

KIC 004355012

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})
004355012-01	OBS	No	1.524210	133.036156	33.2	2.976	11.5	13.9	4.56	7174	3.10	43723.37
004355012-02	OBS	No	0.508050	131.786132	12.4	2.705	10.5	9.3	4.56	7174	1.72	0.00
004355012-03	OBS	No	624.944551	298.149384	276.5	4.197	7.9	8.5	4.56	7174	7.88	14.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004355012-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004355012-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
004355012-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST

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

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

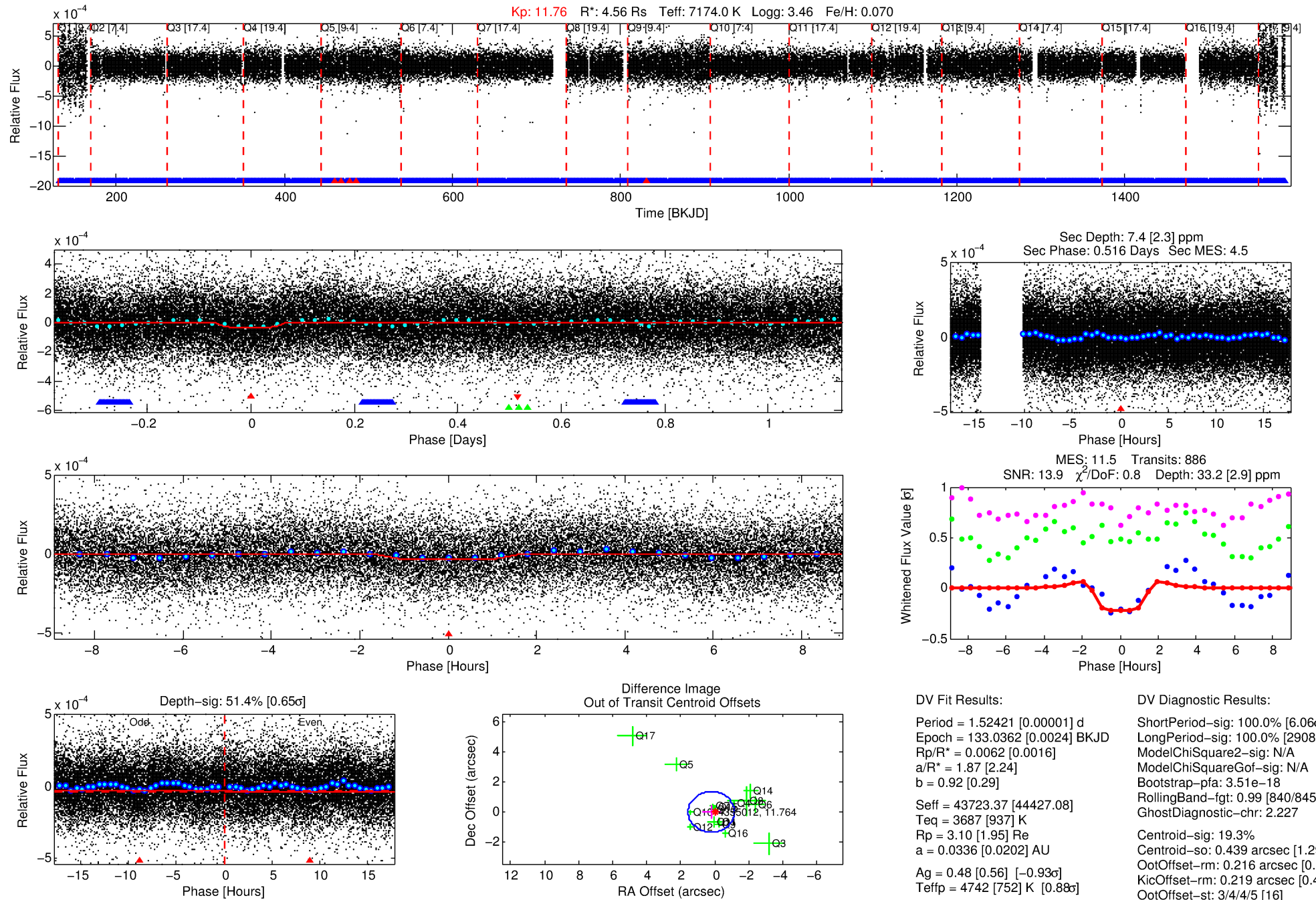
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004355012-01

No Significant Match Found

DV One-Page Summary

KIC: 4355012 Candidate: 1 of 3 Period: 1.524 d



DV Fit Results:

Period = 1.52421 [0.00001] d
Epoch = 133.0362 [0.0024] BKJD
Rp/R* = 0.0062 [0.0016]
a/R* = 1.87 [2.24]
b = 0.92 [0.29]
Seff = 43723.37 [44427.08]
Teq = 3687 [937] K
Rp = 3.10 [1.95] Re
a = 0.0336 [0.0202] AU
Ag = 0.48 [0.56] [-0.93σ]
Teffp = 4742 [752] K [0.88σ]

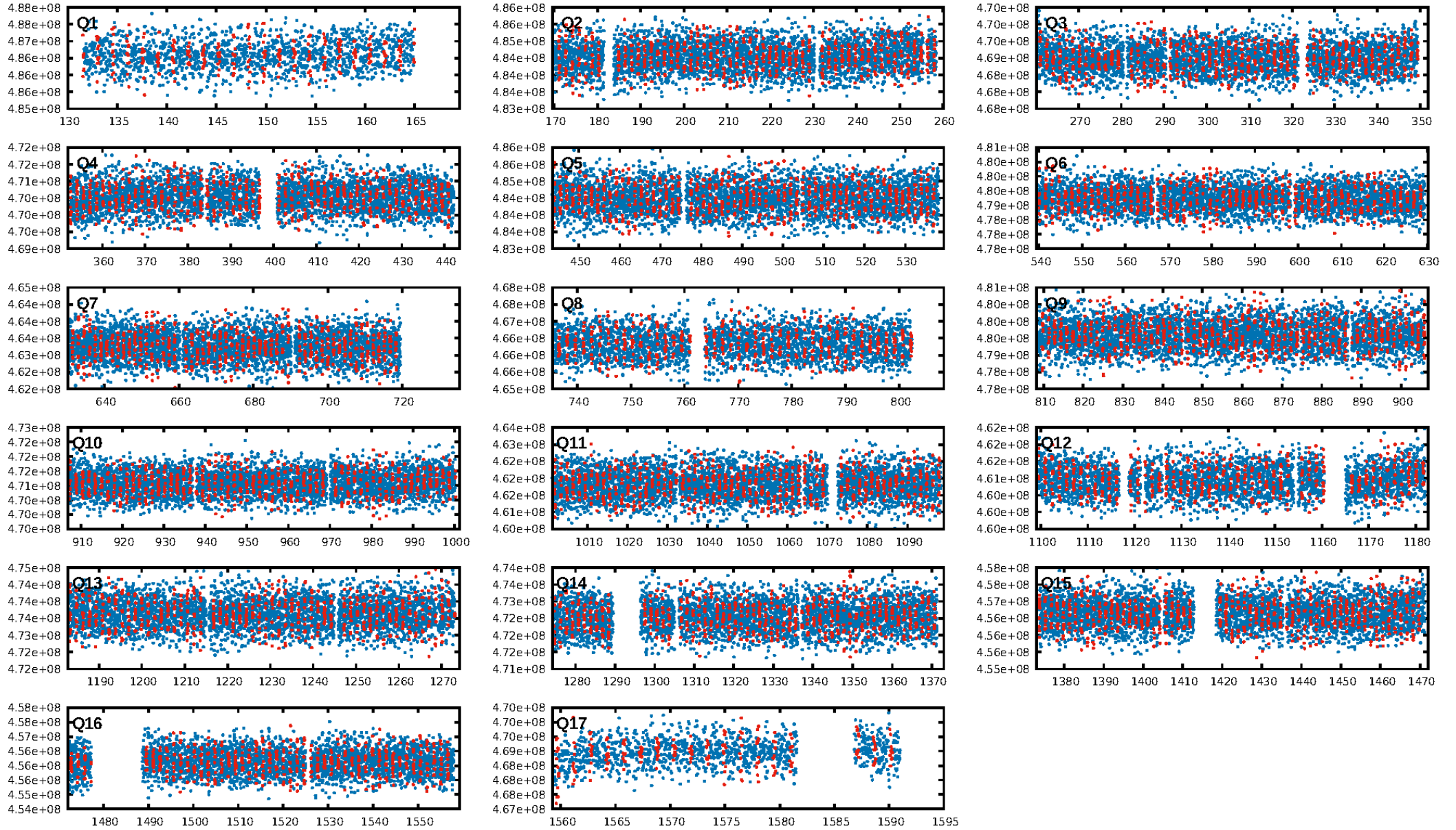
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.06σ]
LongPeriod-sig: 100.0% [2908.10σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.51e-18
RollingBand-fgt: 0.99 [840/845]
GhostDiagnostic-chr: 2.227
Centroid-sig: 19.3%
Centroid-so: 0.439 arcsec [1.29σ]
OotOffset-rm: 0.216 arcsec [0.48σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-rm: 0.219 arcsec [0.43σ]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 0.00 [0/17]

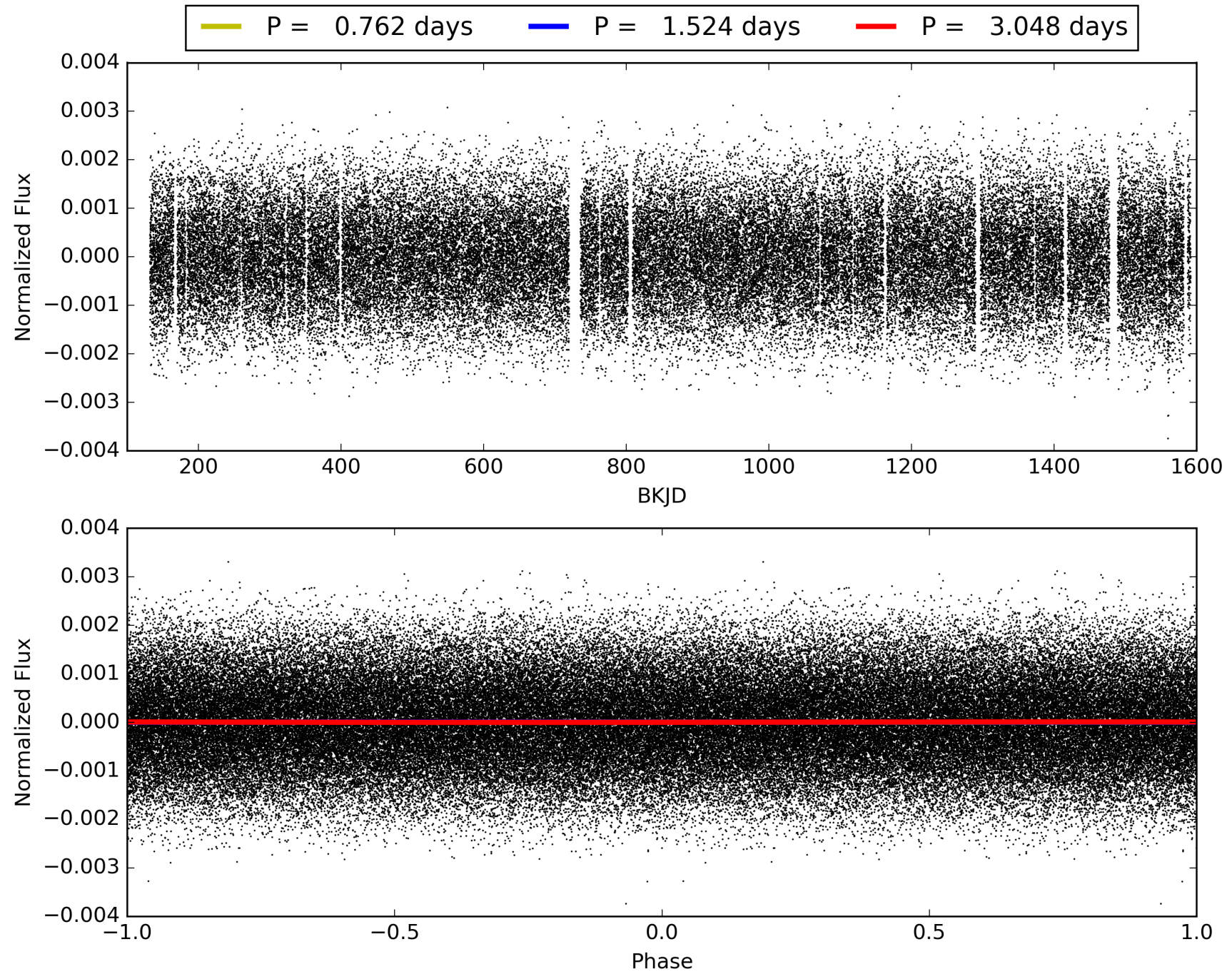
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:17:40 Z

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

TCE 004355012-01, PDC Light Curves

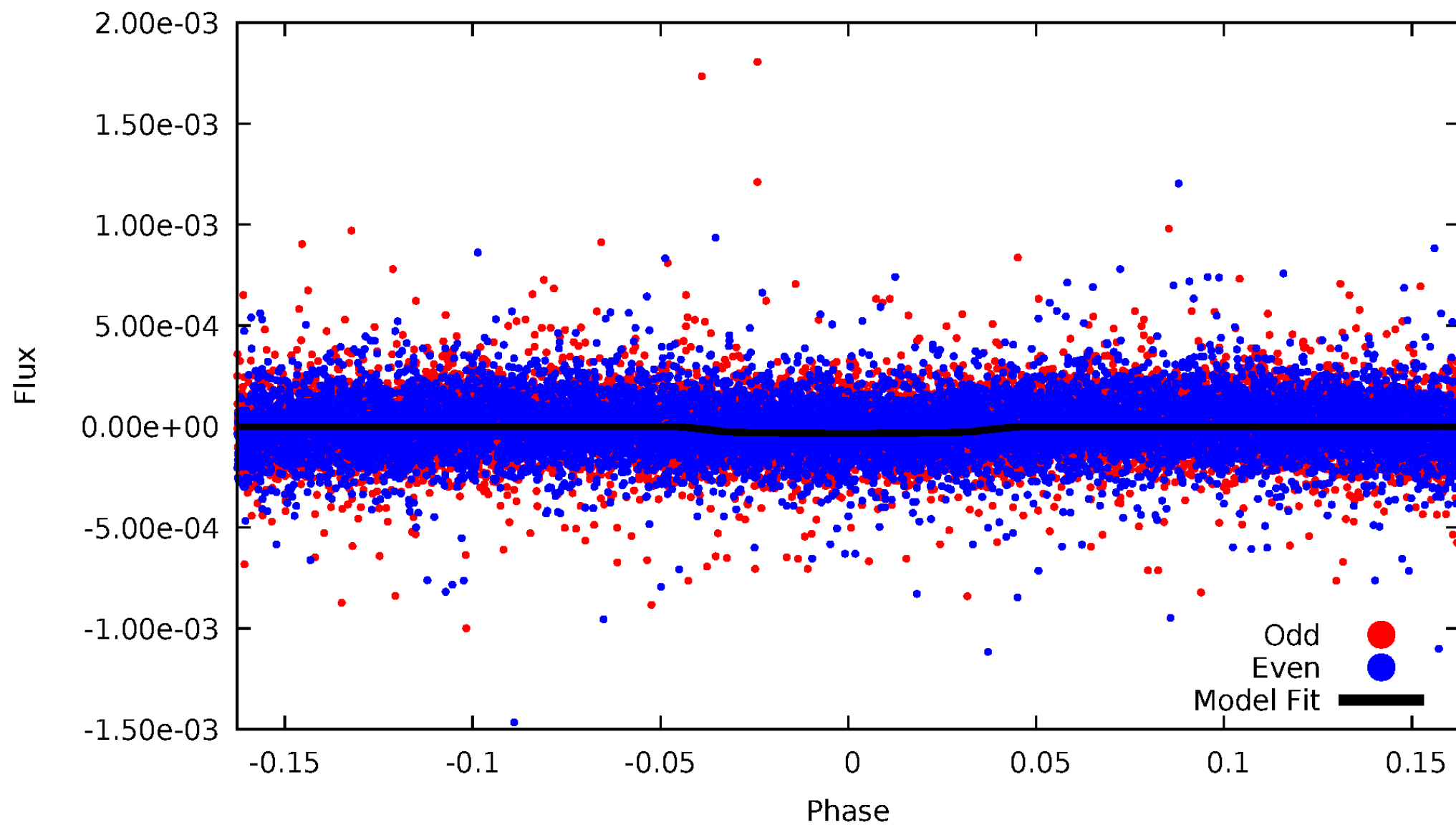


TCE 004355012-01



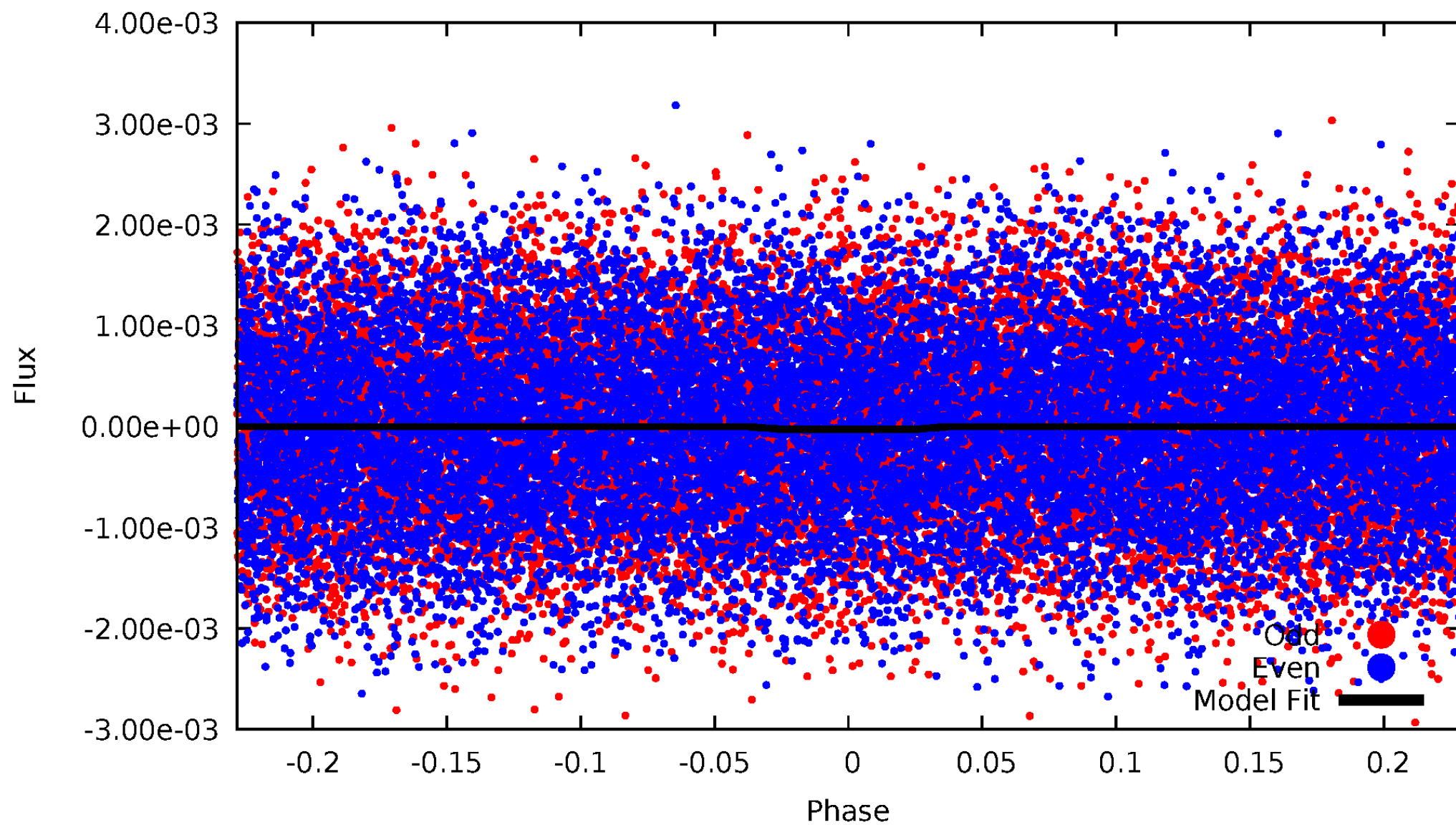
DV Odd/Even

TCE 004355012-01



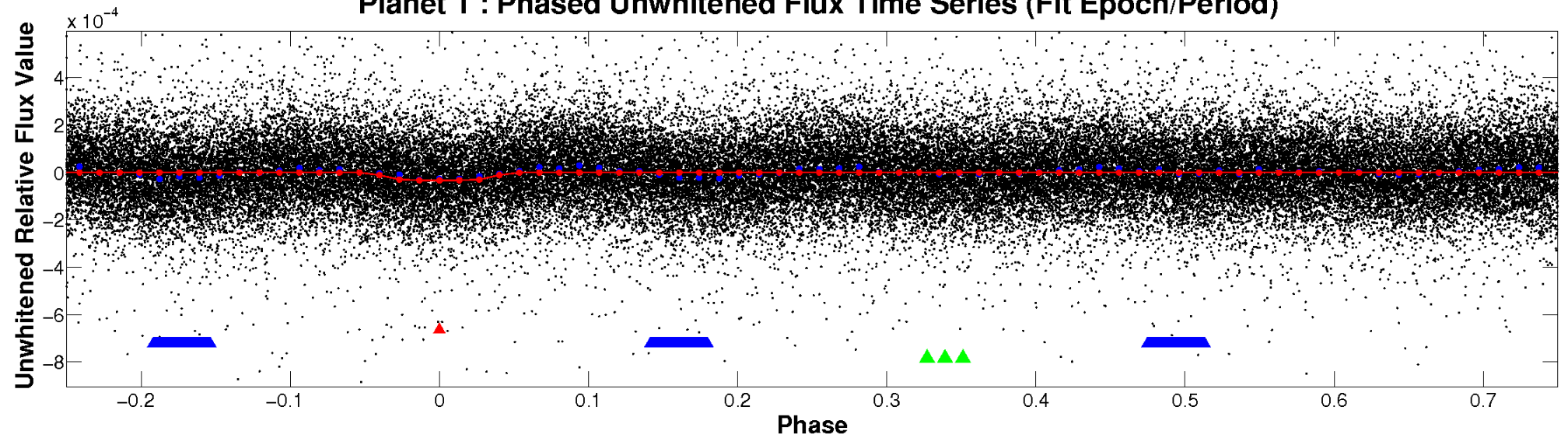
ALT Odd/Even

TCE 004355012-01

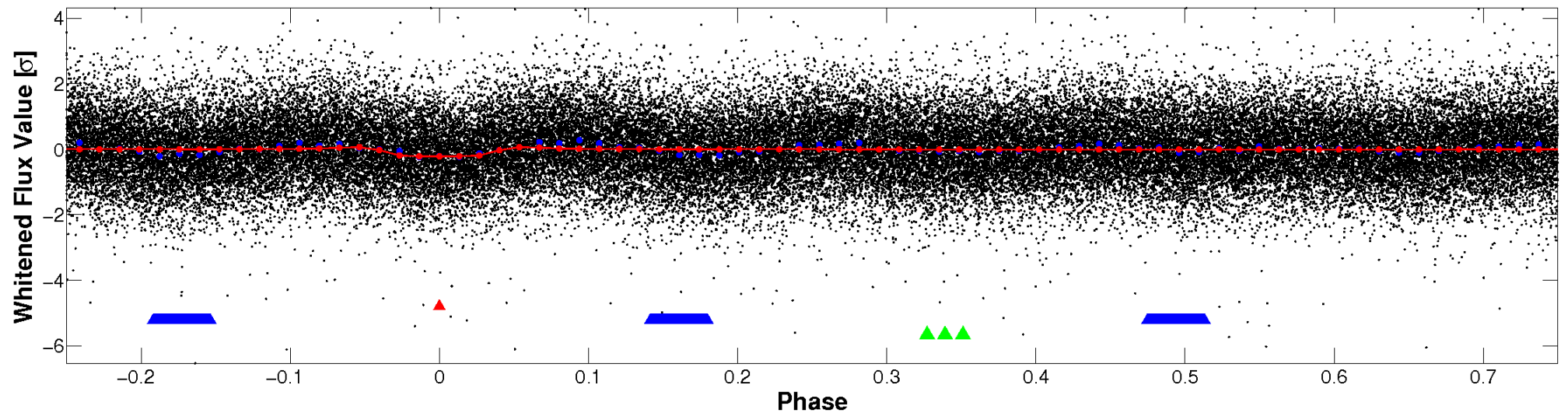


Non-Whitened Vs. Whitened Light Curve

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

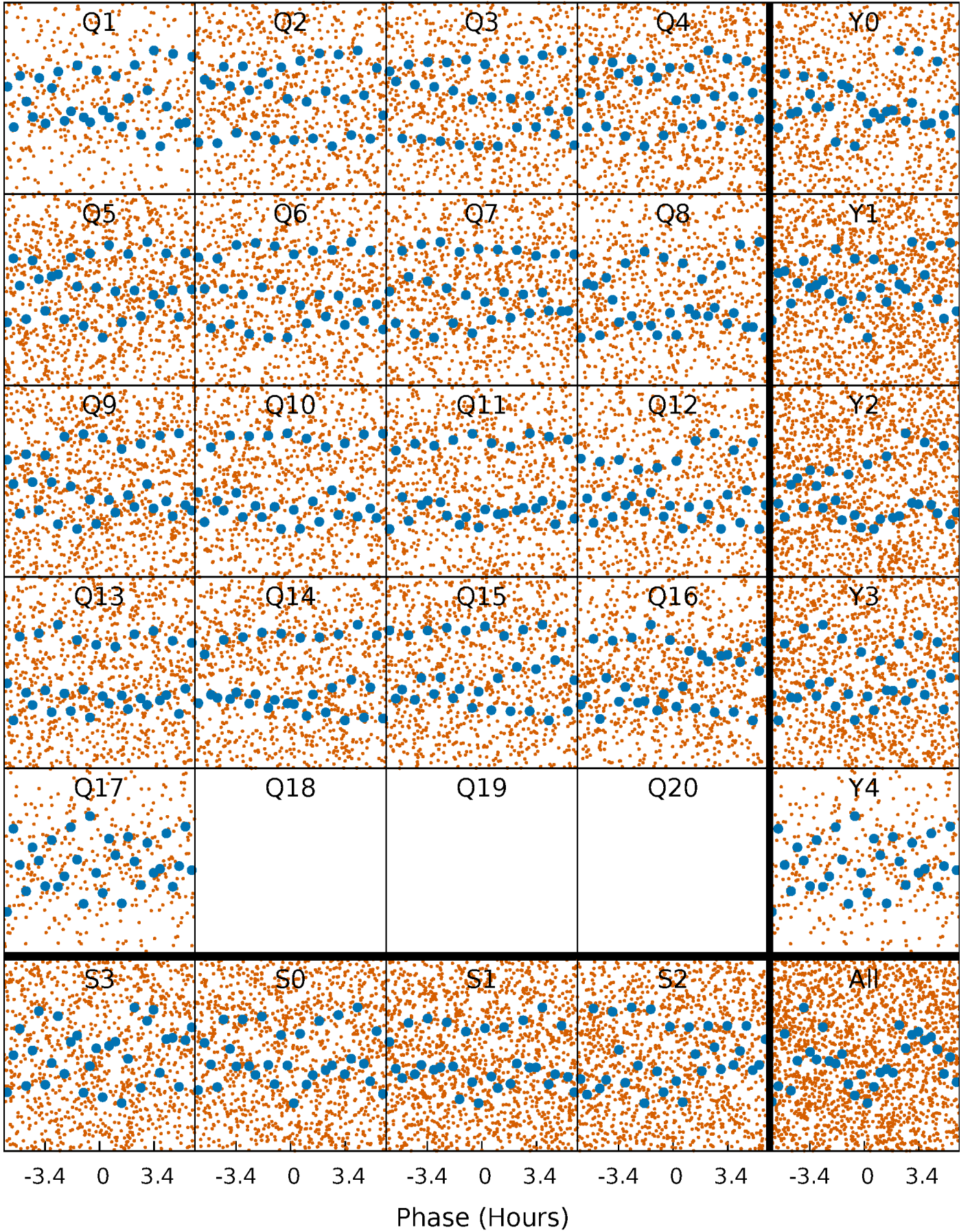


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



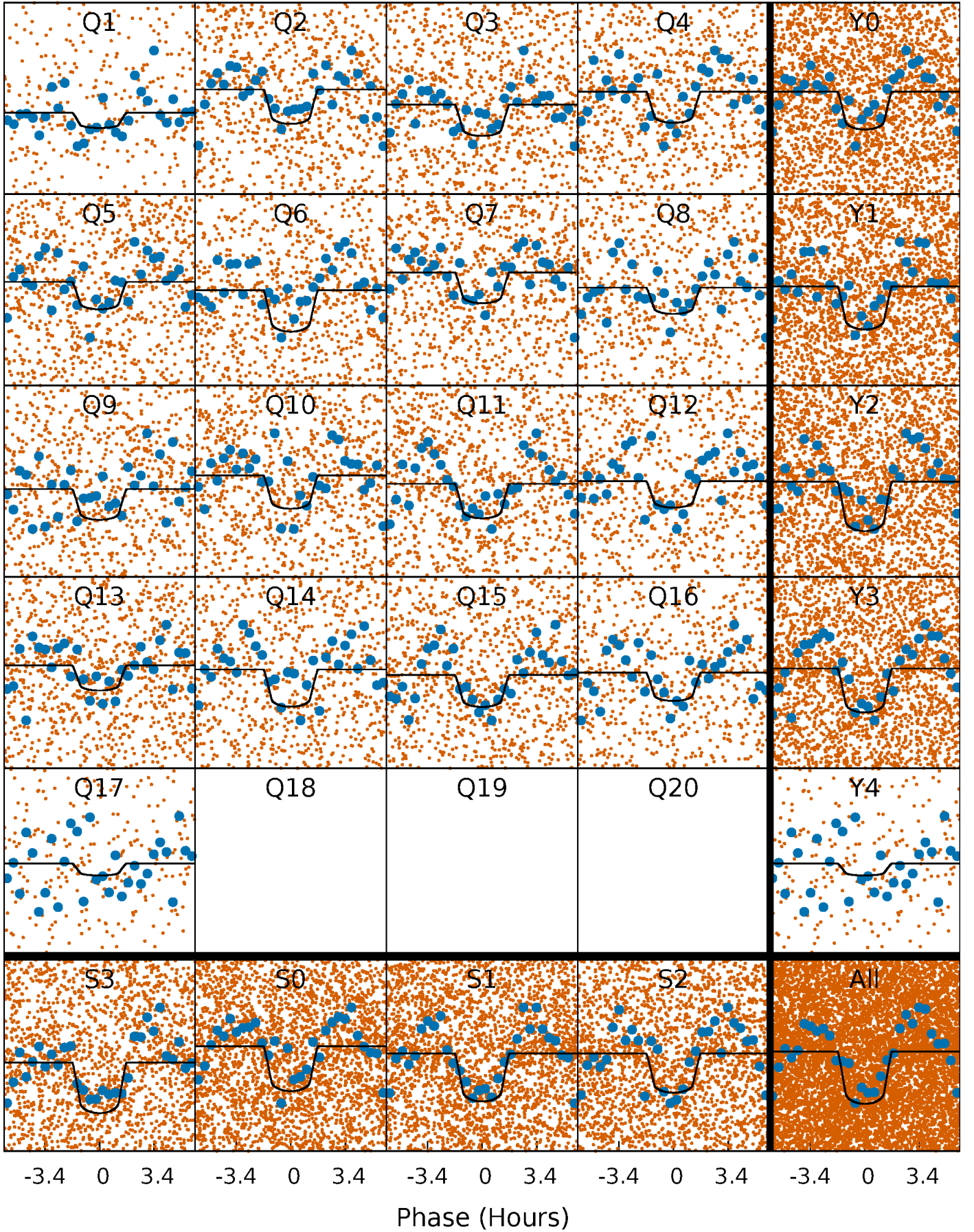
PDC Quarter-Phased Transit Curves

TCE 004355012-01 P= 1.524210 Days $T_0=133.036156$ (BKJD)



