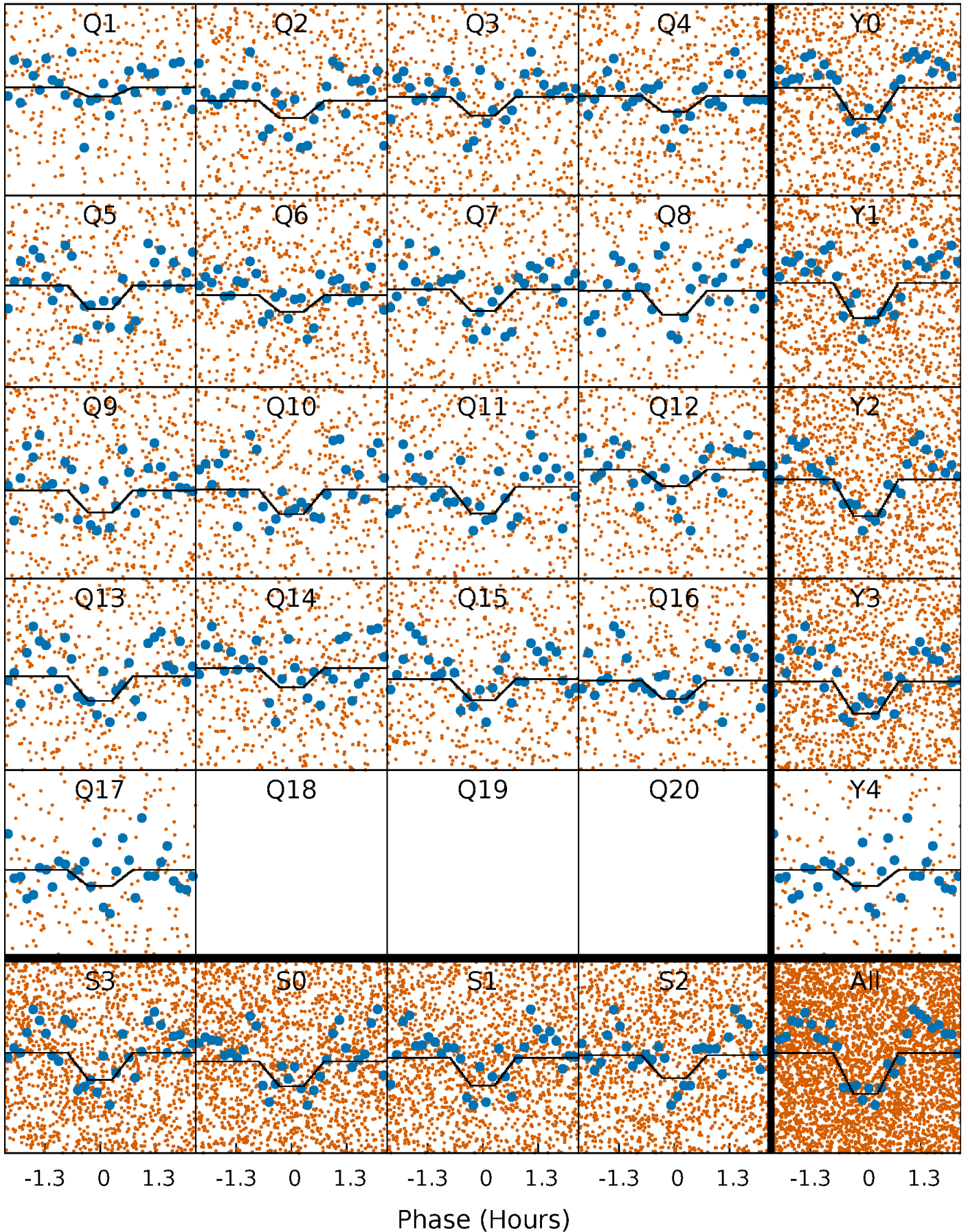
DV Quarter-Phased Transit Curves

TCE 010537907-02 P= 0.613632 Days $T_0=132.037247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

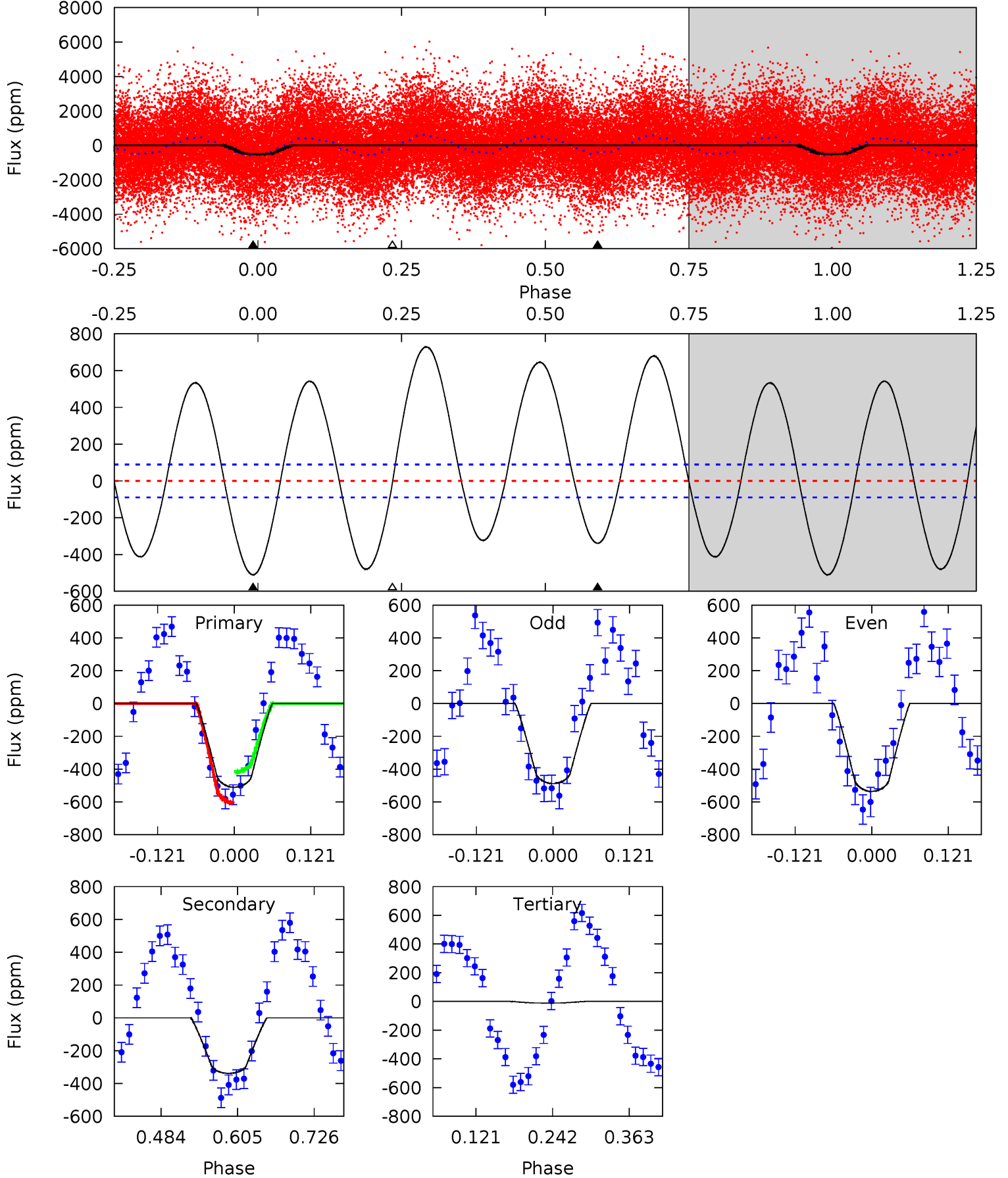
TCE 010537907-02 P= 0.613628 Days $T_0=132.036907$ (BKJD)



DV Model-Shift Uniqueness Test

010537907-02, P = 0.613632 Days, E = 131.423615 Days

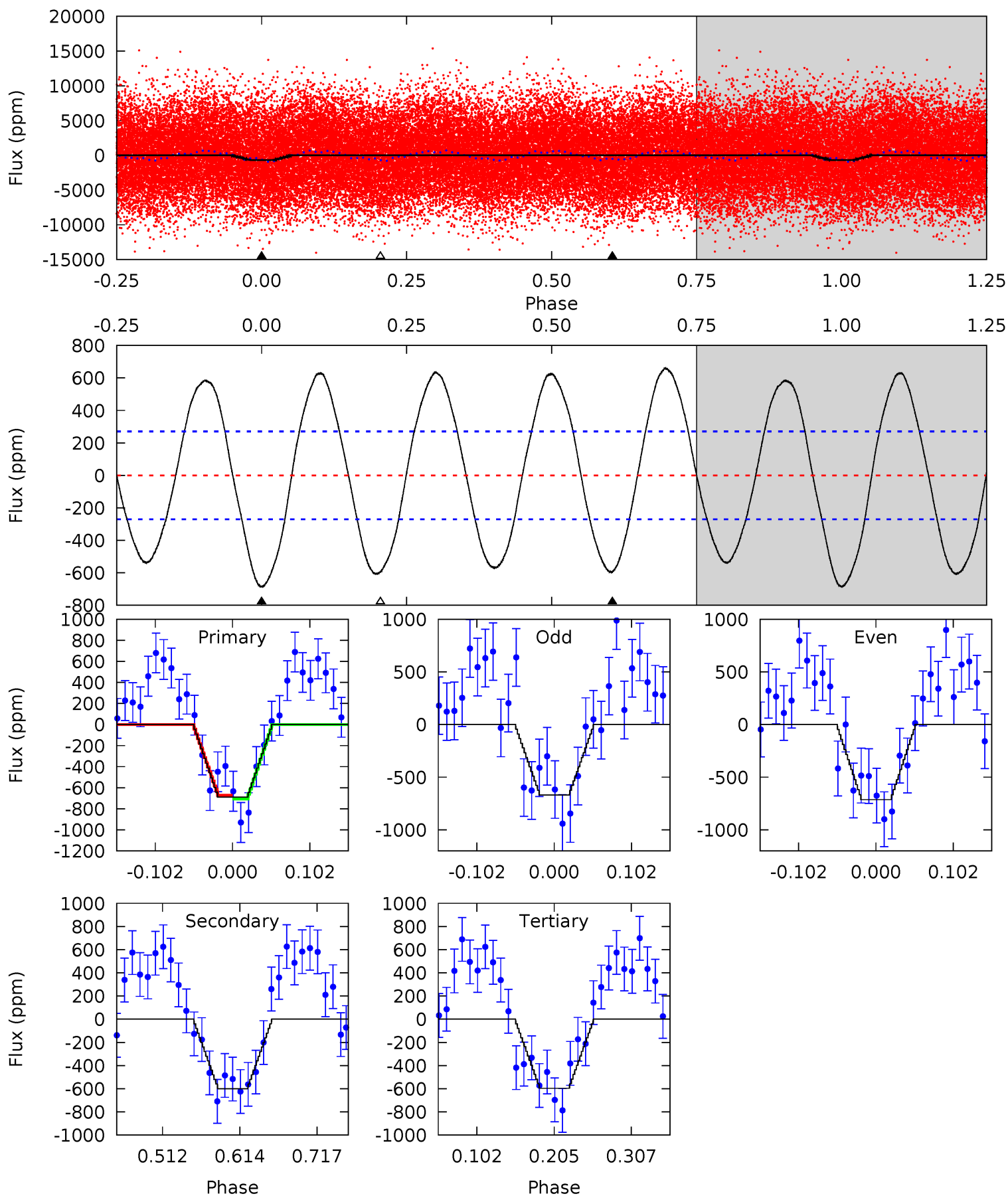
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.9	17.2	0.55	0	4.52	1.55	18.1	25.4	25.9	16.6	17.2	1.22	0.97	0.59	4.80



Alt Model-Shift Uniqueness Test

010537907-02, P = 0.613628 Days, E = 131.423279 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	10.1	10.0	0	4.56	1.63	7.00	1.58	11.6	0.06	10.1	0.38	0.84	0.49	0.29



Stellar Parameters For KIC 010537907

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7693^{+243}_{-297}	$3.588^{+0.510}_{-0.090}$	$-0.260^{+0.250}_{-0.300}$	$3.751^{+0.511}_{-2.045}$	$1.987^{+0.124}_{-0.526}$	$0.053^{+0.351}_{-0.015}$
	+3%/-4%	+14%/-3%	+96%/-115%	+14%/-55%	+6%/-26%	+661%/-29%
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 010537907-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-338 ± 20	$8.64^{+4.91}_{-4.19}$	6682^{+493}_{-900}	5782^{+3261}_{-2522}	$0.761^{+2.078}_{-0.438}$
Alt.	-600 ± 59	$9.32^{+4.95}_{-4.30}$	6669^{+479}_{-875}	6712^{+3483}_{-1673}	$1.166^{+2.605}_{-0.664}$

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 $A_{obs} \gg 1.0$

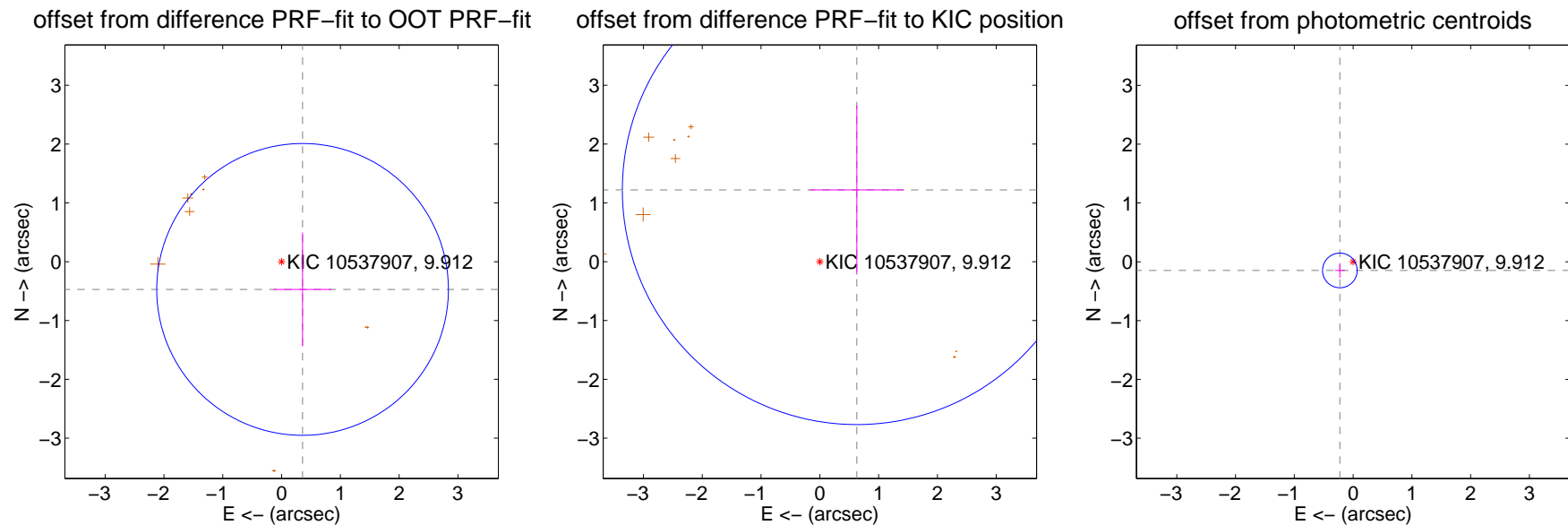
DV Centroid Data

Supplemental centroid analysis for 010537907-02. **Kepler magnitude: 9.91.** Transit SNR 18.21

There are 1 quarters with good PRF difference image offsets

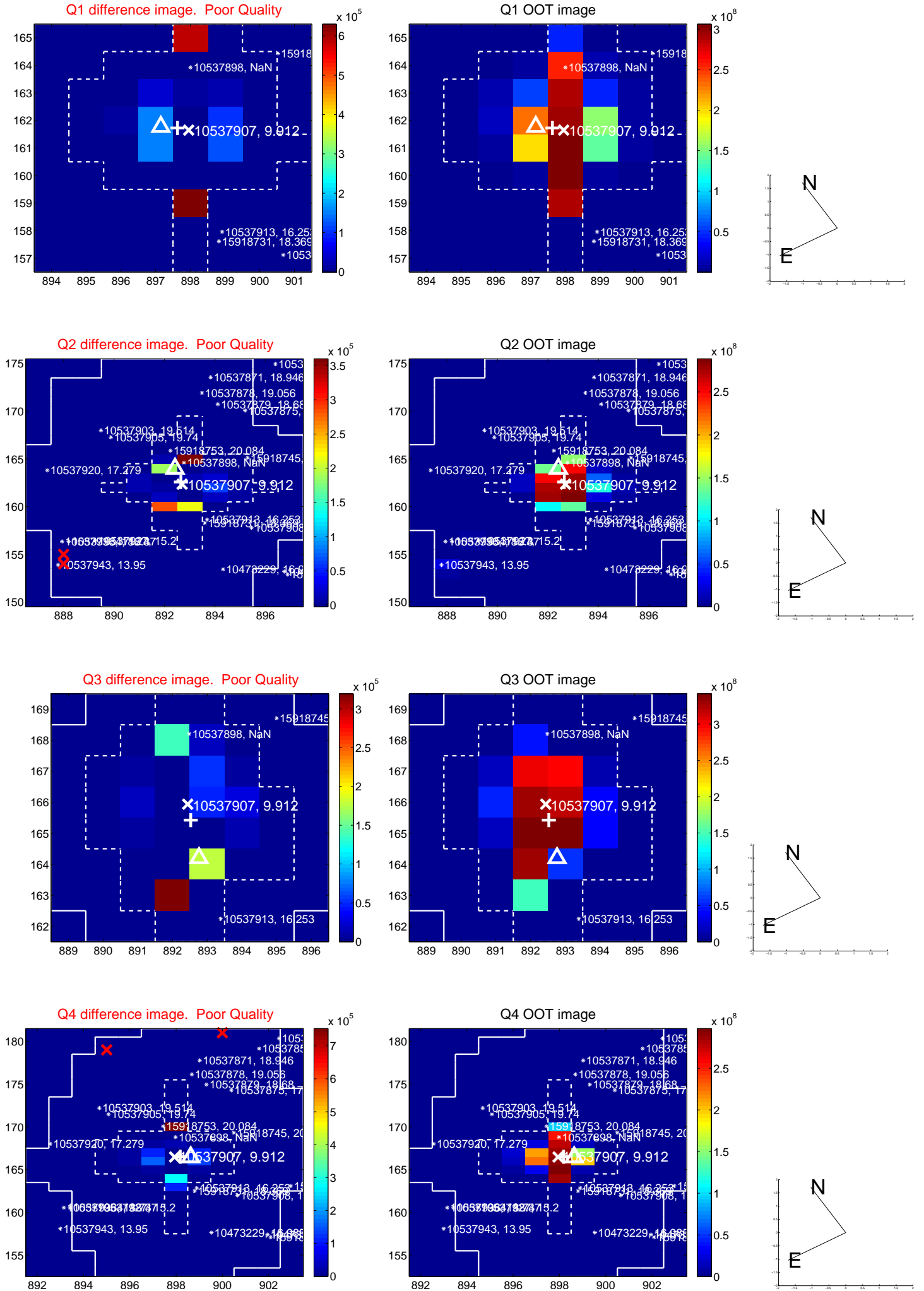
The direct PRF centroid is offset from the target star catalog position by about 1.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.591 ± 0.827	0.72	-0.357 ± 0.495	-0.471 ± 0.967
PRF-fit source offset from KIC position	1.372 ± 1.329	1.03	-0.630 ± 0.799	1.219 ± 1.438
photometric centroid source offset	0.27 ± 0.10	2.74	0.23 ± 0.09	-0.15 ± 0.12