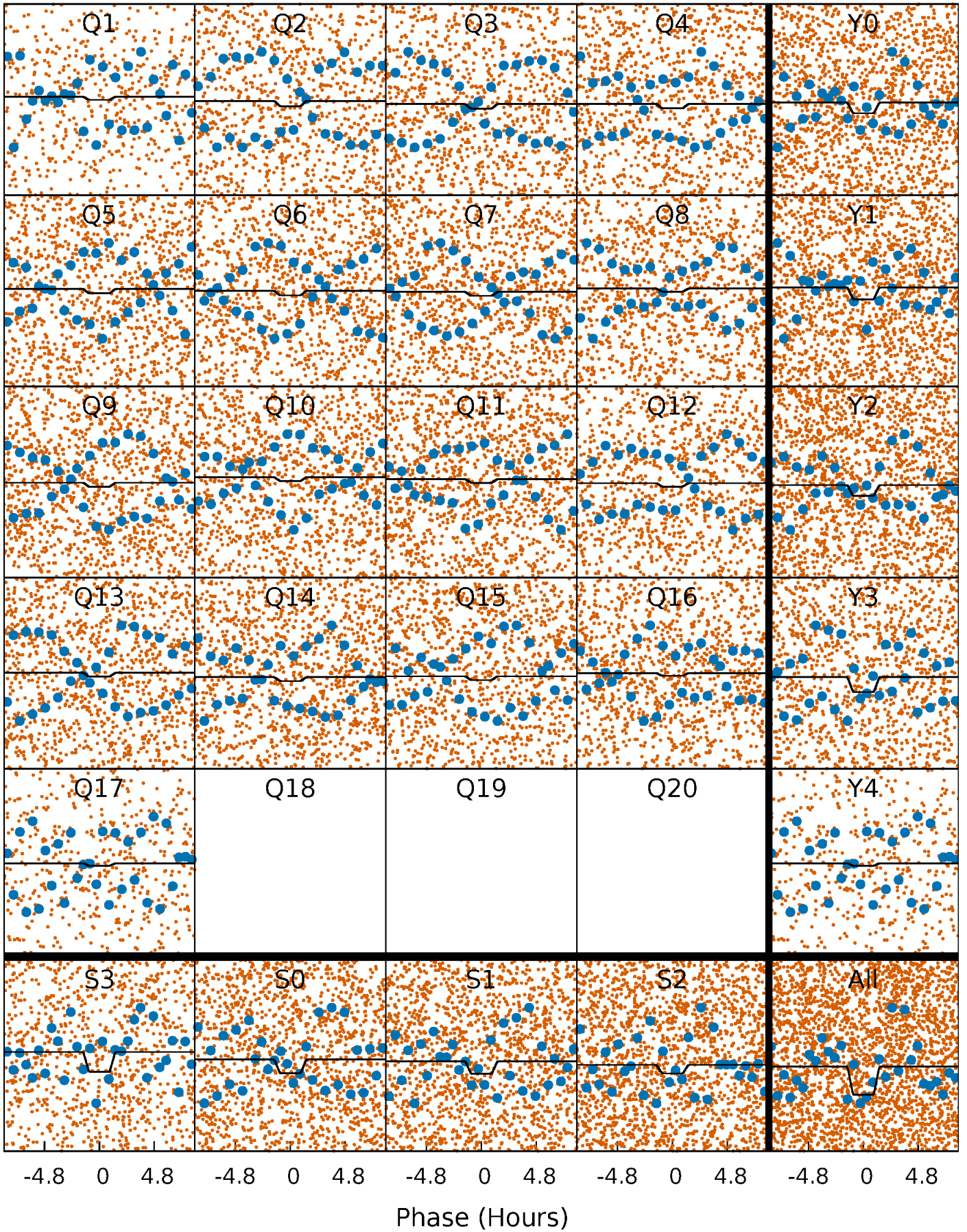
DV Quarter-Phased Transit Curves

TCE 004355012-01 P= 1.524210 Days $T_0=133.036156$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

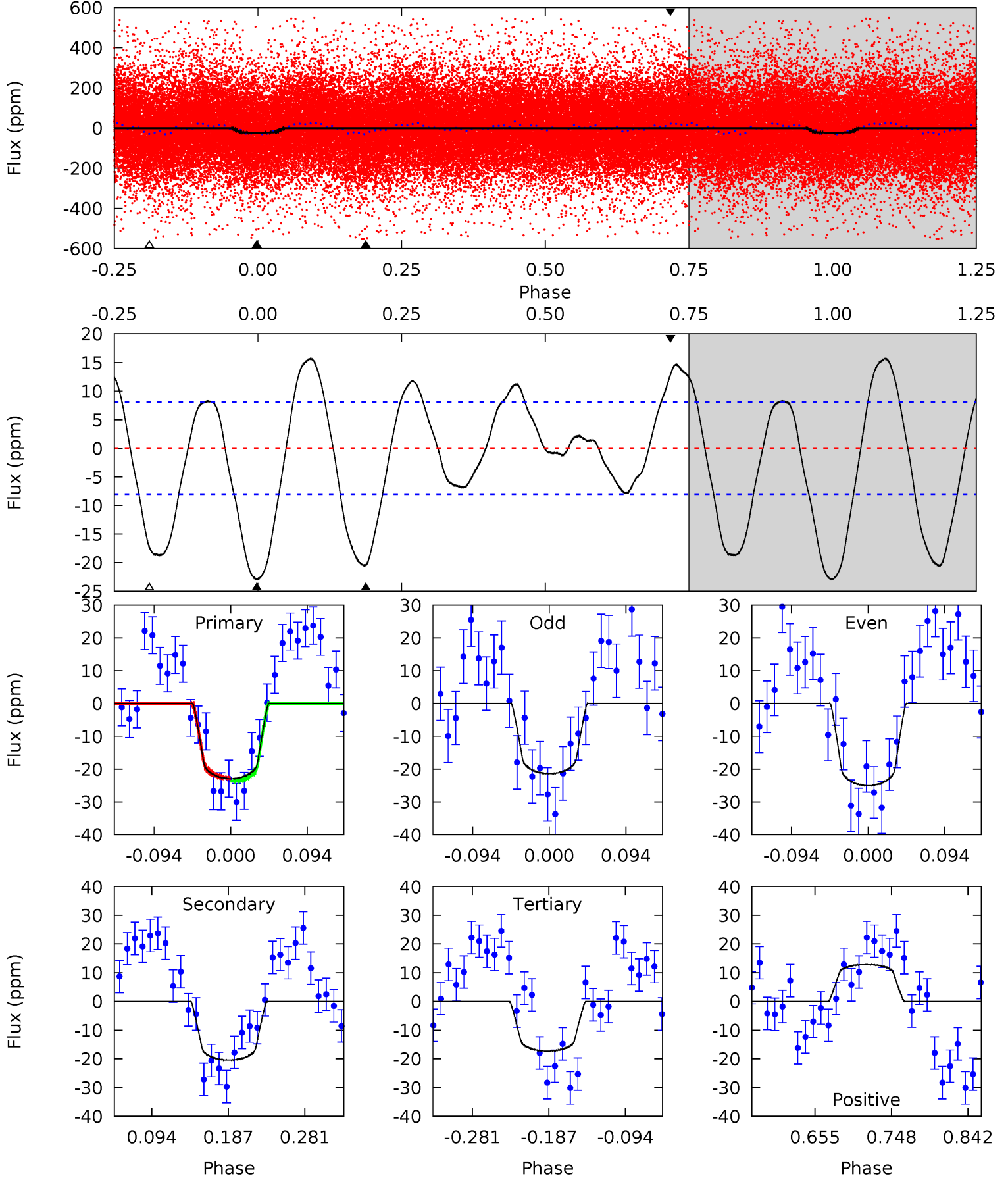
TCE 004355012-01 P= 1.524256 Days $T_0=133.017171$ (BKJD)



DV Model-Shift Uniqueness Test

004355012-01, P = 1.524210 Days, E = 131.511946 Days

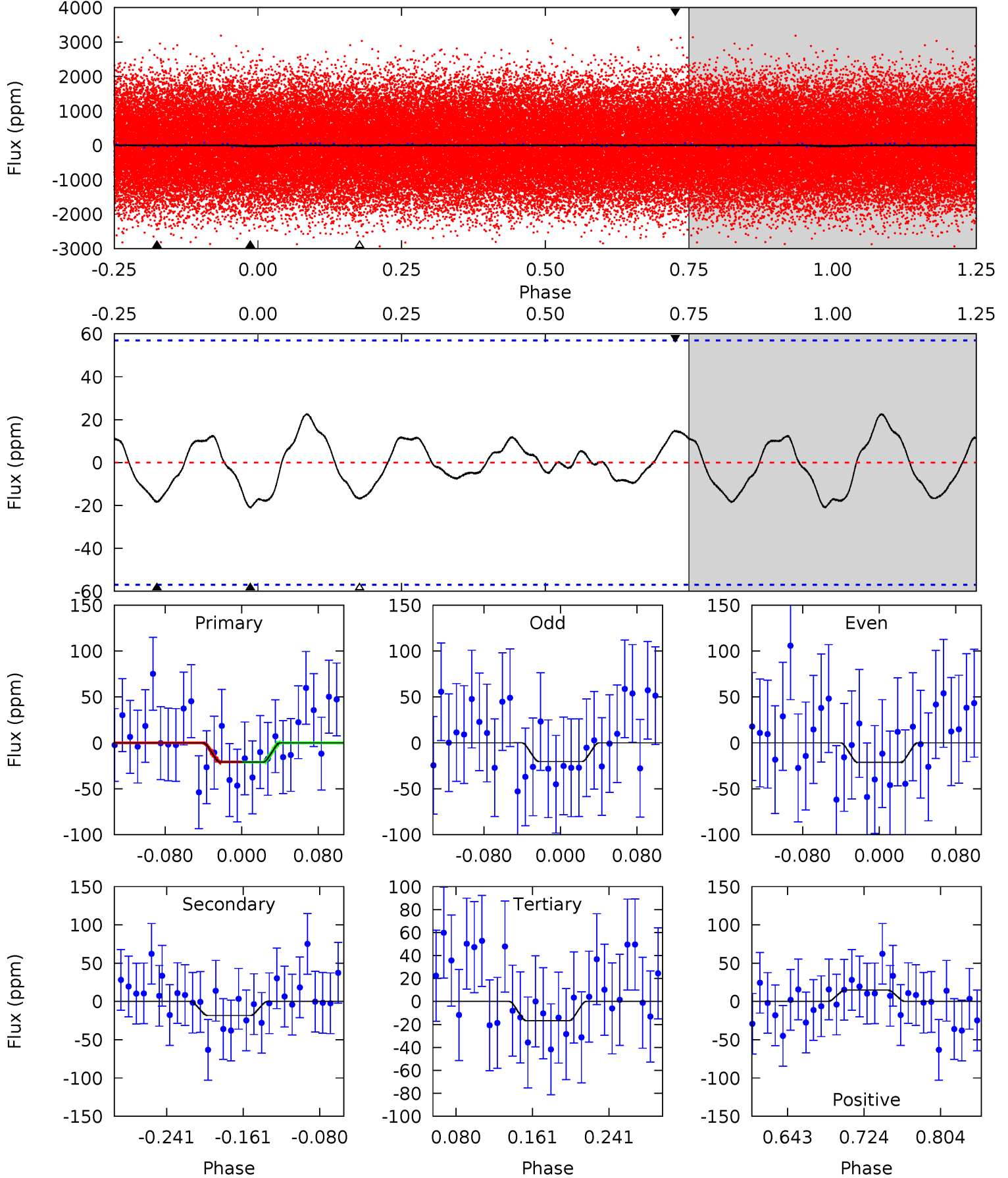
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	11.7	9.85	7.34	4.58	1.68	4.61	3.22	5.73	1.81	4.32	1.05	1.09	0.41	0.28



Alt Model-Shift Uniqueness Test

004355012-01, P = 1.524256 Days, E = 131.492915 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.69	1.48	1.35	1.20	4.61	1.75	0.71	0.33	0.49	0.13	0.29	0.04	0.87	0.52	0.02



Stellar Parameters For KIC 004355012

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7174^{+199}_{-298}	$3.458^{+0.604}_{-0.107}$	$0.070^{+0.200}_{-0.300}$	$4.563^{+0.290}_{-2.608}$	$2.182^{+0.216}_{-0.649}$	$0.032^{+0.282}_{-0.011}$
	+3%/-4%	+17%/-3%	+286%/-429%	+6%/-57%	+10%/-30%	+873%/-34%
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 004355012-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 2	$2.73^{+1.03}_{-0.87}$	5018^{+309}_{-664}	5787^{+1140}_{-842}	$1.665^{+1.852}_{-0.759}$
Alt.	-18 ± 12	$2.35^{+1.01}_{-0.92}$	5015^{+311}_{-717}	6070^{+1959}_{-2033}	$1.845^{+3.992}_{-1.324}$

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

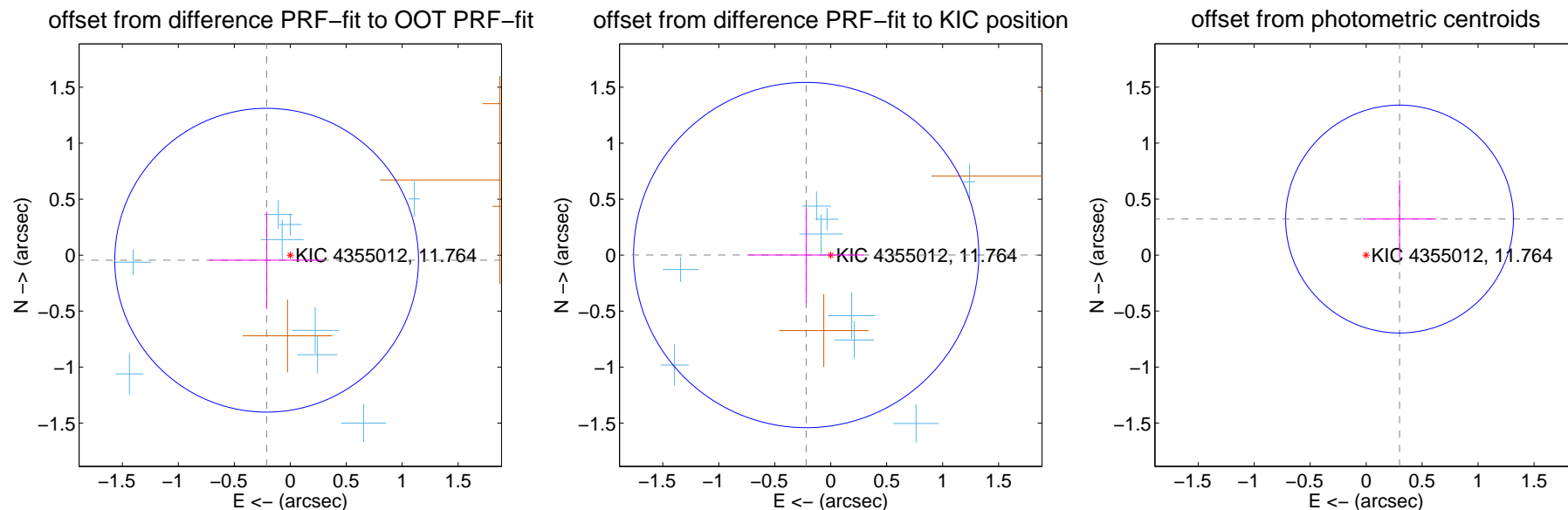
DV Centroid Data

Supplemental centroid analysis for 004355012-01. **Kepler magnitude: 11.76.** Transit SNR 13.89

There are 10 quarters with good PRF difference image offsets

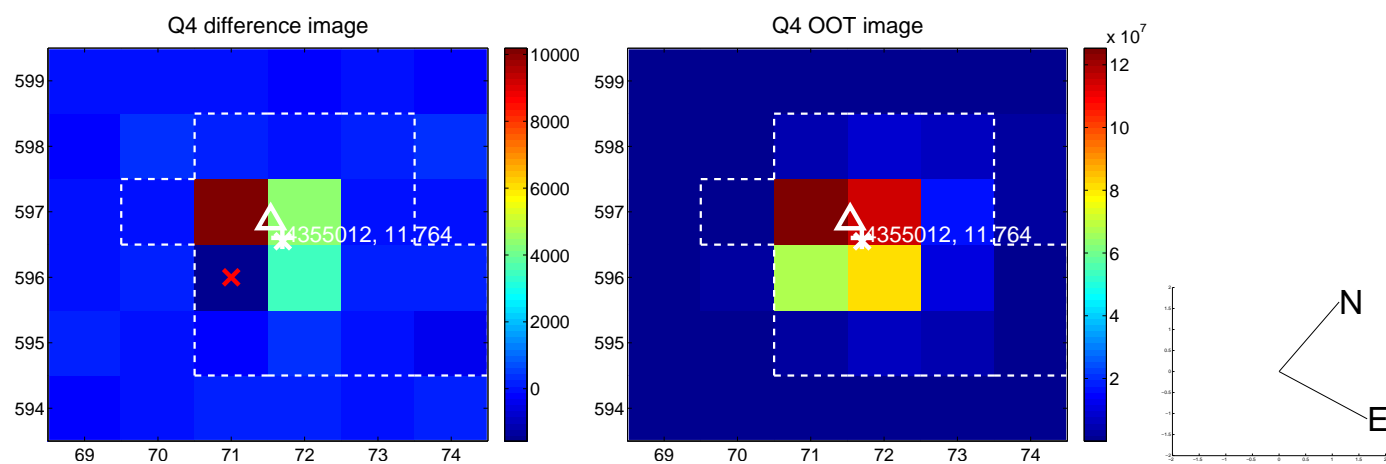
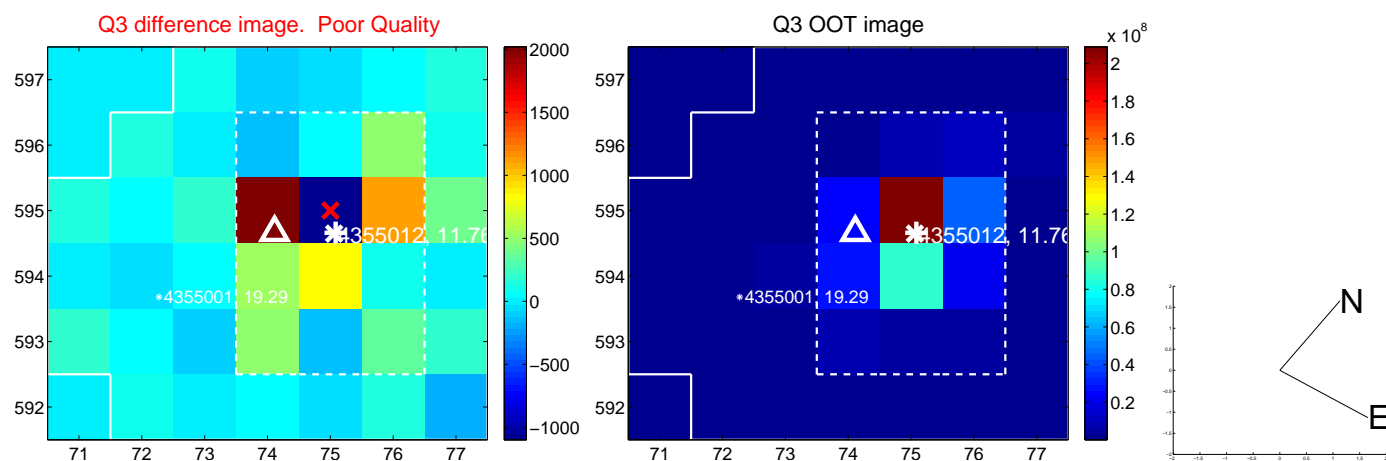
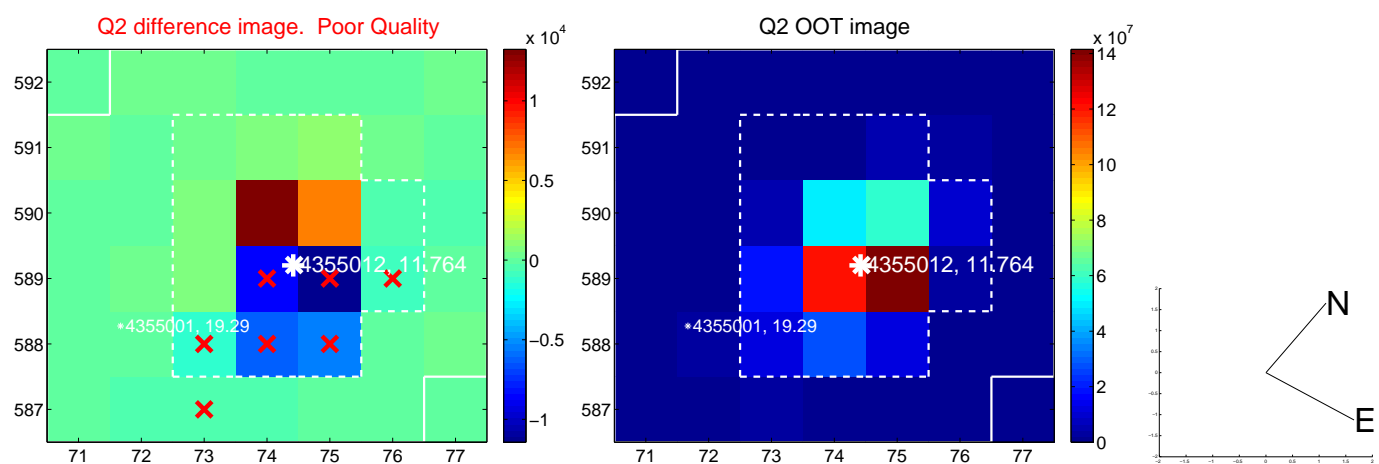
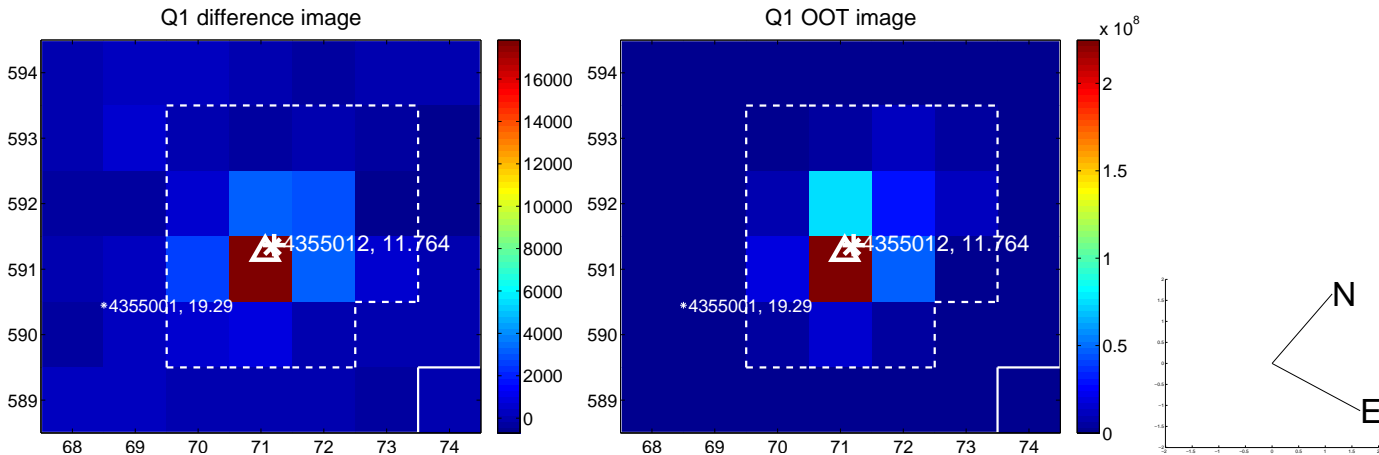
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.216 ± 0.452	0.48	0.211 ± 0.514	-0.045 ± 0.435
PRF-fit source offset from KIC position	0.219 ± 0.514	0.43	0.219 ± 0.513	0.001 ± 0.428
photometric centroid source offset	0.44 ± 0.34	1.29	-0.30 ± 0.33	0.32 ± 0.35

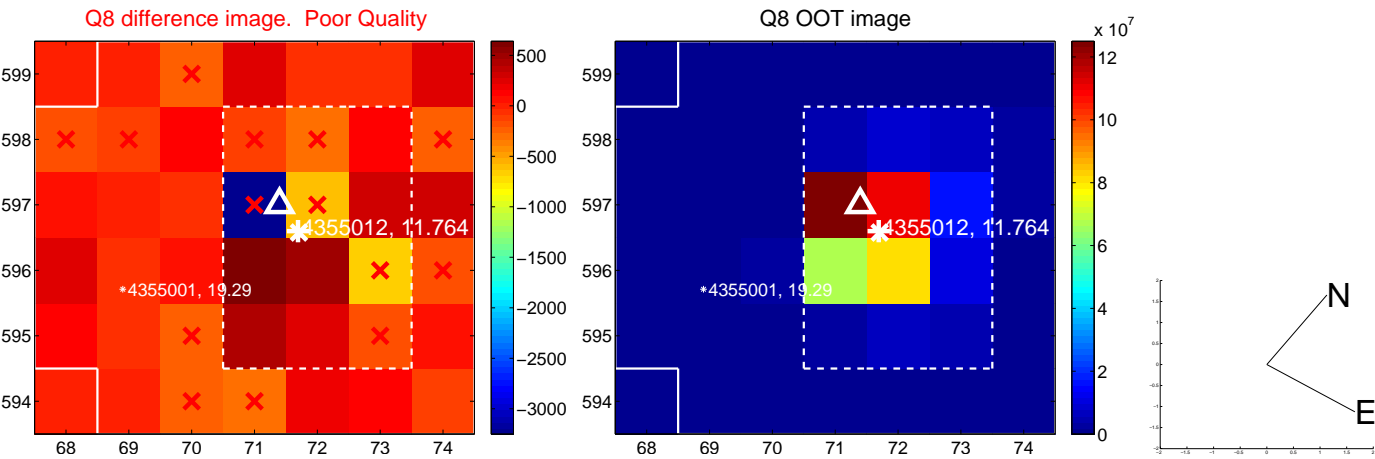
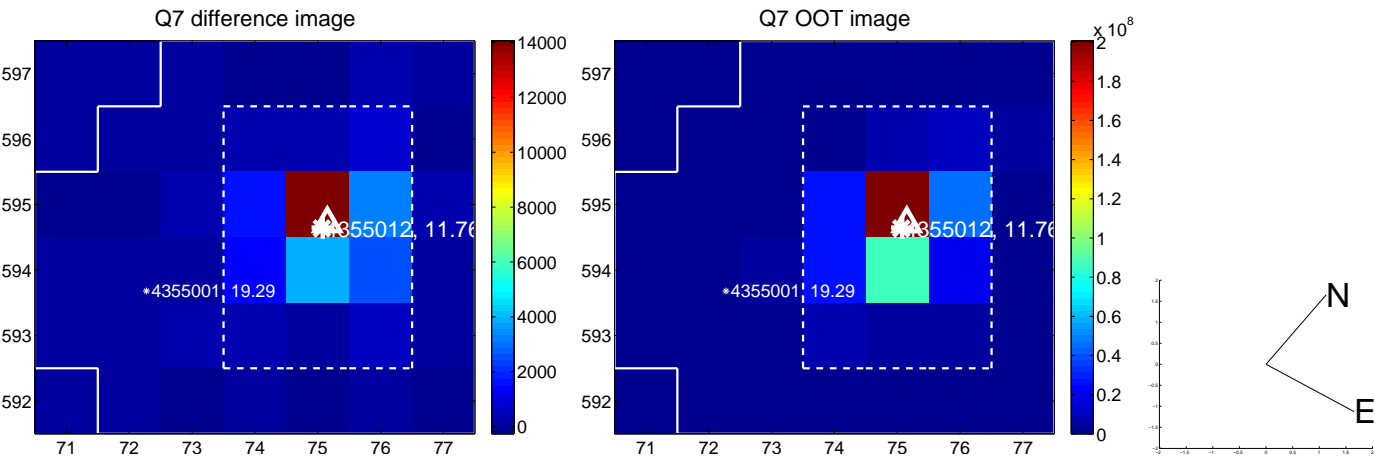
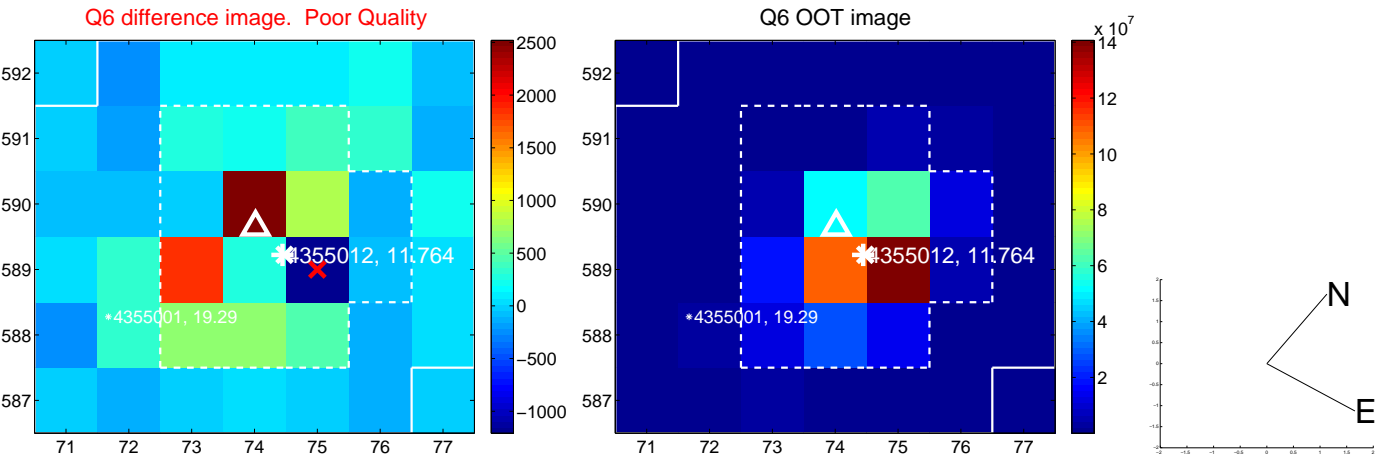
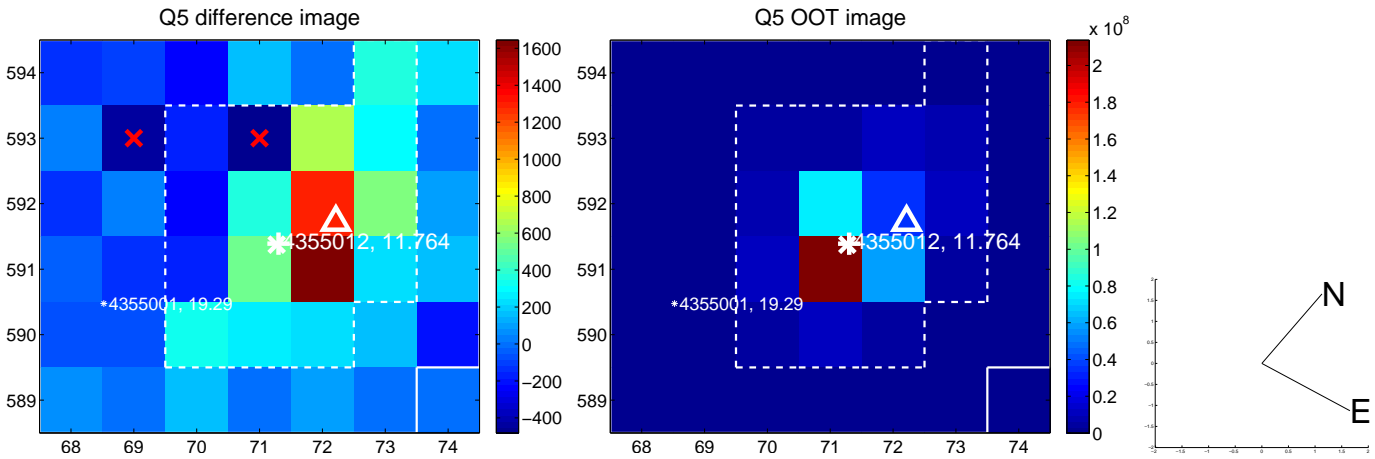