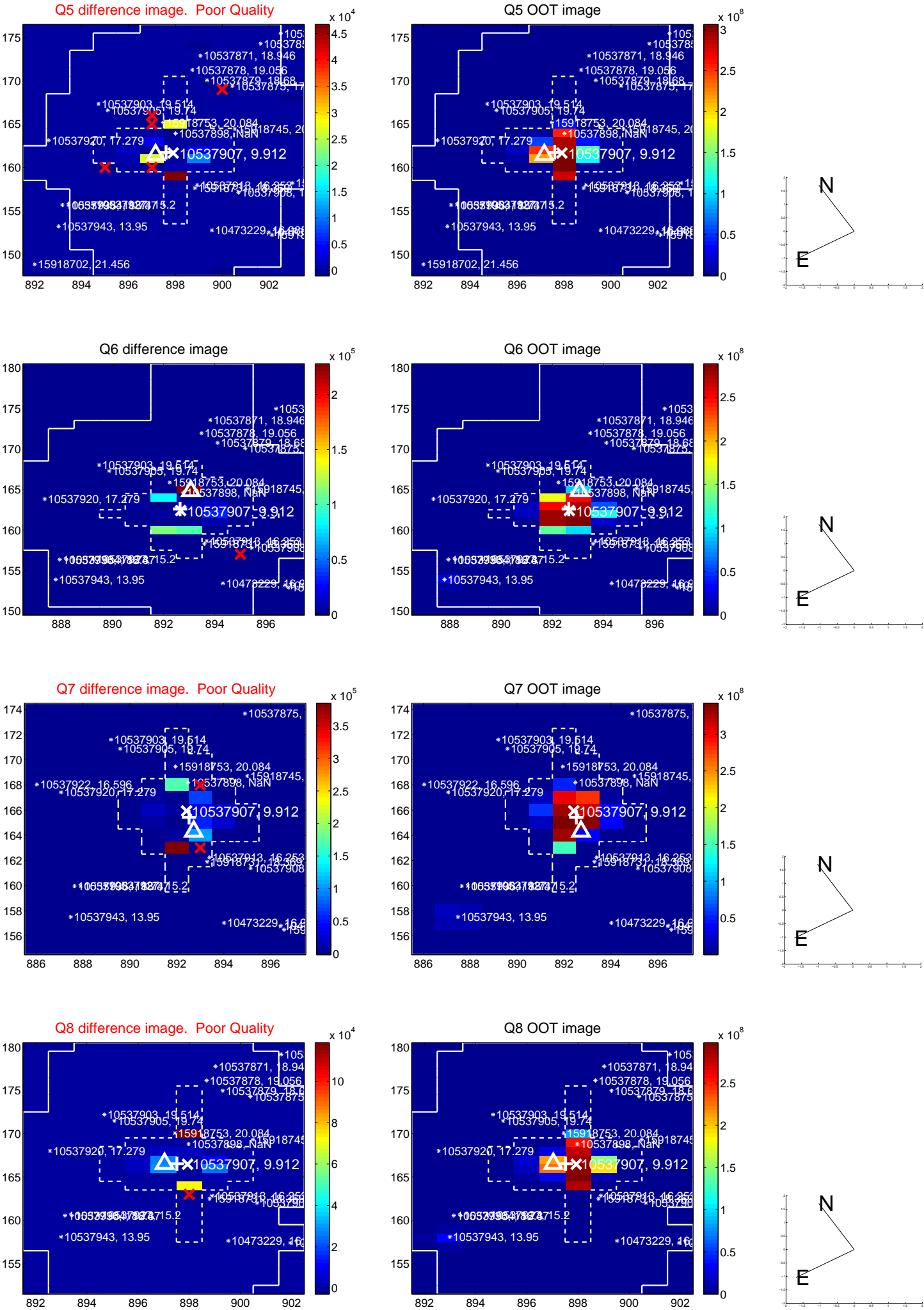


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

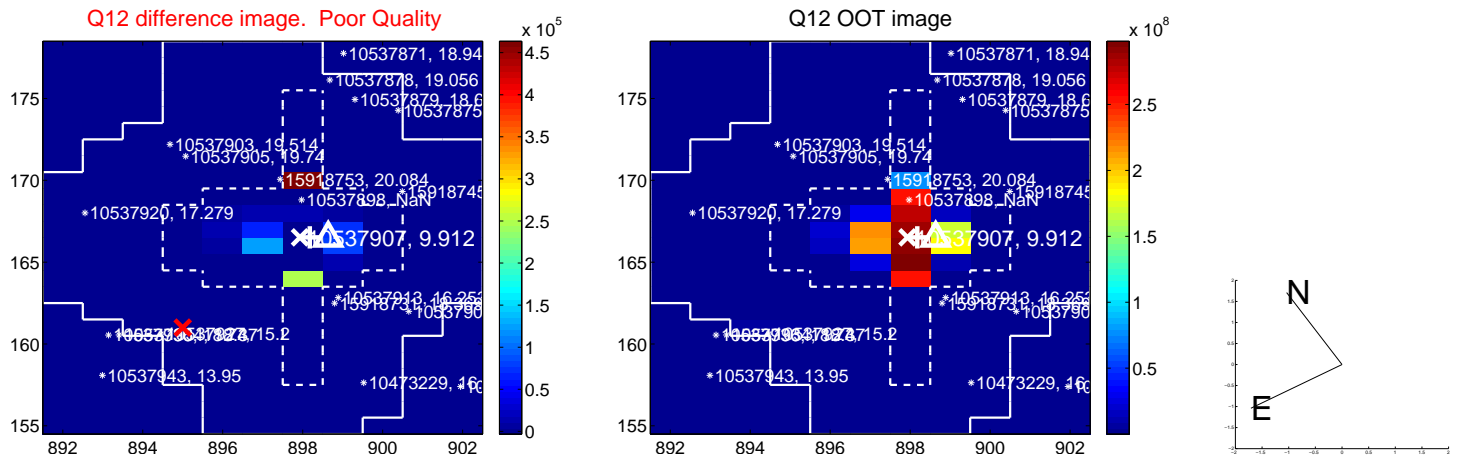
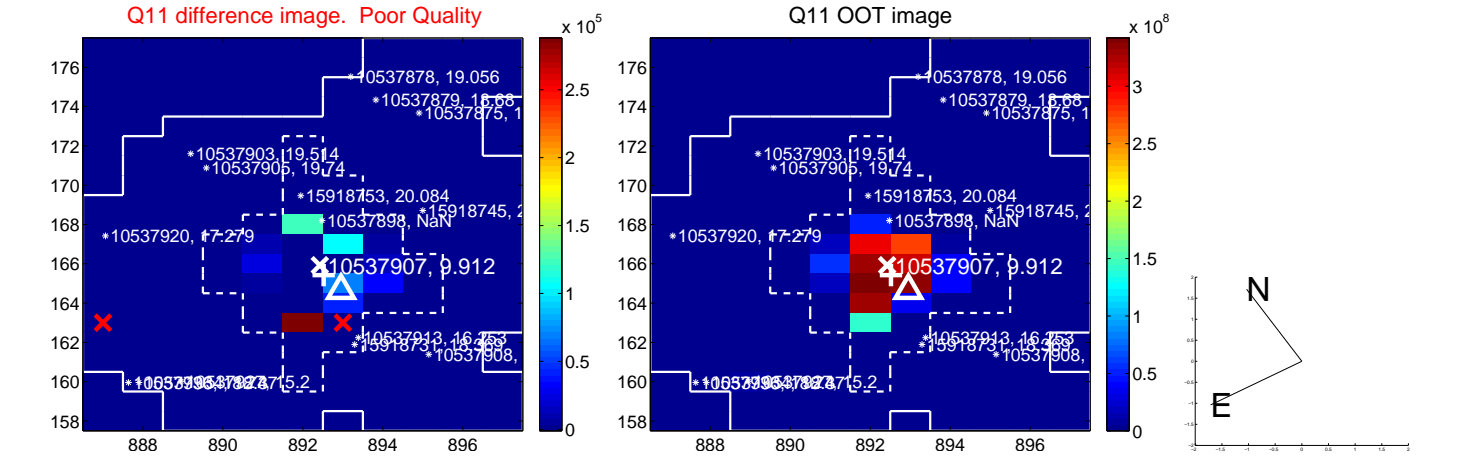
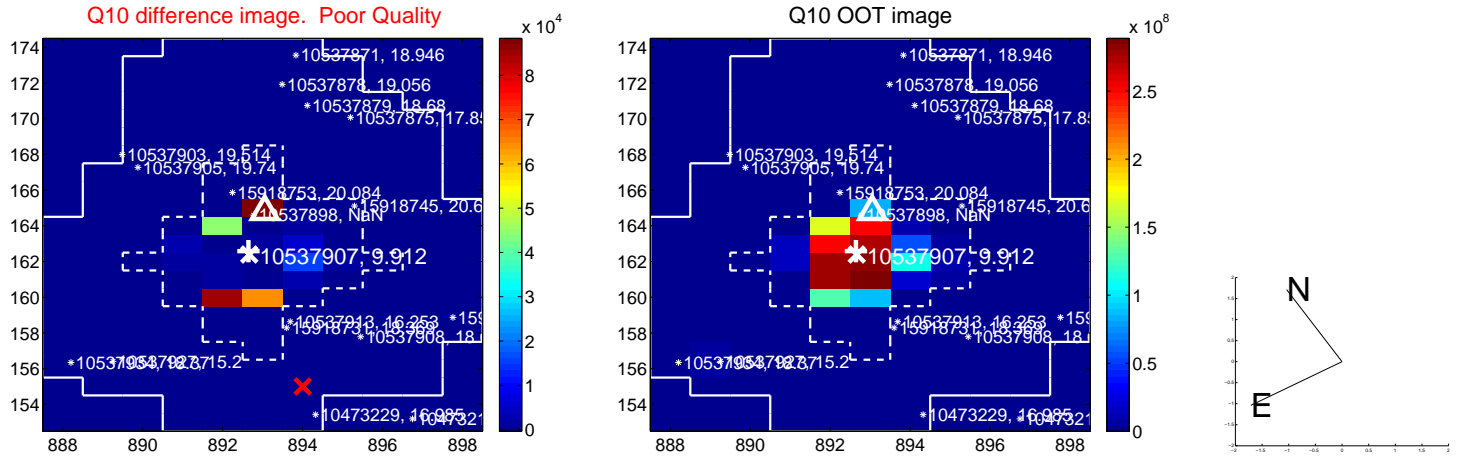
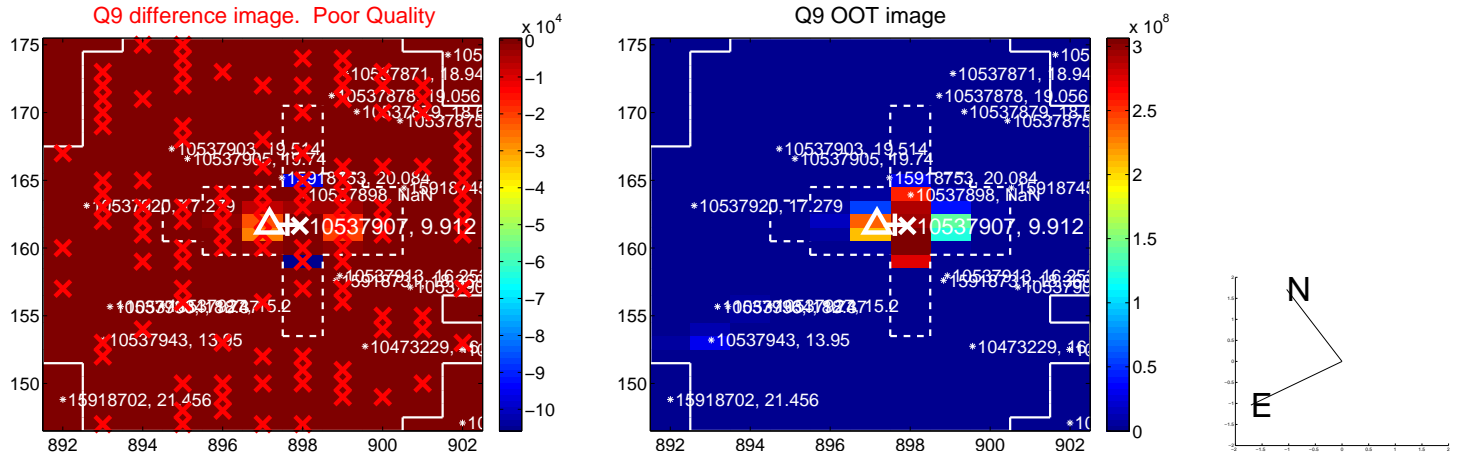
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

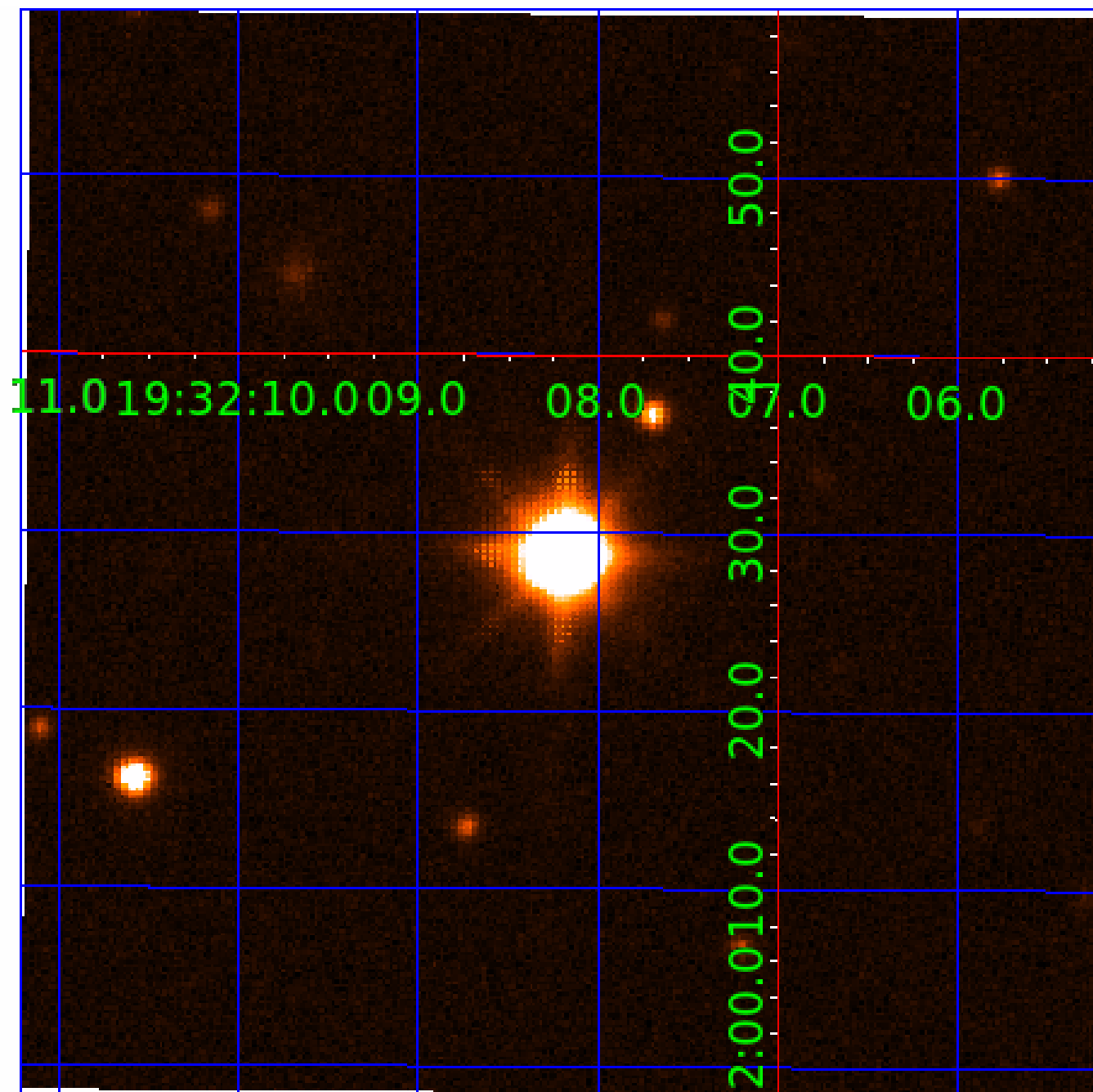


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010537907

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})
010537907-01	OBS	No	2.208968	132.610607	241.5	4.913	9.0	7.5	3.75	7693	6.34	25339.00
010537907-02	OBS	No	0.613632	132.037247	564.7	1.337	13.9	18.2	3.75	7693	9.58	0.00
010537907-03	OBS	No	0.613626	131.792964	483.2	1.261	13.3	15.2	3.75	7693	9.73	0.00
010537907-04	OBS	No	0.613628	131.670369	49.3	1.500	10.4	-1.0	3.75	7693	2.65	139798.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010537907-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010537907-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_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.

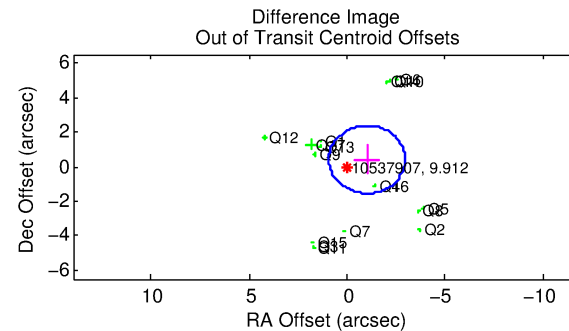
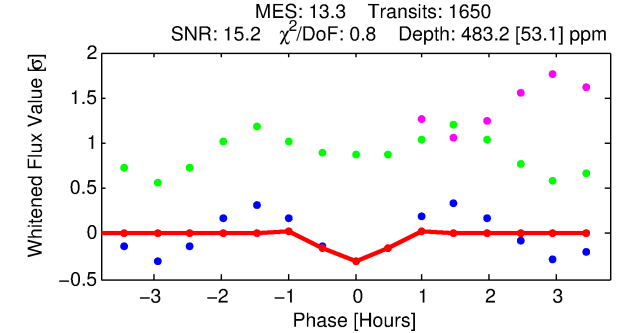
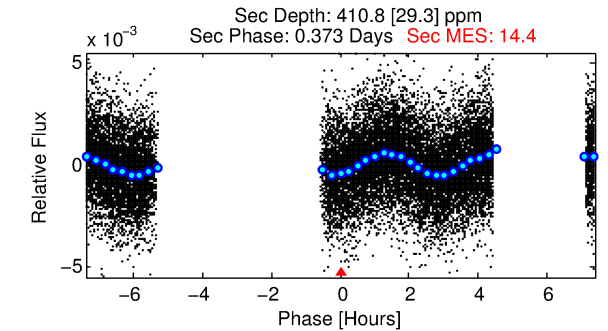
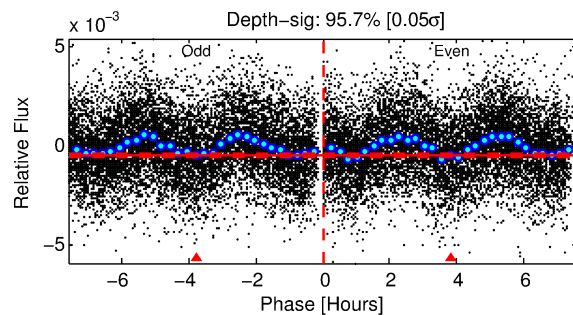
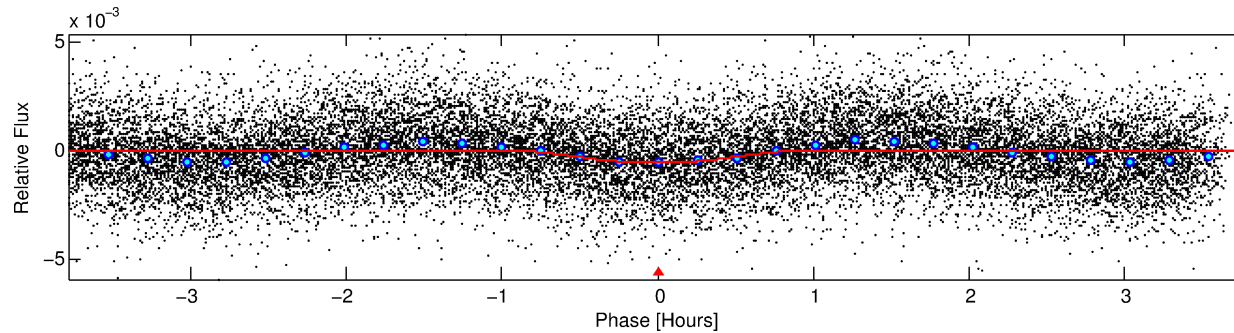
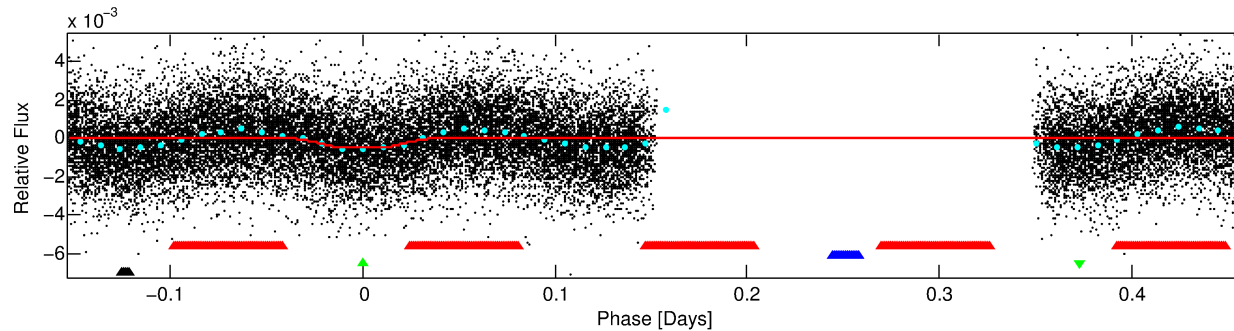
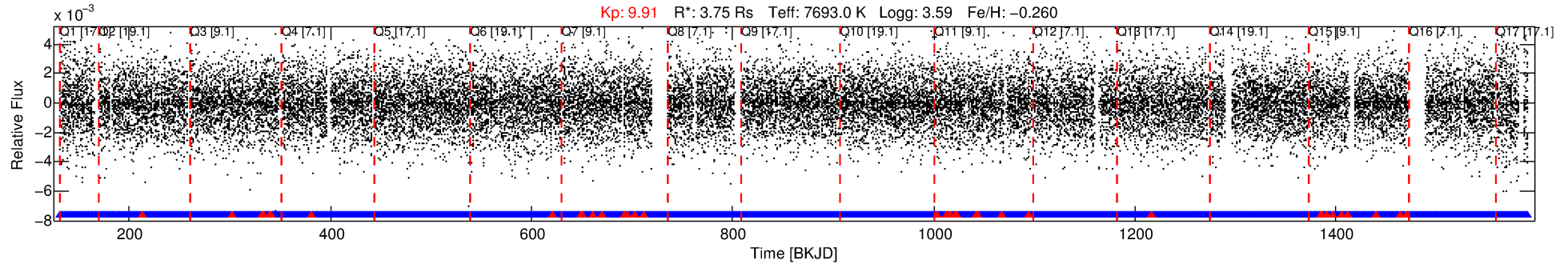
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010537907-03

No Significant Match Found

DV One-Page Summary

KIC: 10537907 Candidate: 3 of 4 Period: 0.614 d



DV Fit Results:

Period = 0.61363 [0.00001] d
Epoch = 131.7930 [0.0012] BKJD
 $R_p/R^* = 0.0238$ [0.0077]
 $a/R^* = 2.04$ [2.68]
 $b = 0.90$ [0.37]
 $\text{Seff} = \text{N/A}$
 $\text{Teq} = \text{N/A}$
 $R_p = 9.73$ [6.16] R_e
 $a = \text{N/A}$
 $\text{Ag} = \text{N/A}$
 $\text{Teffp} = \text{N/A}$

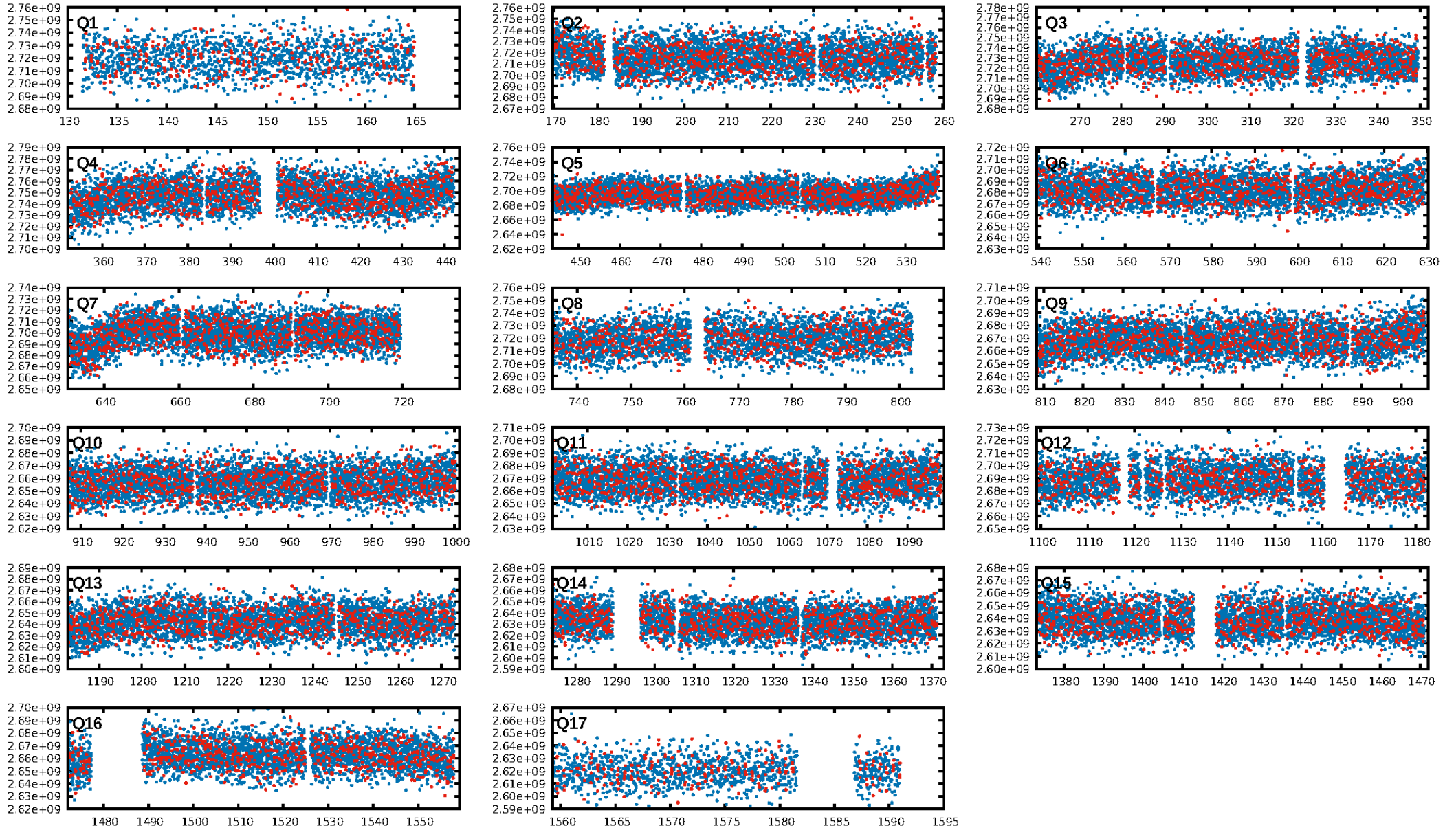
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1538/1576]
GhostDiagnostic-chr: N/A
Centroid-sig: 2.0%
Centroid-so: 0.217 arcsec [1.76 σ]
OotOffset-rm: 1.090 arcsec [1.67 σ]
KicOffset-rm: 1.809 arcsec [2.20 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 0.00 [0/17]

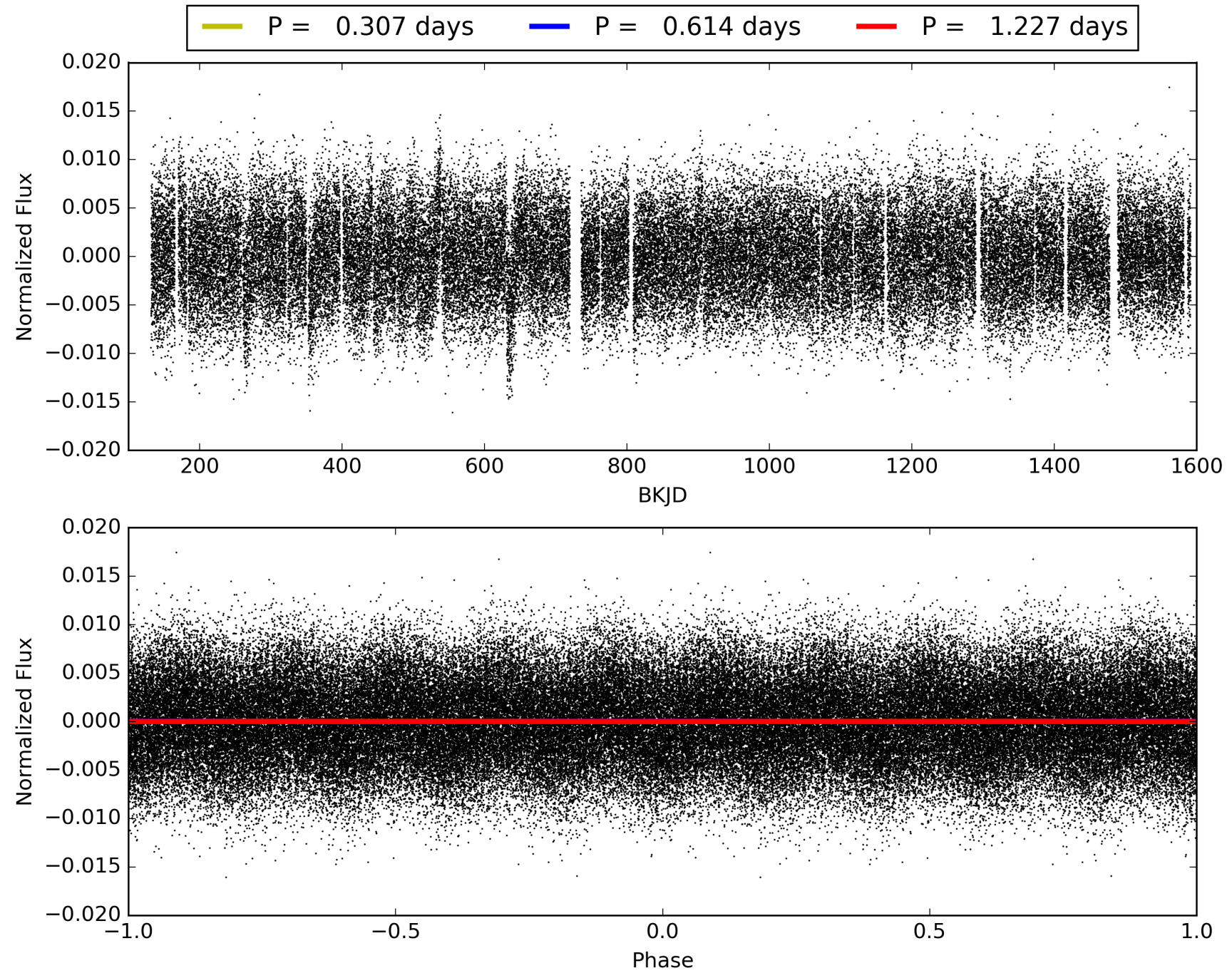
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:04:54 Z