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

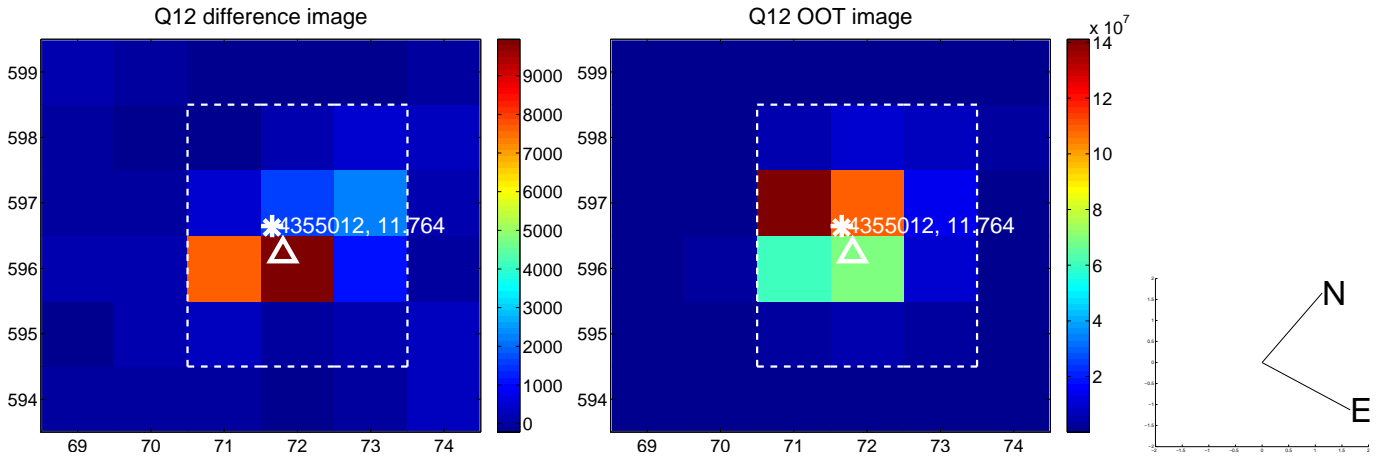
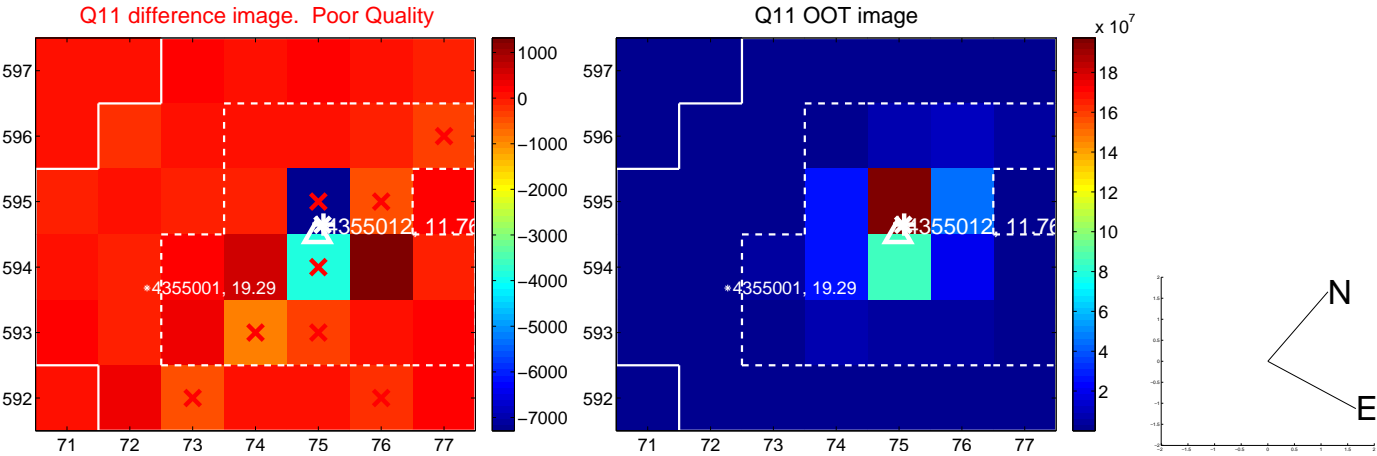
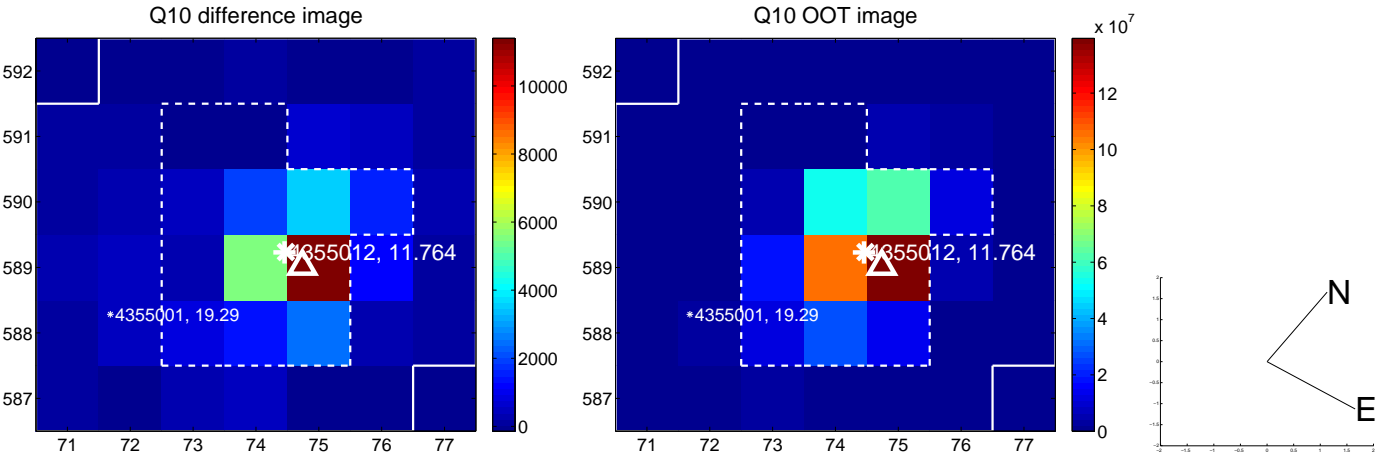
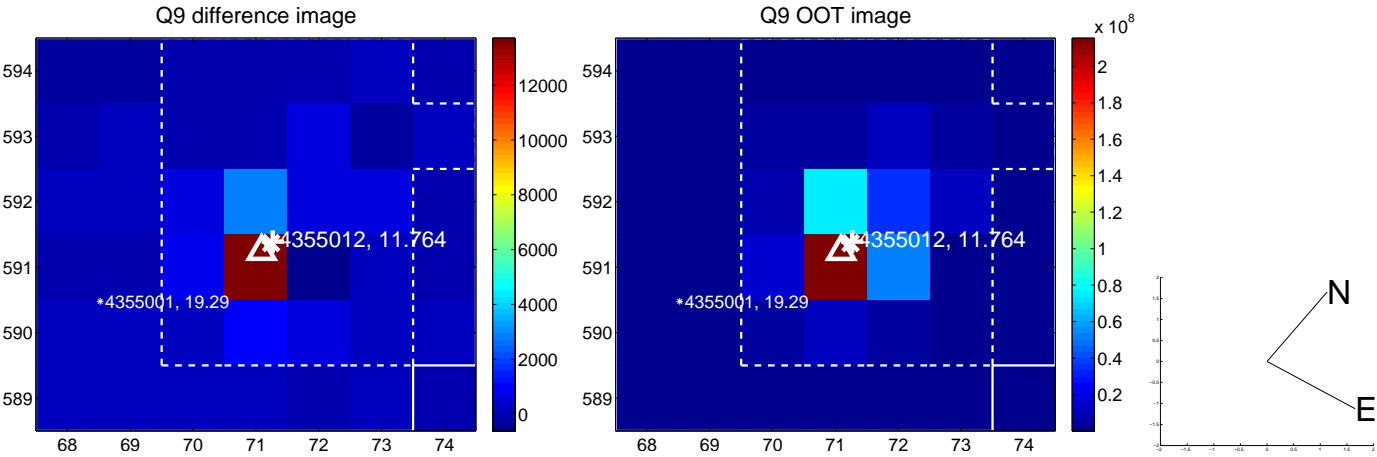
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



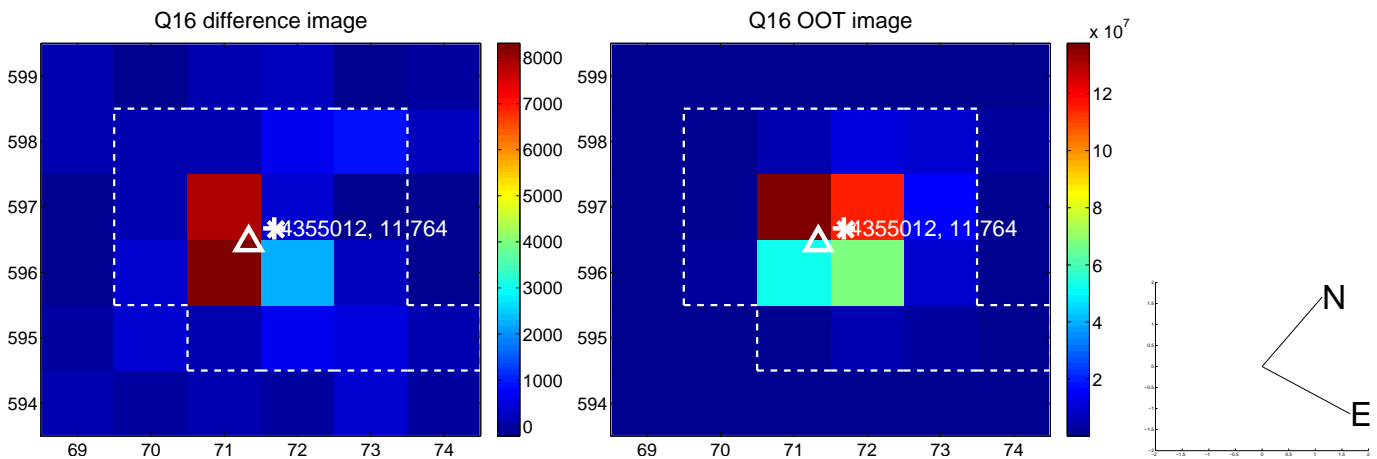
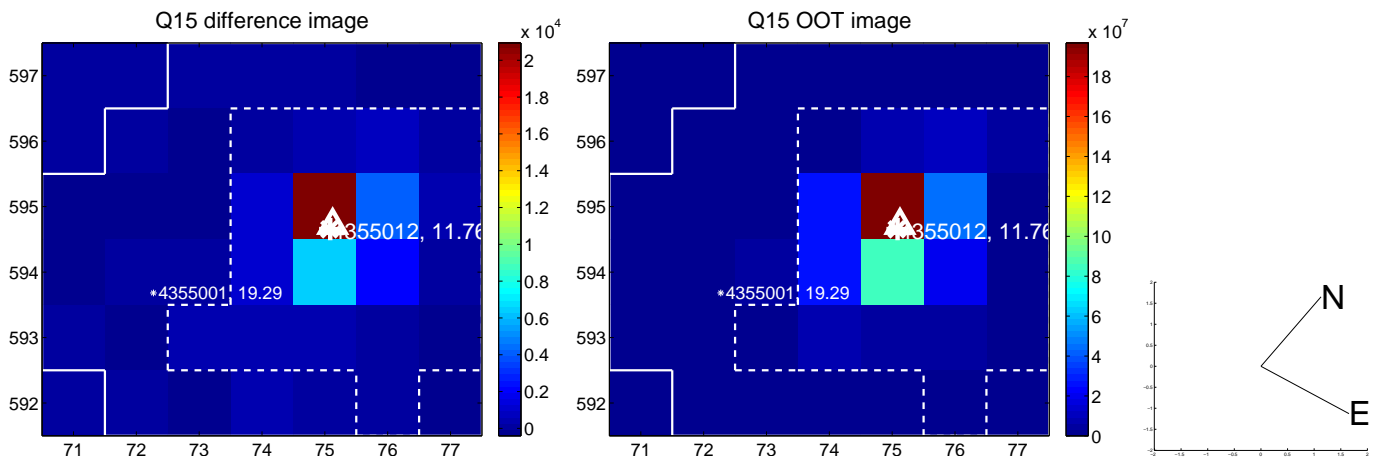
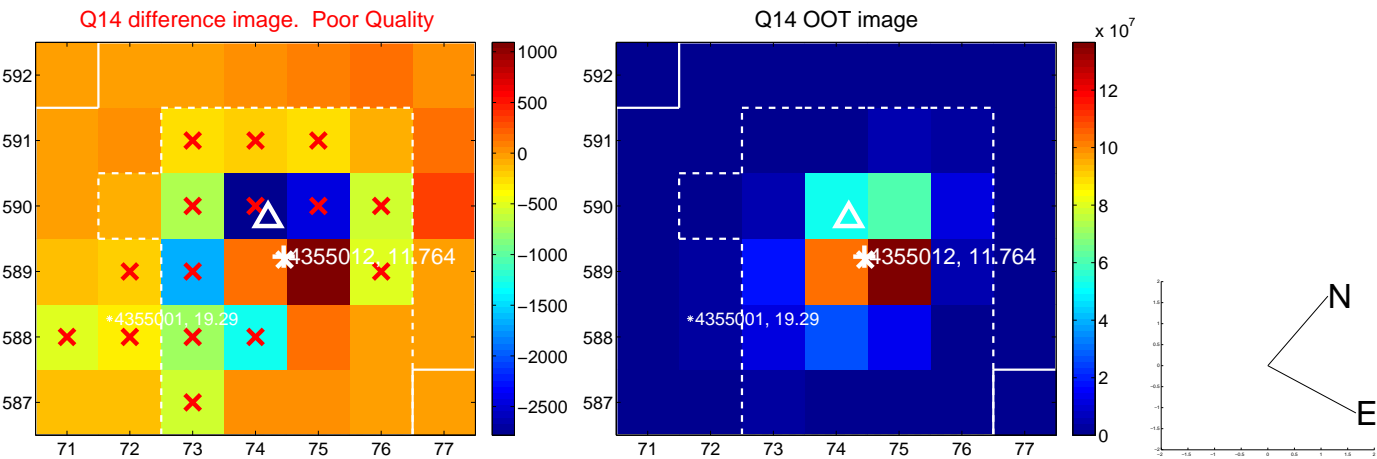
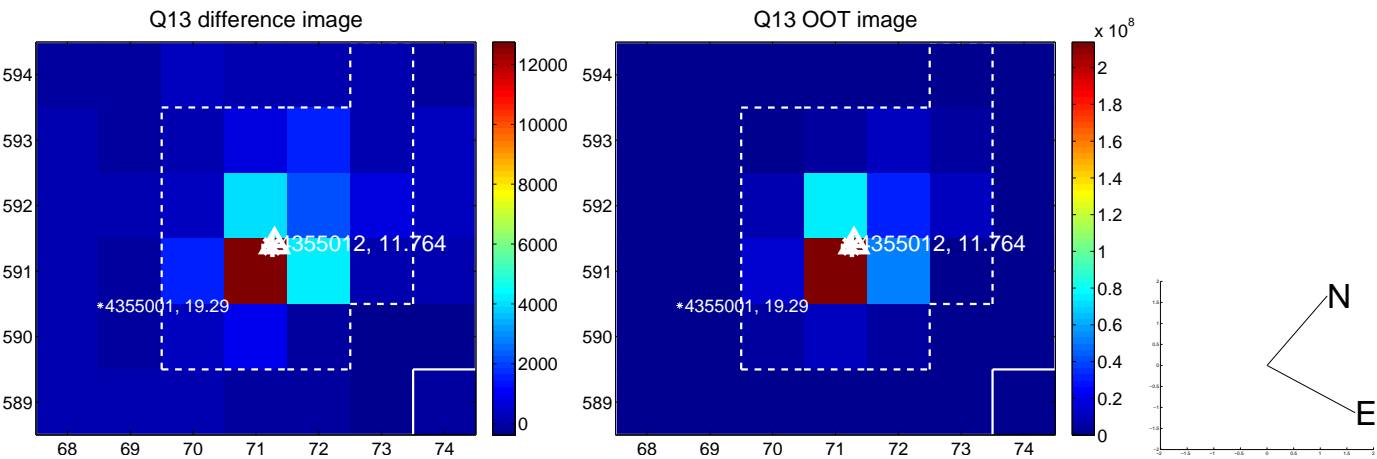
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



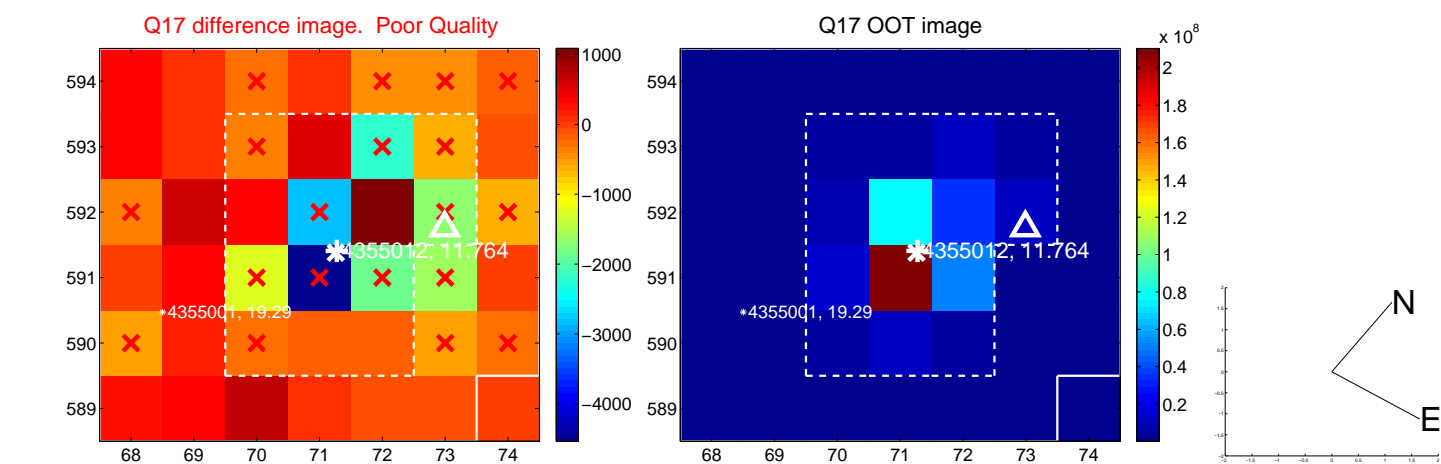
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



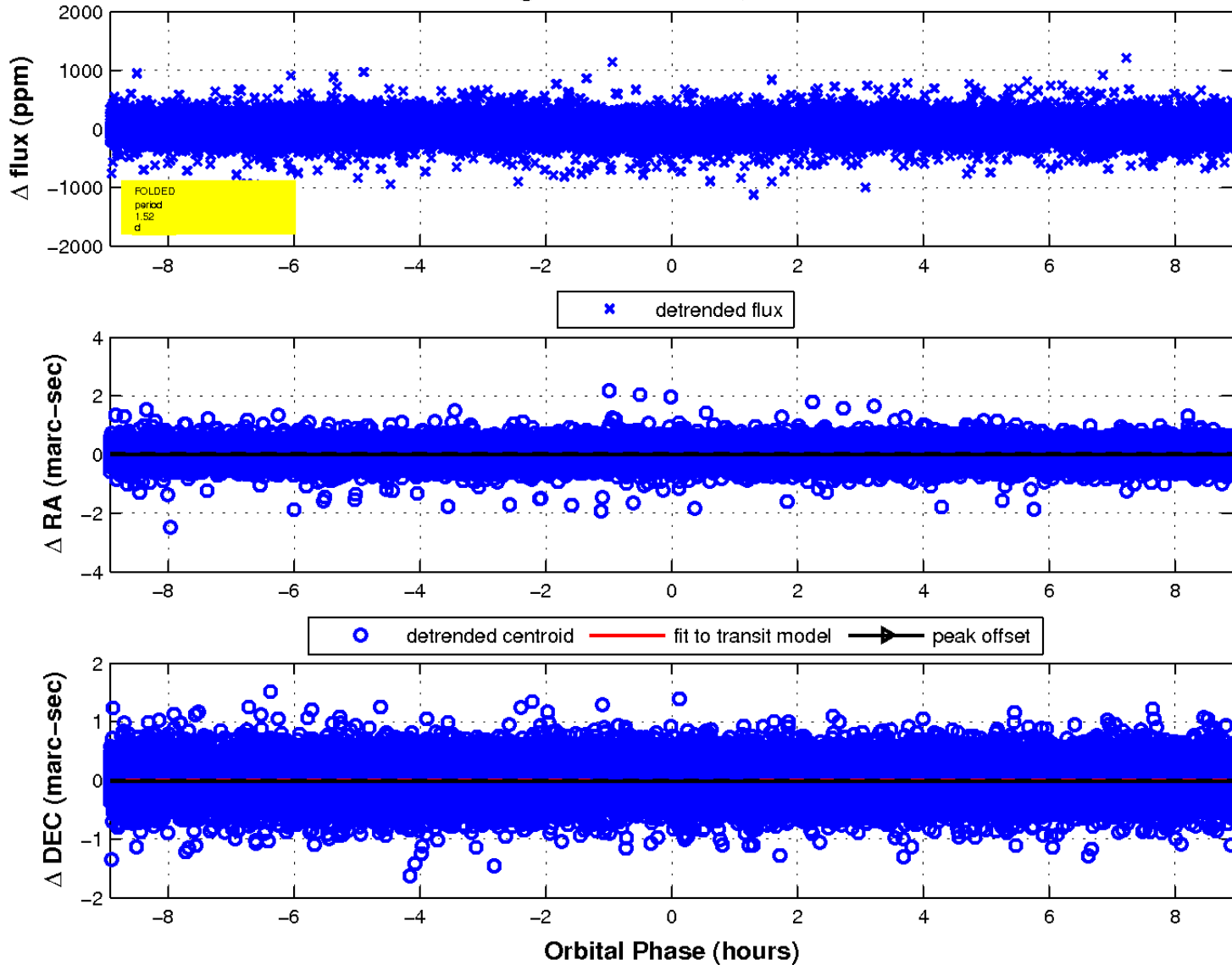
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



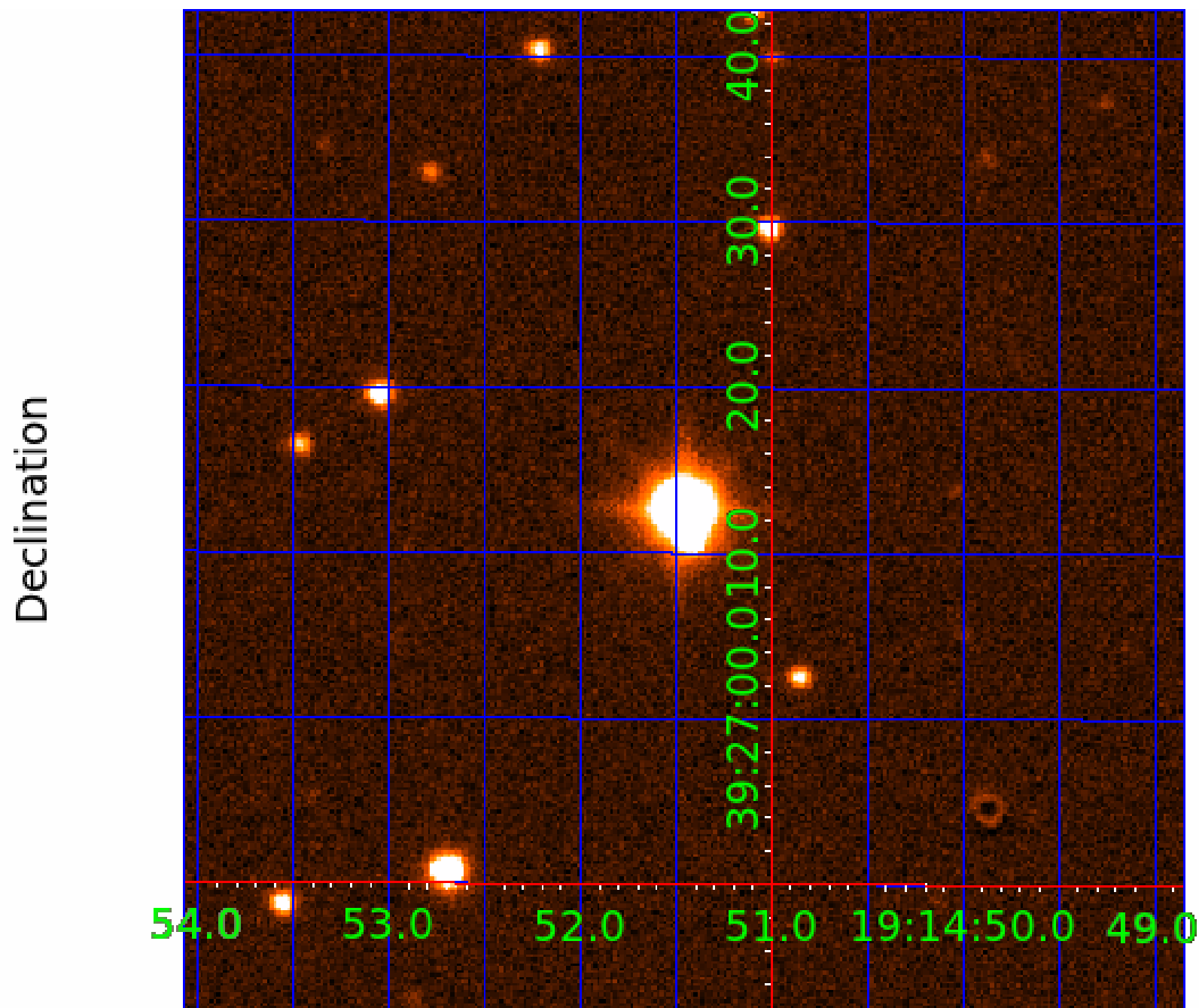
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 3



UKIRT Image



KIC 004355012

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})
004355012-01	OBS	No	1.524210	133.036156	33.2	2.976	11.5	13.9	4.56	7174	3.10	43723.37
004355012-02	OBS	No	0.508050	131.786132	12.4	2.705	10.5	9.3	4.56	7174	1.72	0.00
004355012-03	OBS	No	624.944551	298.149384	276.5	4.197	7.9	8.5	4.56	7174	7.88	14.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004355012-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004355012-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
004355012-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST

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

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

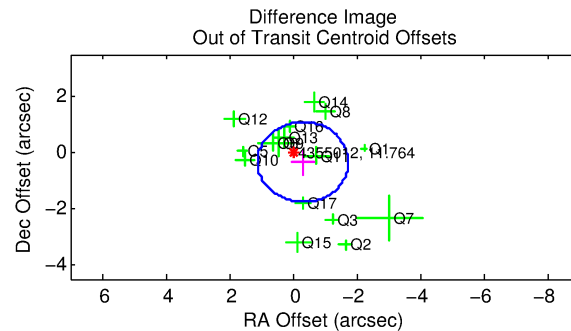
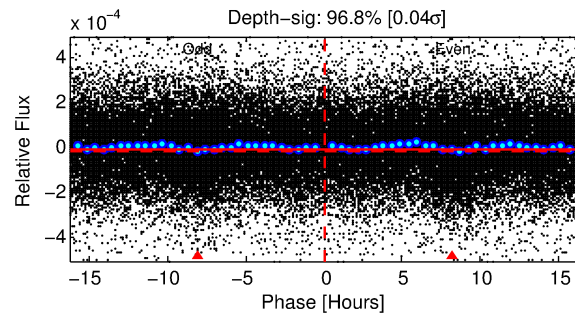
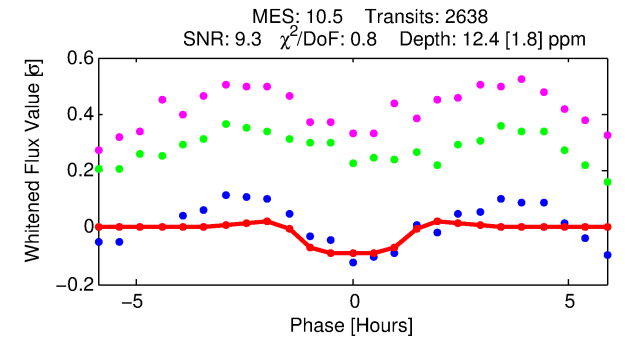
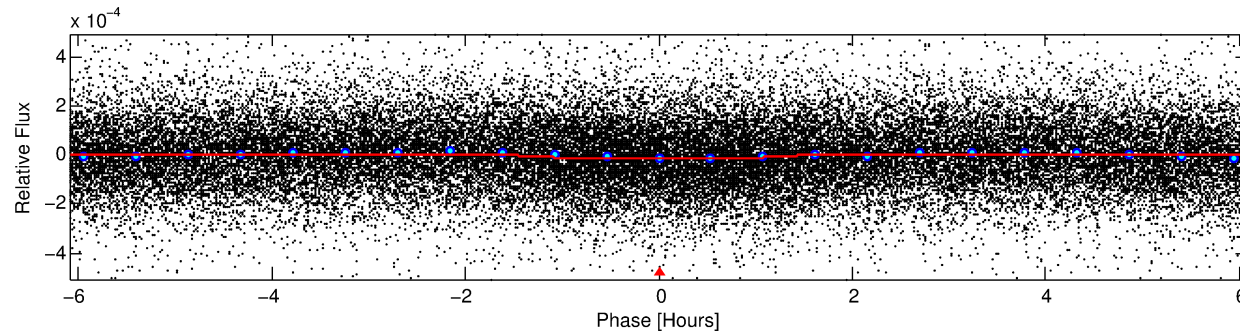
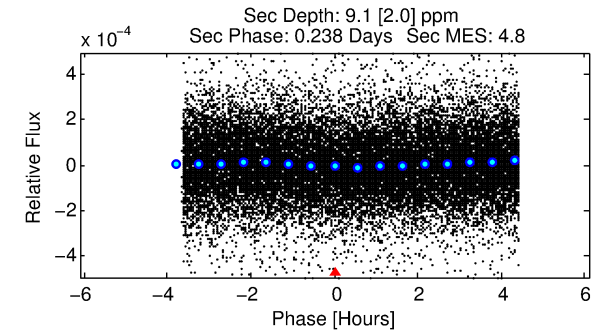
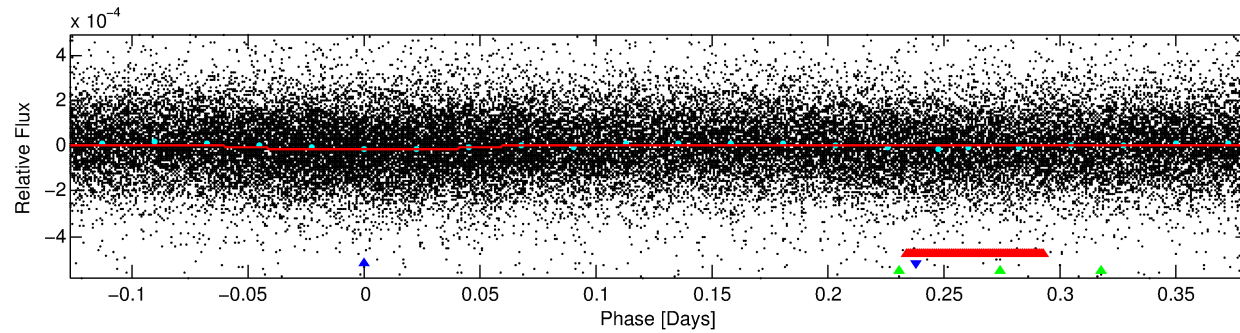
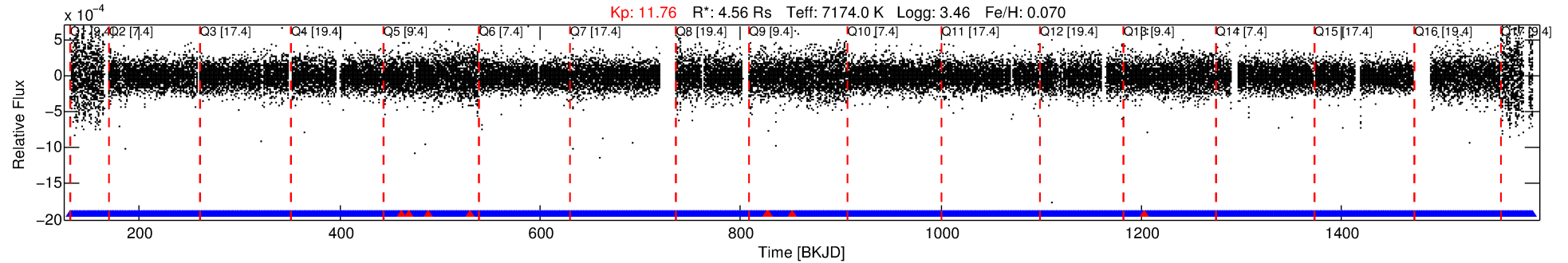
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004355012-02

No Significant Match Found

DV One-Page Summary

KIC: 4355012 Candidate: 2 of 3 Period: 0.508 d



DV Fit Results:

Period = 0.50805 [0.00001] d
Epoch = 131.7861 [0.0034] BKJD
Rp/R* = 0.0035 [0.0009]
a/R* = 1.32 [0.82]
b = 0.70 [1.07]
Seff = N/A
Teq = N/A
Rp = 1.72 [1.08] Re
a = N/A
Ag = N/A
Teffp = N/A

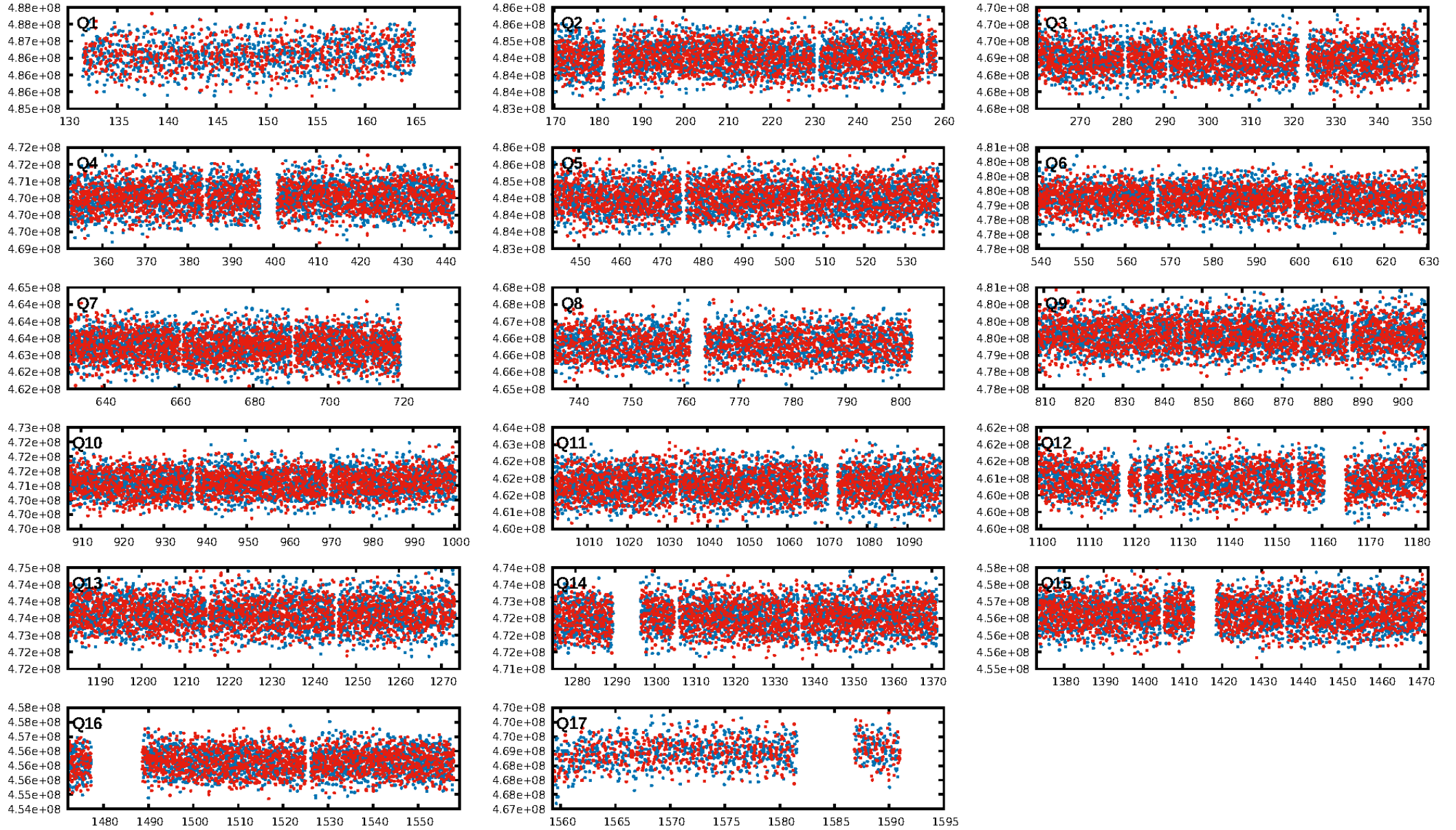
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.06σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.62e-17
RollingBand-fgt: 1.00 [2510/2519]
GhostDiagnostic-chr: 1.122
Centroid-sig: 58.9%
Centroid-so: 0.398 arcsec [0.77σ]
OotOffset-rm: 0.462 arcsec [0.97σ]
KicOffset-rm: 0.446 arcsec [1.10σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 1.00 [17/17]

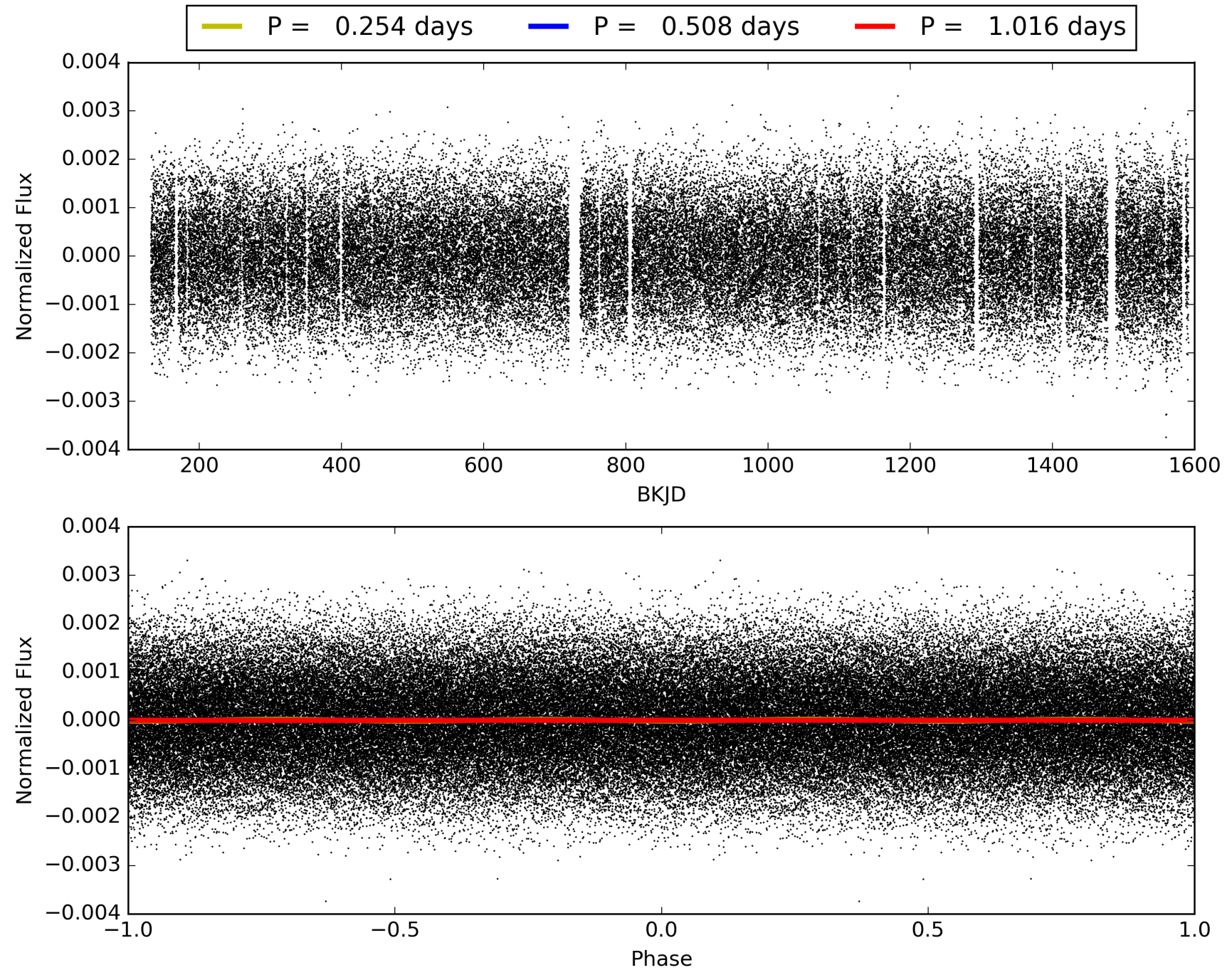
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:17:52 Z

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

TCE 004355012-02, PDC Light Curves

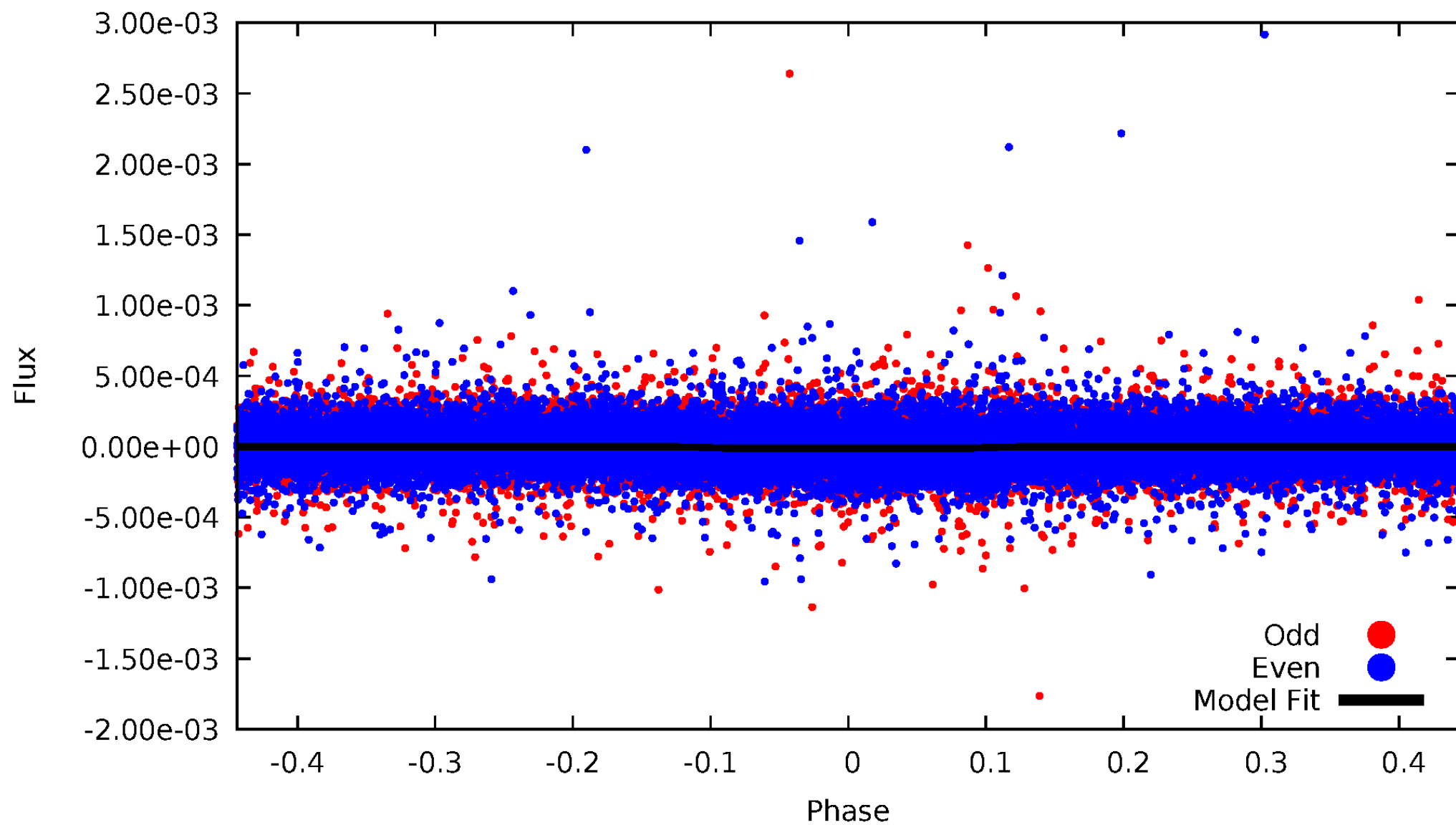


TCE 004355012-02



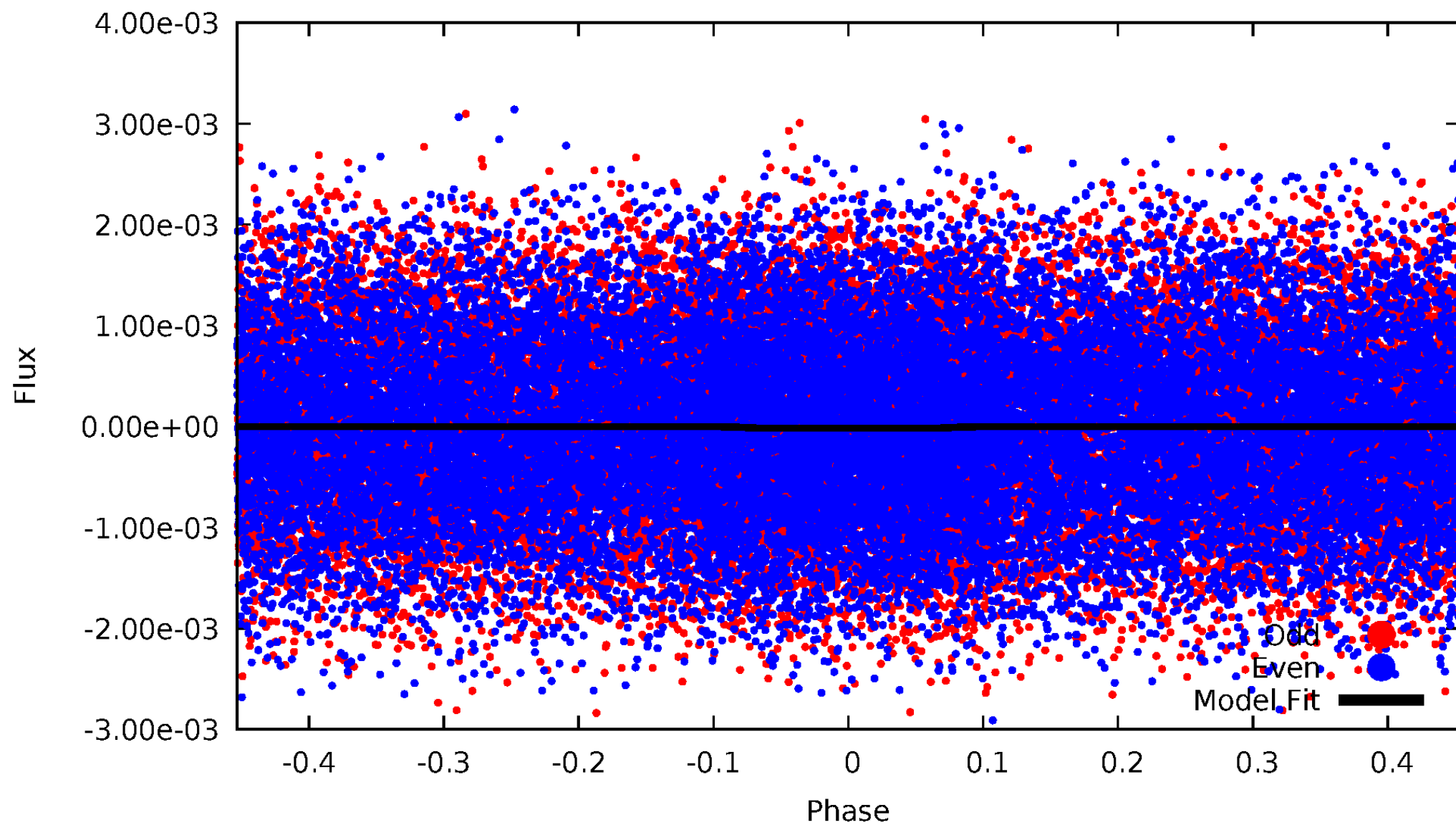
DV Odd/Even

TCE 004355012-02



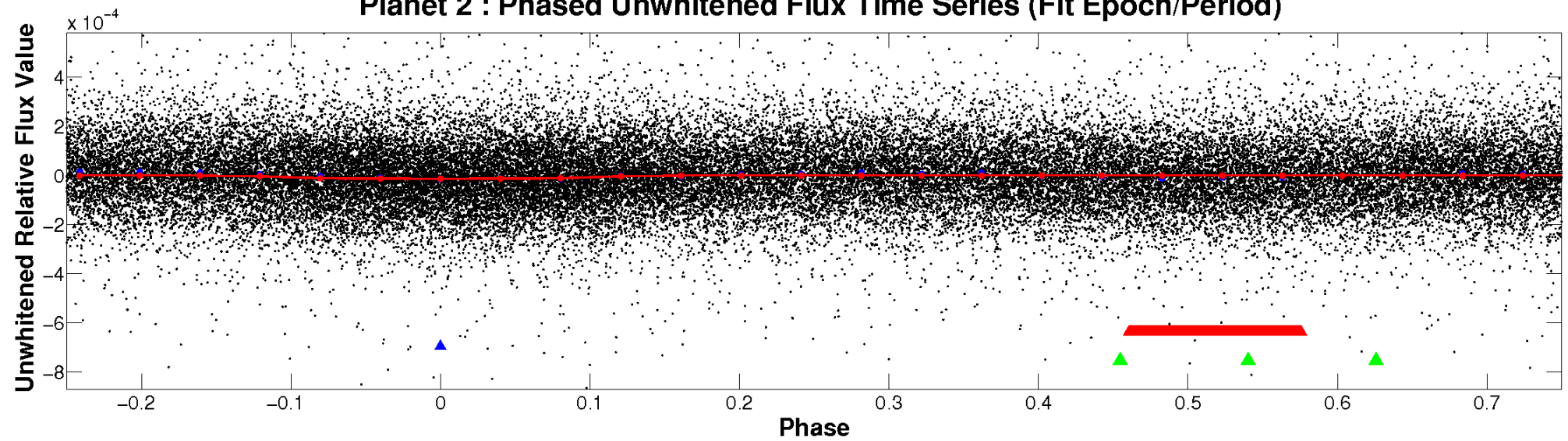
ALT Odd/Even

TCE 004355012-02

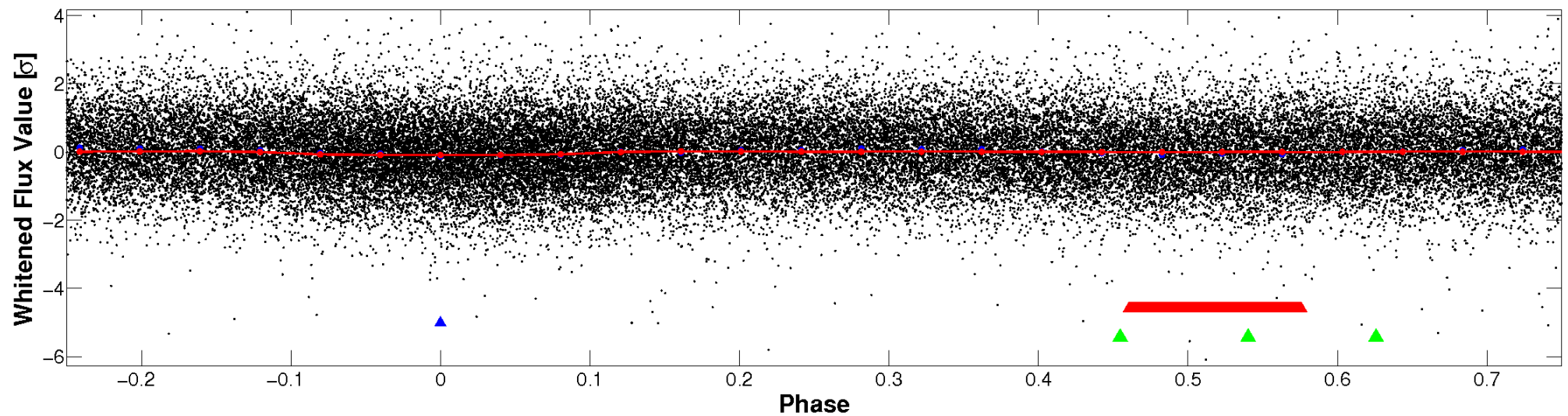


Non-Whitened Vs. Whitened Light Curve

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

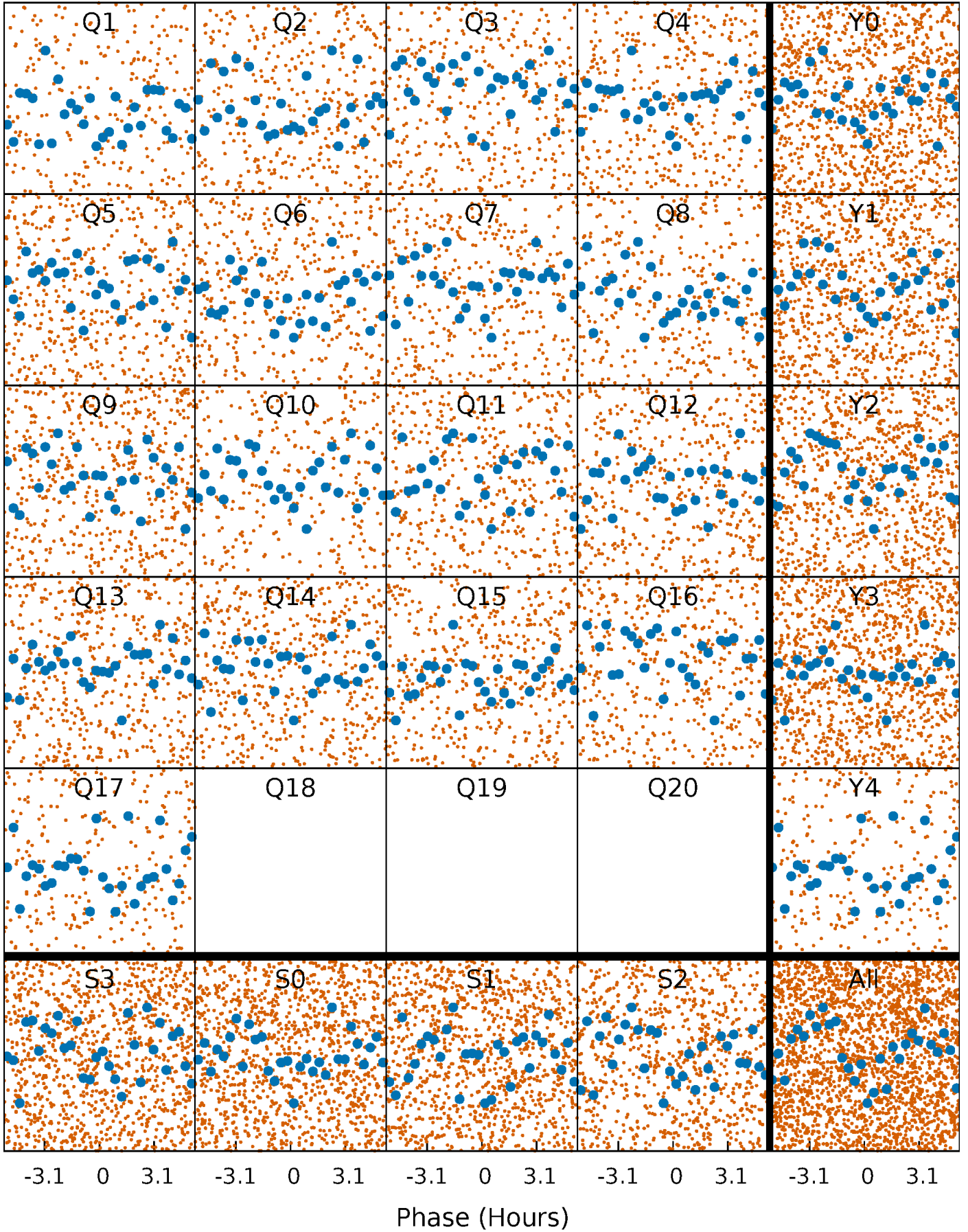


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



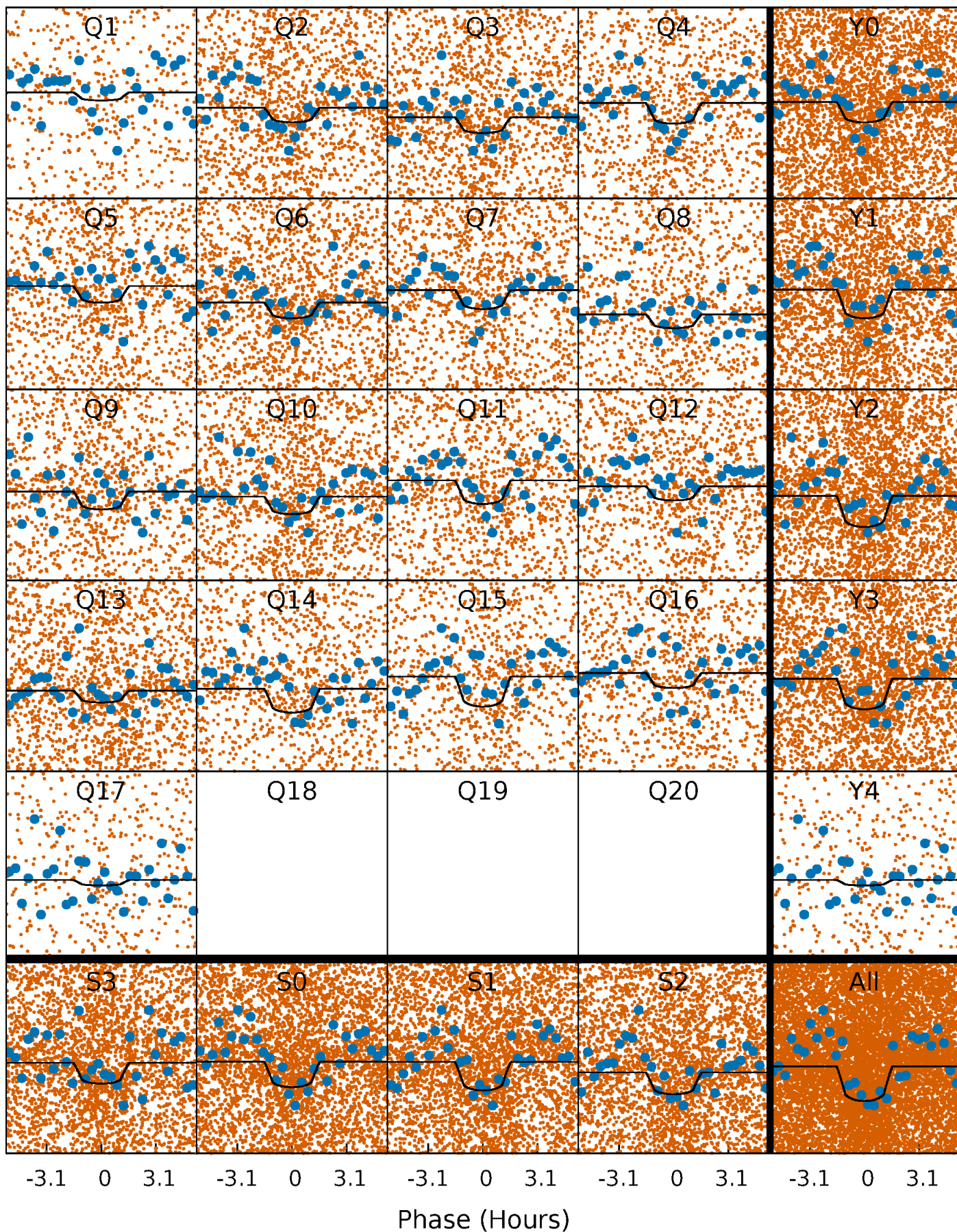
PDC Quarter-Phased Transit Curves

TCE 004355012-02 P= 0.508050 Days $T_0=131.786132$ (BKJD)