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

TCE 010537907-03, PDC Light Curves

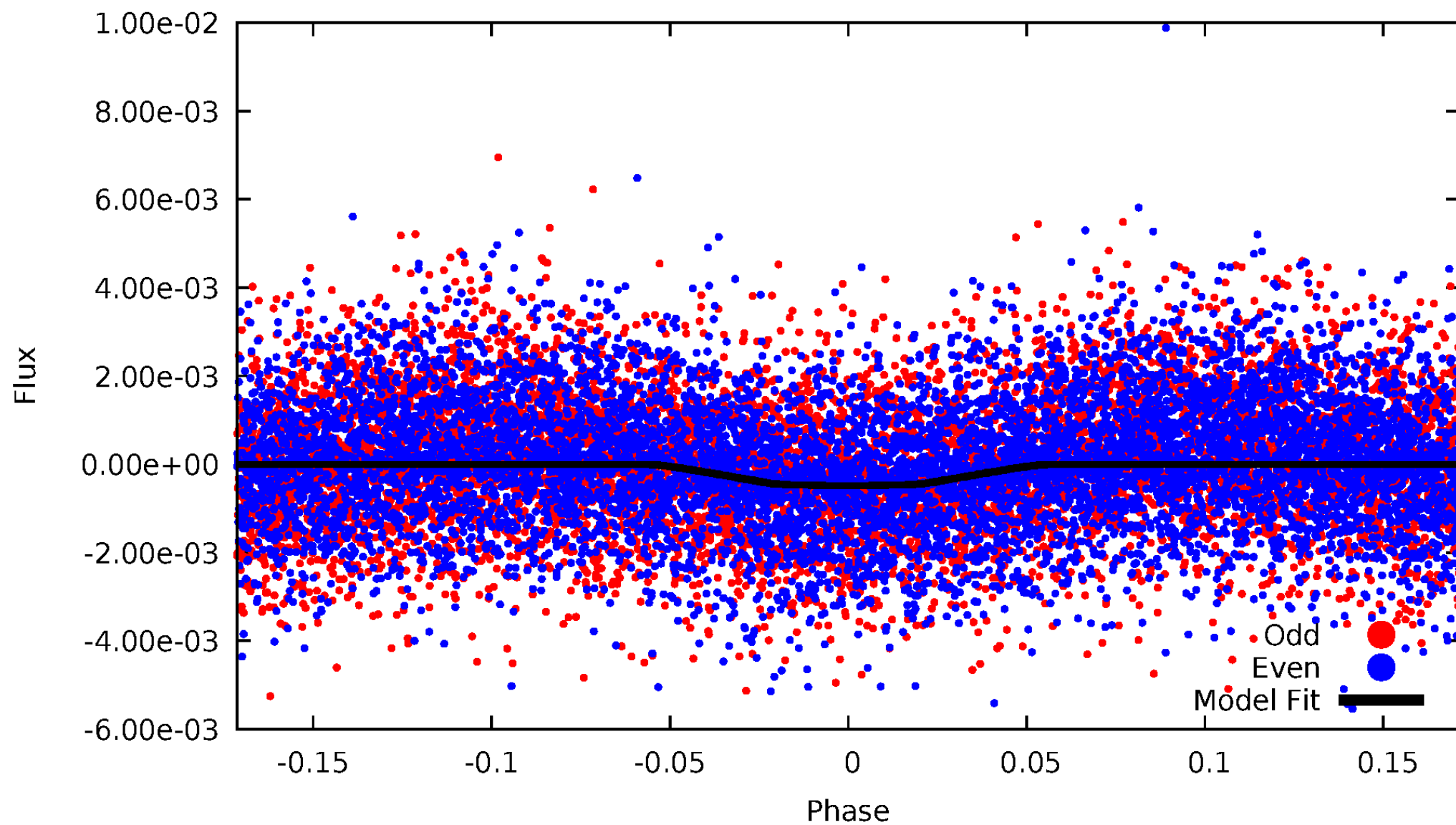


TCE 010537907-03



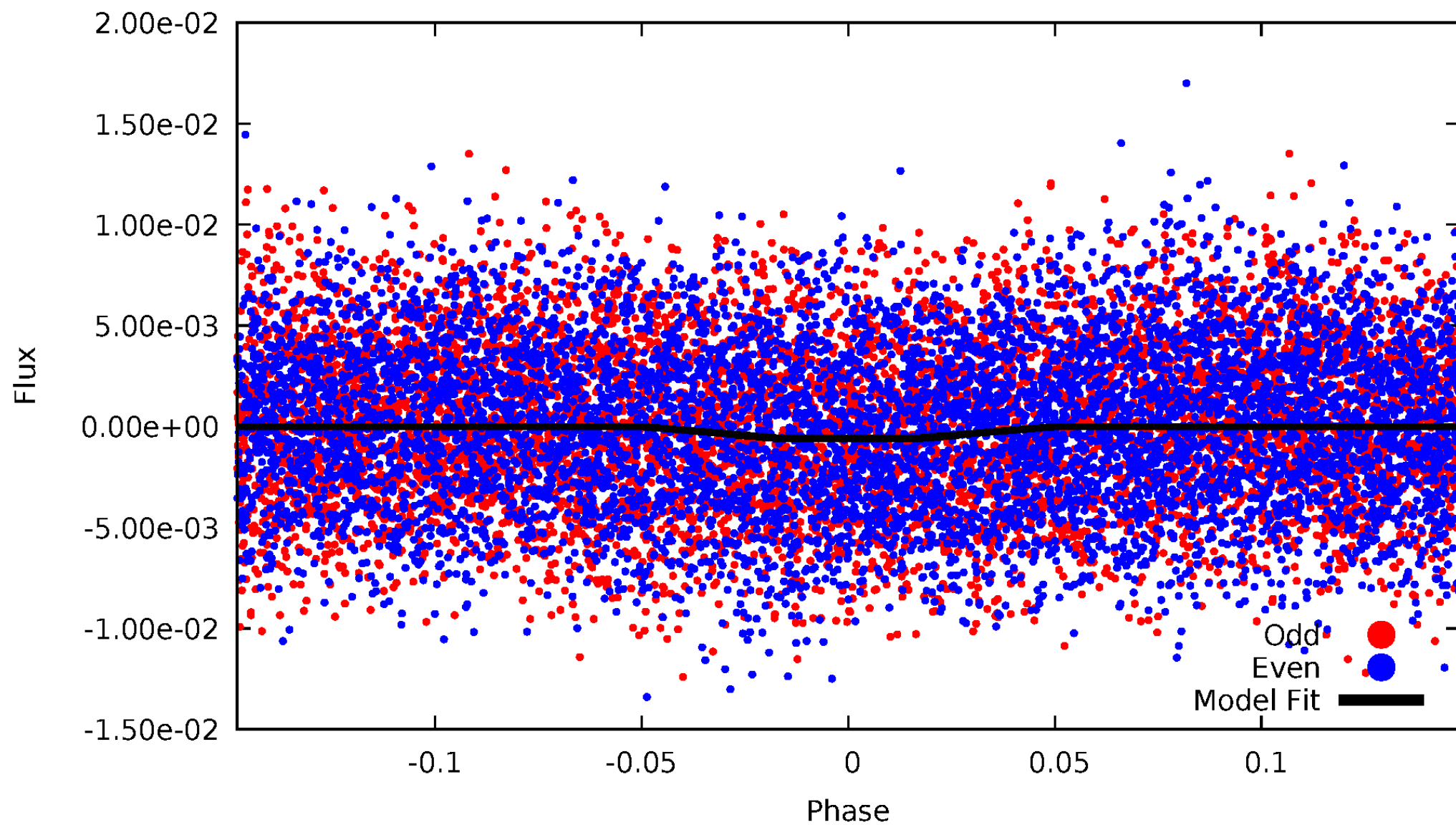
DV Odd/Even

TCE 010537907-03

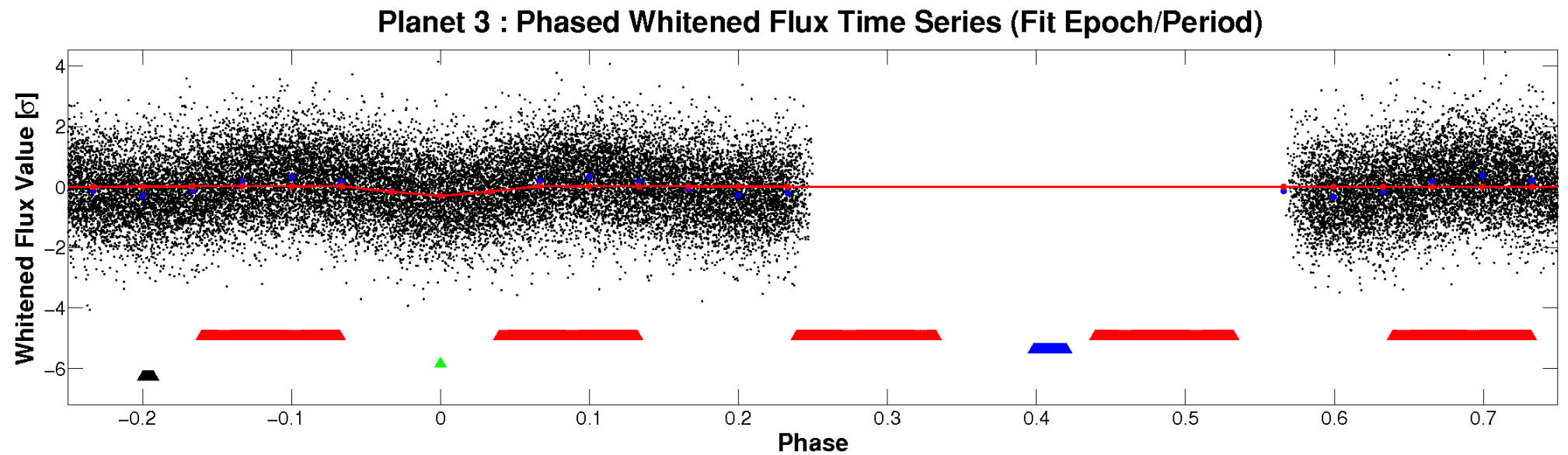
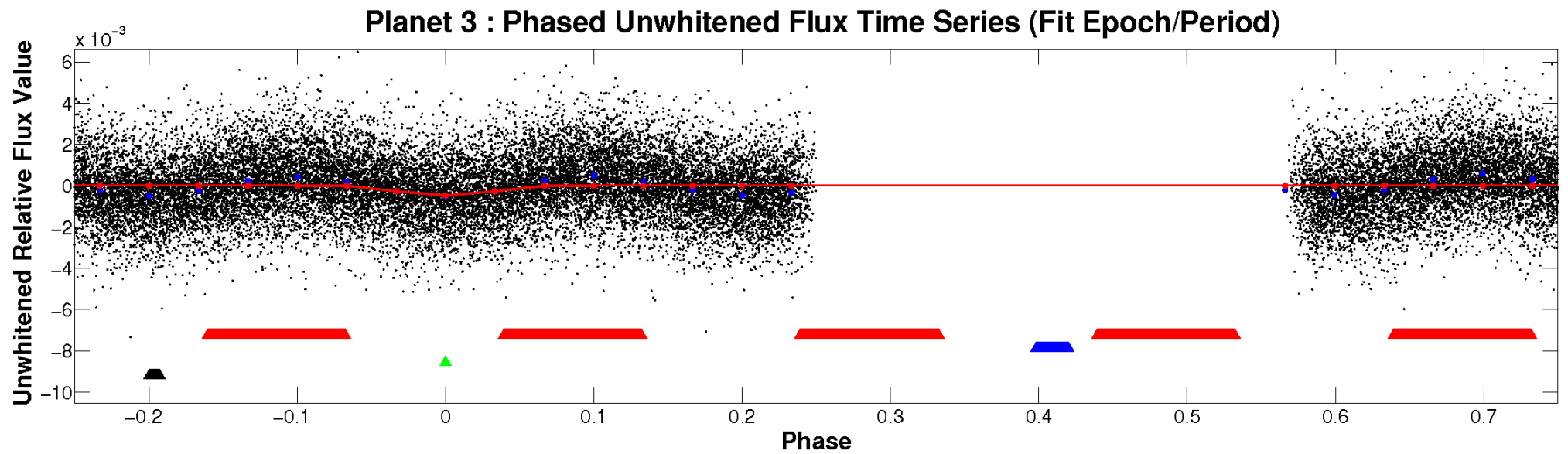


ALT Odd/Even

TCE 010537907-03

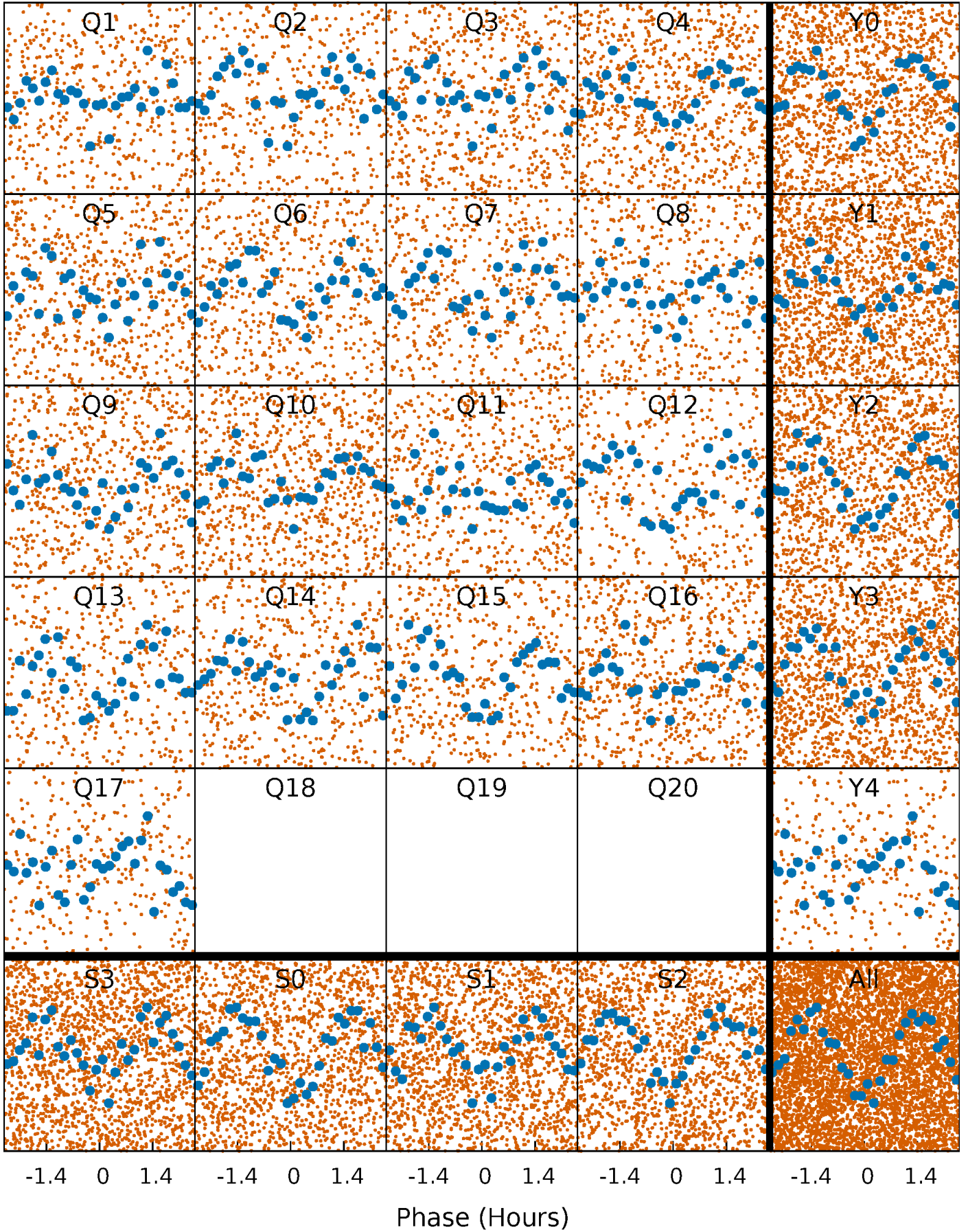


Non-Whitened Vs. Whitened Light Curve



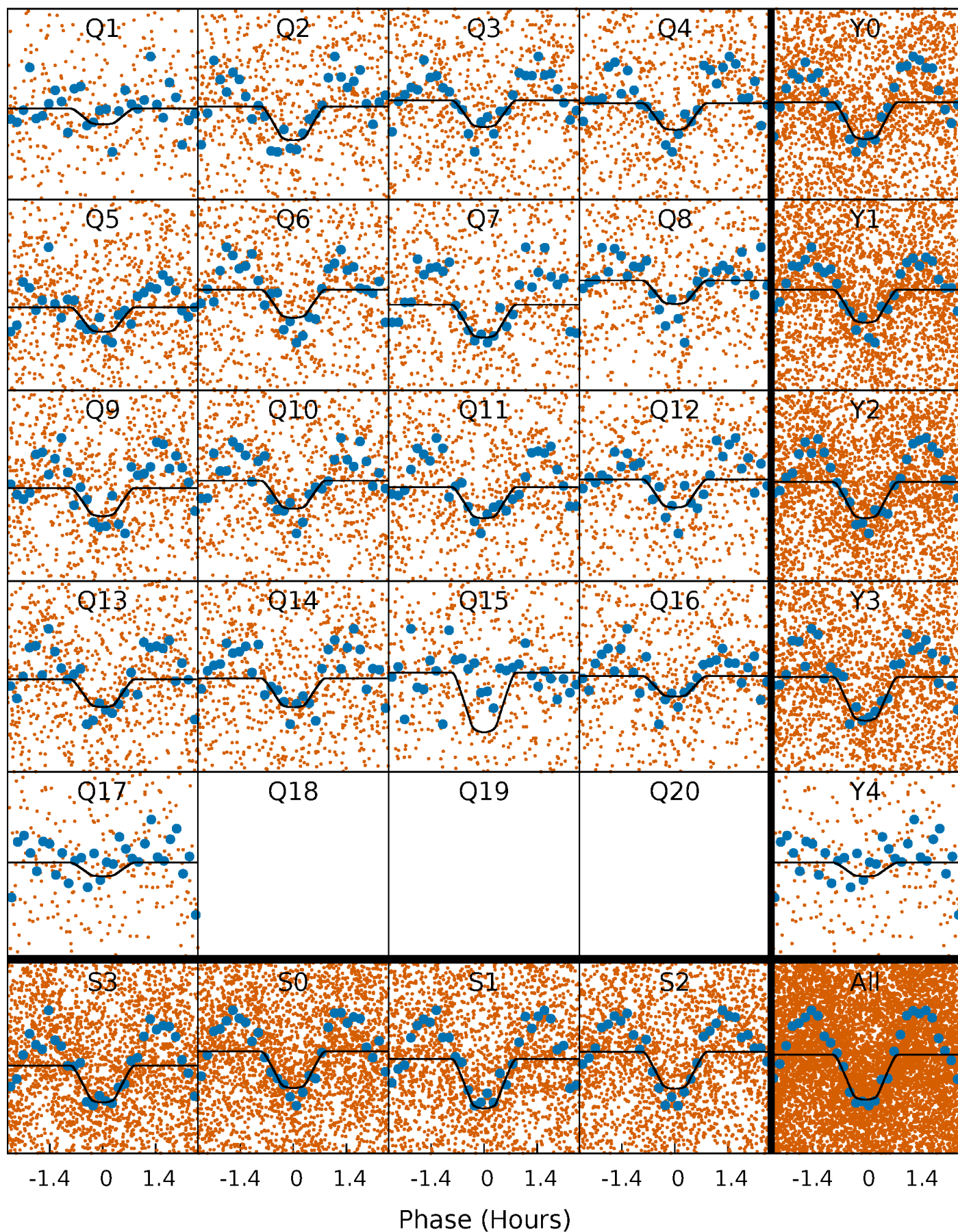
PDC Quarter-Phased Transit Curves

TCE 010537907-03 P= 0.613626 Days $T_0=131.792964$ (BKJD)



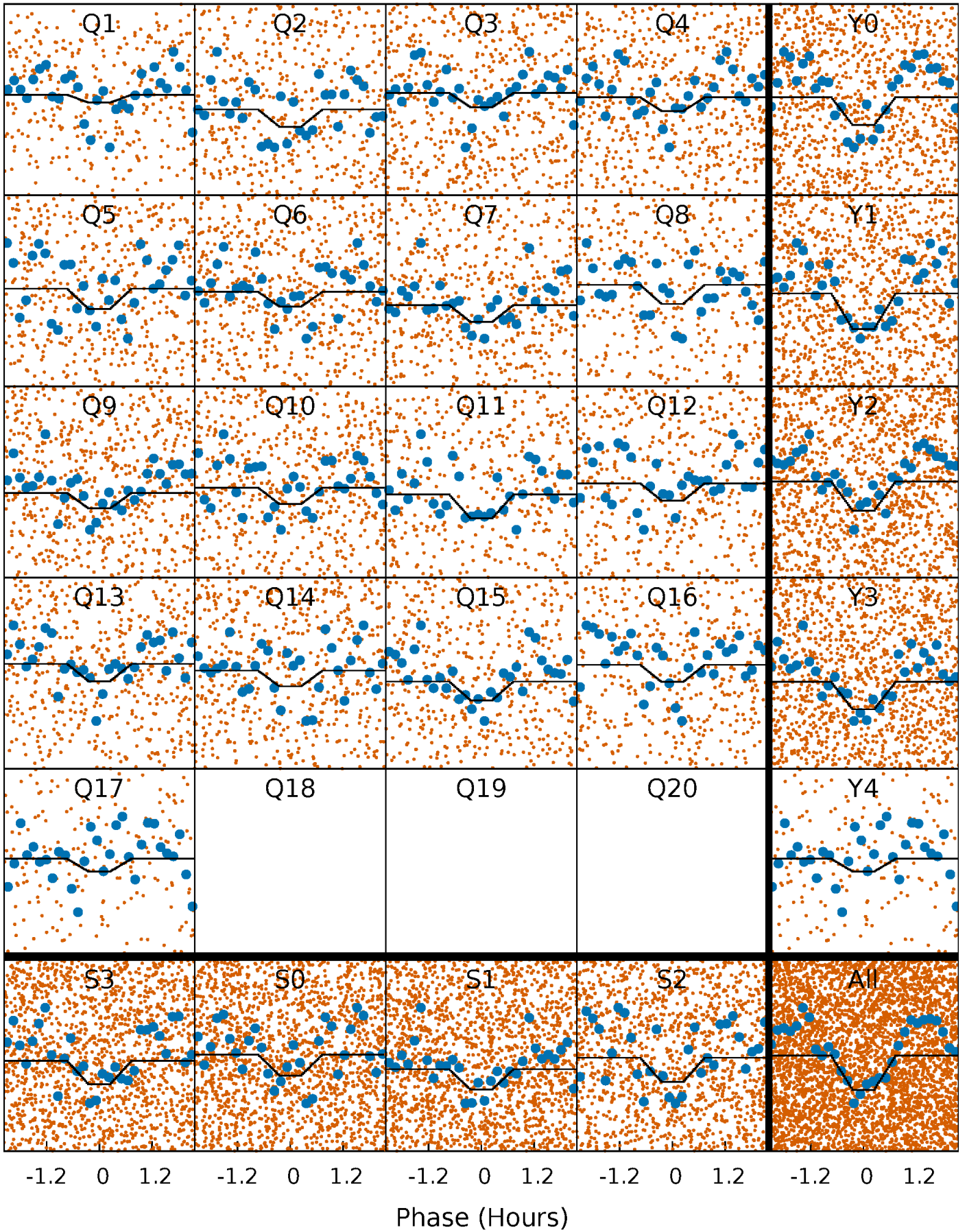
DV Quarter-Phased Transit Curves

TCE 010537907-03 P= 0.613626 Days $T_0=131.792964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

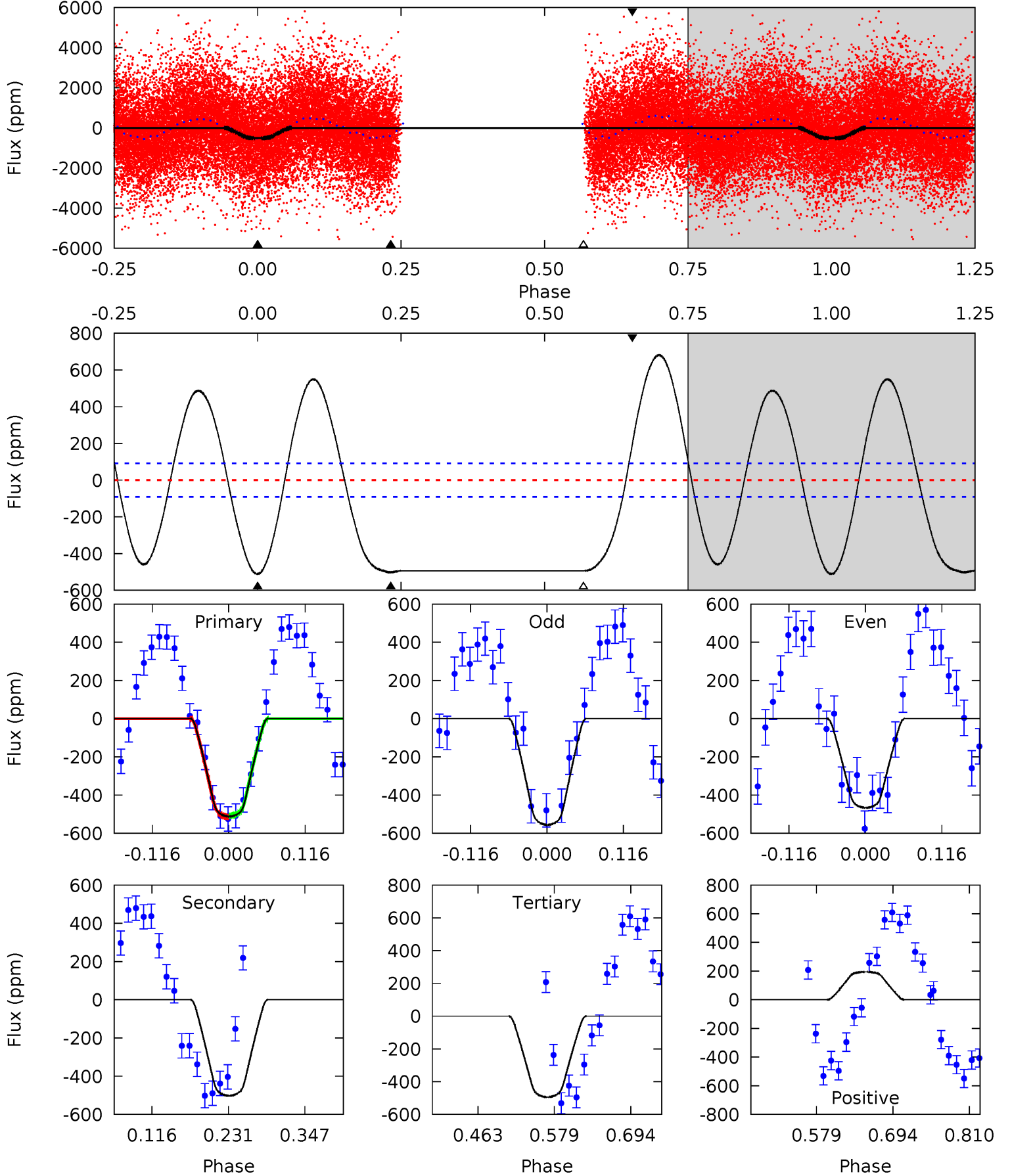
TCE 010537907-03 $P = 0.613628$ Days $T_0 = 131.793125$ (BKJD)