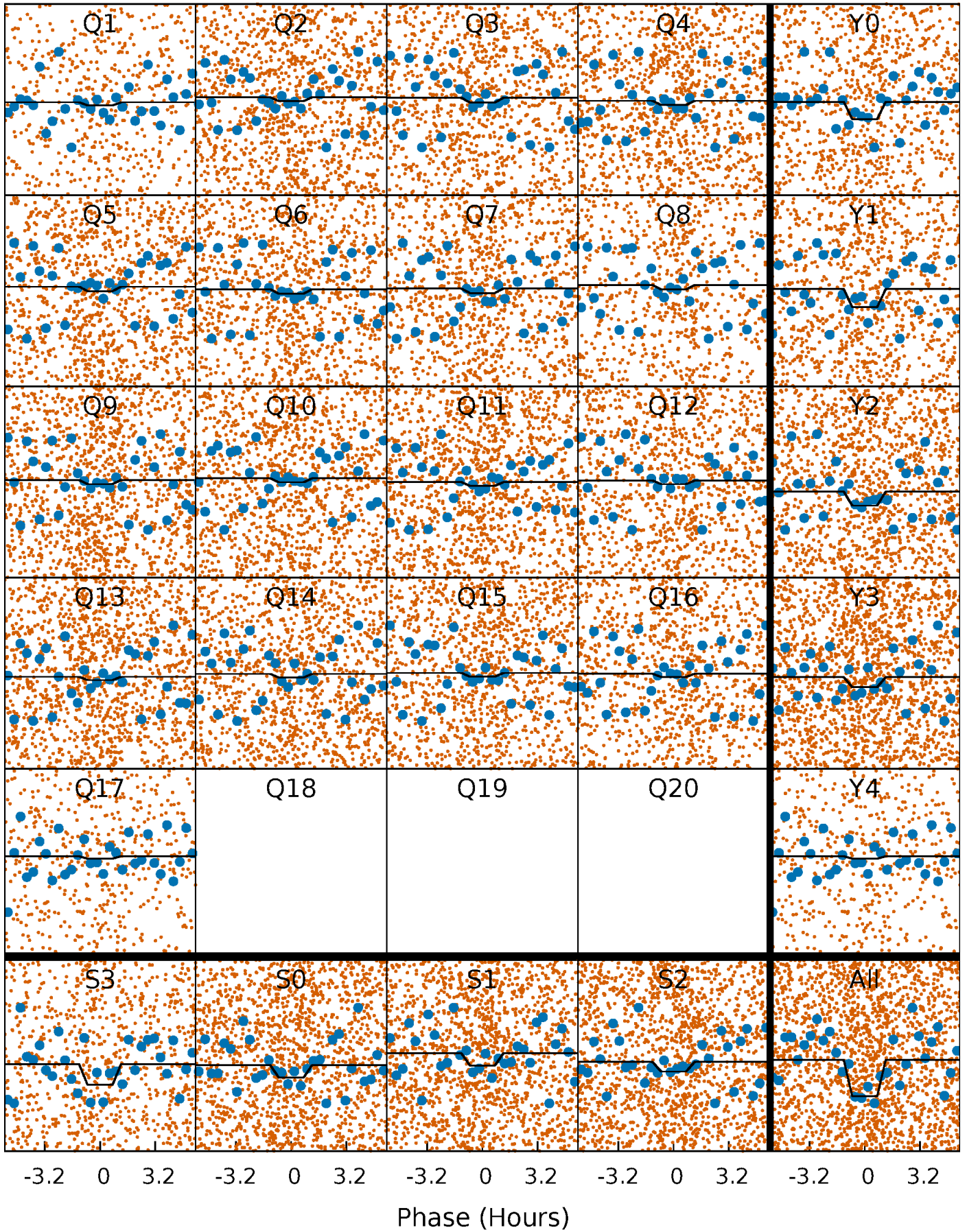
DV Quarter-Phased Transit Curves

TCE 004355012-02 $P = 0.508050$ Days $T_0 = 131.786132$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

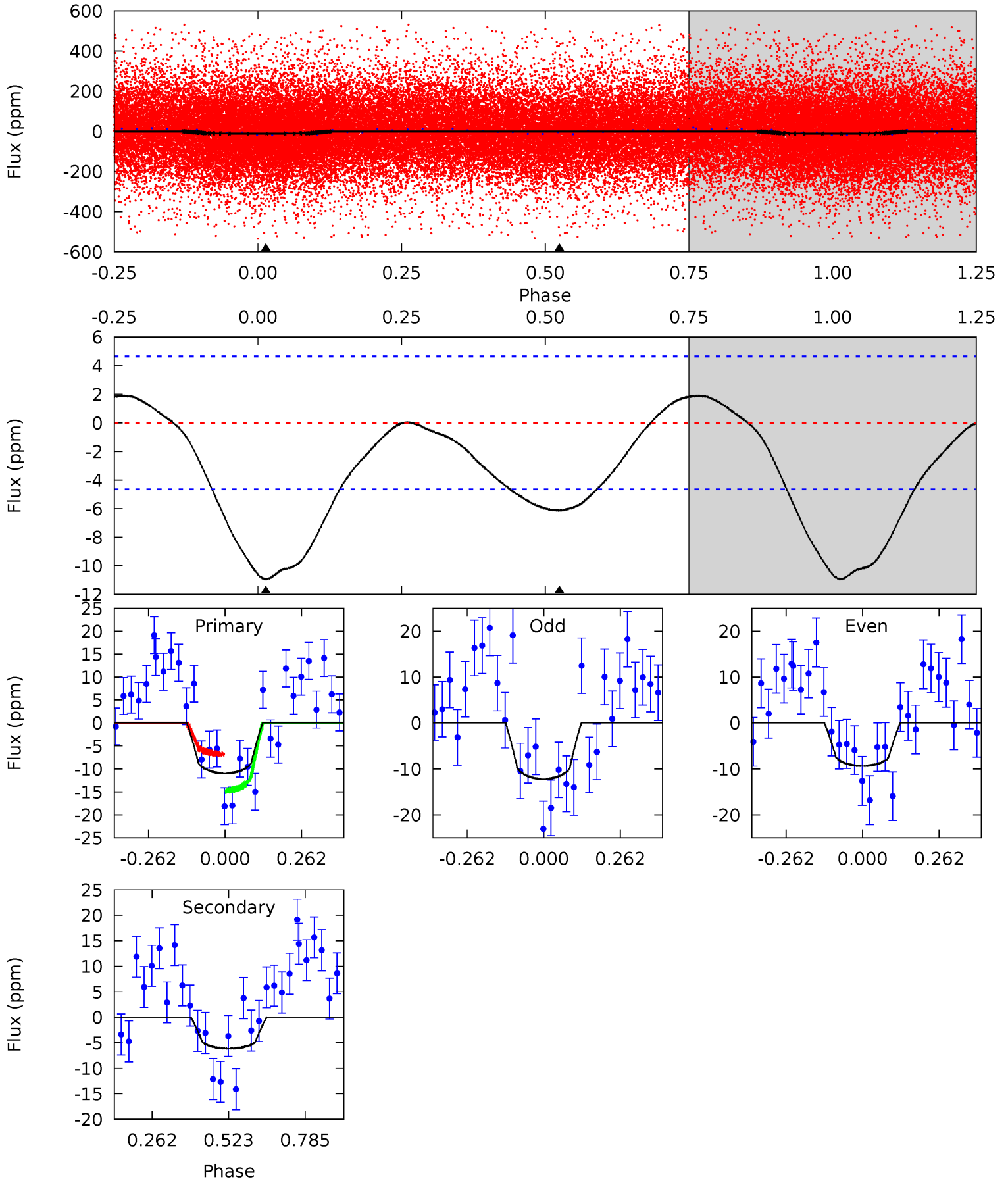
TCE 004355012-02 P= 0.508067 Days $T_0=131.771681$ (BKJD)



DV Model-Shift Uniqueness Test

004355012-02, P = 0.508050 Days, E = 131.278082 Days

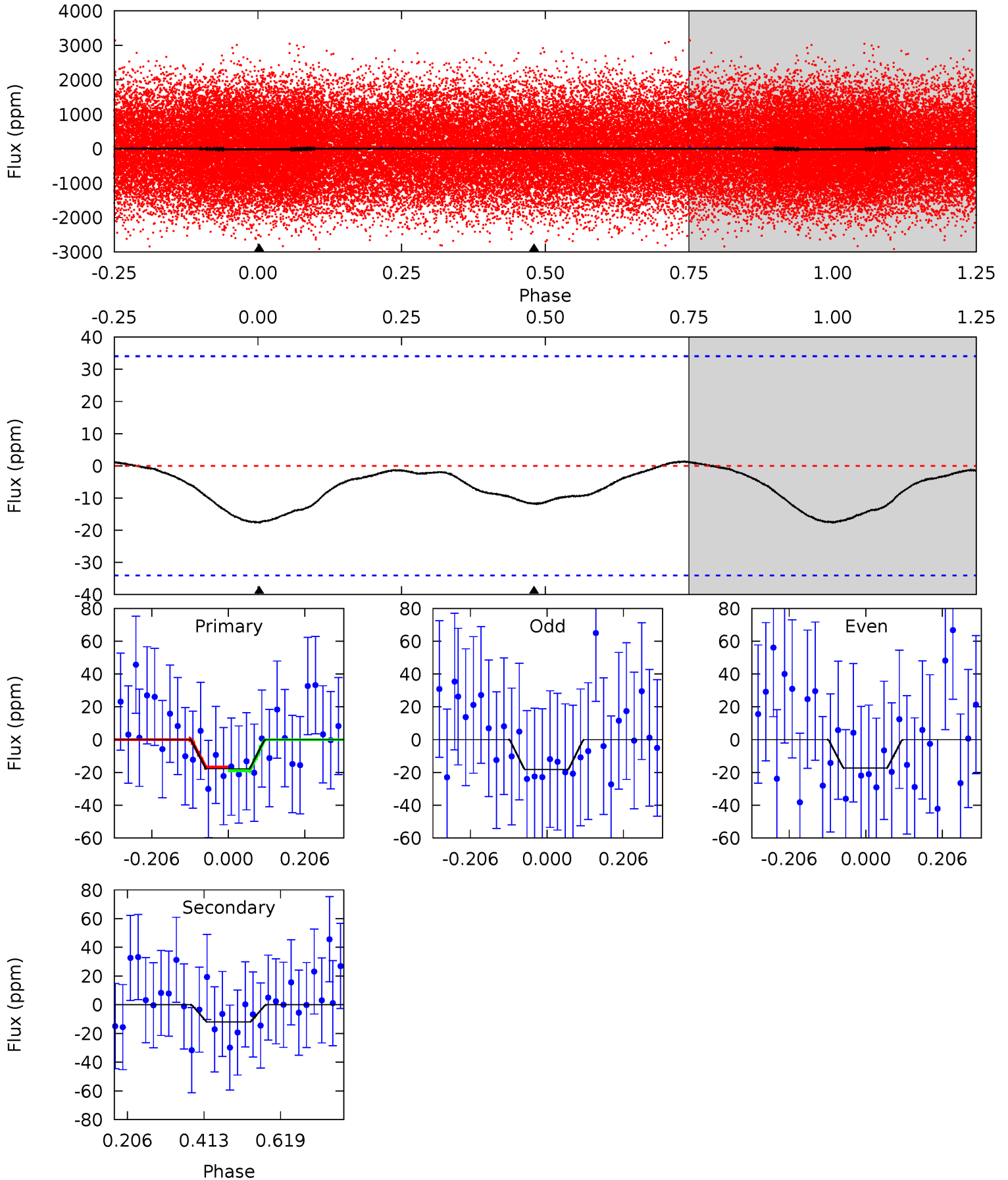
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	5.75	0	0	4.36	1.12	0.94	10.3	10.3	5.75	5.75	1.33	0.87	0.15	3.73



Alt Model-Shift Uniqueness Test

004355012-02, P = 0.508067 Days, E = 131.263614 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.31	1.55	0	0	4.41	1.26	0.16	2.31	2.31	1.55	1.55	0.06	1.13	0.08	0.14



Stellar Parameters For KIC 004355012

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7174^{+199}_{-298}	$3.458^{+0.604}_{-0.107}$	$0.070^{+0.200}_{-0.300}$	$4.563^{+0.290}_{-2.608}$	$2.182^{+0.216}_{-0.649}$	$0.032^{+0.282}_{-0.011}$
	+3%/-4%	+17%/-3%	+286%/-429%	+6%/-57%	+10%/-30%	+873%/-34%
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 004355012-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6 ± 1	$1.56^{+0.53}_{-0.52}$	7201^{+474}_{-894}	4126^{+1847}_{-8856}	$0.362^{+0.407}_{-0.164}$
Alt.	-12 ± 8	$2.03^{+0.53}_{-0.60}$	7296^{+416}_{-903}	4745^{+1996}_{-9868}	$0.413^{+0.554}_{-0.269}$

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 $A_{obs} \gg 1.0$

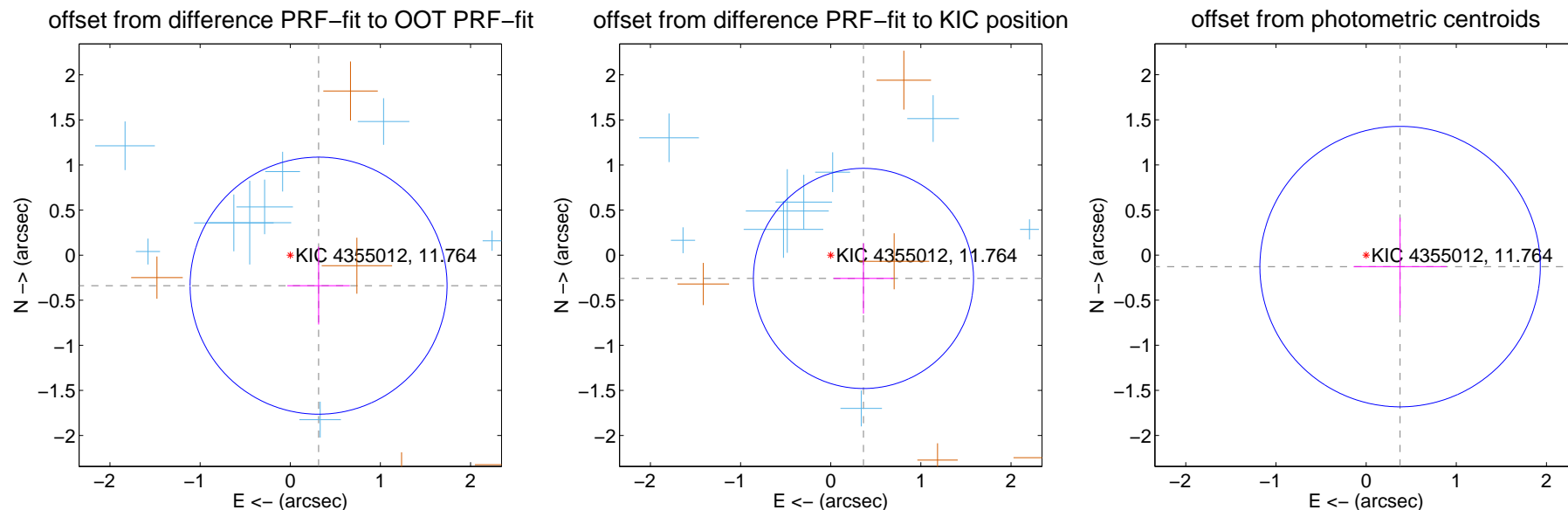
DV Centroid Data

Supplemental centroid analysis for 004355012-02. **Kepler magnitude: 11.76.** Transit SNR 9.29

There are 10 quarters with good PRF difference image offsets

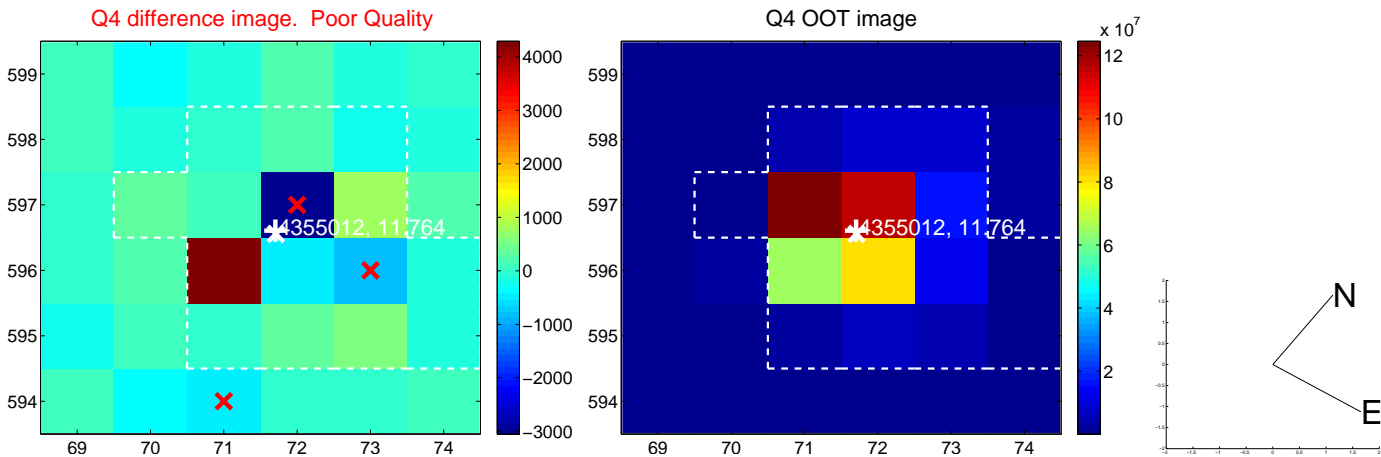
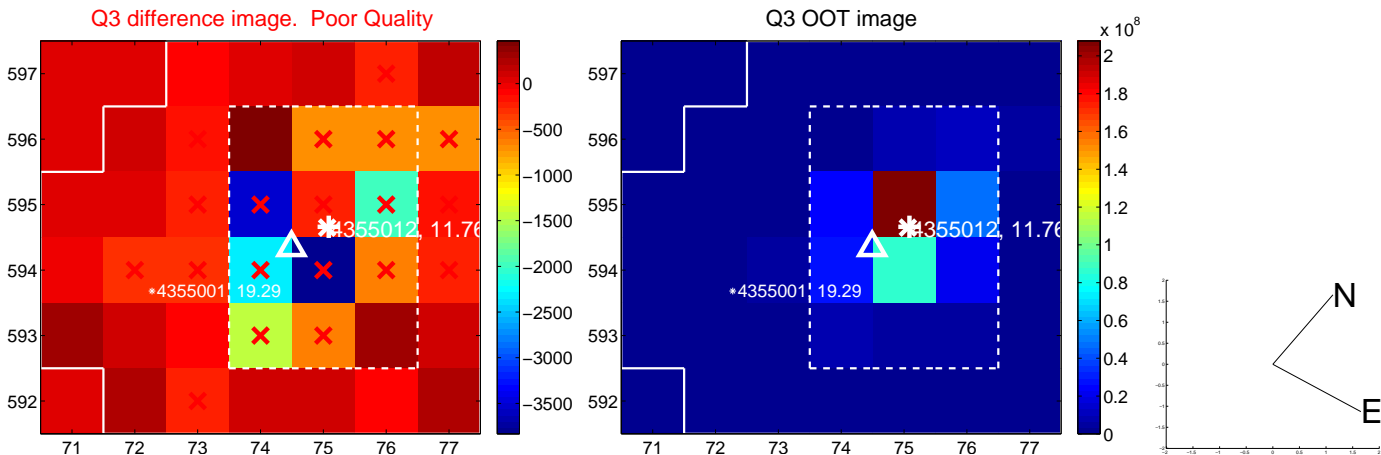
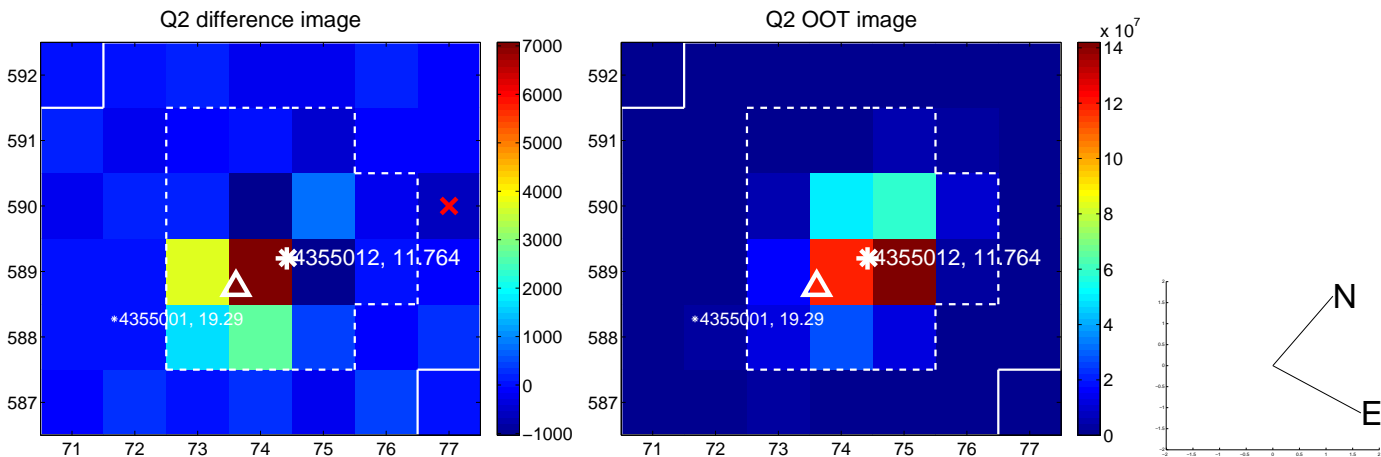
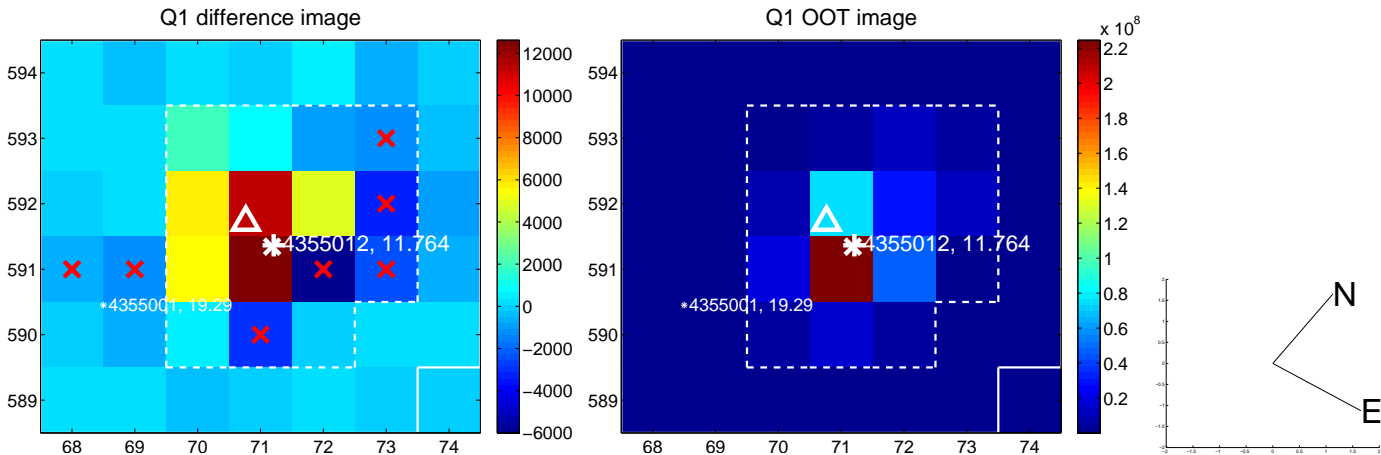
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.462 ± 0.475	0.97	-0.314 ± 0.346	-0.338 ± 0.431
PRF-fit source offset from KIC position	0.446 ± 0.407	1.10	-0.363 ± 0.331	-0.258 ± 0.390
photometric centroid source offset	0.40 ± 0.52	0.77	-0.38 ± 0.52	-0.13 ± 0.54

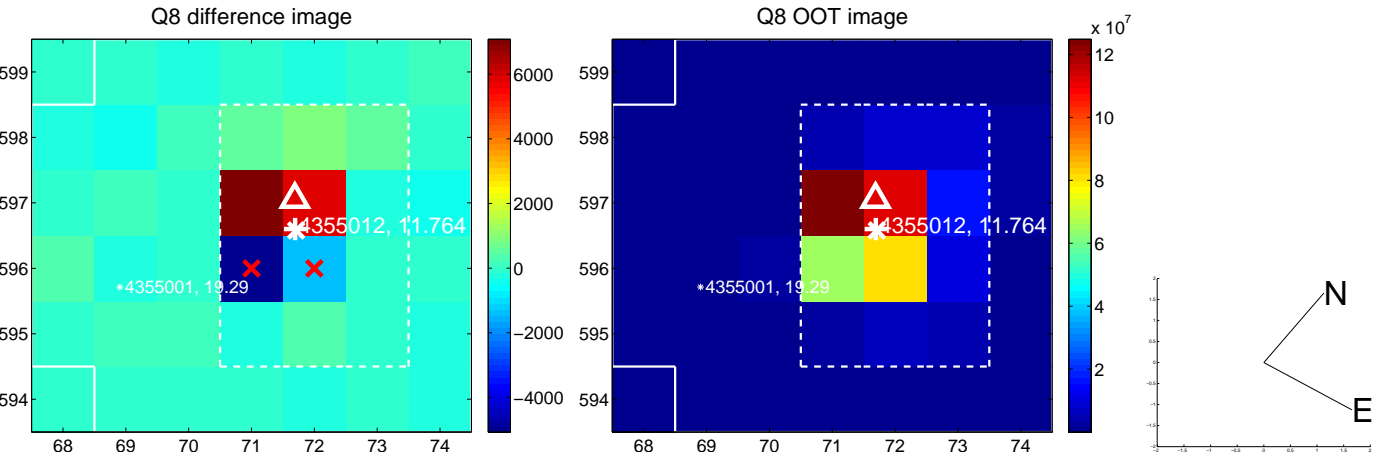
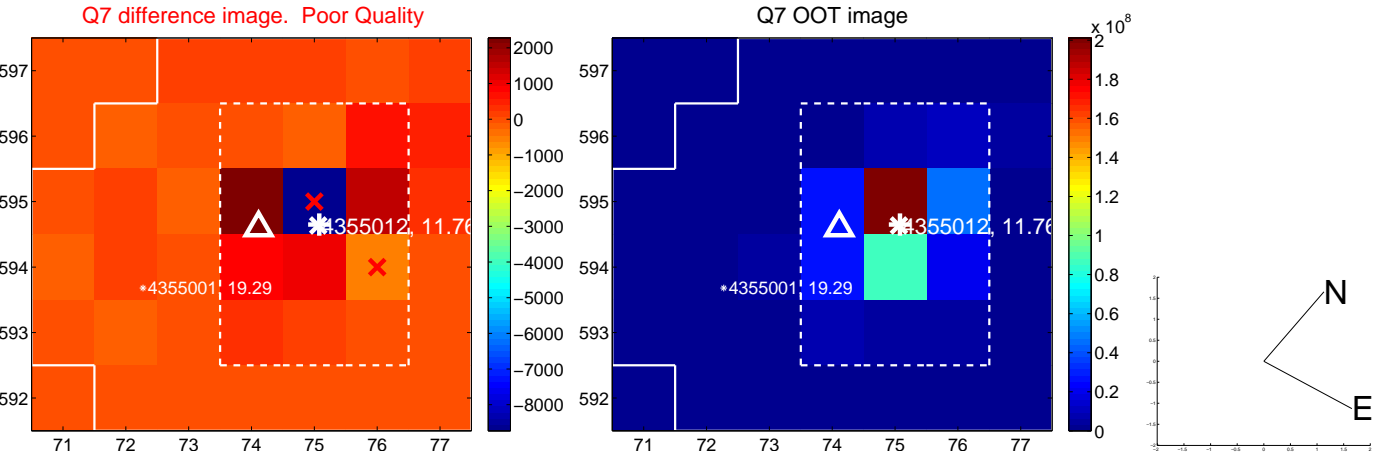
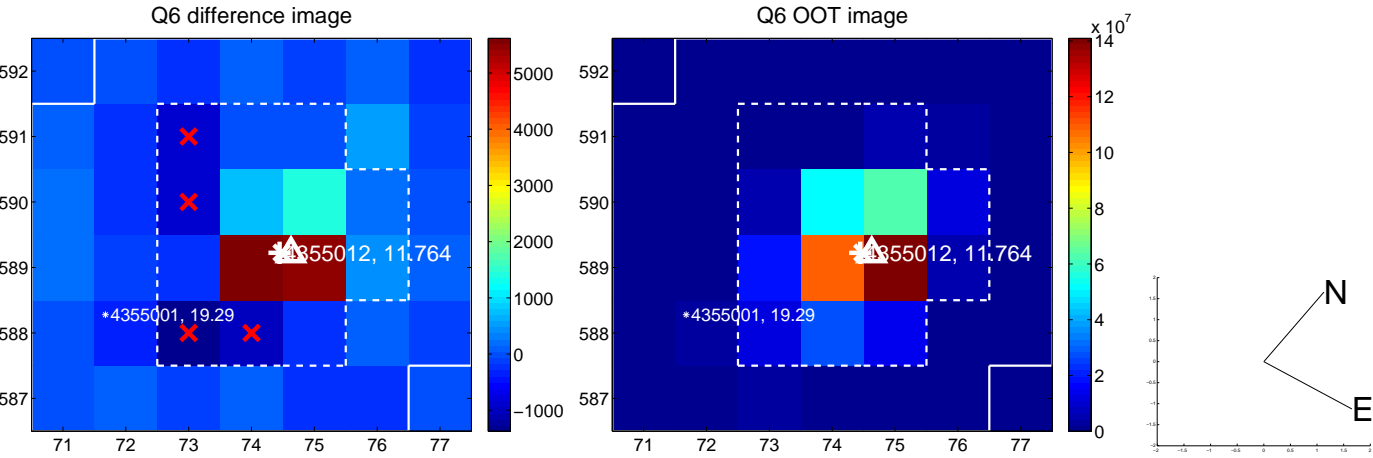
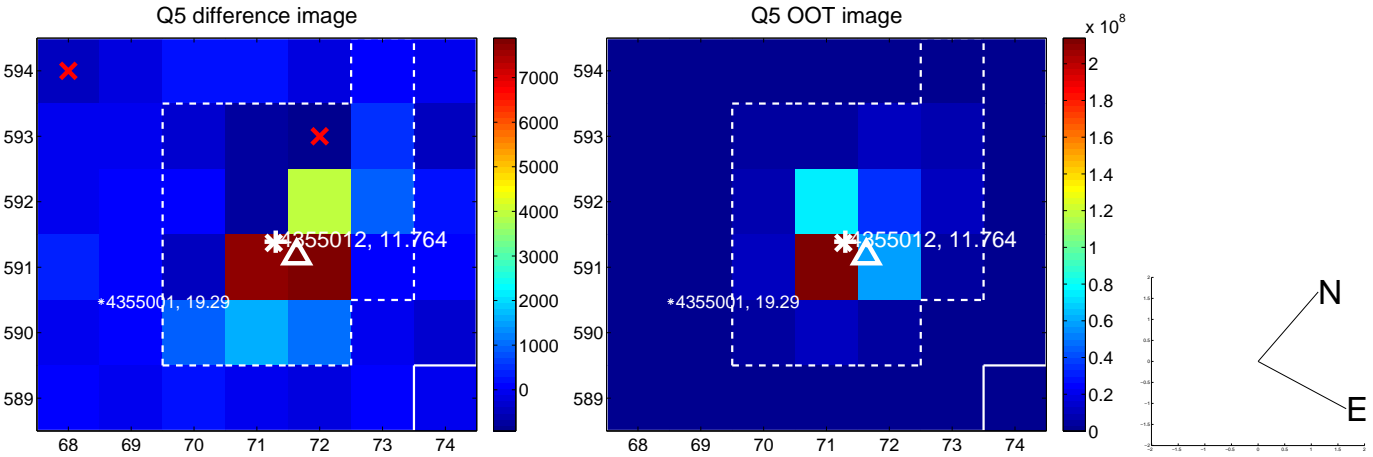


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

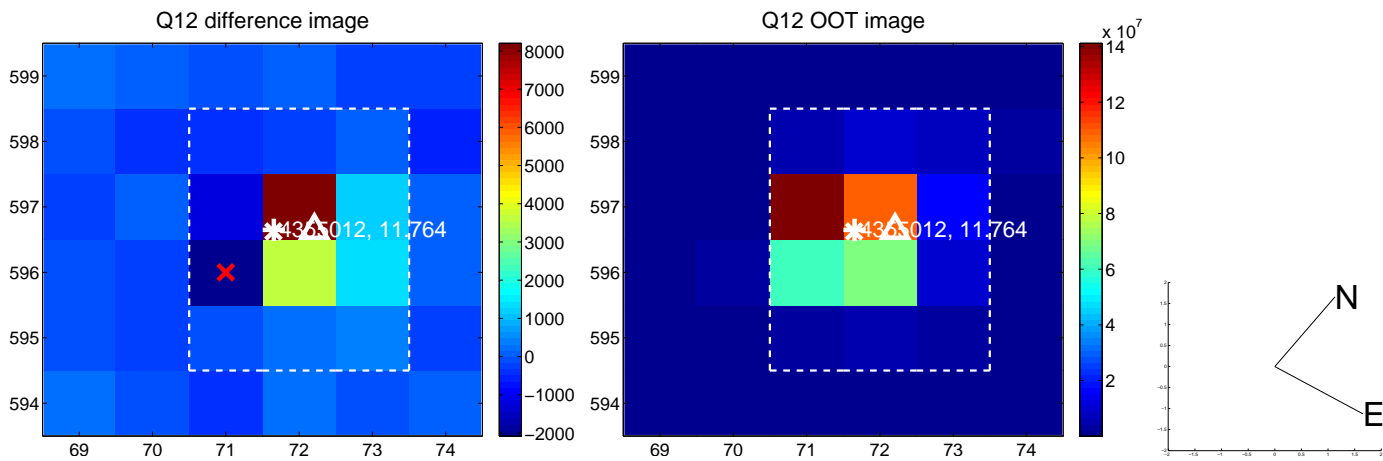
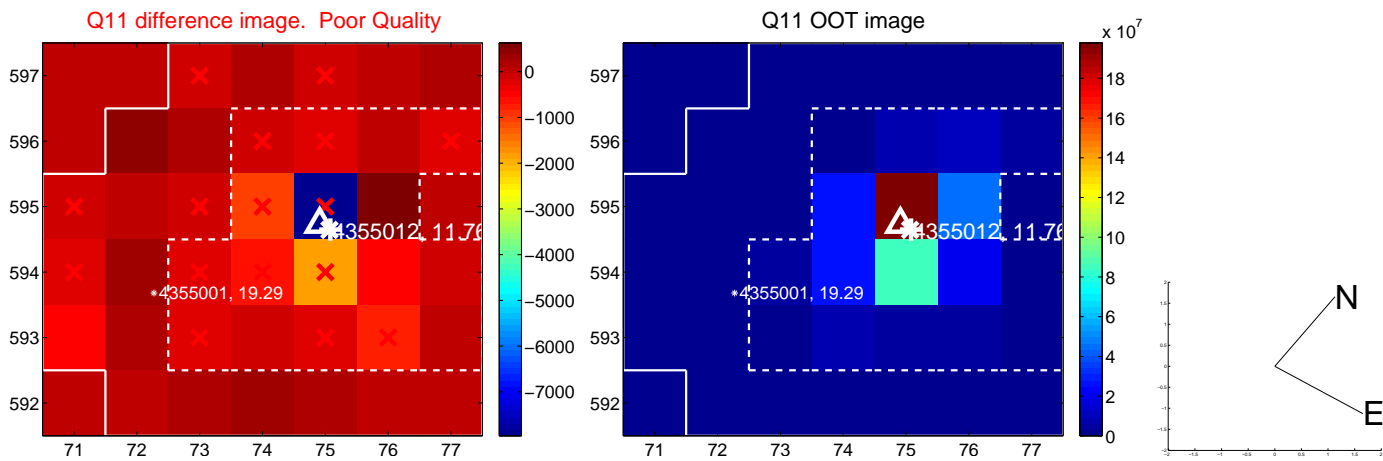
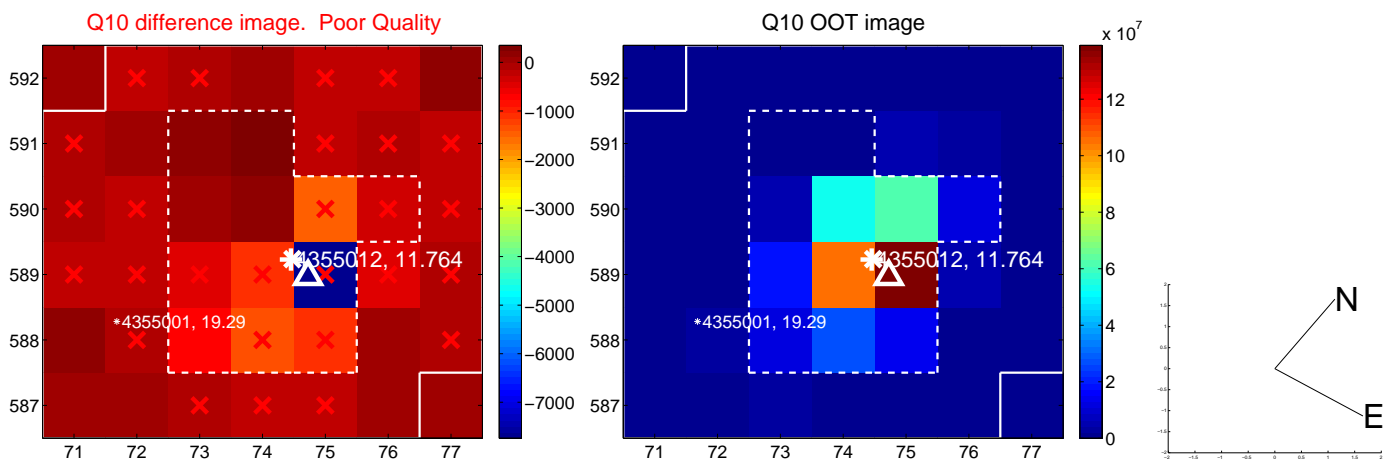
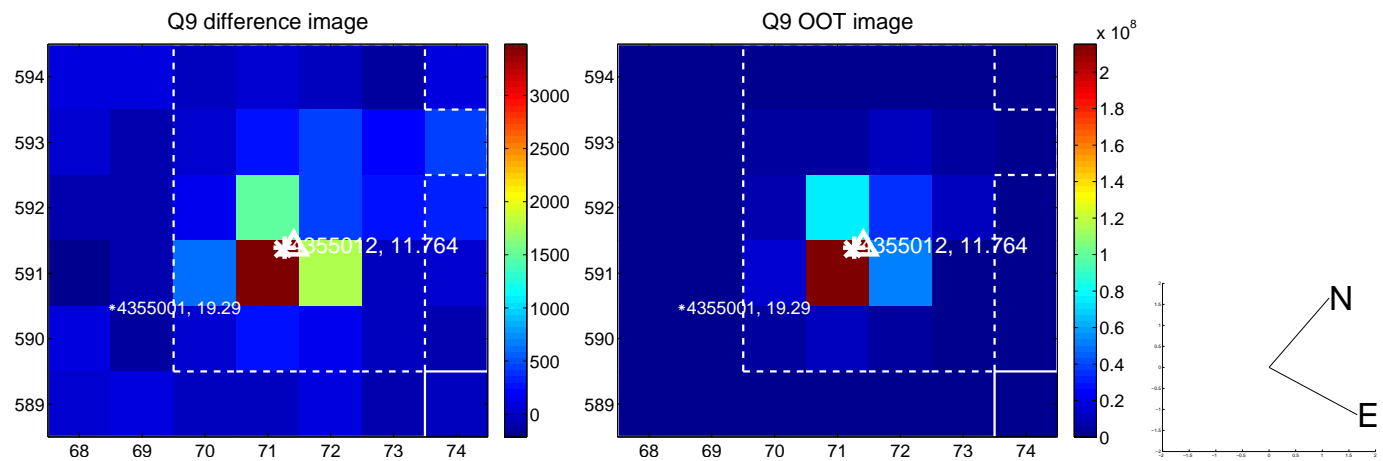
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



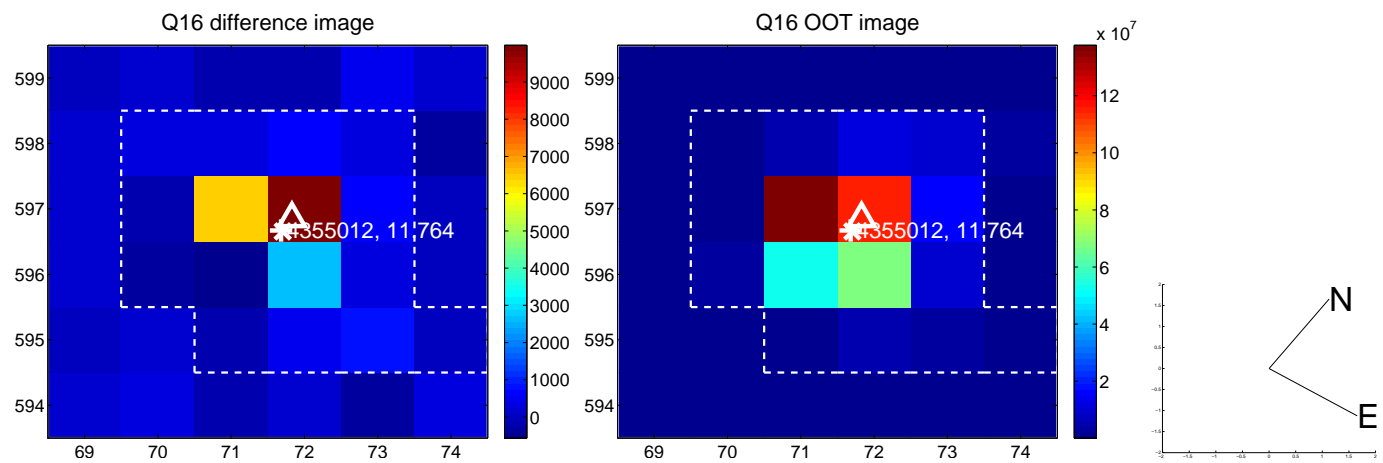
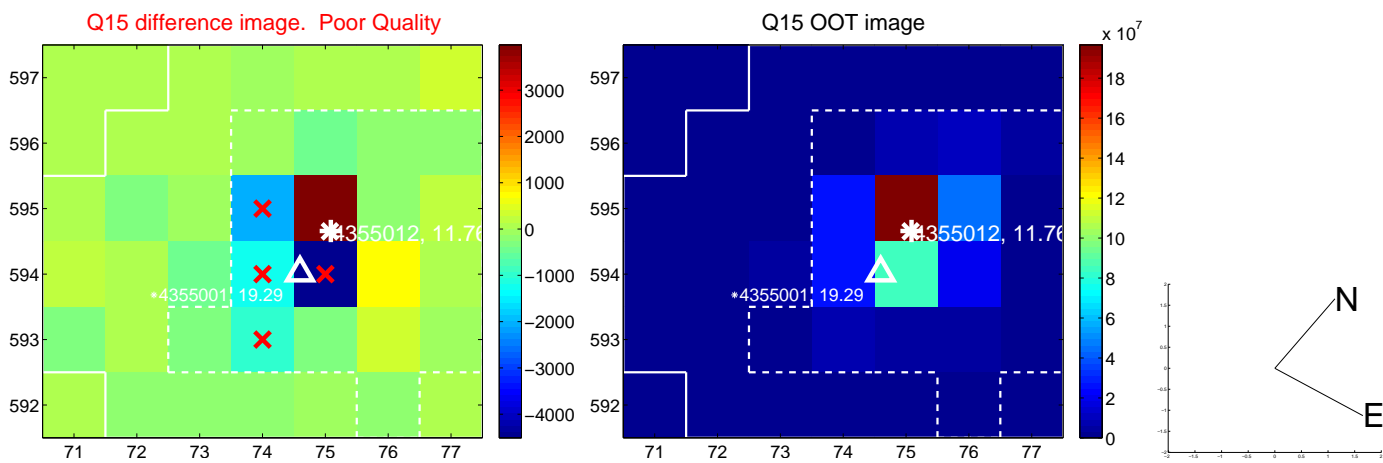
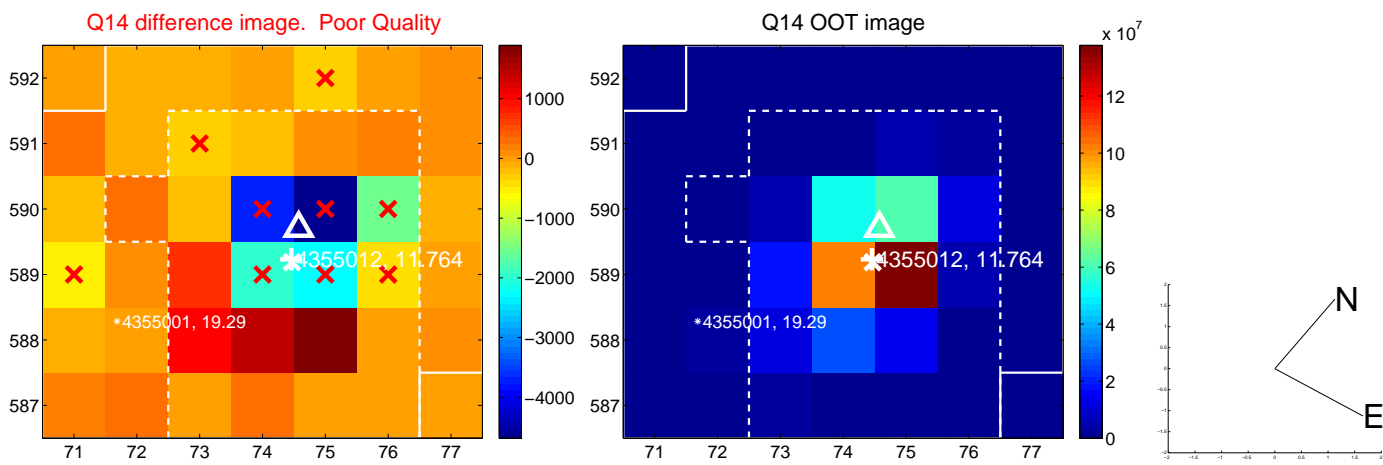
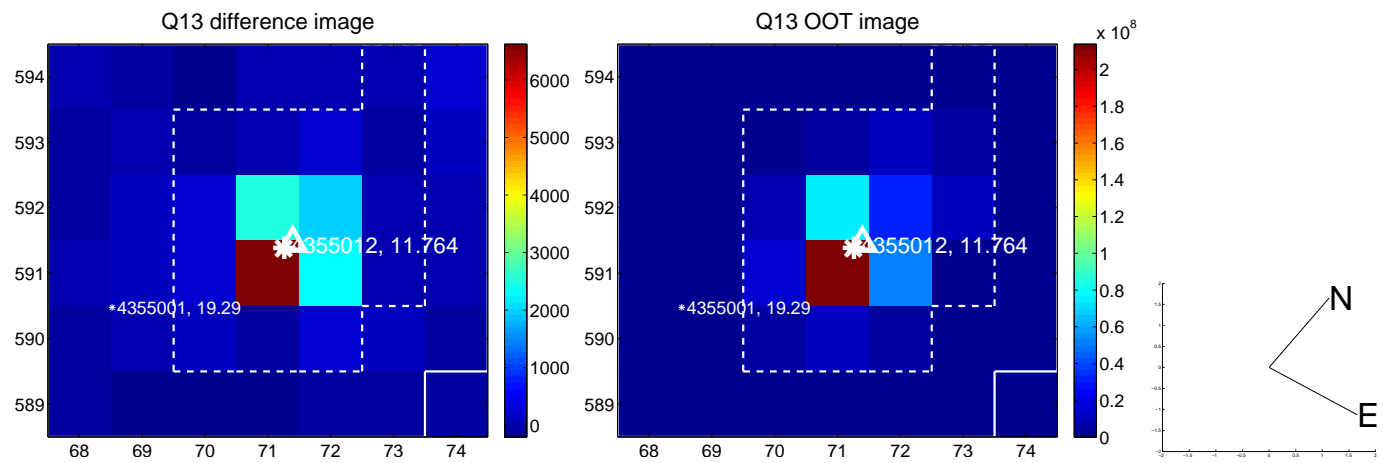
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



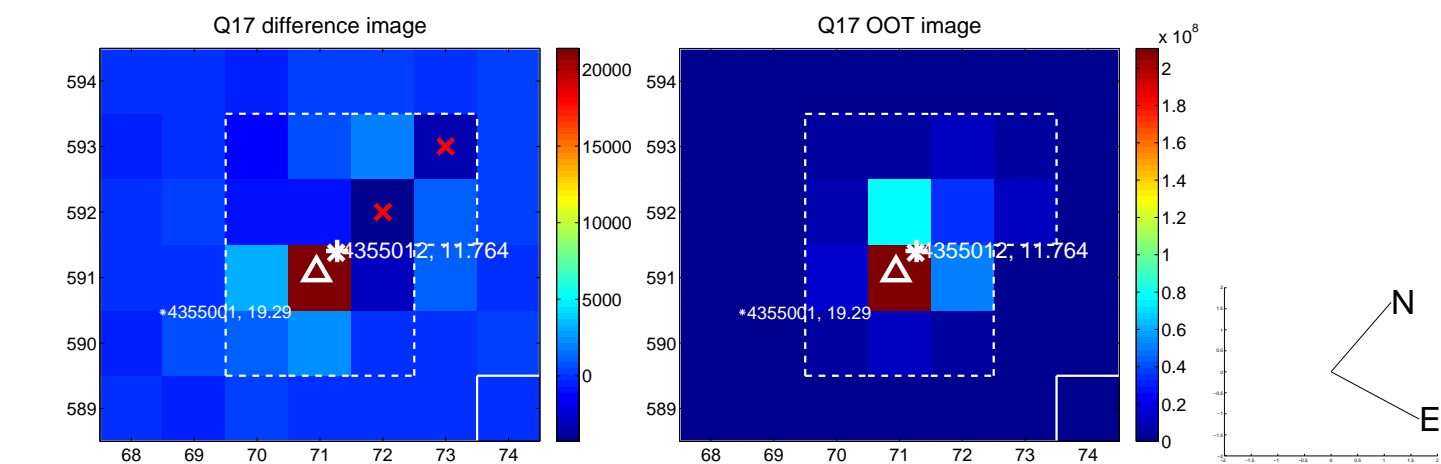
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



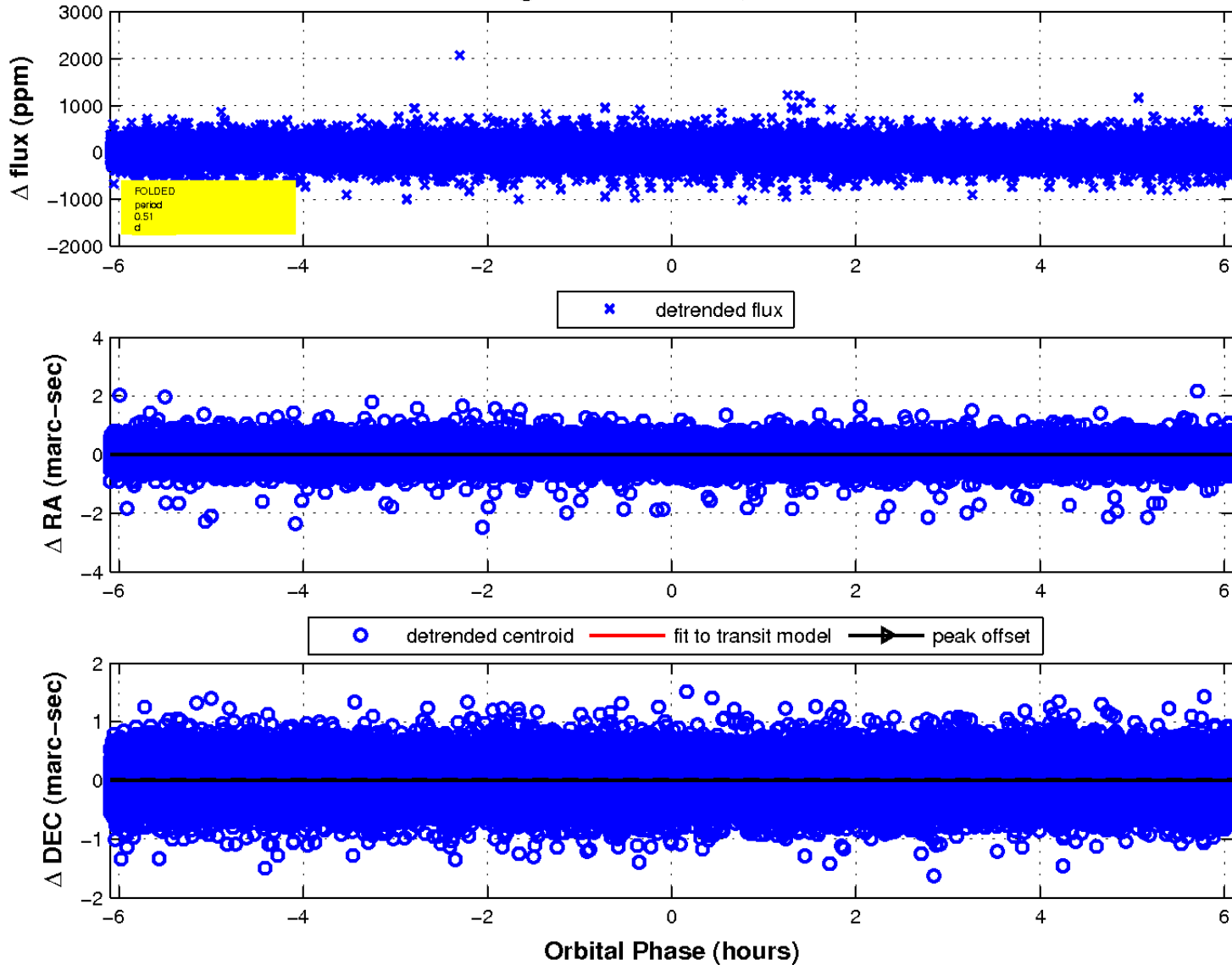
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



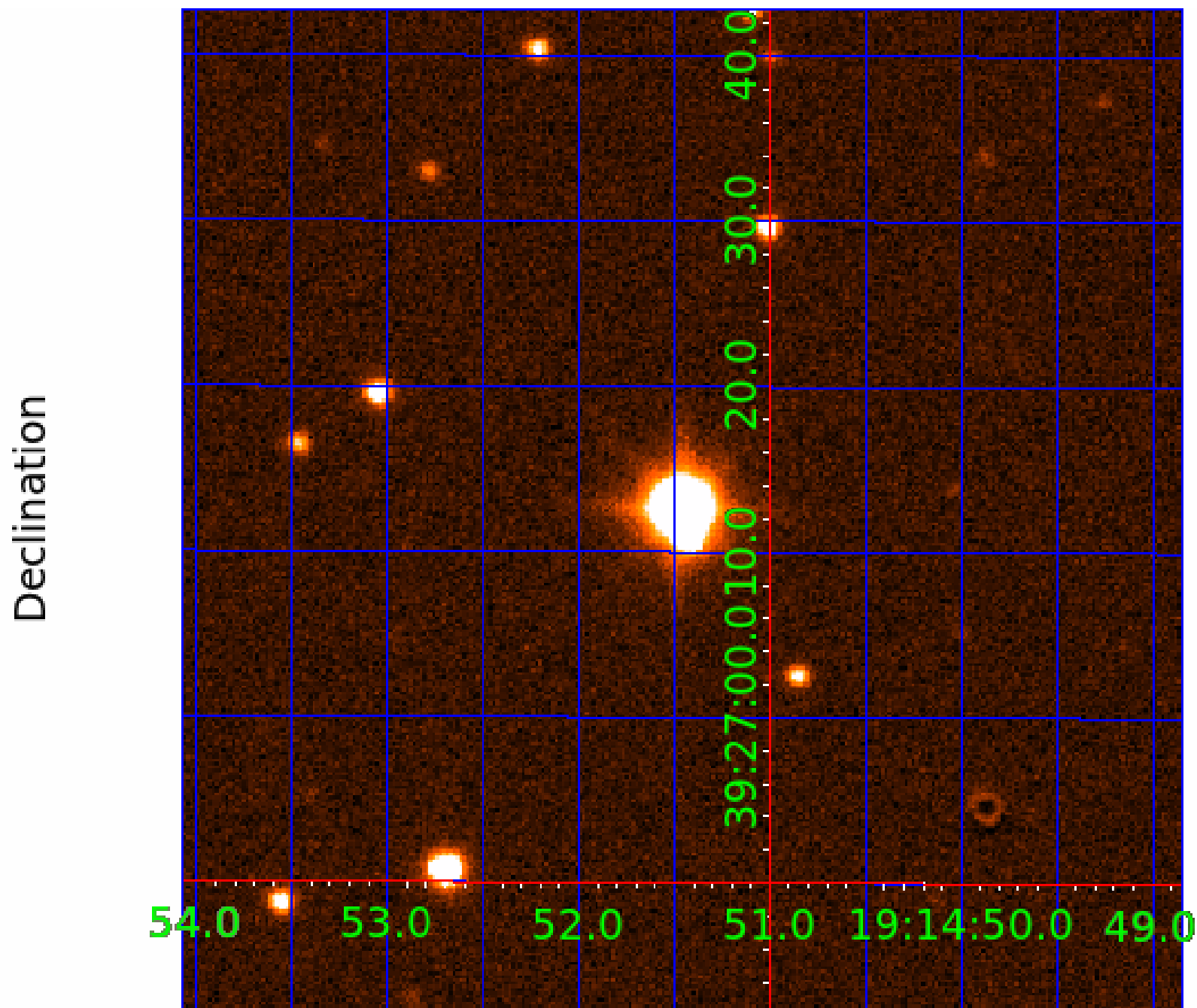
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image



KIC 004355012

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})
004355012-01	OBS	No	1.524210	133.036156	33.2	2.976	11.5	13.9	4.56	7174	3.10	43723.37
004355012-02	OBS	No	0.508050	131.786132	12.4	2.705	10.5	9.3	4.56	7174	1.72	0.00
004355012-03	OBS	No	624.944551	298.149384	276.5	4.197	7.9	8.5	4.56	7174	7.88	14.35

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004355012-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
004355012-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD
004355012-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—HALO_GHOST