DV Model-Shift Uniqueness Test

010537907-03, P = 0.613626 Days, E = 131.179338 Days

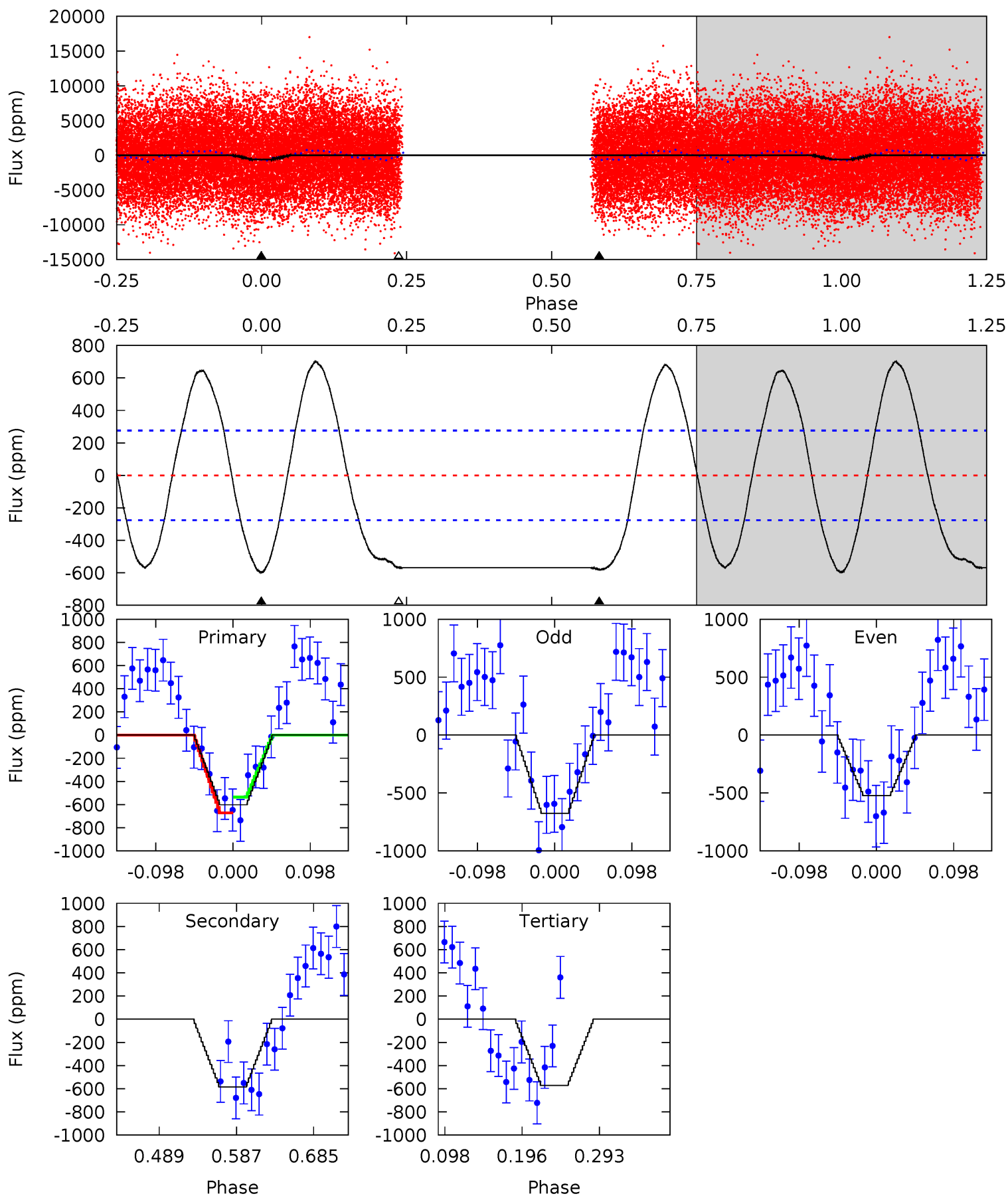
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	24.8	24.4	9.62	4.53	1.57	19.3	0.88	15.7	0.39	15.2	2.21	1.09	0.57	0.17



Alt Model-Shift Uniqueness Test

010537907-03, P = 0.613628 Days, E = 131.179497 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.97	9.68	9.47	0	4.57	1.66	7.54	0.51	9.97	0.22	9.68	1.26	0.95	0.54	1.10



Stellar Parameters For KIC 010537907

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7693^{+243}_{-297}	$3.588^{+0.510}_{-0.090}$	$-0.260^{+0.250}_{-0.300}$	$3.751^{+0.511}_{-2.045}$	$1.987^{+0.124}_{-0.526}$	$0.053^{+0.351}_{-0.015}$
	+3%/-4%	+14%/-3%	+96%/-115%	+14%/-55%	+6%/-26%	+661%/-29%
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 010537907-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-502 ± 20	$8.48^{+3.83}_{-3.19}$	6697^{+470}_{-909}	6879^{+2310}_{-1534}	$1.186^{+1.795}_{-0.611}$
Alt.	-584 ± 60	$8.91^{+3.51}_{-3.72}$	6681^{+499}_{-902}	7065^{+2566}_{-1466}	$1.291^{+2.448}_{-0.638}$

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 $A_{obs} \gg 1.0$

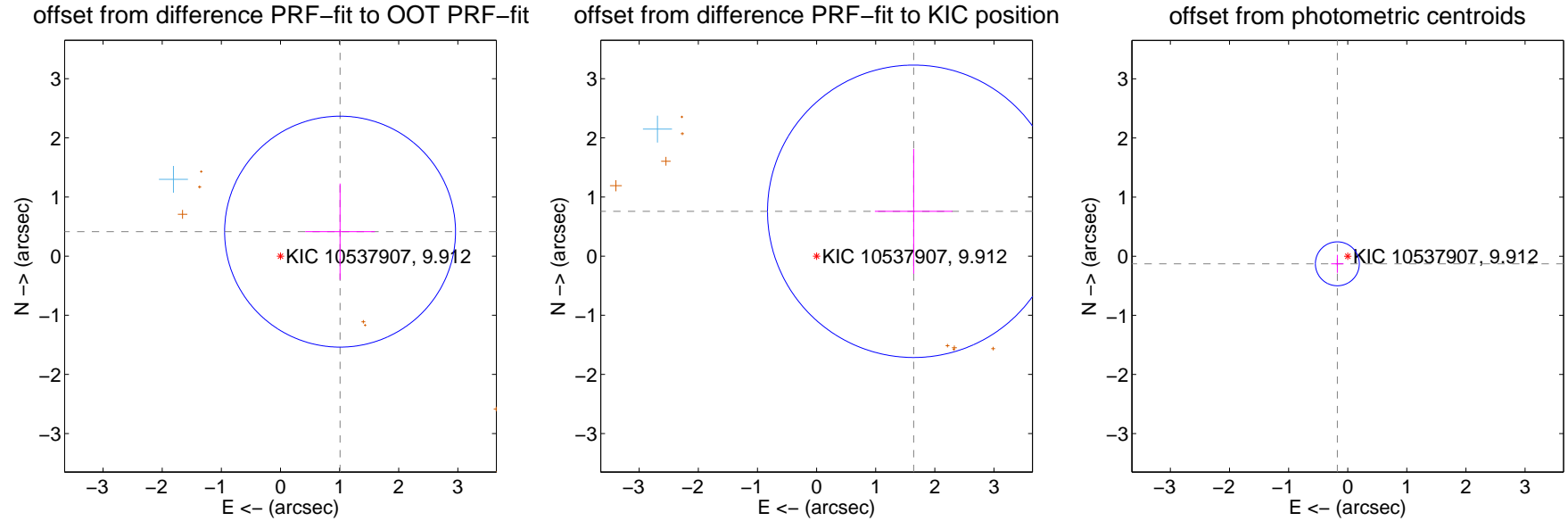
DV Centroid Data

Supplemental centroid analysis for 010537907-03. **Kepler magnitude: 9.91.** Transit SNR 15.23

There are 1 quarters with good PRF difference image offsets

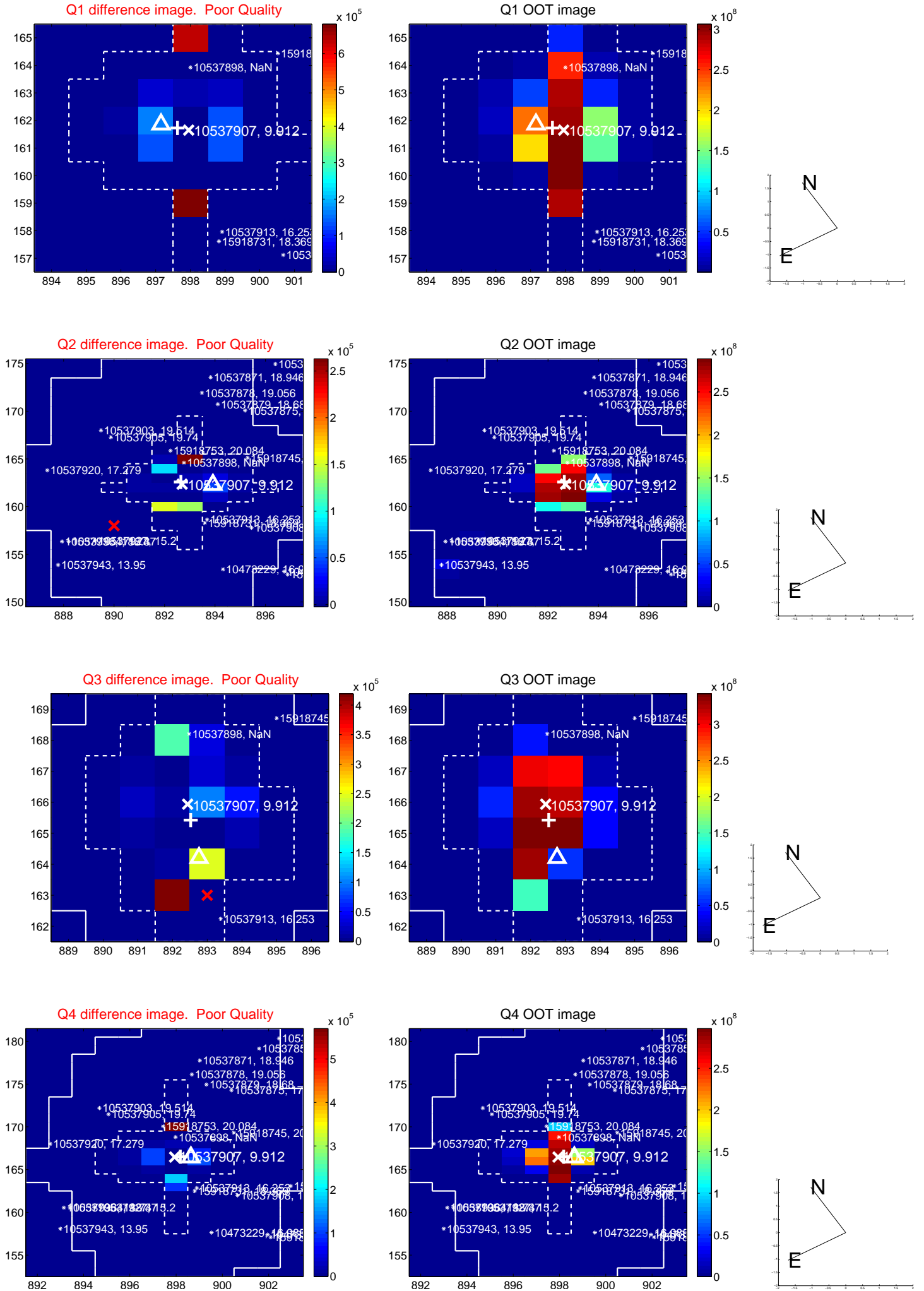
The direct PRF centroid is offset from the target star catalog position by about 1.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.090 ± 0.651	1.67	-1.008 ± 0.590	0.414 ± 0.814
PRF-fit source offset from KIC position	1.809 ± 0.824	2.20	-1.643 ± 0.657	0.758 ± 1.056
photometric centroid source offset	0.22 ± 0.12	1.76	0.18 ± 0.11	-0.13 ± 0.15

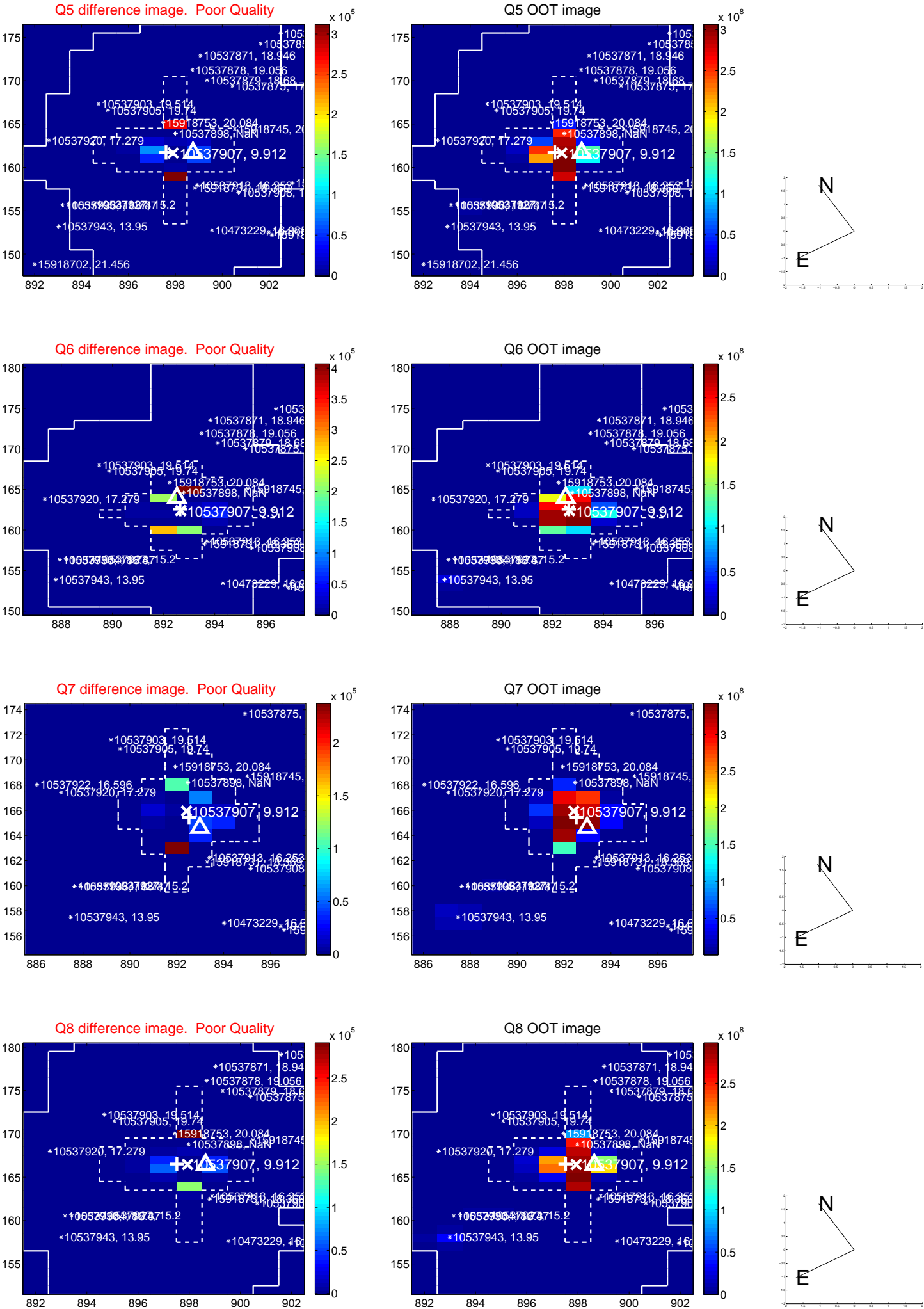


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

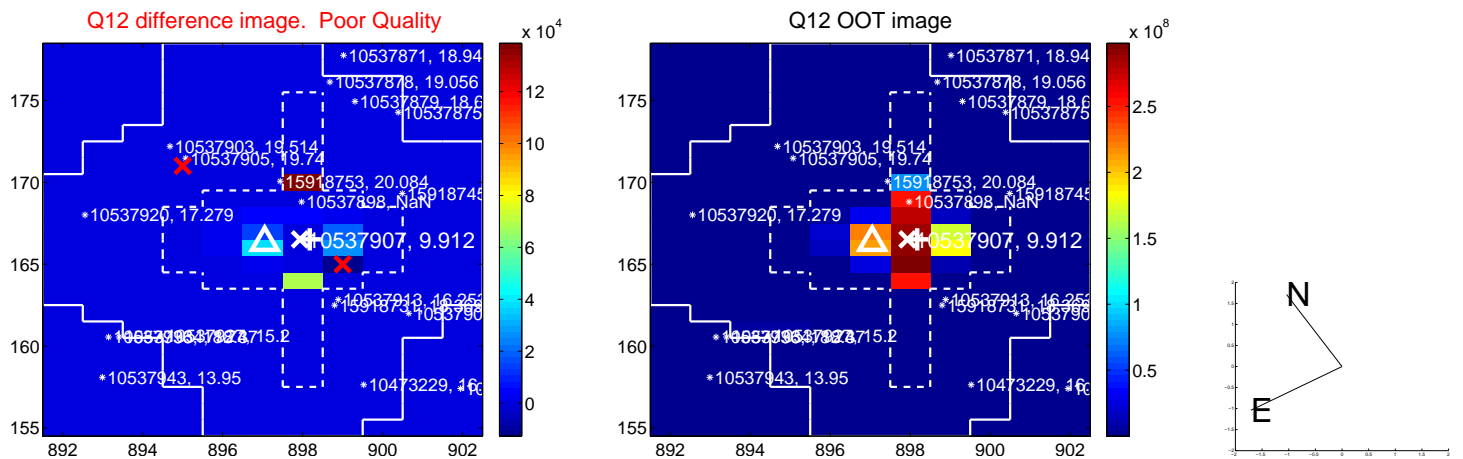
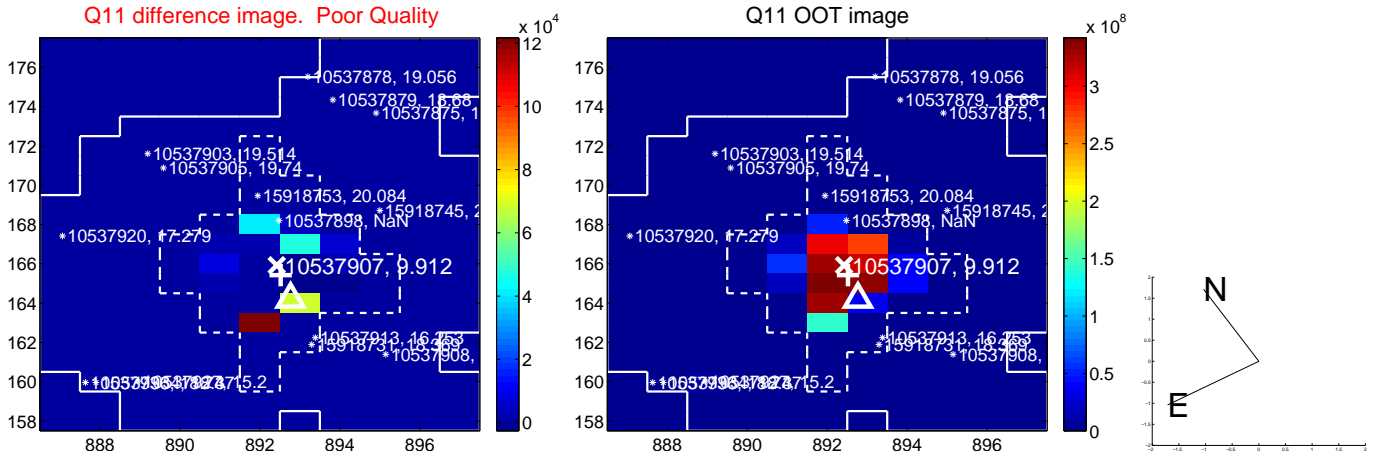
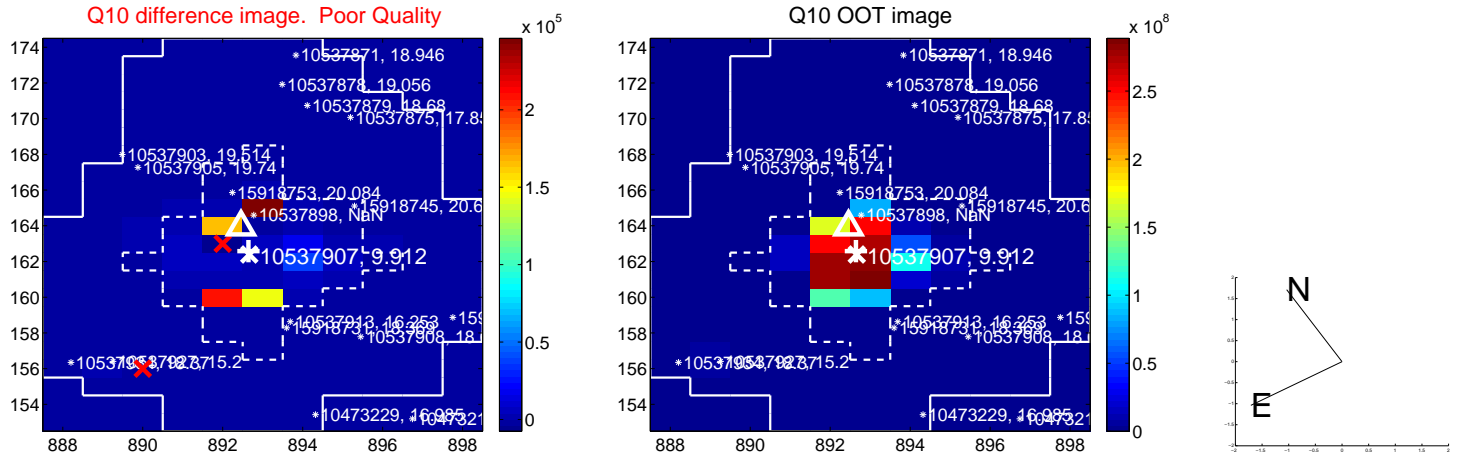
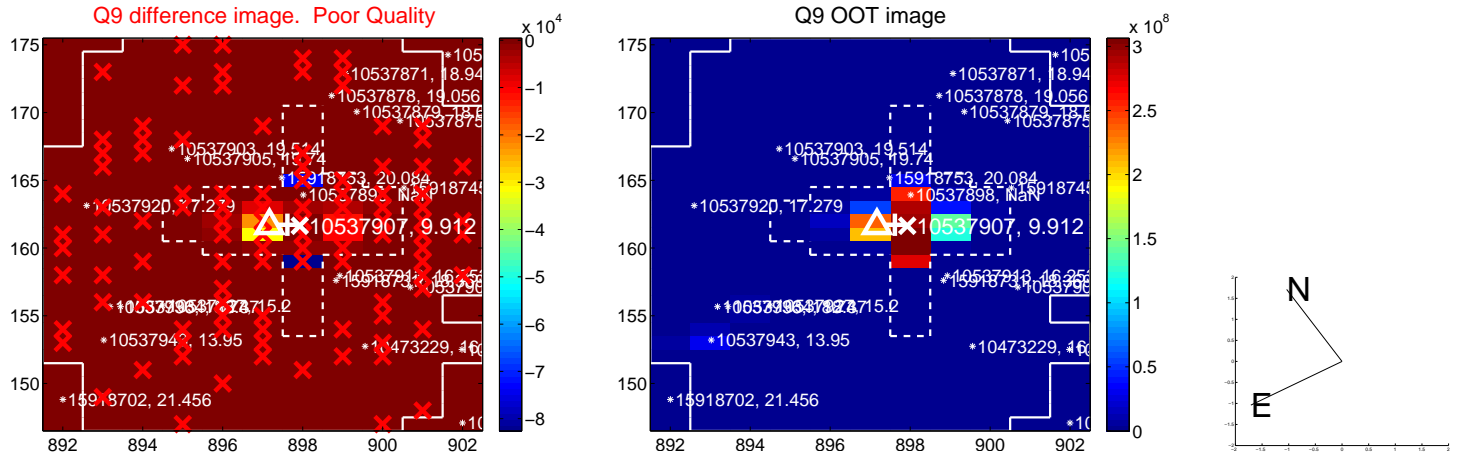
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