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

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

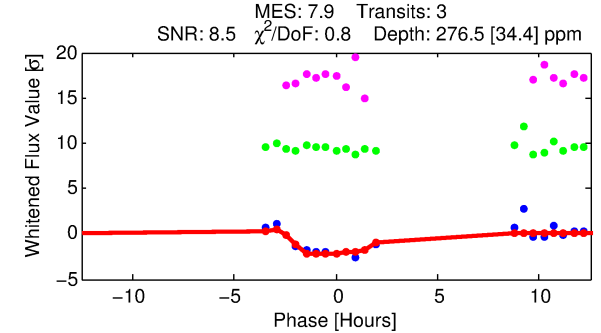
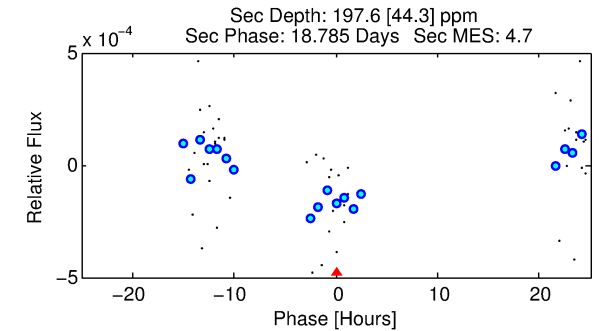
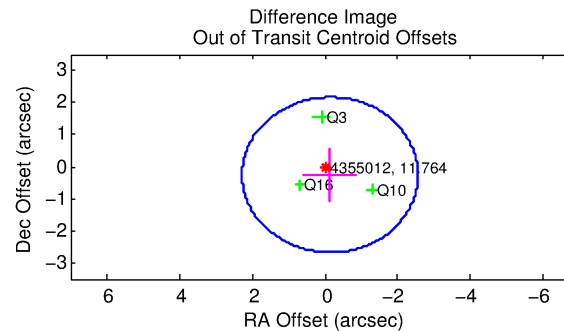
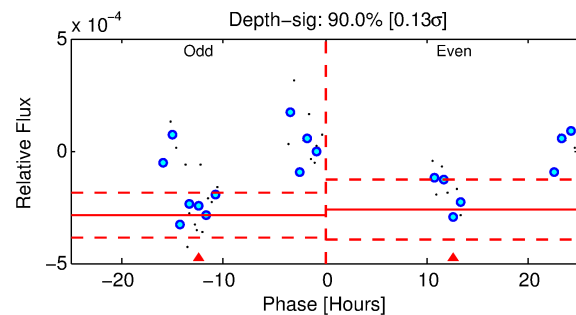
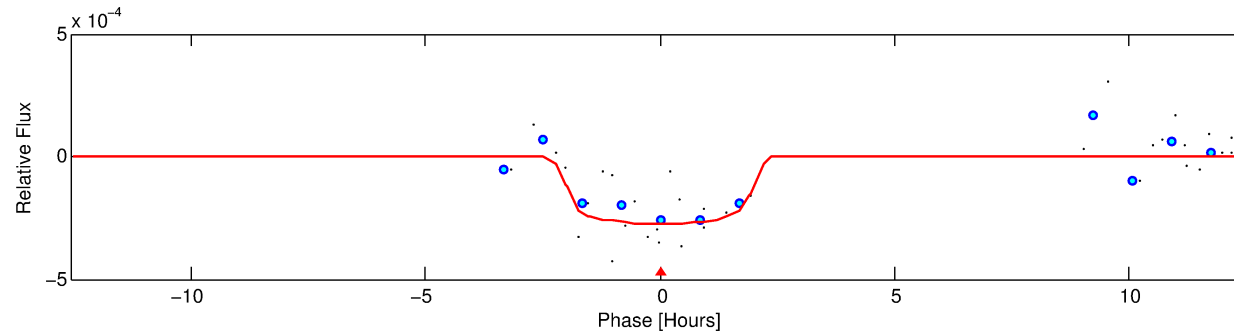
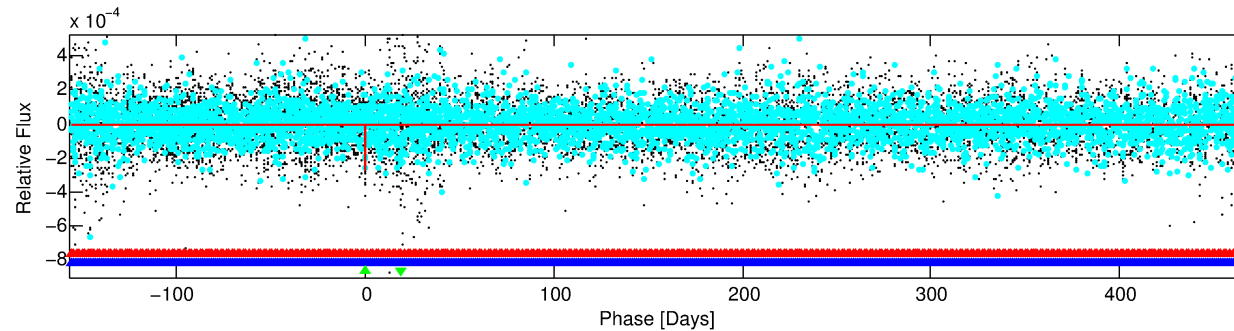
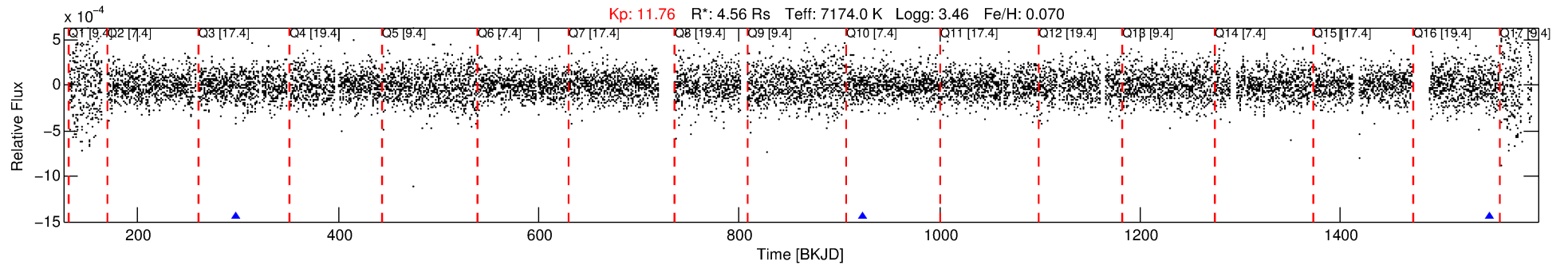
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004355012-03

No Significant Match Found

DV One-Page Summary

KIC: 4355012 Candidate: 3 of 3 Period: 624.945 d



DV Fit Results:

Period = 624.94455 [0.01646] d
Epoch = 298.1494 [0.0117] BKJD
Rp/R* = 0.0158 [0.0286]
a/R* = 996.92 [10518.40]
b = 0.51 [15.00]
Seff = 14.35 [14.59]
Teq = 496 [126] K
Rp = 7.88 [14.96] Re
a = 1.8553 [1.1134] AU
Ag = 6024.40 [22668.29] [0.27 σ]
Teffp = 6761 [6136] K [1.02 σ]

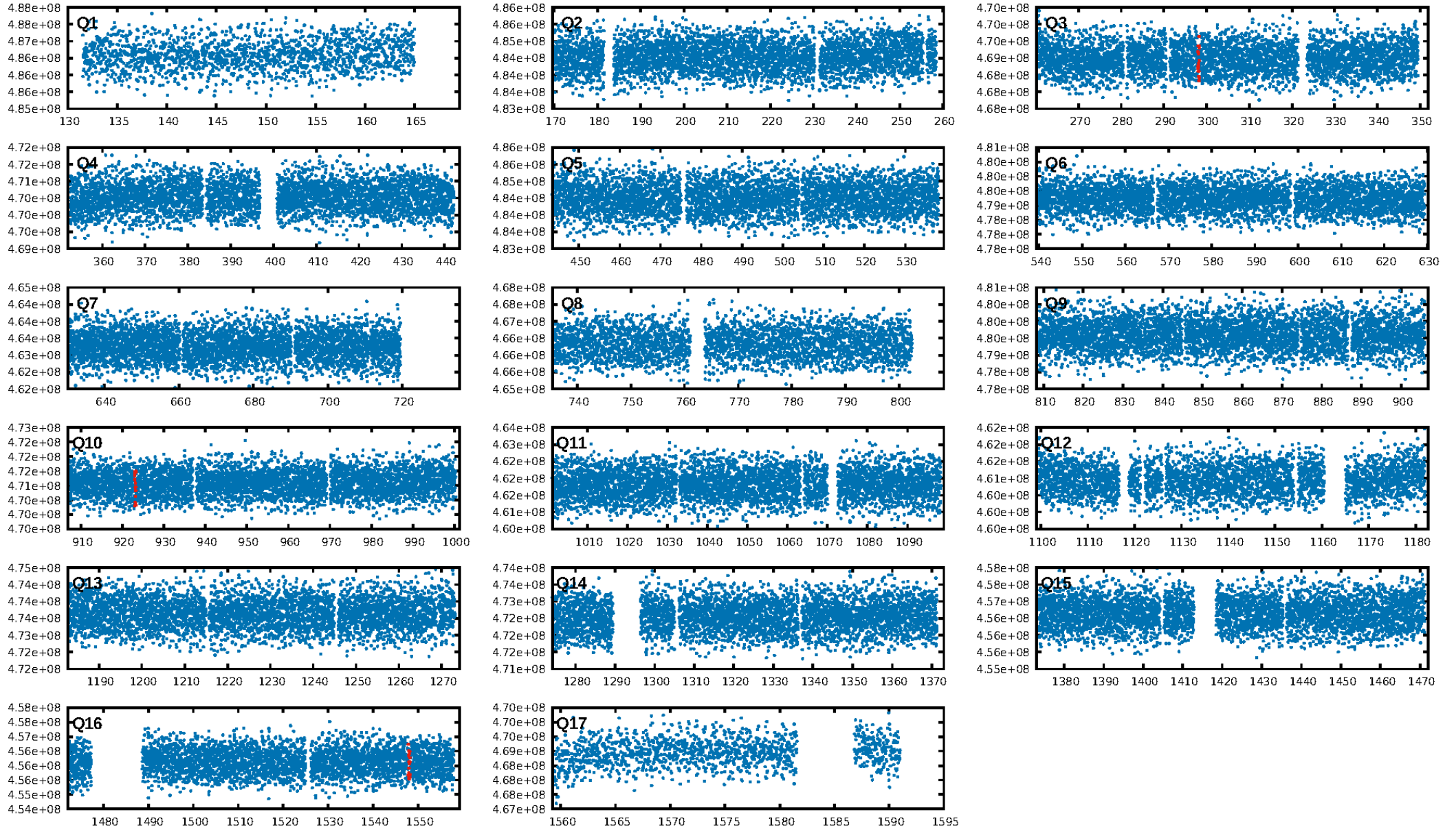
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [2908.10 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 69.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 3.74e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.2192
Centroid-sig: 26.0%
Centroid-so: 0.620 arcsec [1.04 σ]
OotOffset-rm: 0.291 arcsec [0.36 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.333 arcsec [0.41 σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

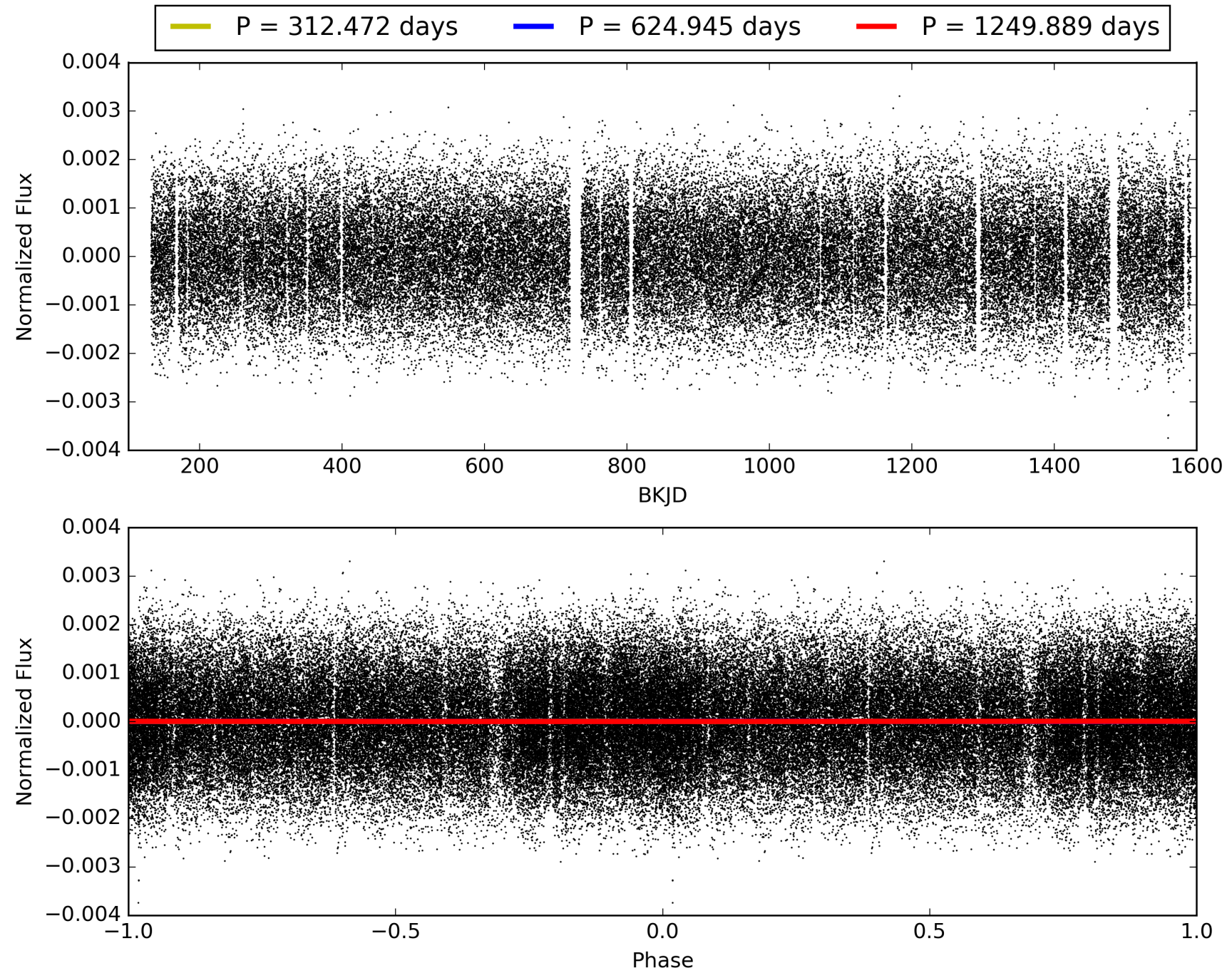
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:18:04 Z

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

TCE 004355012-03, PDC Light Curves

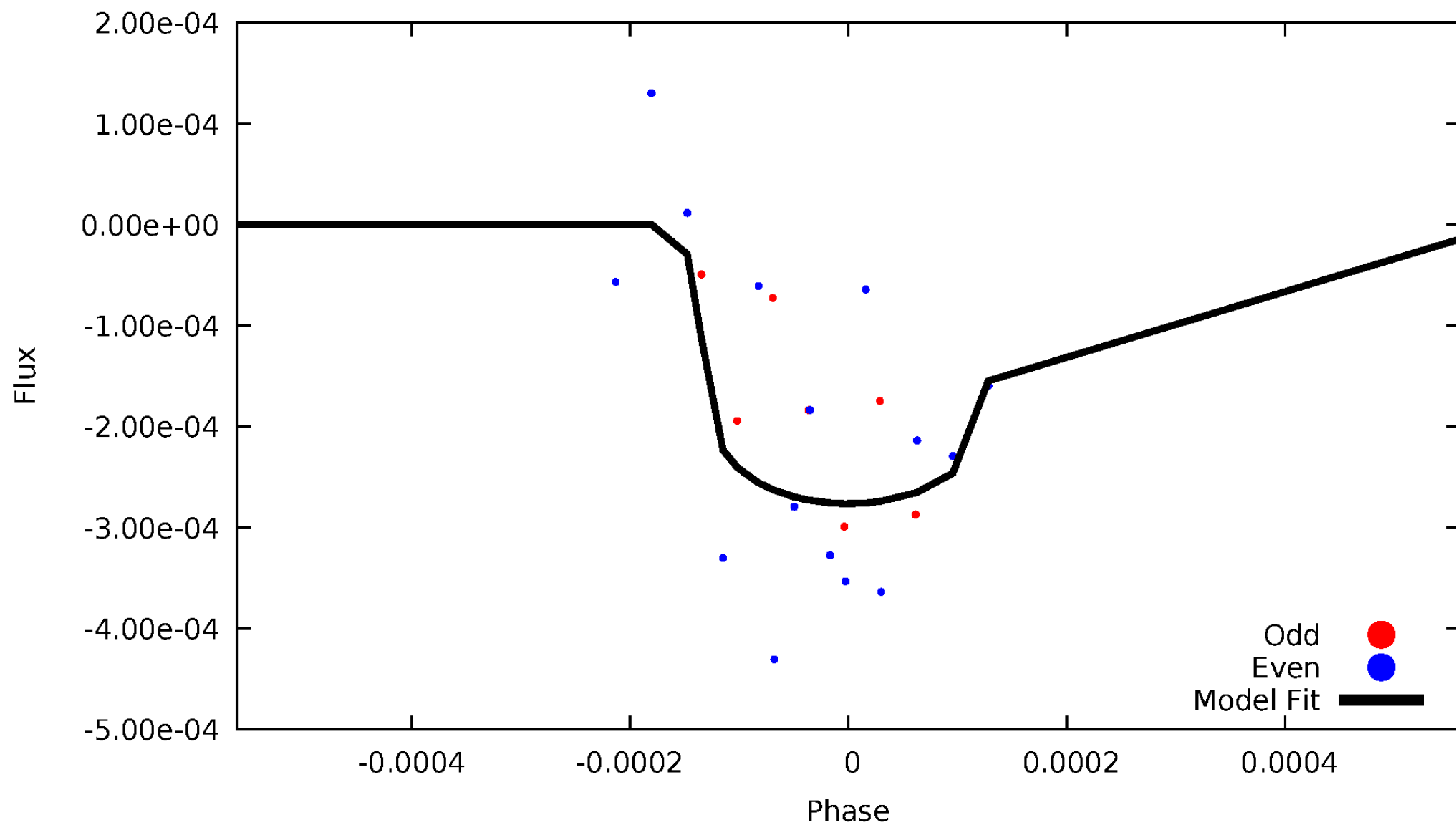


TCE 004355012-03



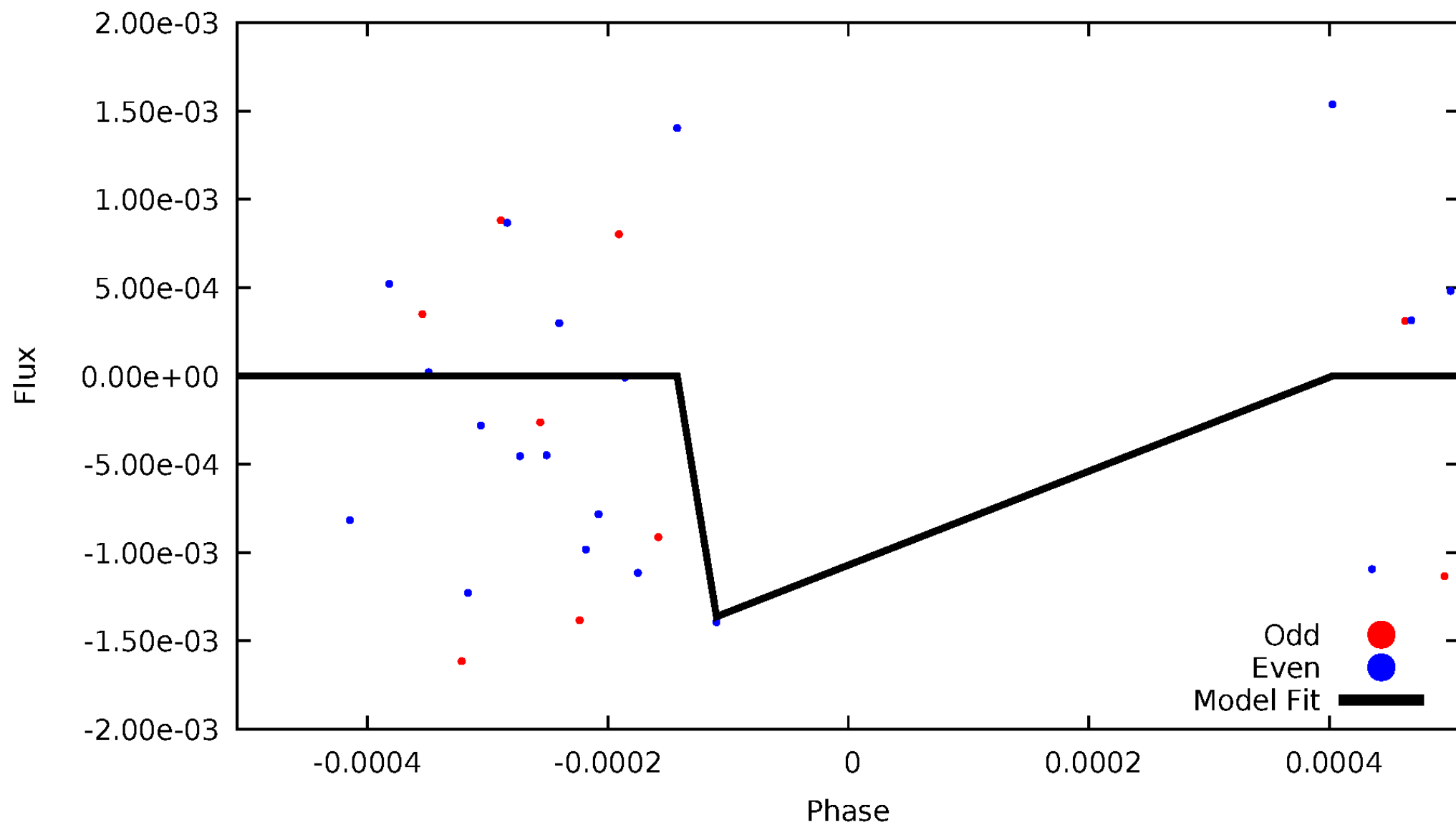
DV Odd/Even

TCE 004355012-03

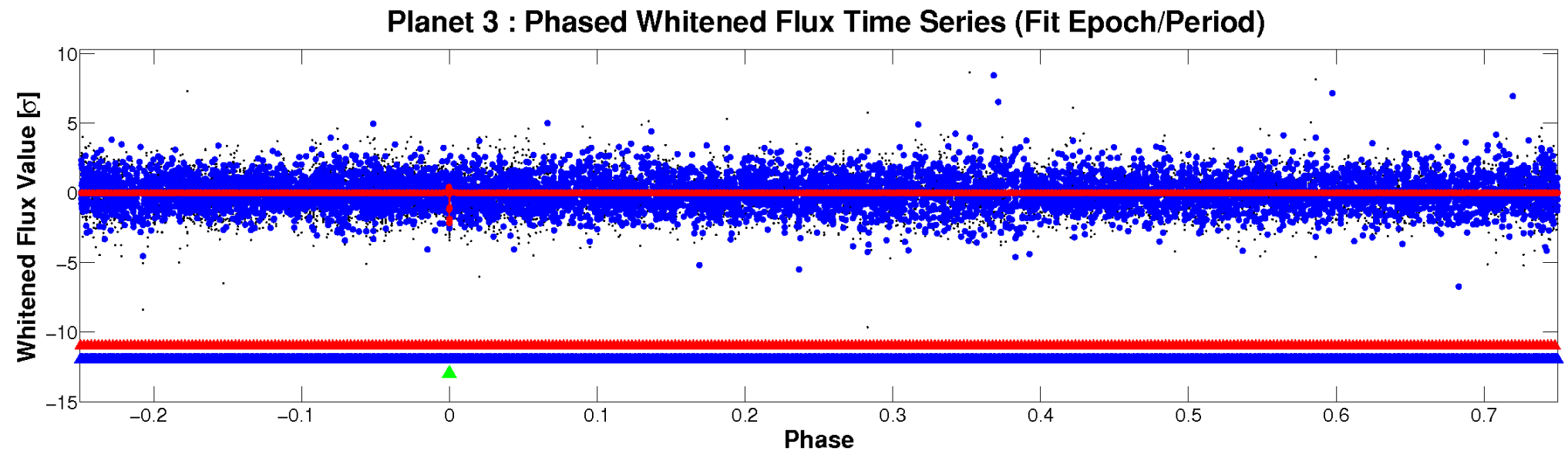
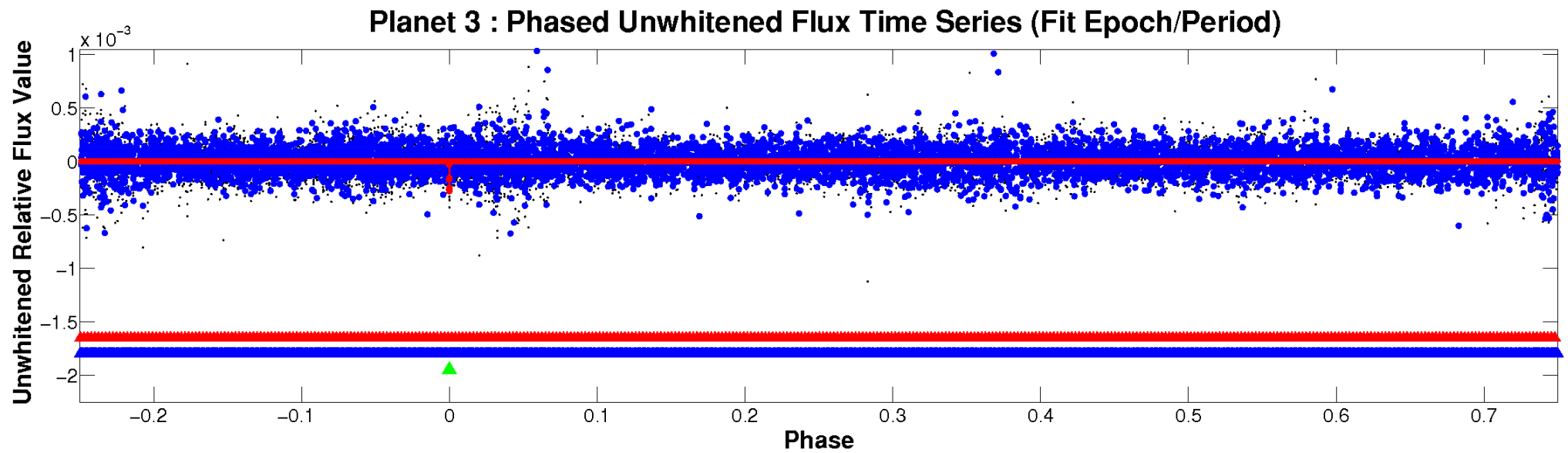


ALT Odd/Even

TCE 004355012-03

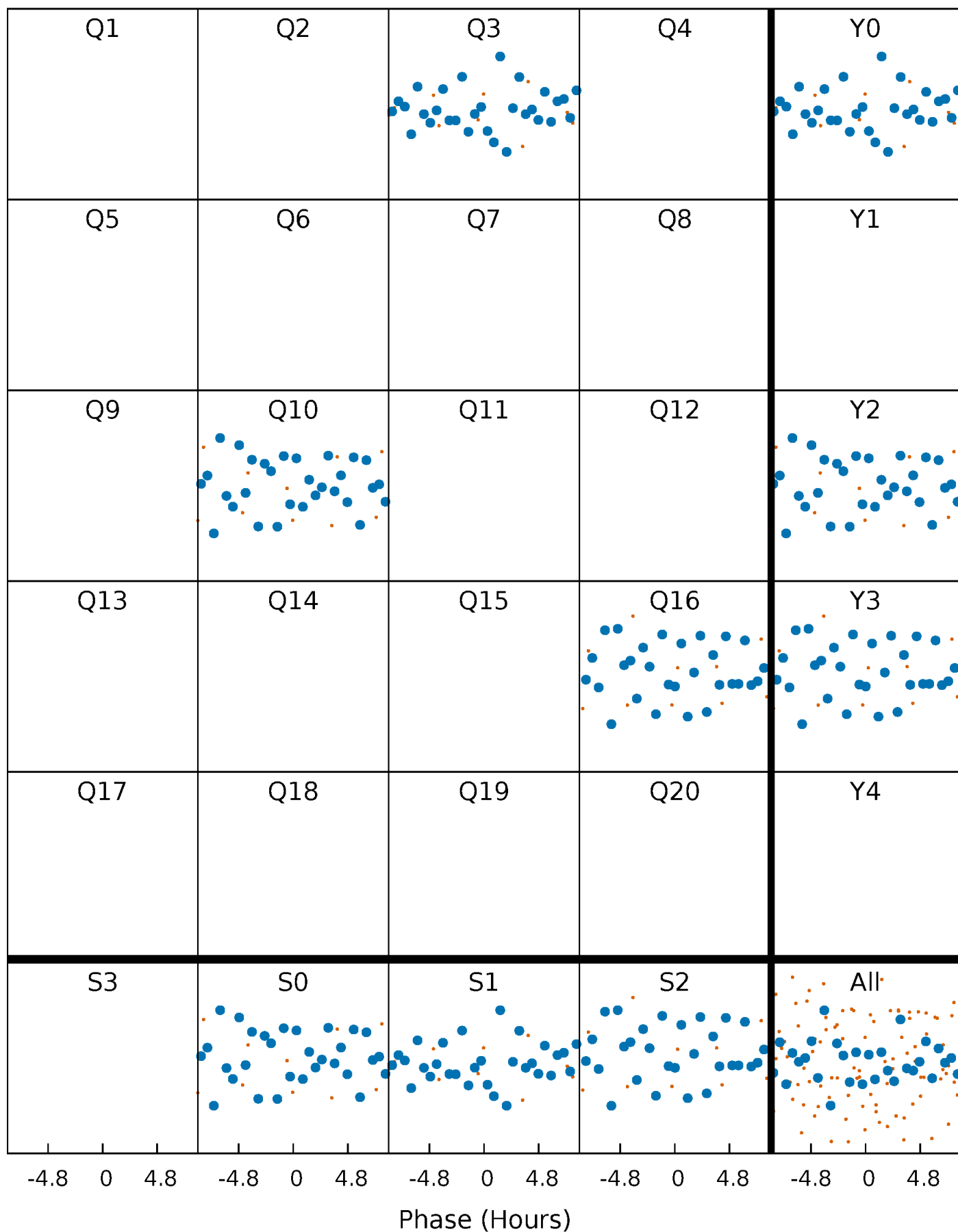


Non-Whitened Vs. Whitened Light Curve



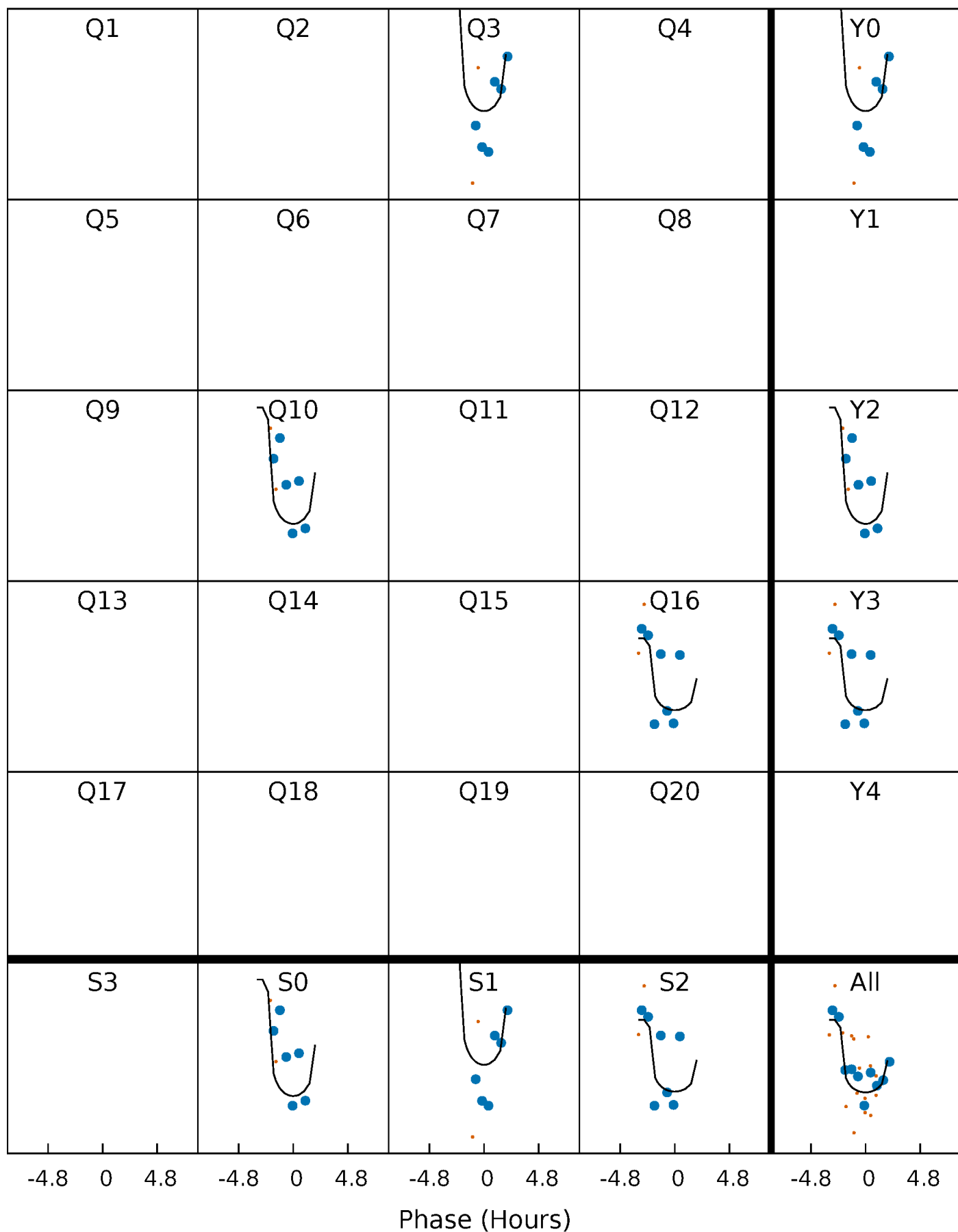
PDC Quarter-Phased Transit Curves

TCE 004355012-03 P=624.944551 Days $T_0=298.149384$ (BKJD)