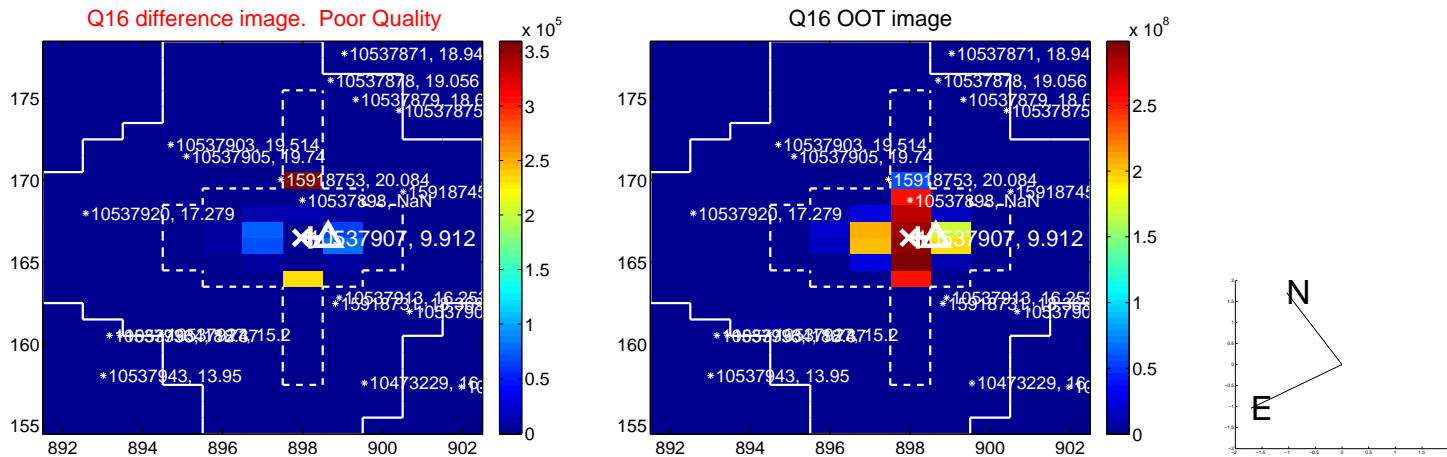
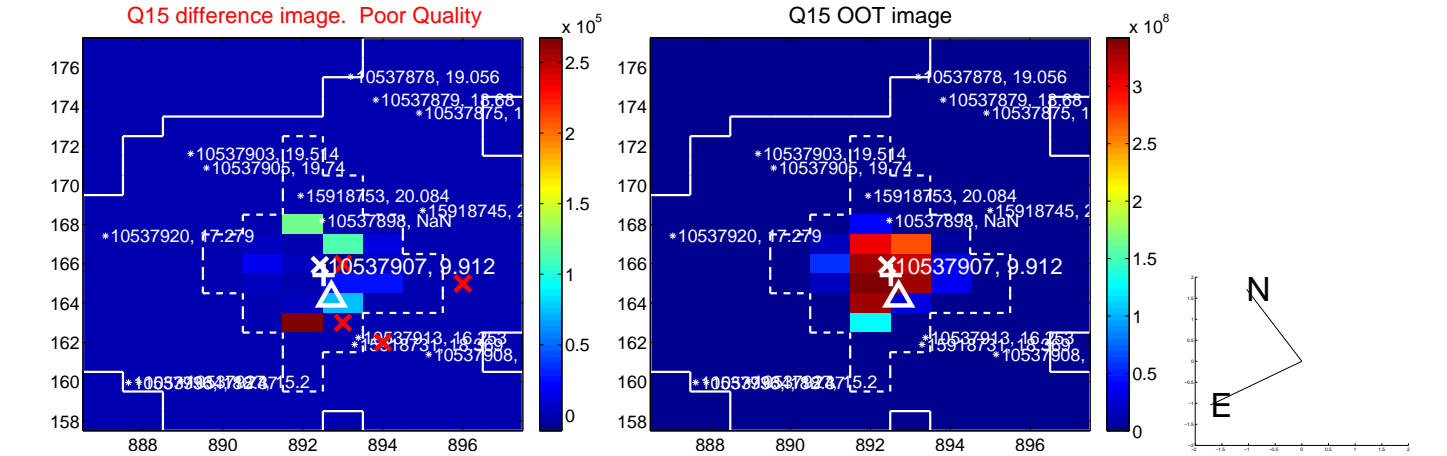
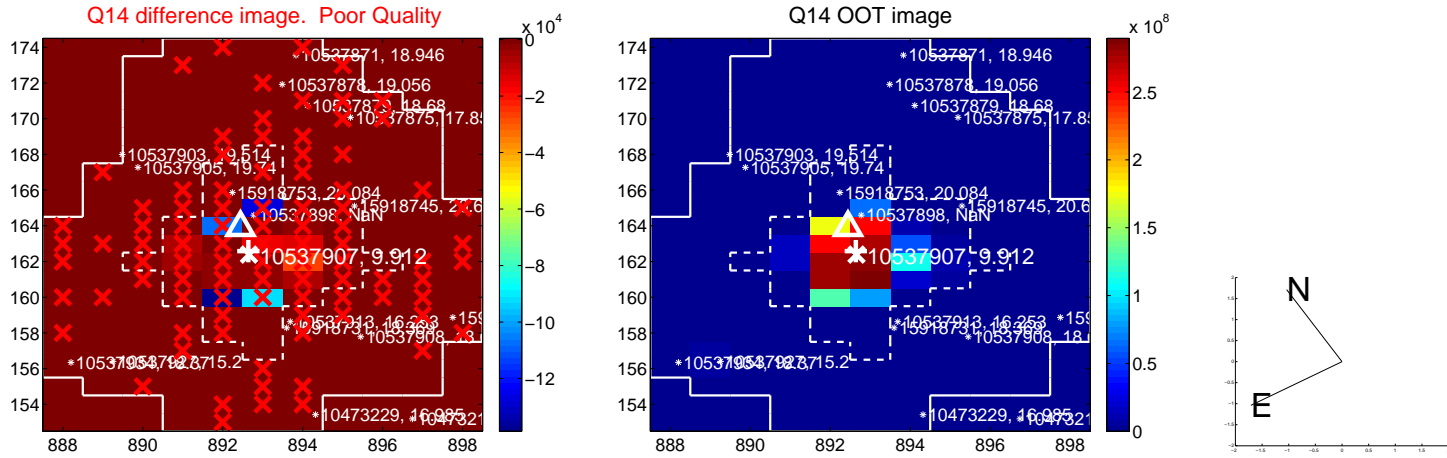
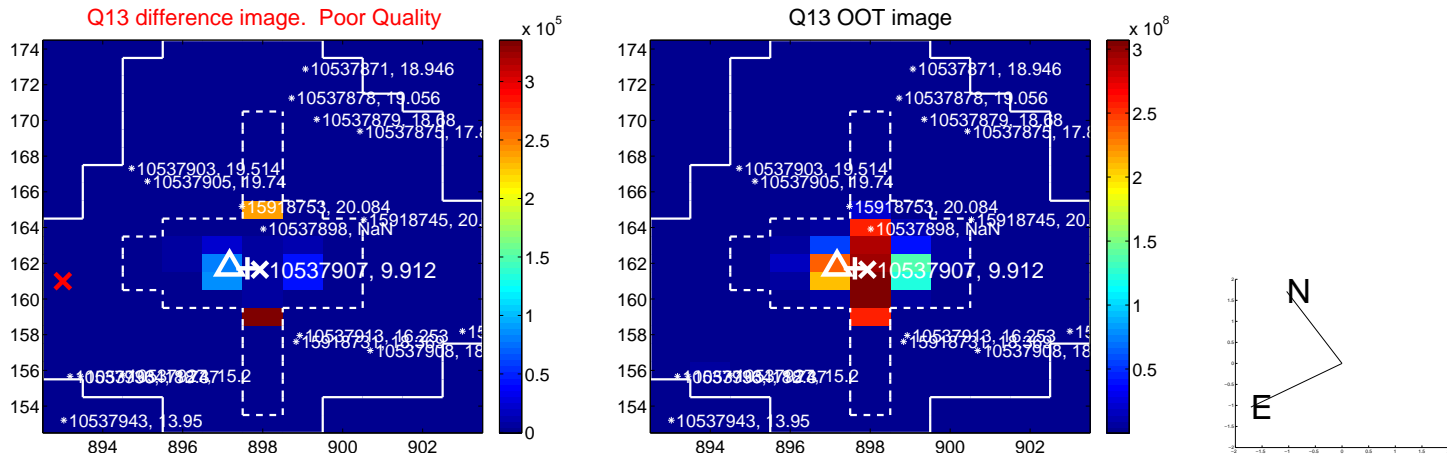
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



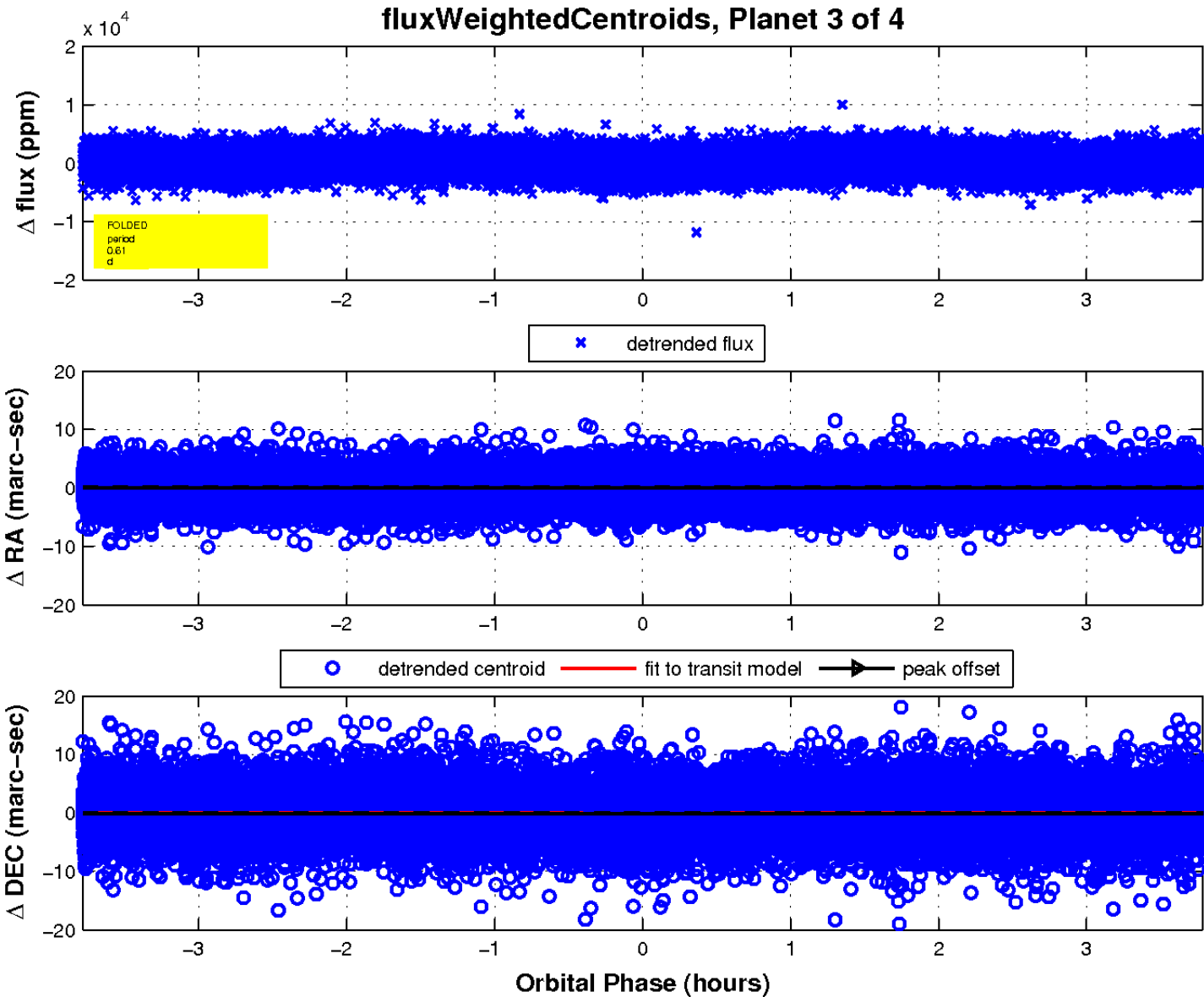
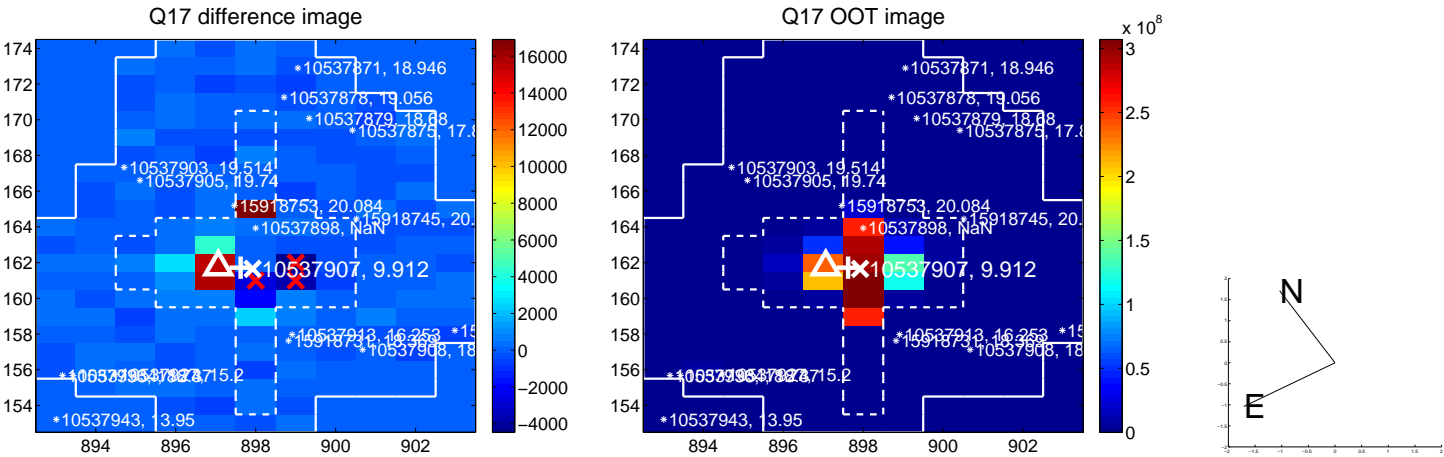
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

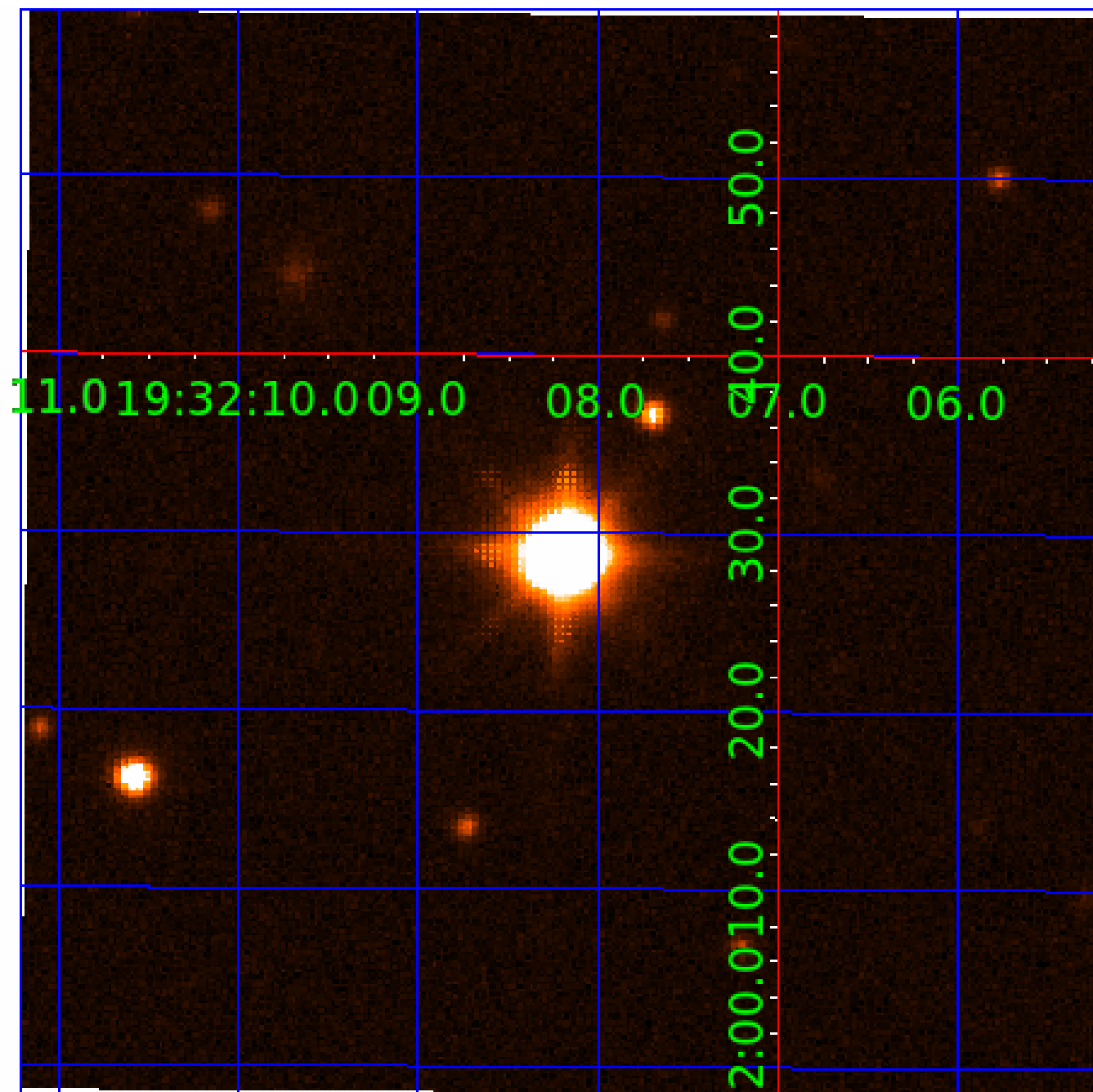


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010537907

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})
010537907-01	OBS	No	2.208968	132.610607	241.5	4.913	9.0	7.5	3.75	7693	6.34	25339.00
010537907-02	OBS	No	0.613632	132.037247	564.7	1.337	13.9	18.2	3.75	7693	9.58	0.00
010537907-03	OBS	No	0.613626	131.792964	483.2	1.261	13.3	15.2	3.75	7693	9.73	0.00
010537907-04	OBS	No	0.613628	131.670369	49.3	1.500	10.4	-1.0	3.75	7693	2.65	139798.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010537907-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010537907-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_SATURATED
010537907-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_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.

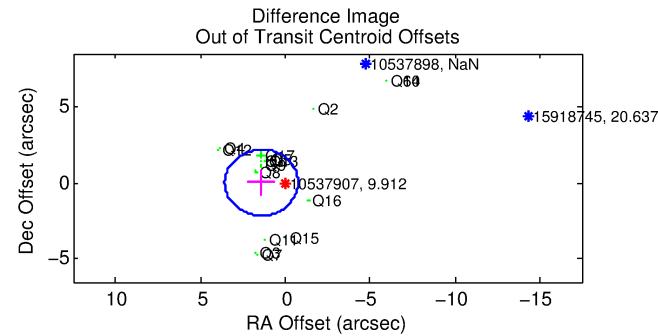
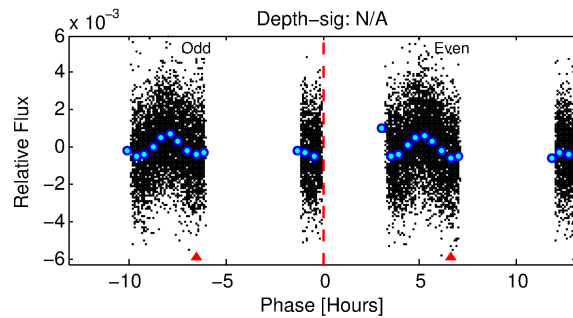
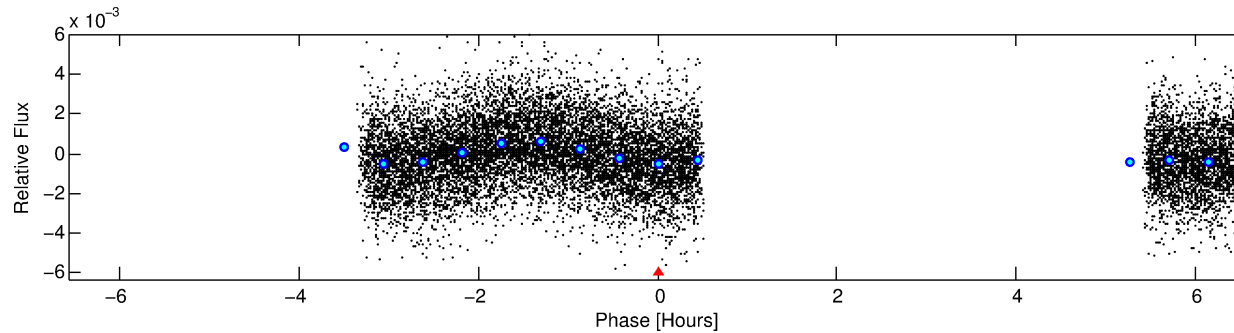
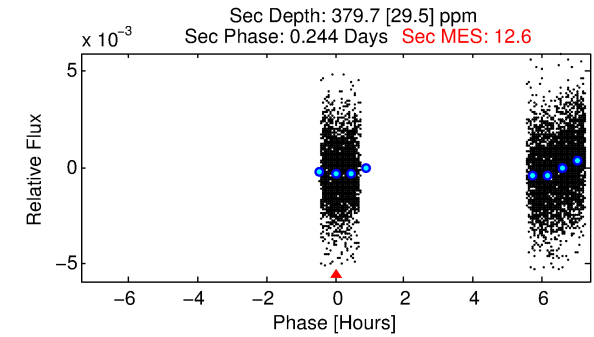
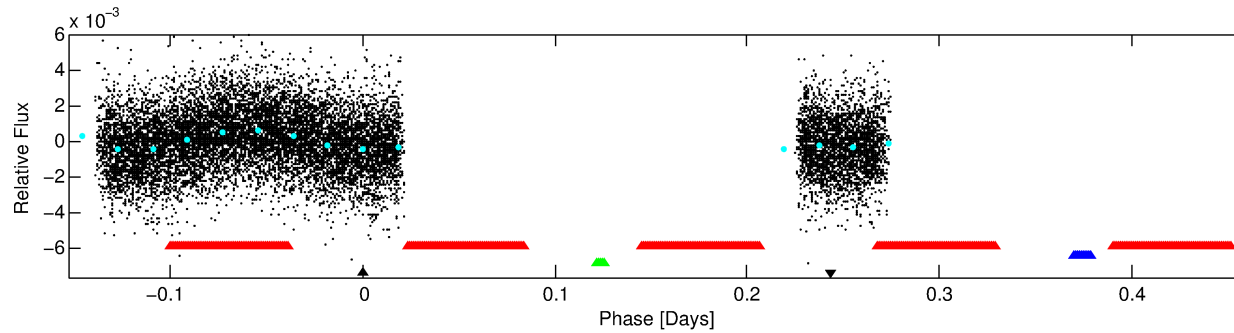
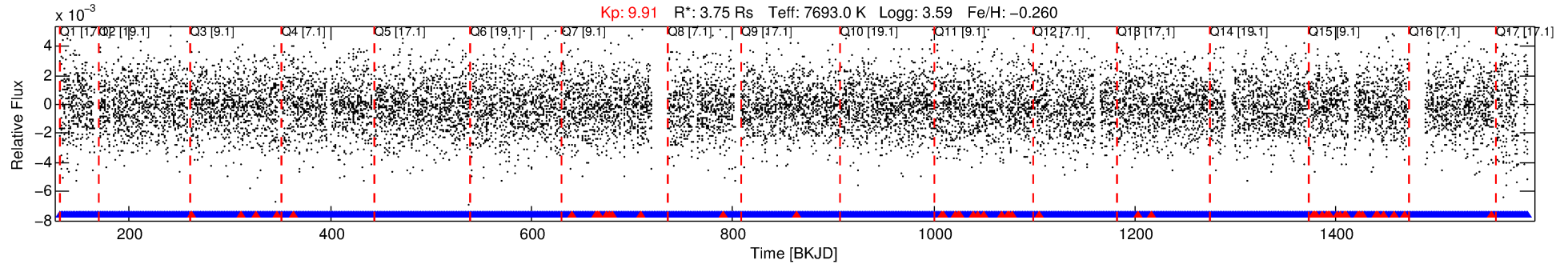
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010537907-04

No Significant Match Found

DV One-Page Summary

KIC: 10537907 Candidate: 4 of 4 Period: 0.614 d



TPS TCE Results:

Period = 0.61363 d
Epoch = 131.6704 BKJD

DV fit results are unavailable

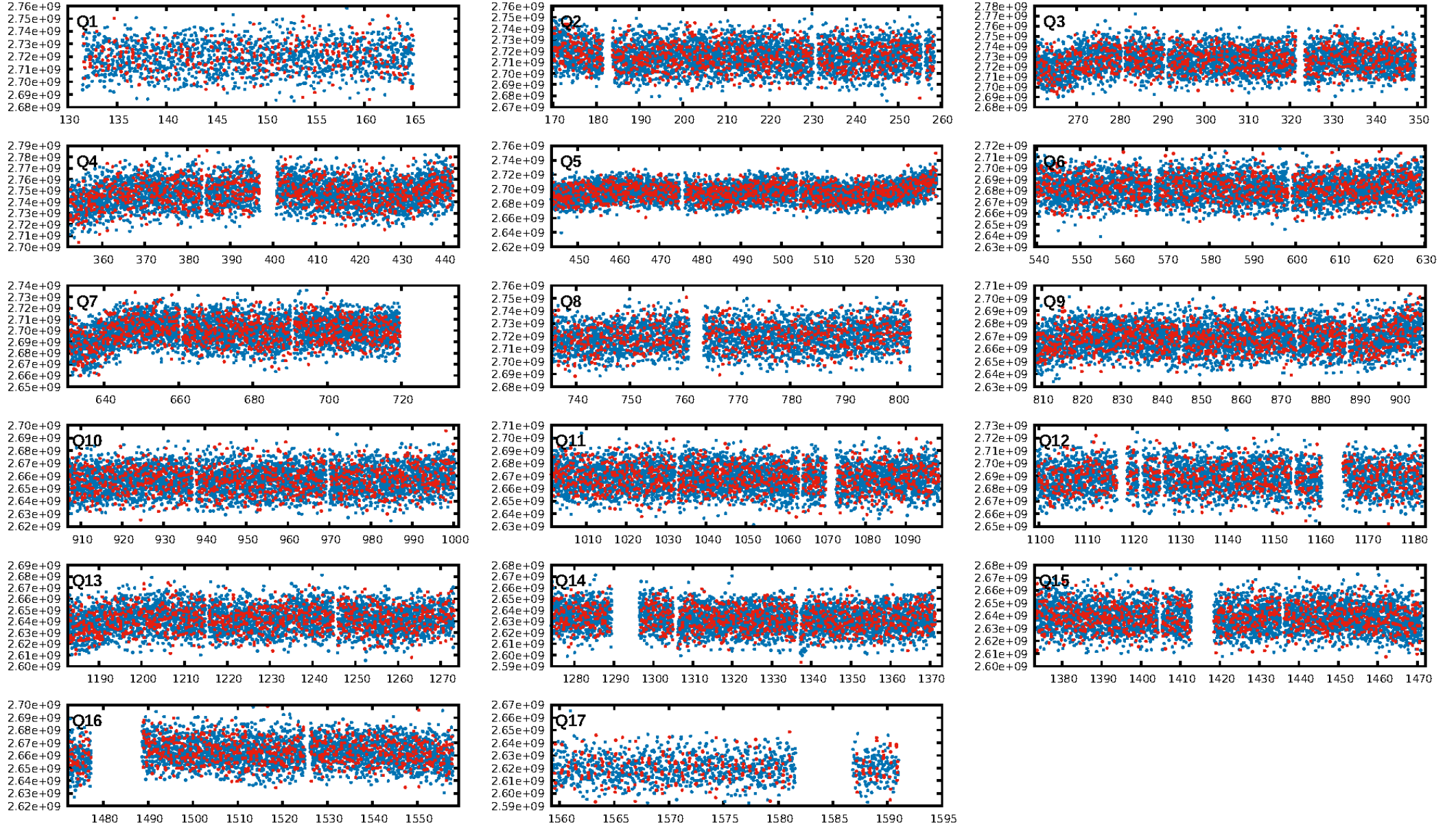
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [1514/1567]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.3%
Centroid-so: 0.174 arcsec [1.29σ]
OotOffset-rm: 1.404 arcsec [1.95σ]
OotOffset-st: 4/4/5 [17]
KicOffset-rm: 3.308 arcsec [5.24σ]
KicOffset-st: 4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 0.00 [0/17]

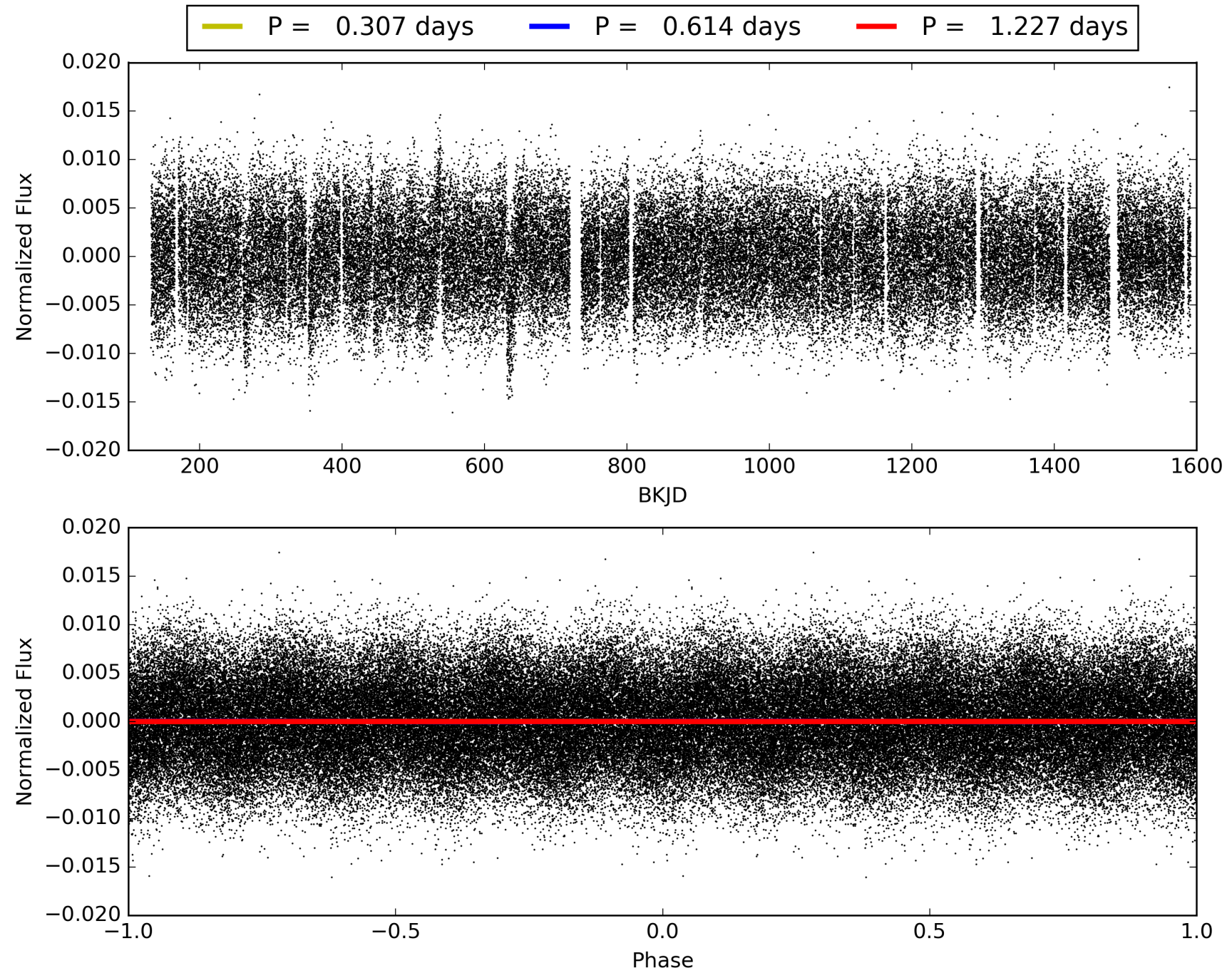
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:05:02 Z

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

TCE 010537907-04, PDC Light Curves

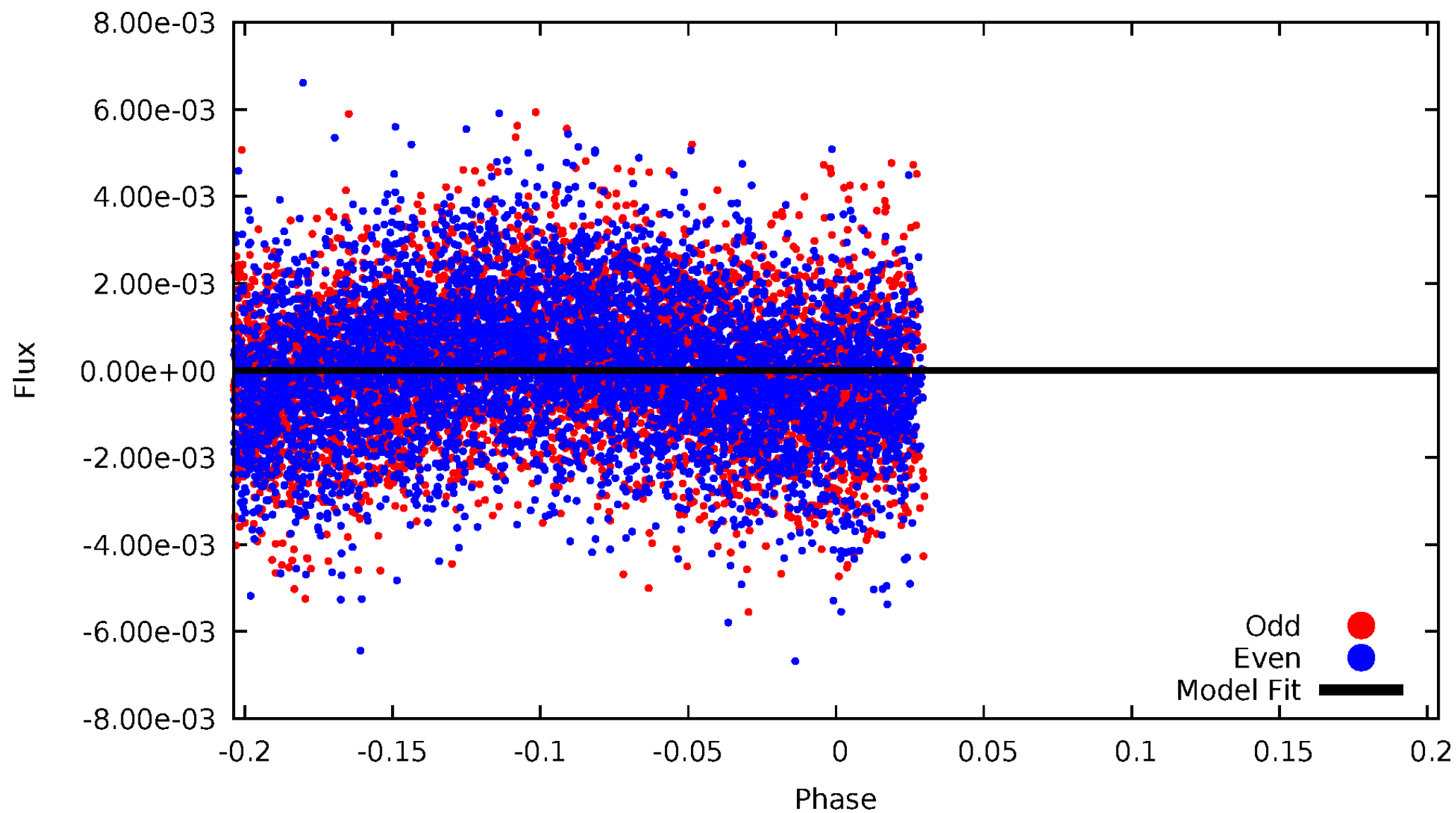


TCE 010537907-04



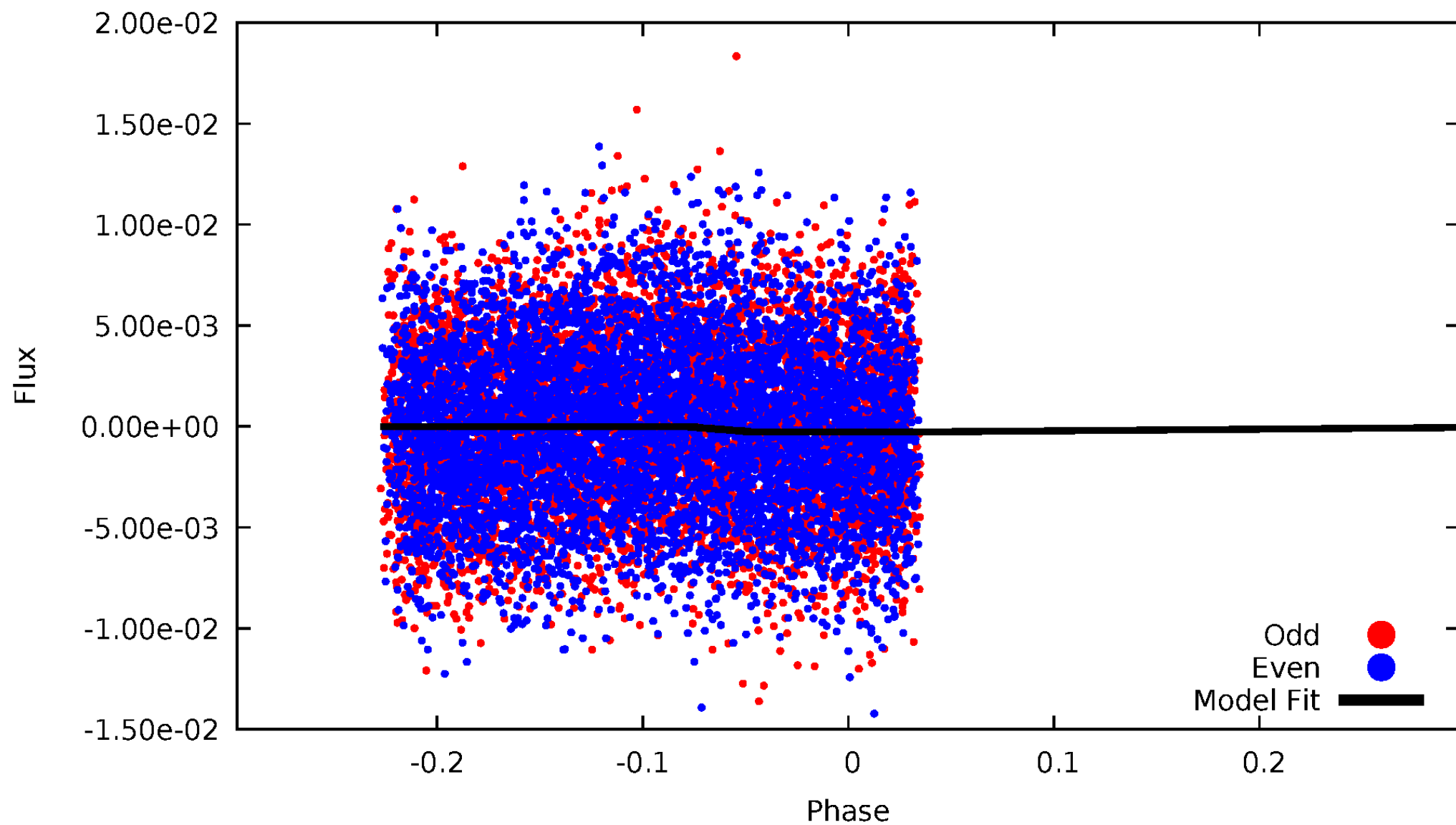
DV Odd/Even

TCE 010537907-04



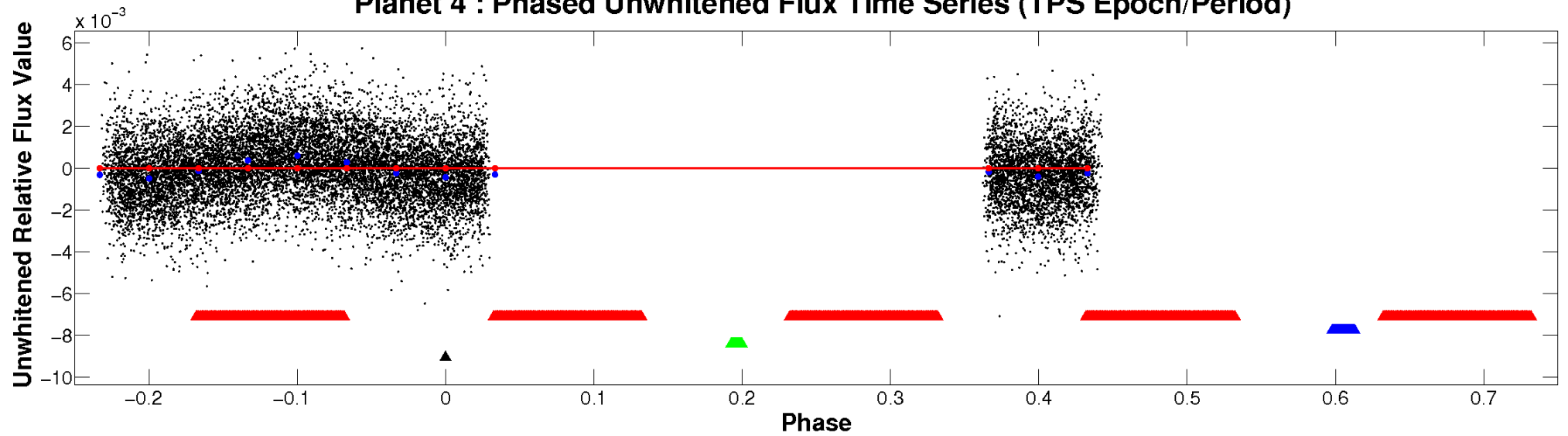
ALT Odd/Even

TCE 010537907-04

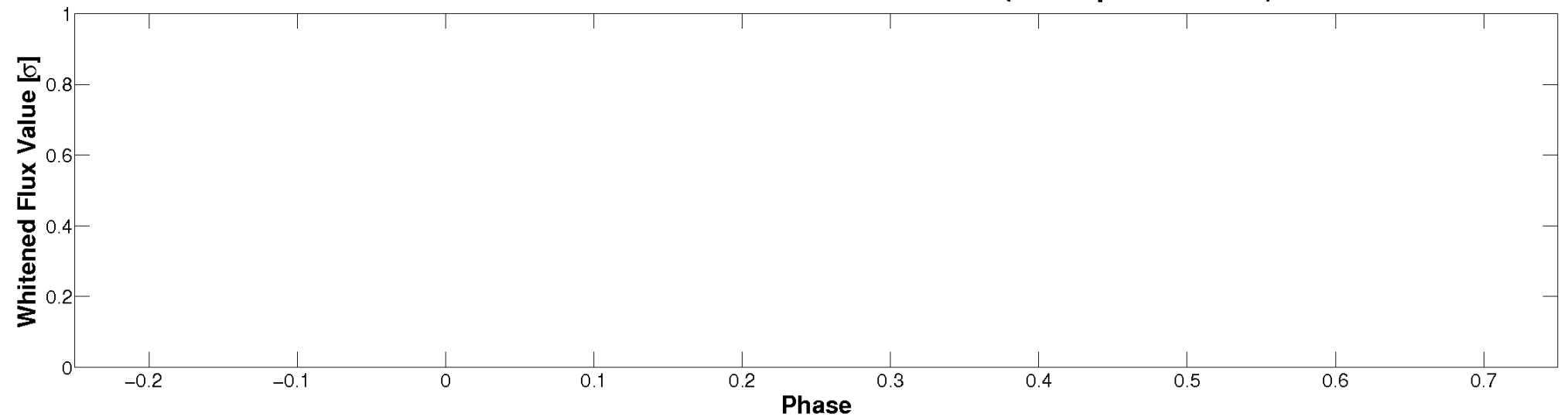


Non-Whitened Vs. Whitened Light Curve

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

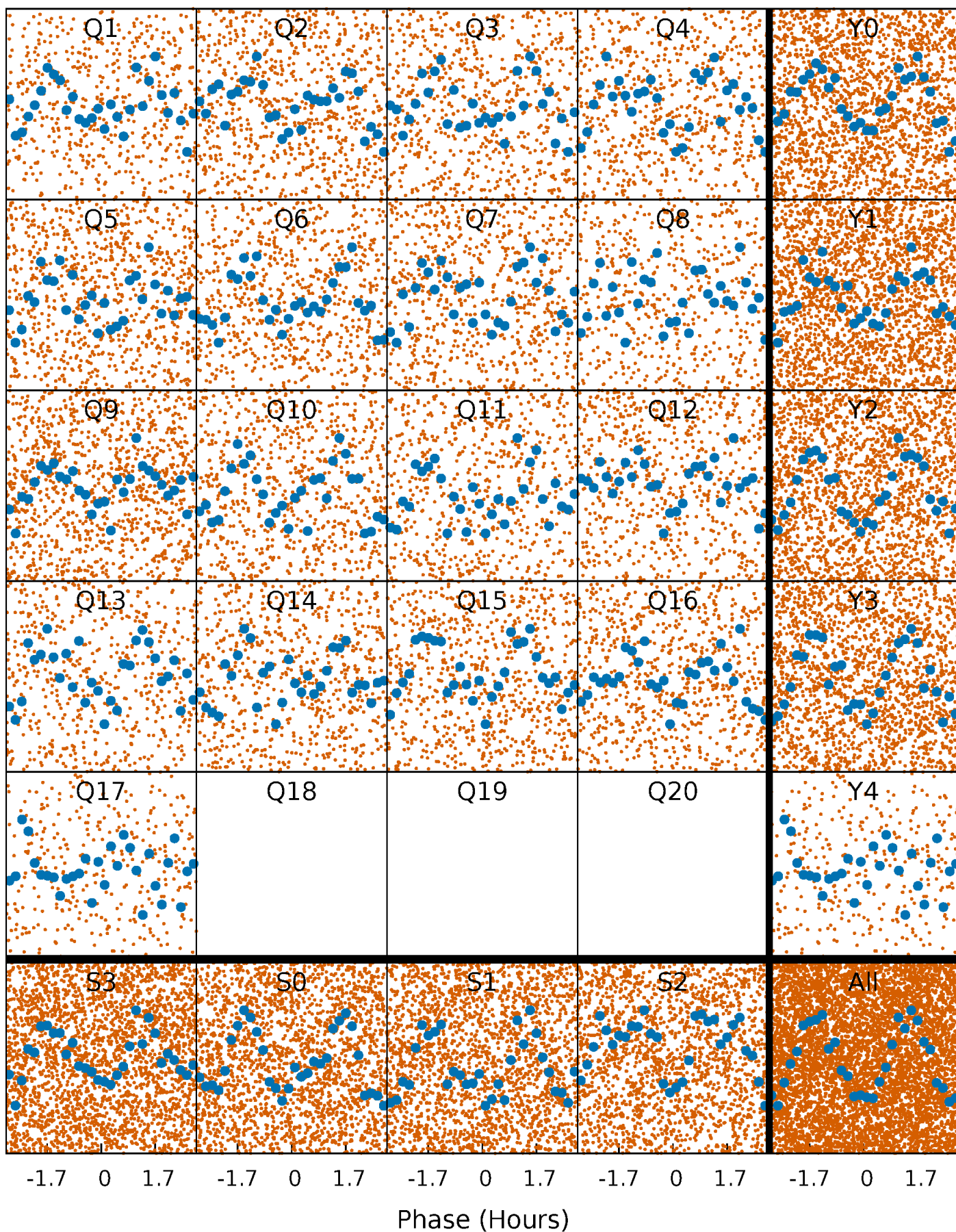


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



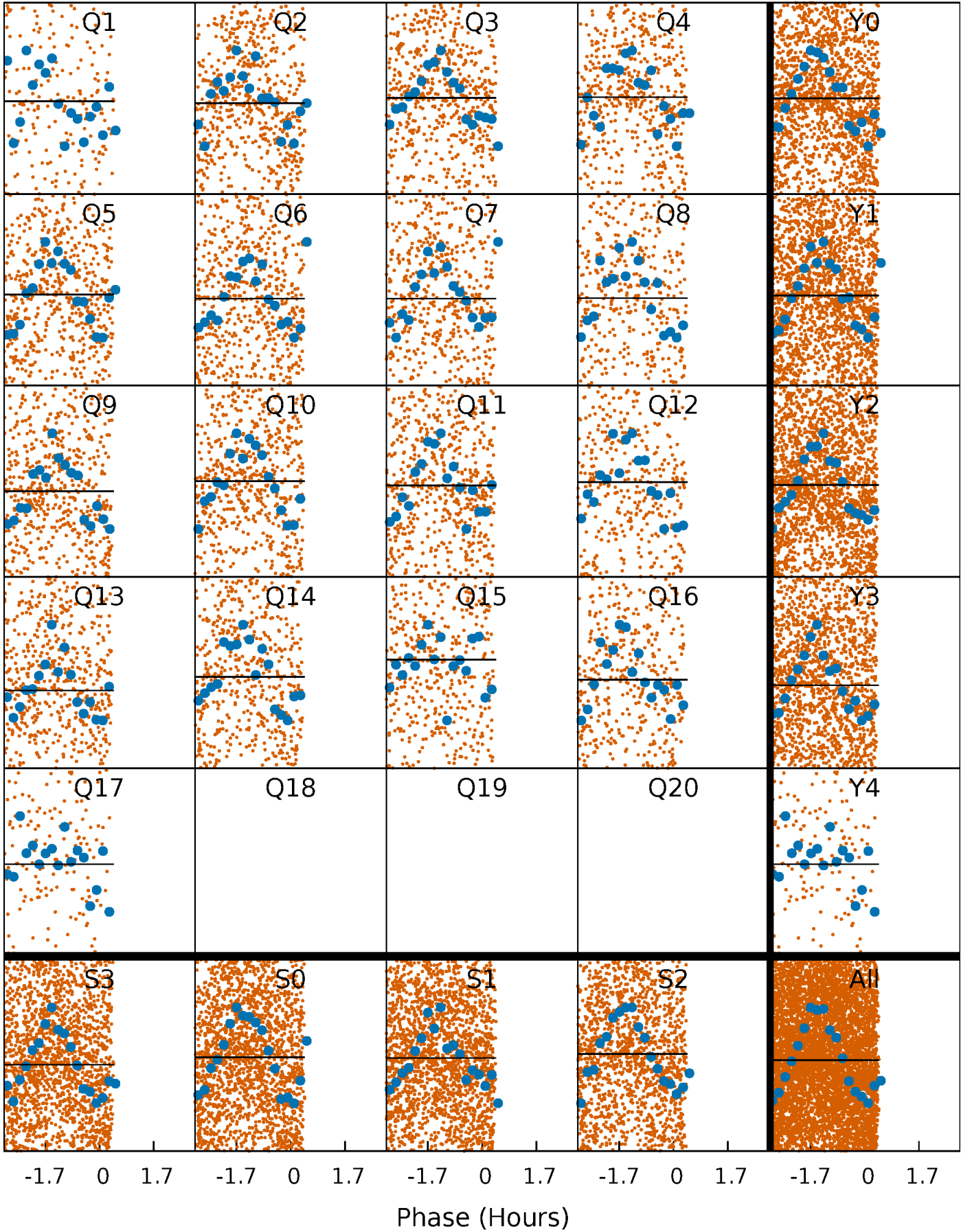
PDC Quarter-Phased Transit Curves

TCE 010537907-04 P= 0.613628 Days $T_0=131.670369$ (BKJD)



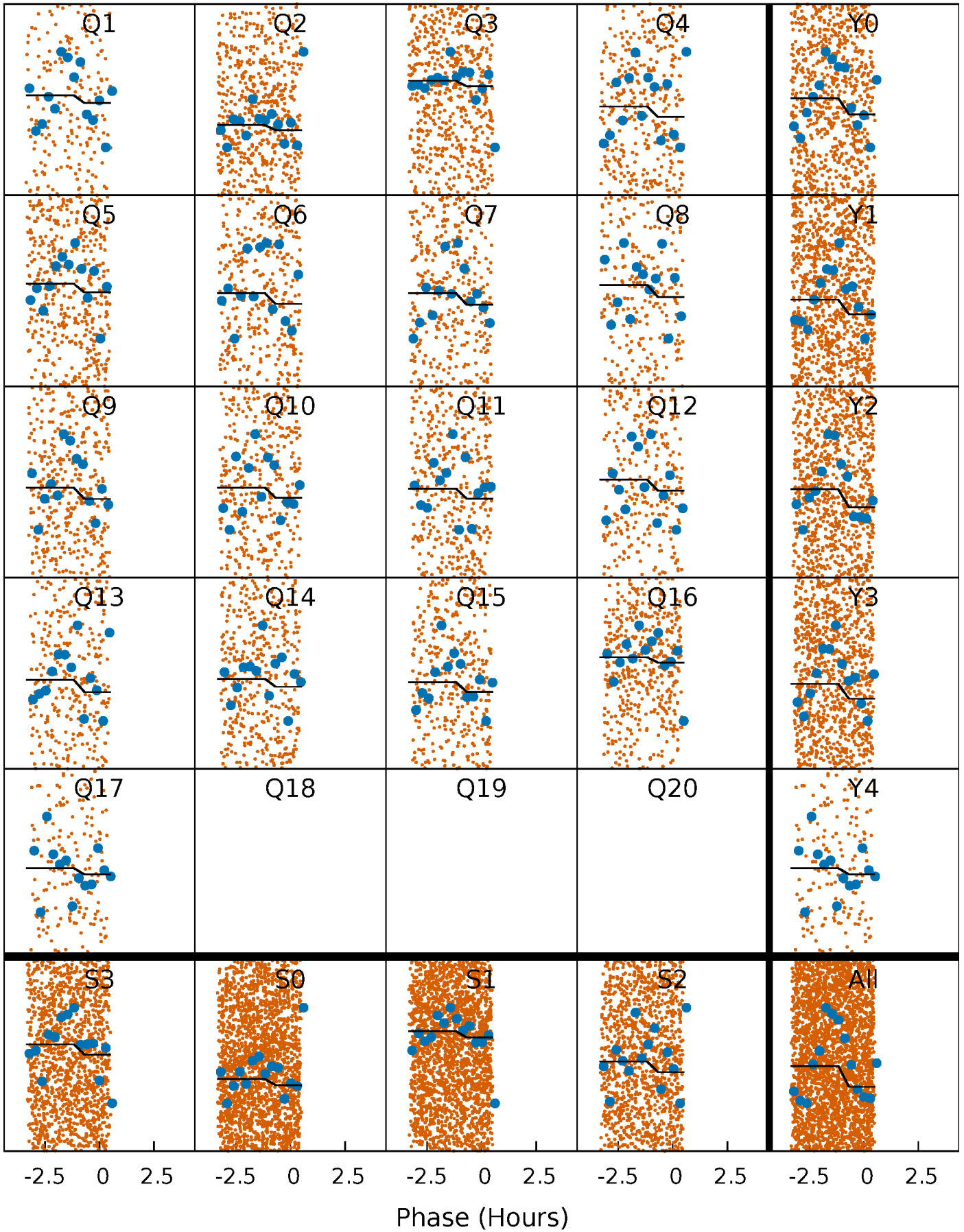
DV Quarter-Phased Transit Curves

TCE 010537907-04 P= 0.613628 Days $T_0=131.670369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

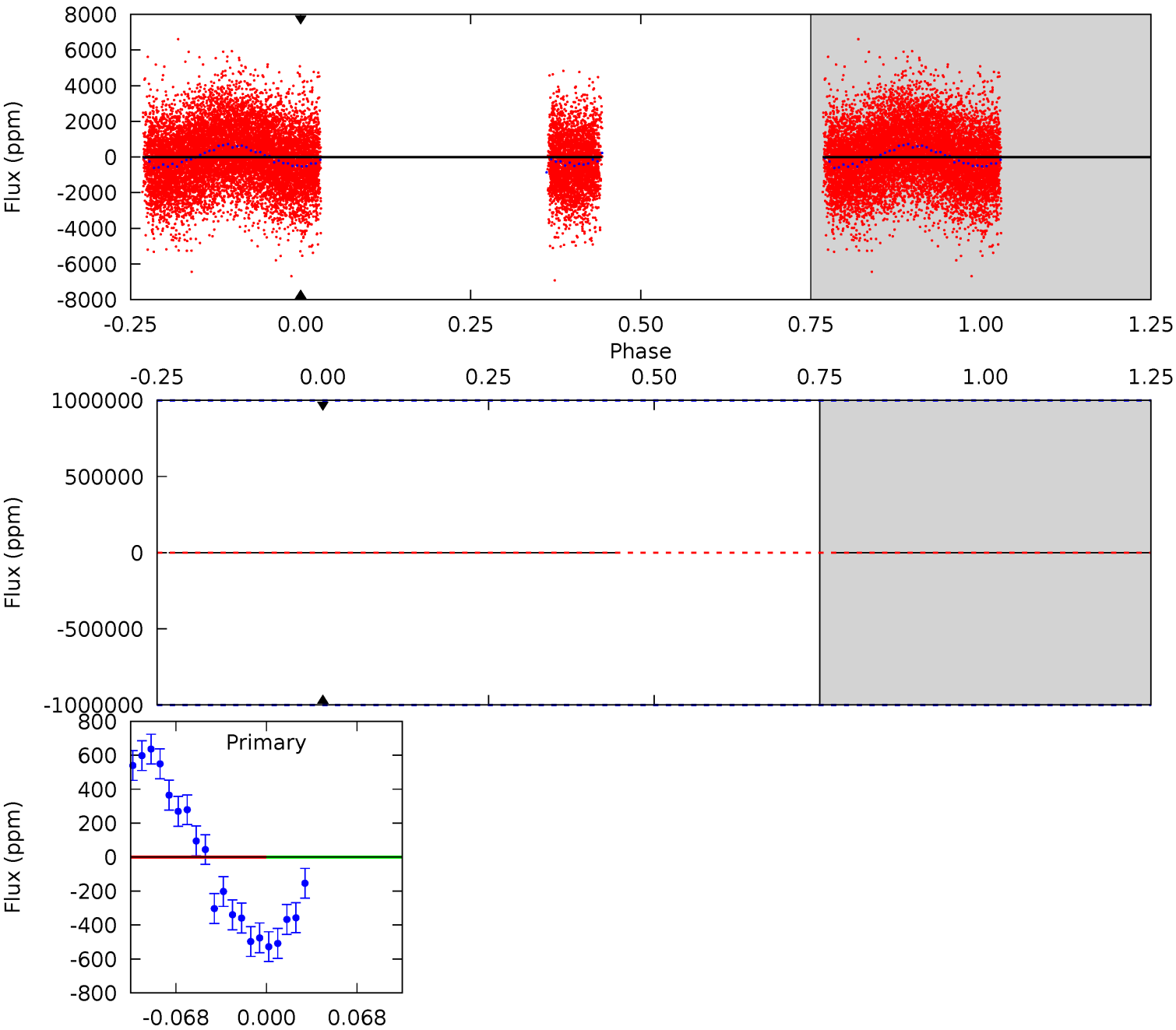
TCE 010537907-04 $P = 0.613628$ Days $T_0 = 131.667308$ (BKJD)



DV Model-Shift Uniqueness Test

010537907-04, P = 0.613628 Days, E = 131.056741 Days

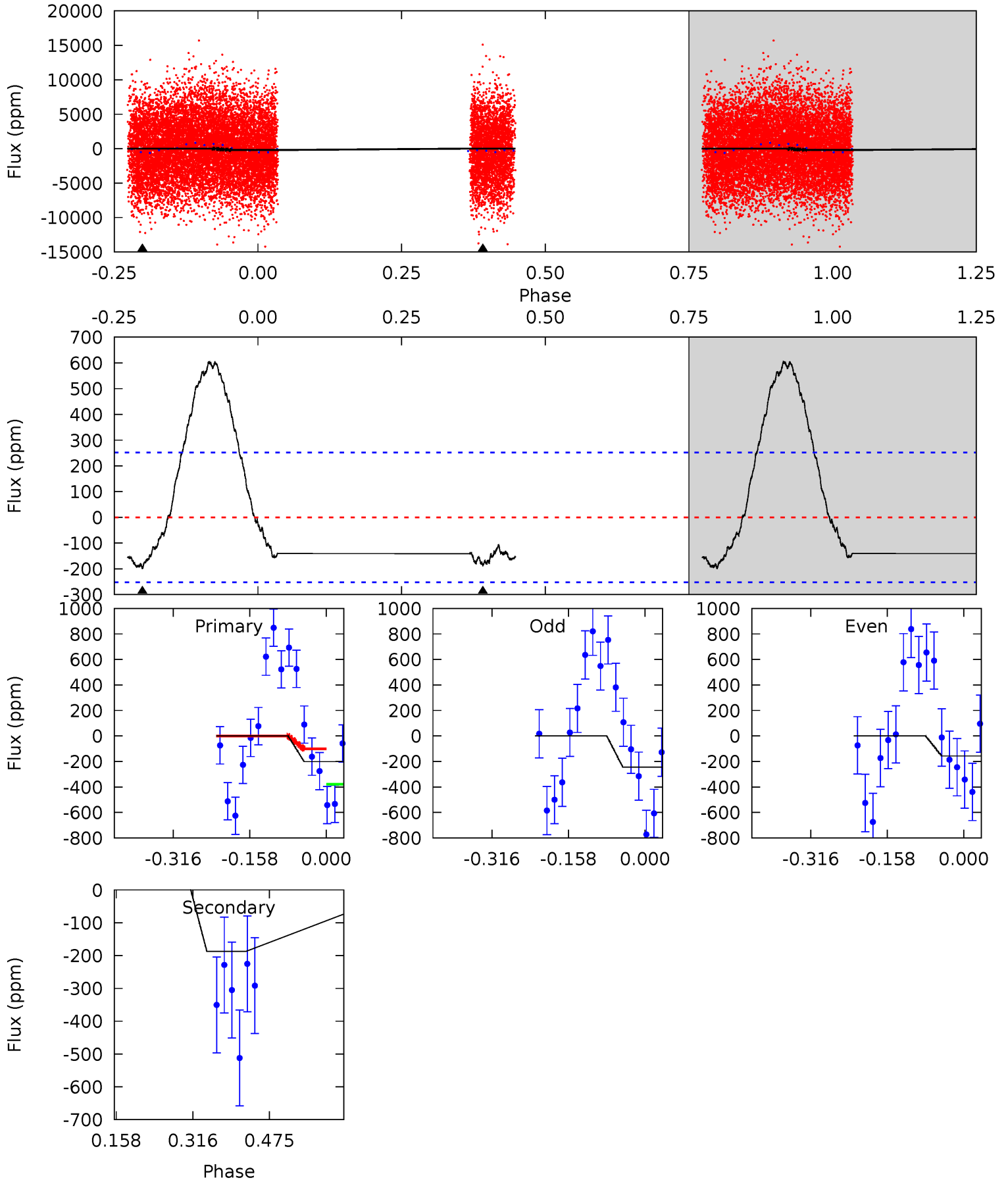
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010537907-04, P = 0.613628 Days, E = 131.053680 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.56	3.32	0	0	4.47	1.41	2.76	3.56	3.56	3.32	3.32	0.78	0.72	0.75	2.14



Stellar Parameters For KIC 010537907

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7693^{+243}_{-297}	$3.588^{+0.510}_{-0.090}$	$-0.260^{+0.250}_{-0.300}$	$3.751^{+0.511}_{-2.045}$	$1.987^{+0.124}_{-0.526}$	$0.053^{+0.351}_{-0.015}$
	+3%/-4%	+14%/-3%	+96%/-115%	+14%/-55%	+6%/-26%	+661%/-29%
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 010537907-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$26.26^{+27.74}_{-19.22}$	6683^{+479}_{-901}	5262^{+44253}_{-41714}	$0.598^{+50.552}_{-35.616}$
Alt.	-187 ± 56	$26.47^{+31.92}_{-18.42}$	6708^{+480}_{-859}	-5015^{+9267}_{-582}	$0.043^{+0.405}_{-0.034}$

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 $A_{obs} \gg 1.0$

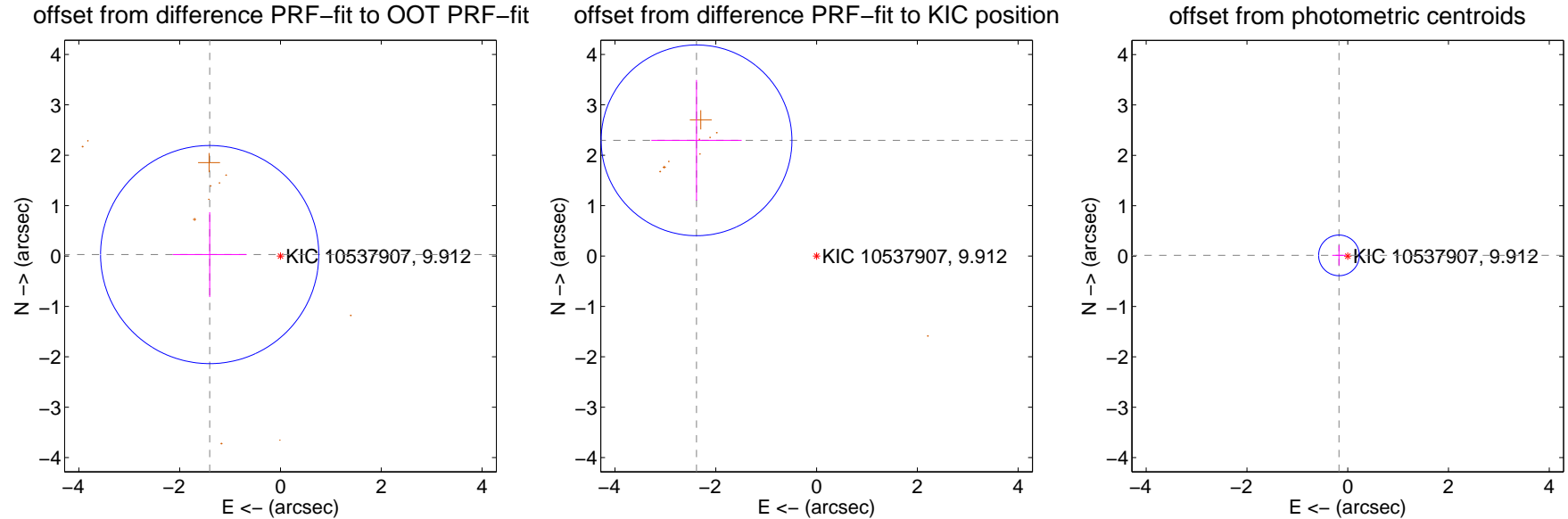
DV Centroid Data

Supplemental centroid analysis for 010537907-04. **Kepler magnitude: 9.91.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

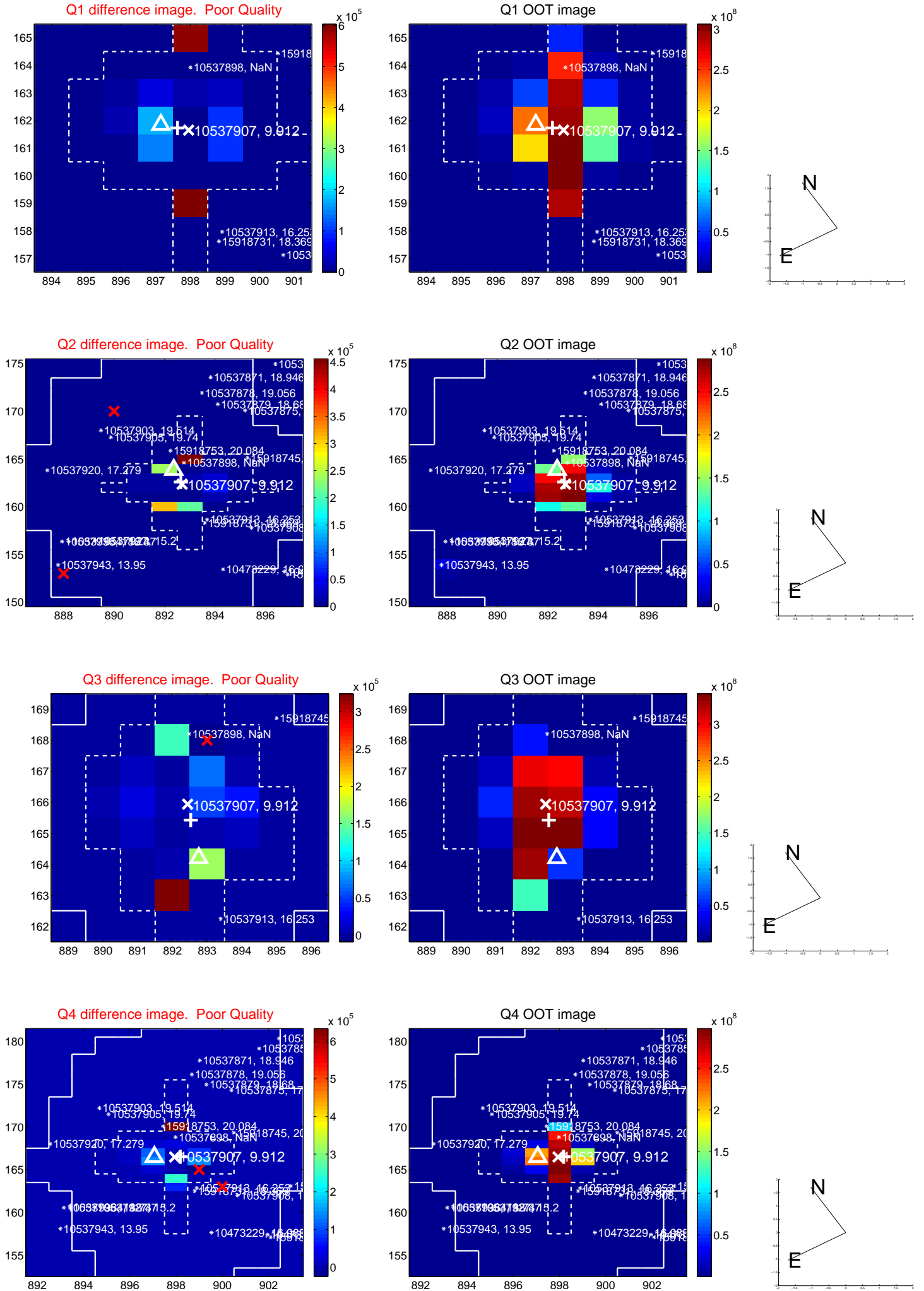
The direct PRF centroid is offset from the target star catalog position by about 1.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.404 ± 0.722	1.95	1.404 ± 0.731	0.029 ± 0.842
PRF-fit source offset from KIC position	3.308 ± 0.631	5.24	2.382 ± 0.896	2.296 ± 1.197
photometric centroid source offset	0.17 ± 0.13	1.29	0.17 ± 0.13	0.01 ± 0.20

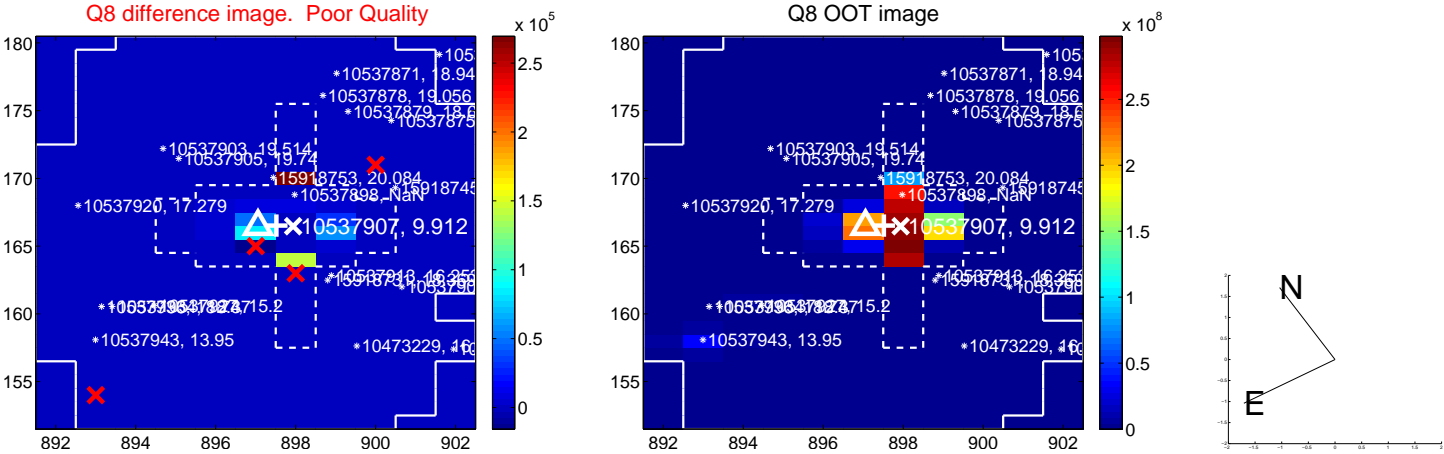
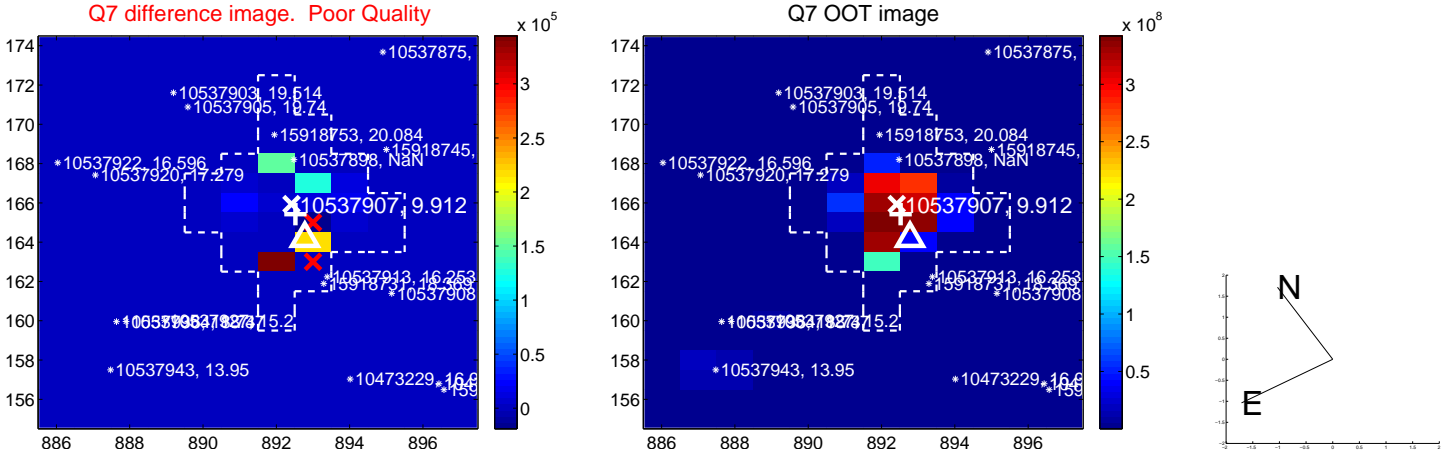
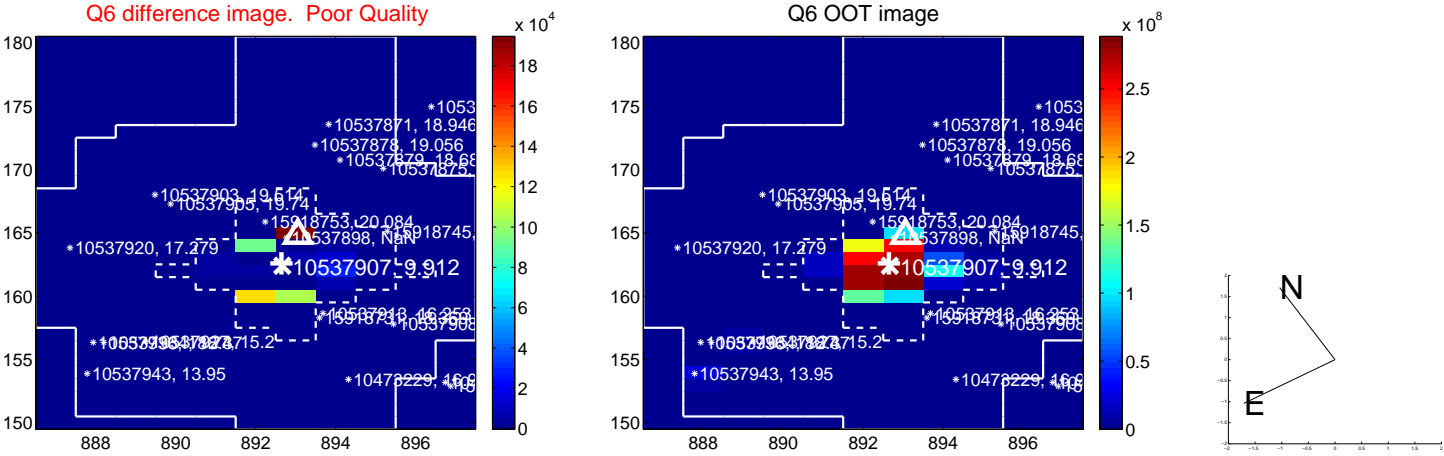
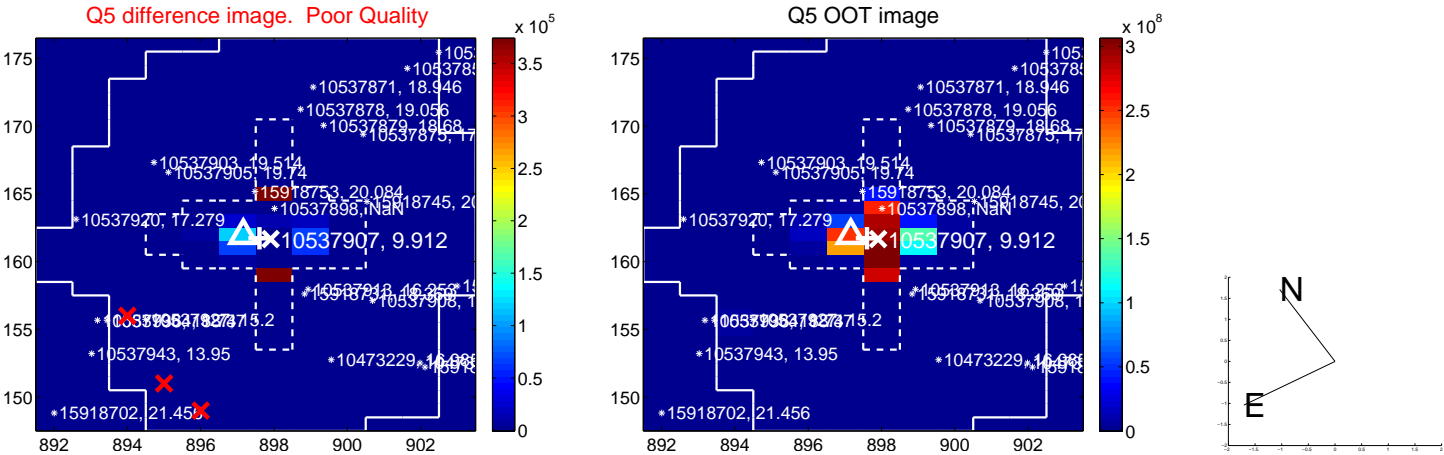


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

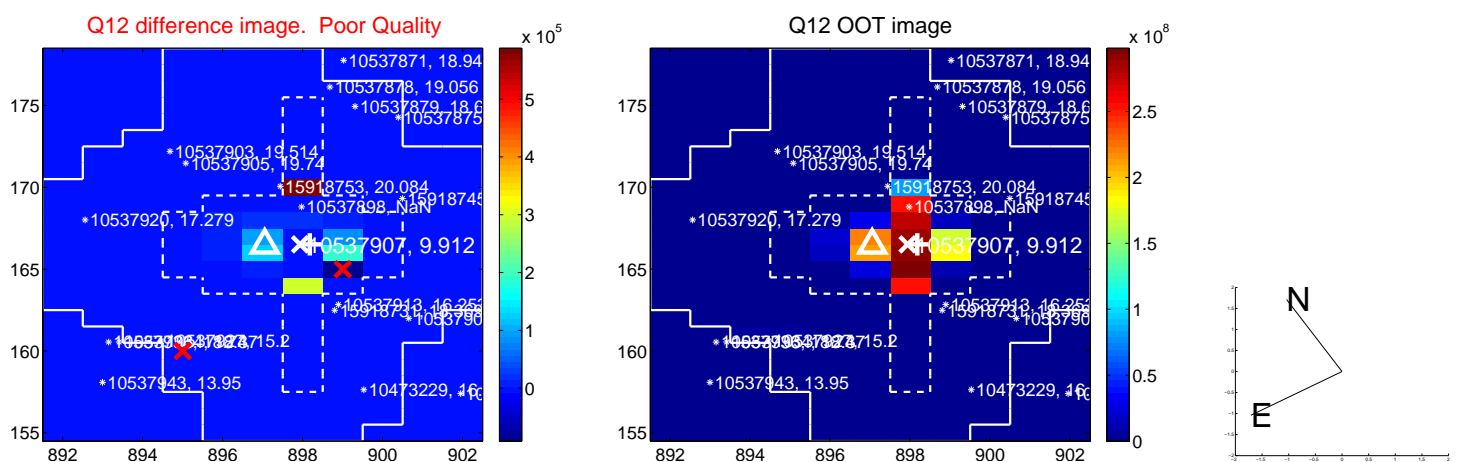
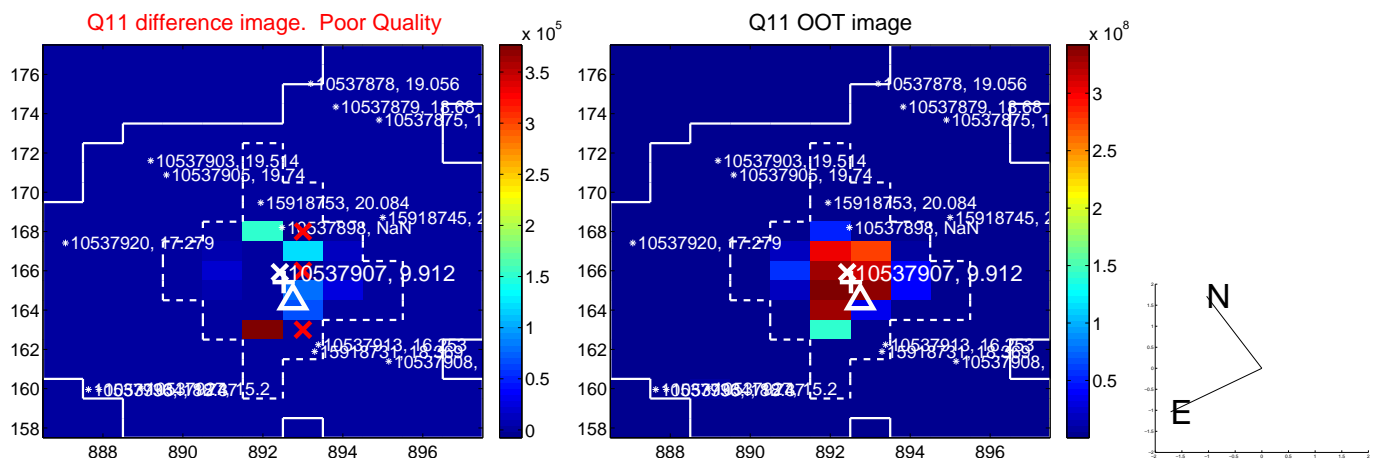
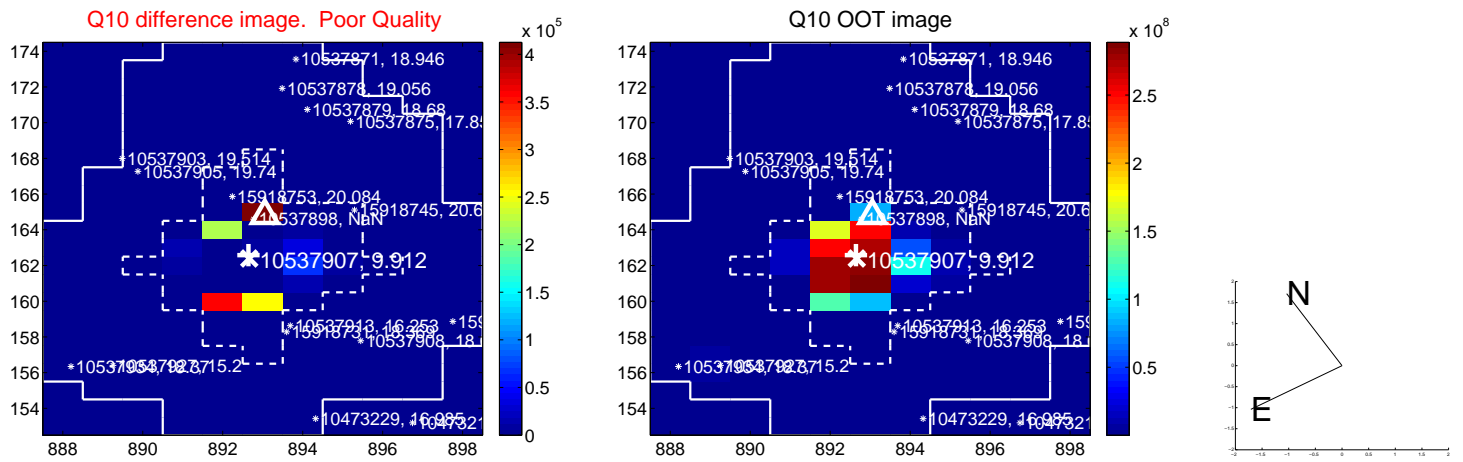
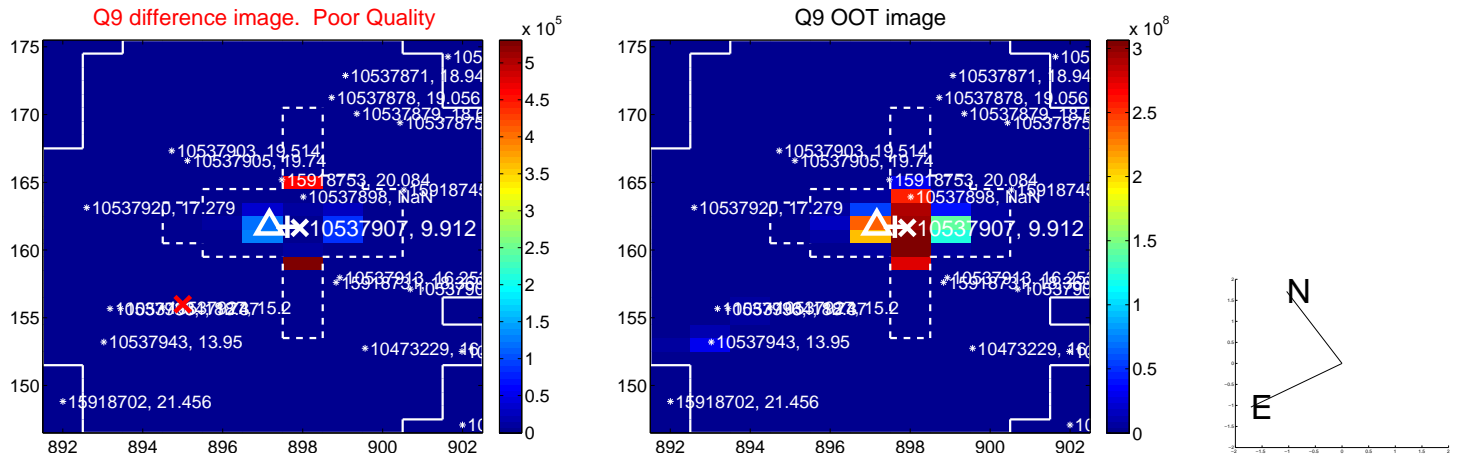
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



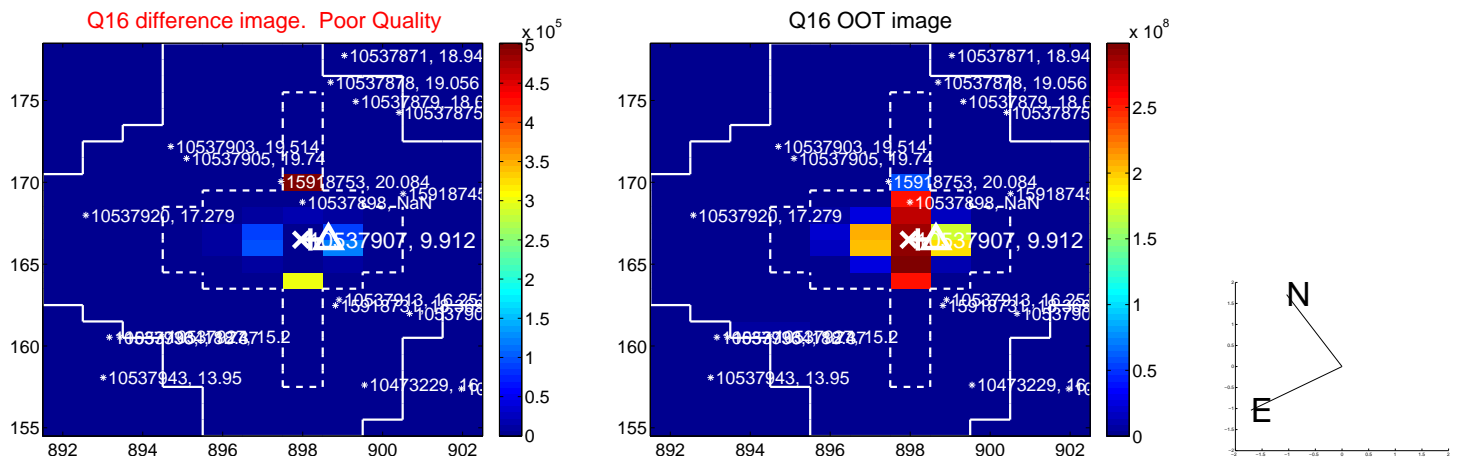
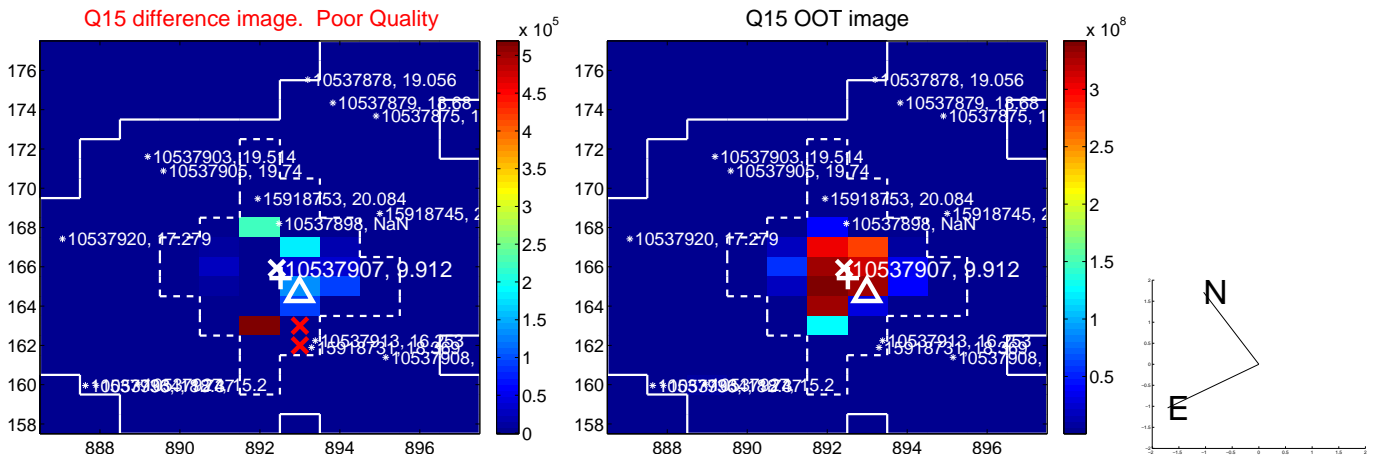
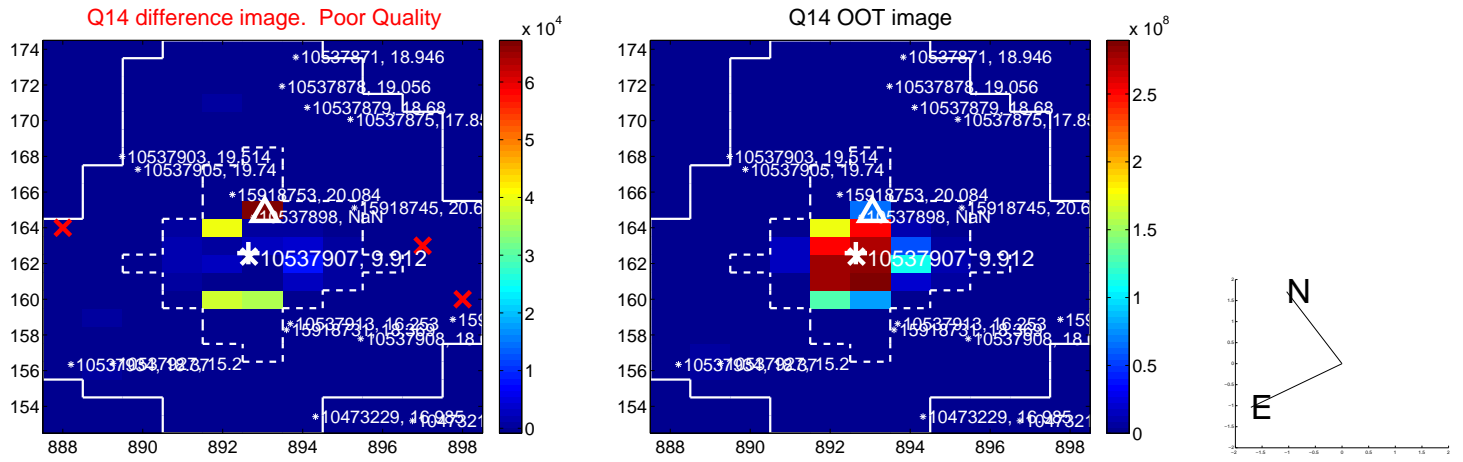
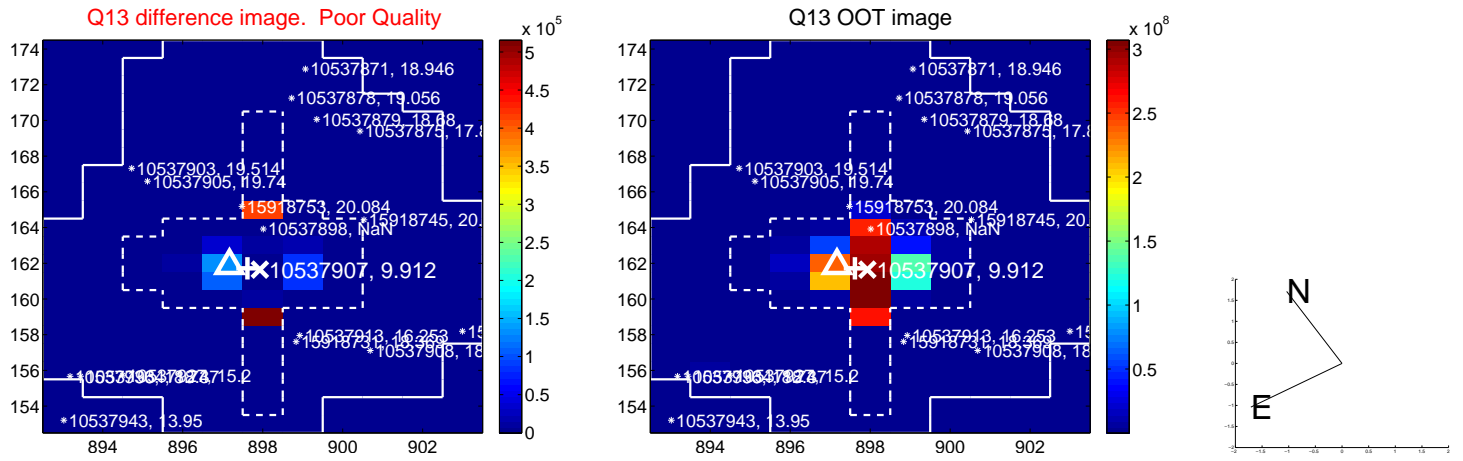
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



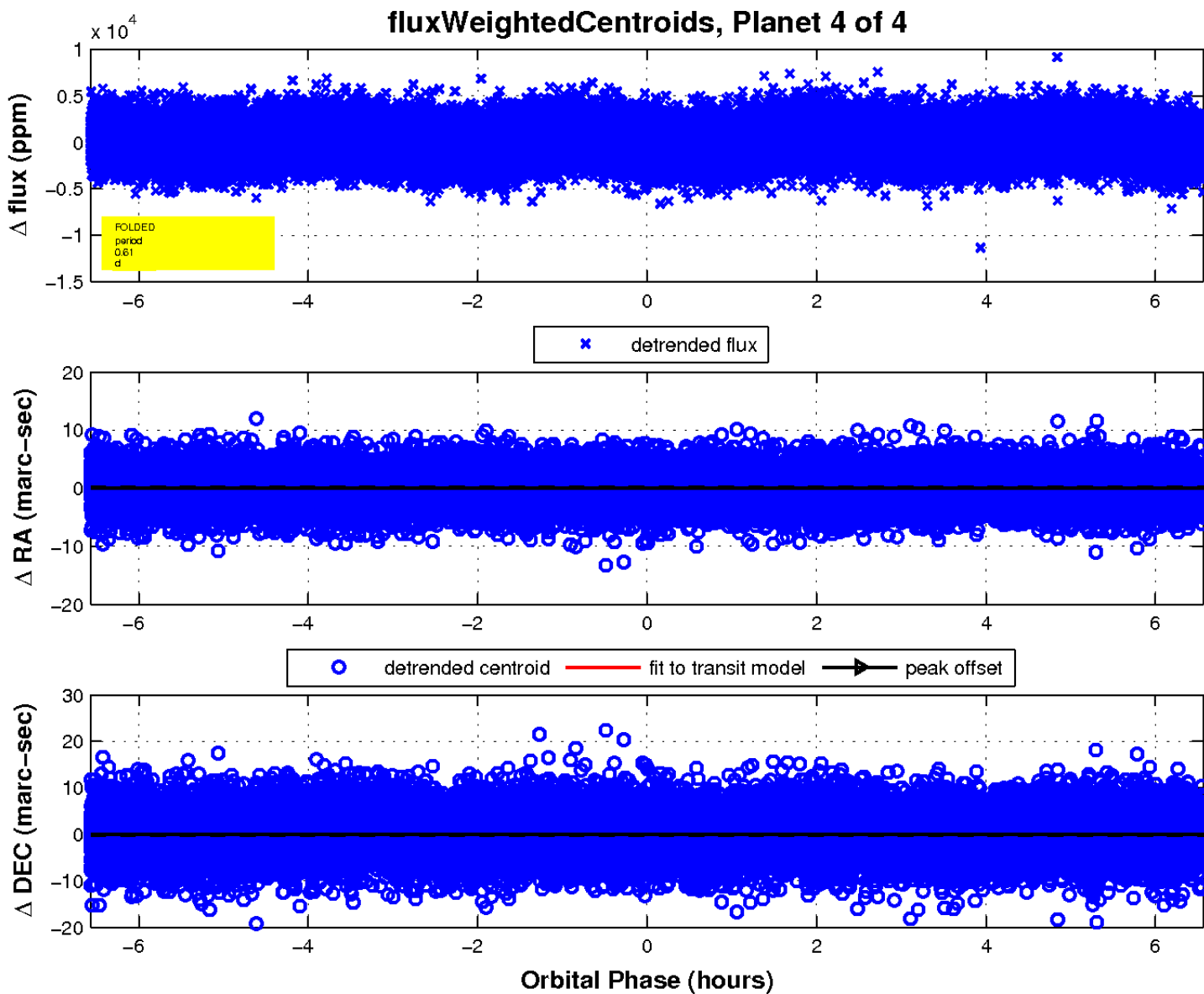
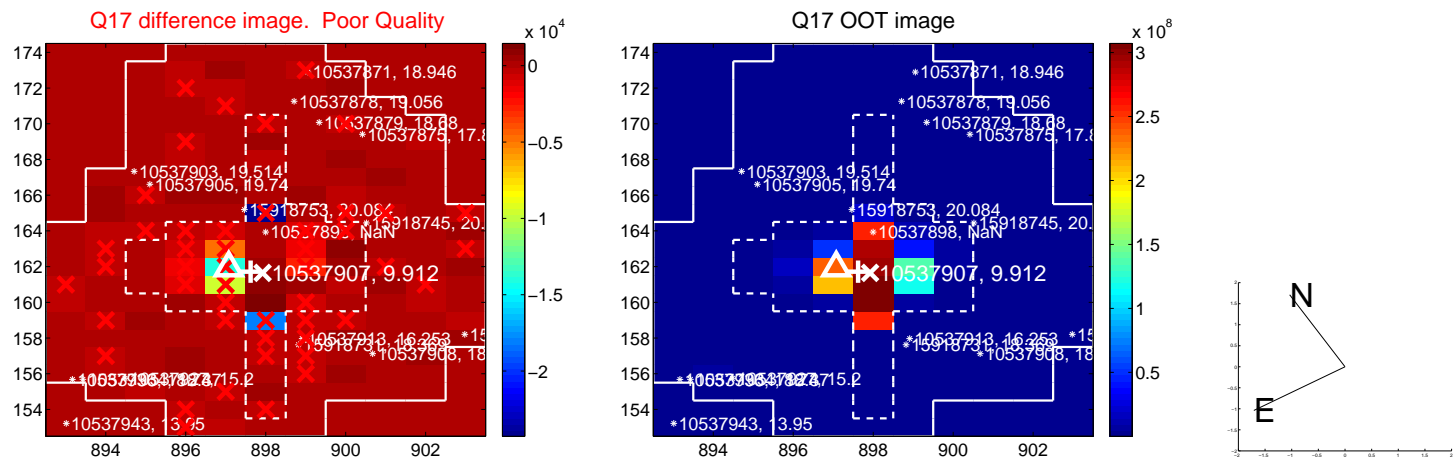
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