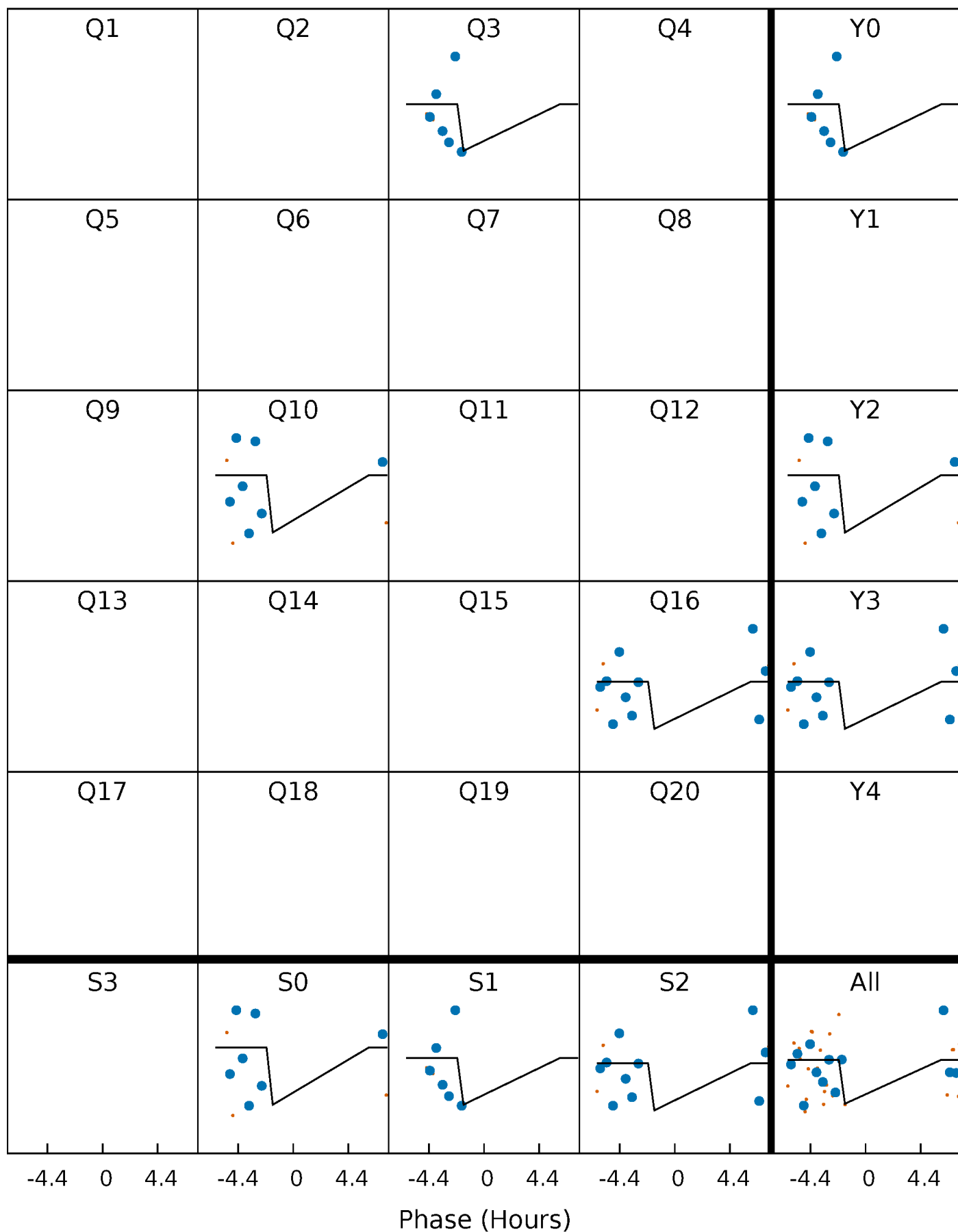
DV Quarter-Phased Transit Curves

TCE 004355012-03 P=624.944551 Days $T_0=298.149384$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

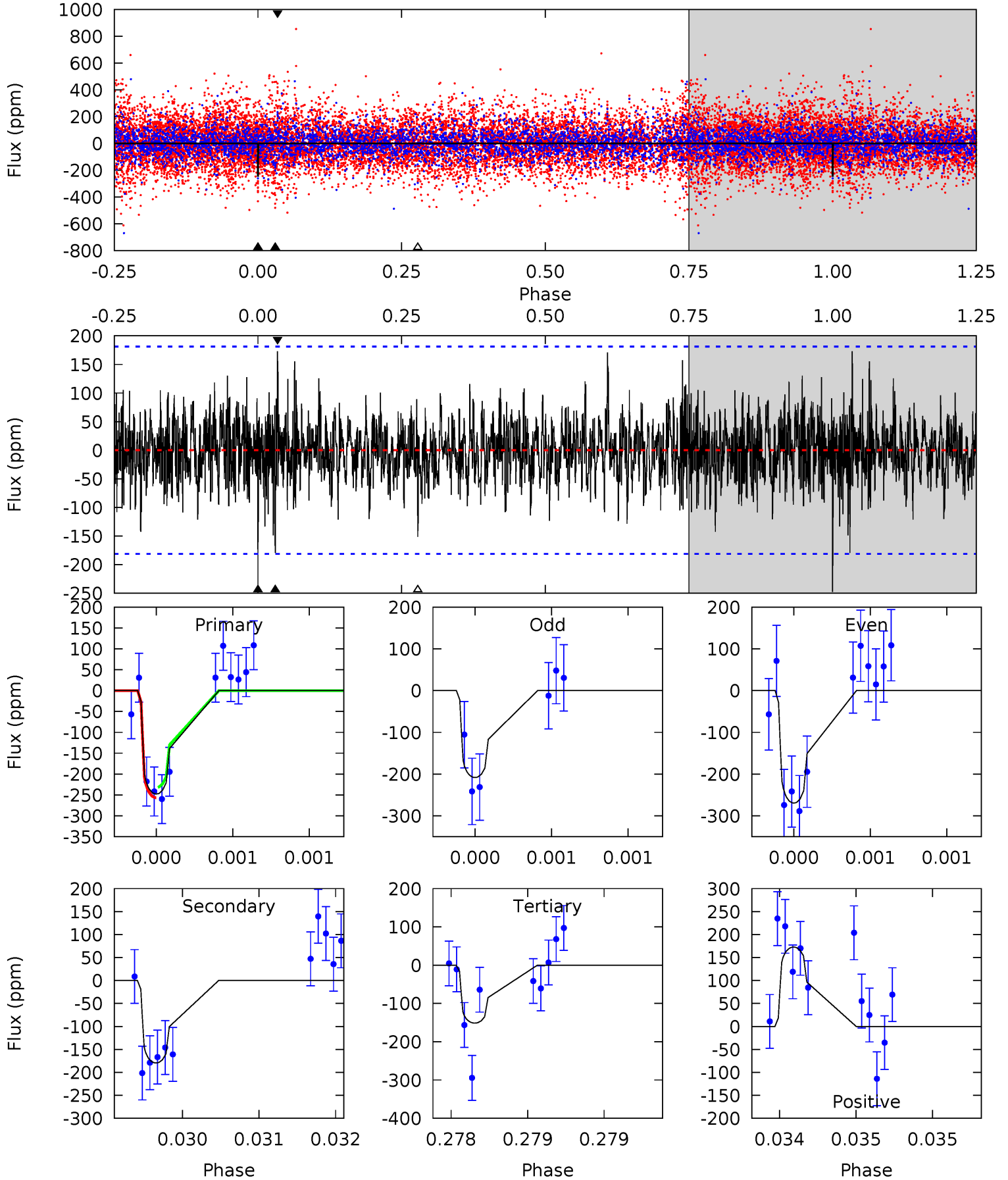
TCE 004355012-03 P=624.933188 Days $T_0=298.298109$ (BKJD)



DV Model-Shift Uniqueness Test

004355012-03, P = 624.944551 Days, E = 298.149384 Days

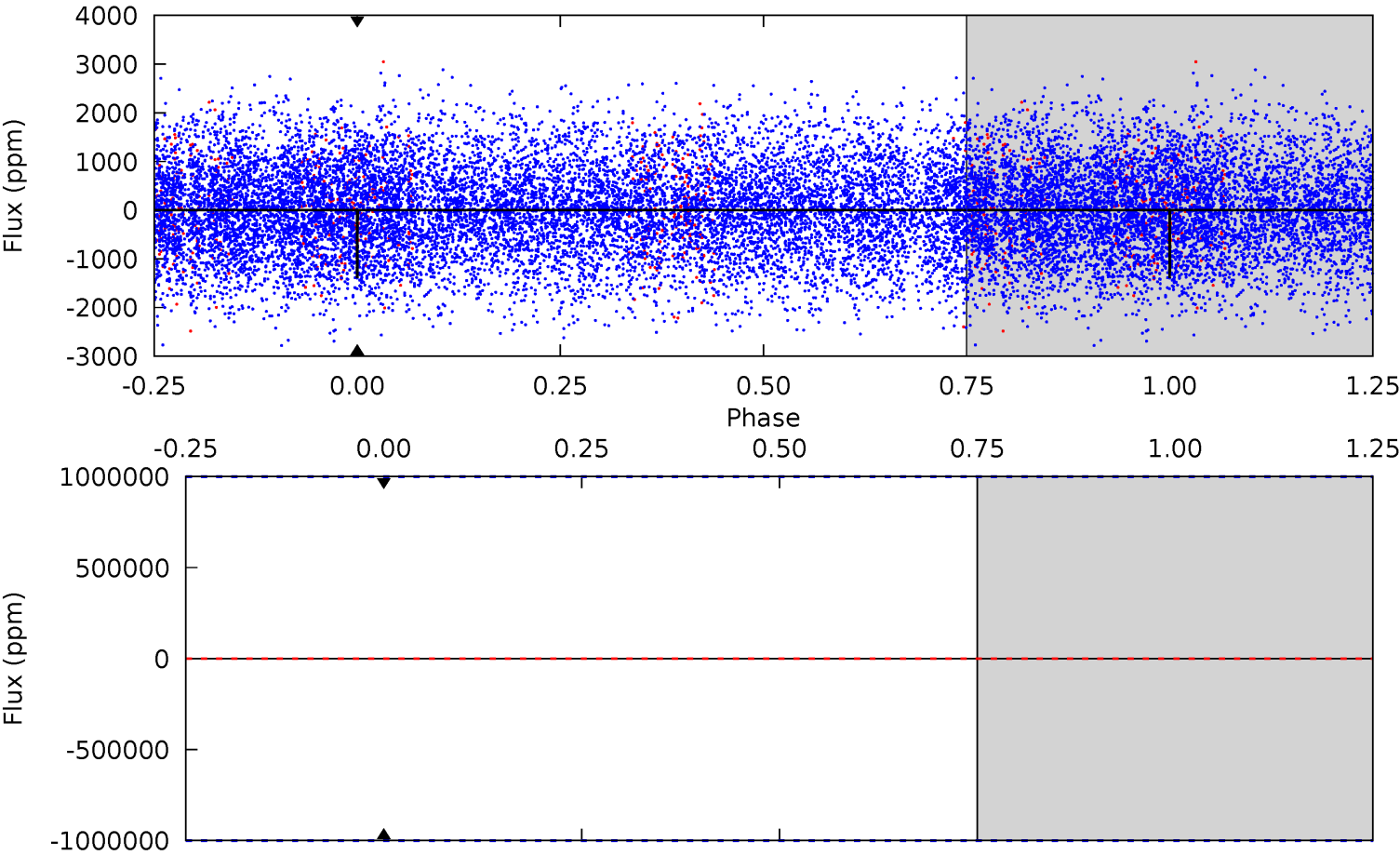
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.53	5.46	4.60	5.25	5.50	3.37	1.32	2.93	2.28	0.85	0.20	0.90	1.11	0.41	0.37



Alt Model-Shift Uniqueness Test

004355012-03, P = 624.933188 Days, E = 298.298109 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



Stellar Parameters For KIC 004355012

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7174^{+199}_{-298}	$3.458^{+0.604}_{-0.107}$	$0.070^{+0.200}_{-0.300}$	$4.563^{+0.290}_{-2.608}$	$2.182^{+0.216}_{-0.649}$	$0.032^{+0.282}_{-0.011}$
	+3%/-4%	+17%/-3%	+286%/-429%	+6%/-57%	+10%/-30%	+873%/-34%
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 004355012-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-180 ± 33	$12.28^{+11.19}_{-8.38}$	680^{+37}_{-86}	5032^{+3814}_{-1099}	2312^{+19281}_{-1717}
Alt.	-0 ± 1000000	$20.21^{+14.08}_{-11.42}$	679^{+40}_{-94}	5893^{+64093}_{-65212}	$3856^{+804958}_{-575526}$

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 $A_{obs} \gg 1.0$

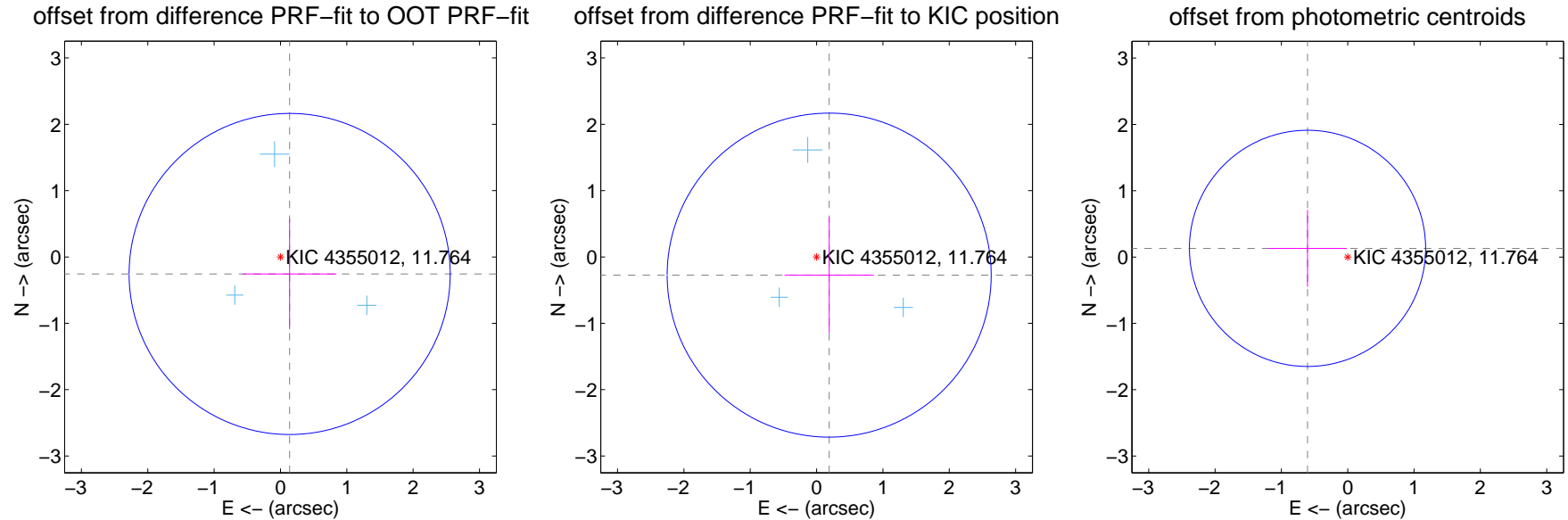
DV Centroid Data

Supplemental centroid analysis for 004355012-03. **Kepler magnitude: 11.76.** Transit SNR 8.46

There are 3 quarters with good PRF difference image offsets

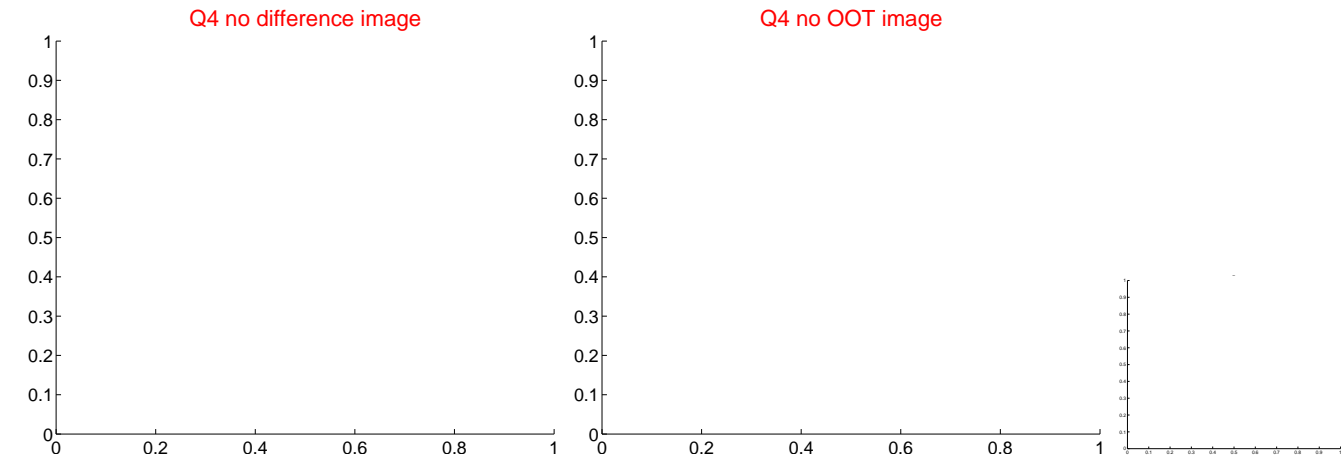
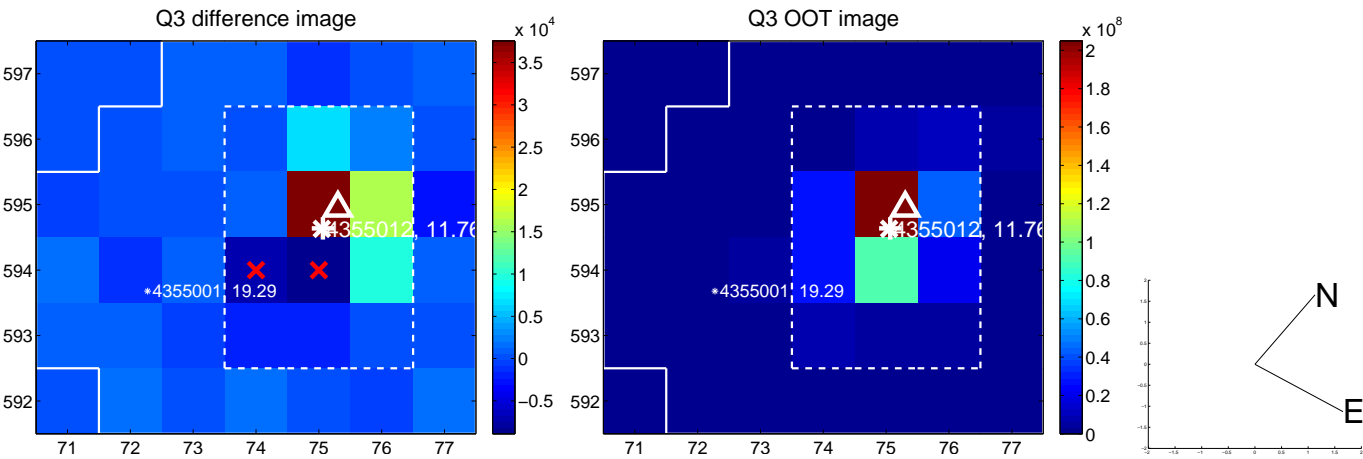
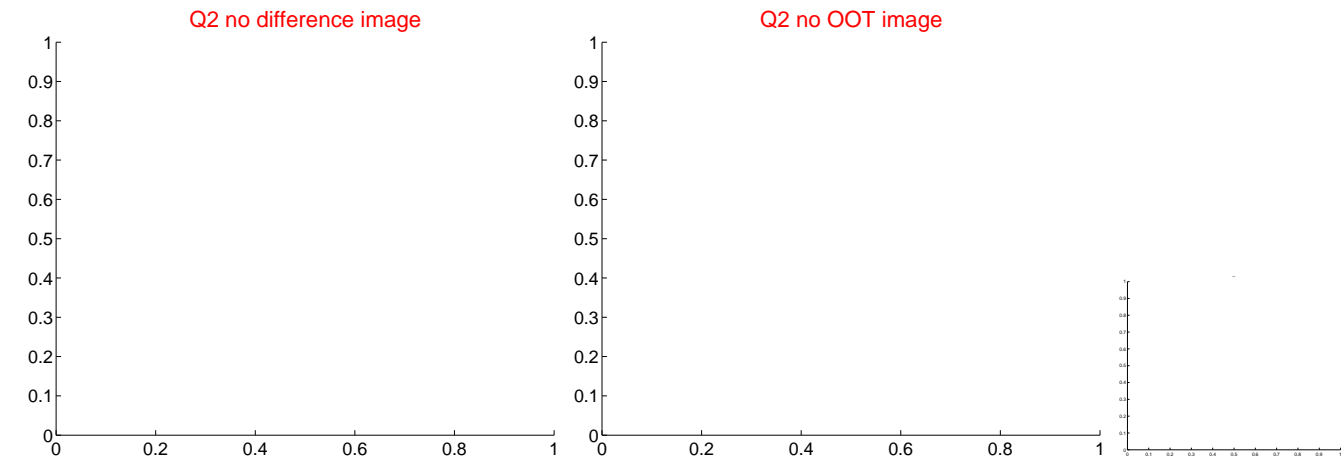
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.291 ± 0.807	0.36	-0.138 ± 0.706	-0.256 ± 0.834
PRF-fit source offset from KIC position	0.333 ± 0.814	0.41	-0.190 ± 0.673	-0.274 ± 0.874
photometric centroid source offset	0.62 ± 0.59	1.04	0.61 ± 0.59	0.13 ± 0.58



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.

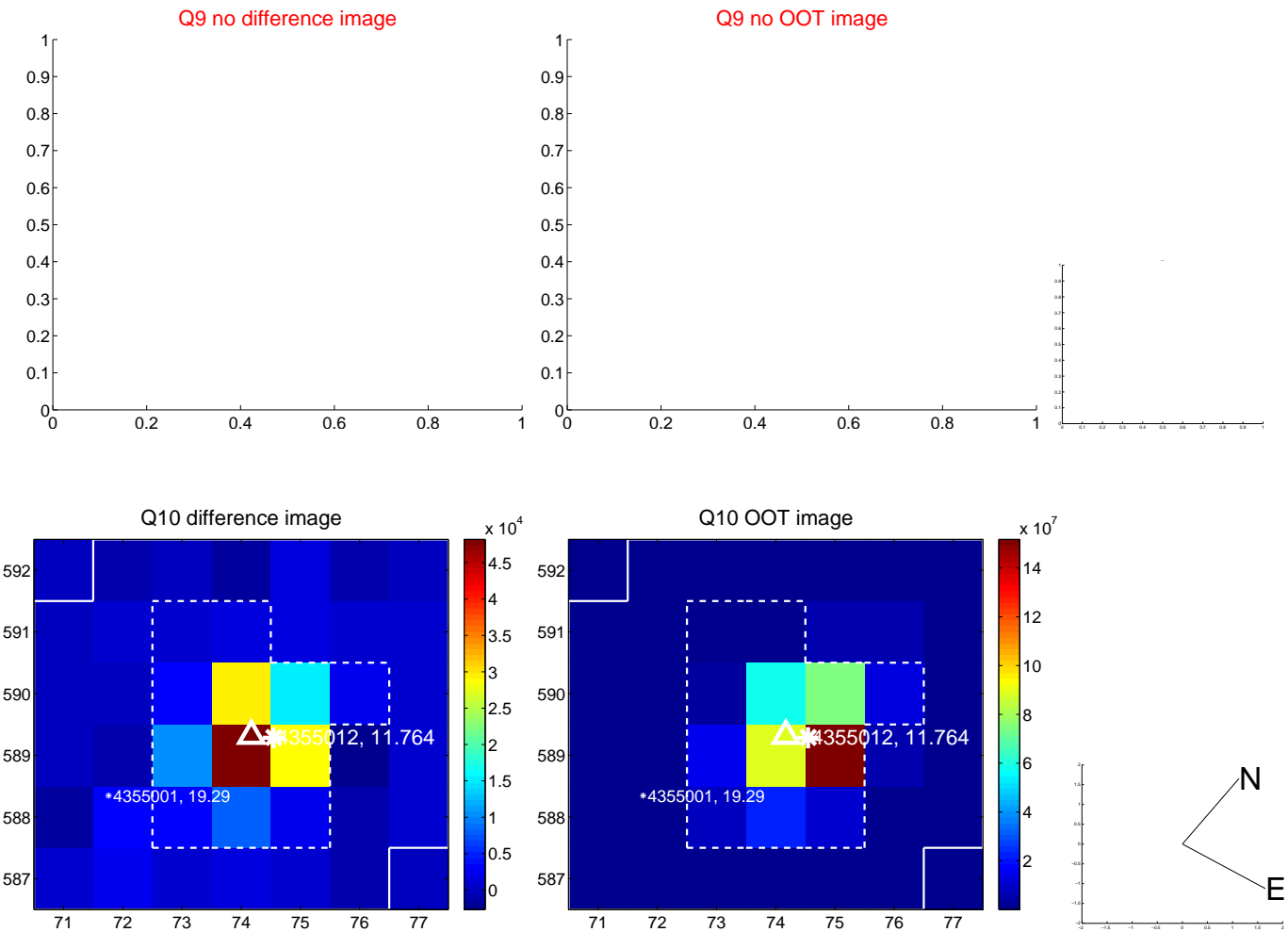
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



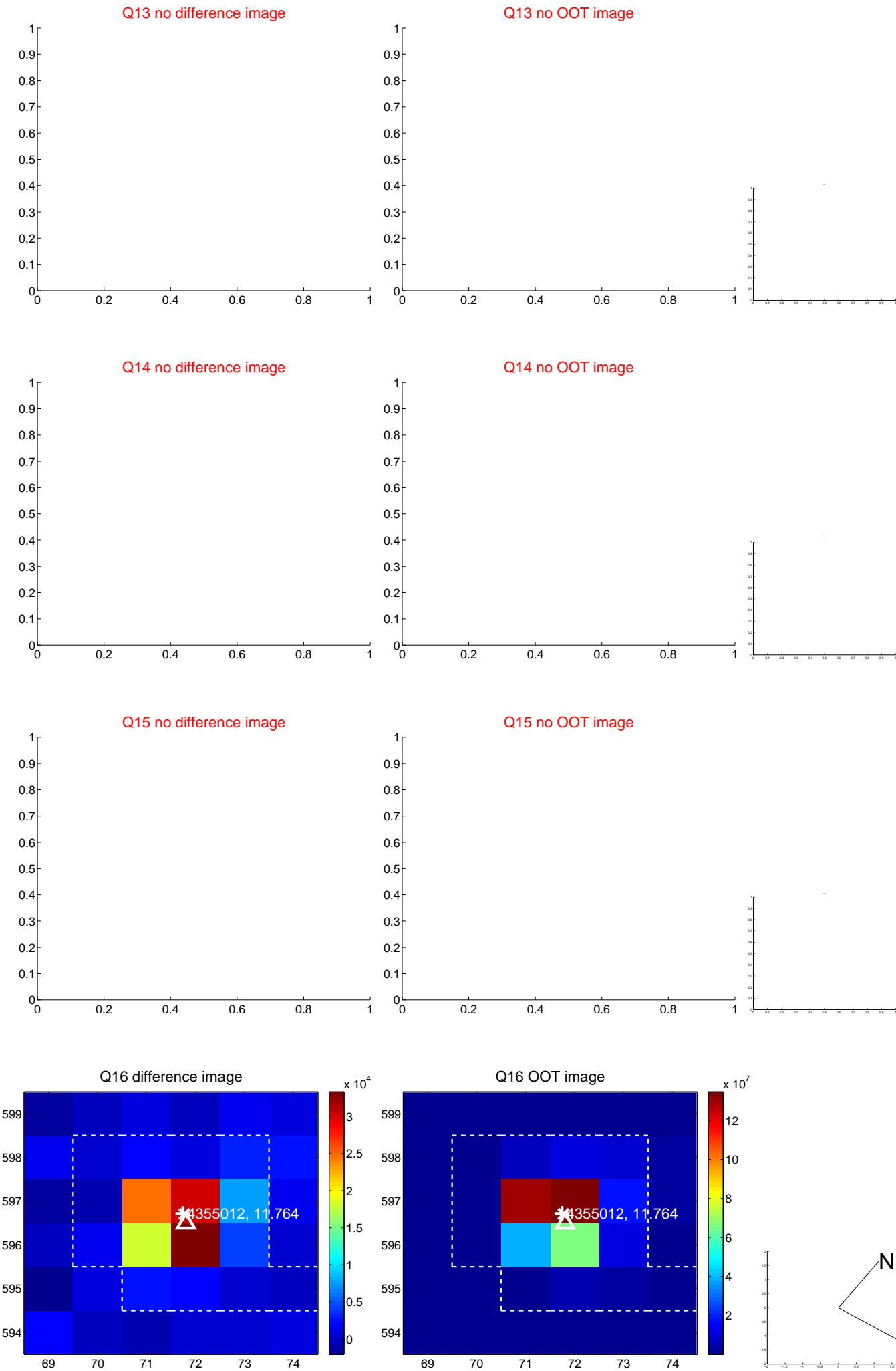
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



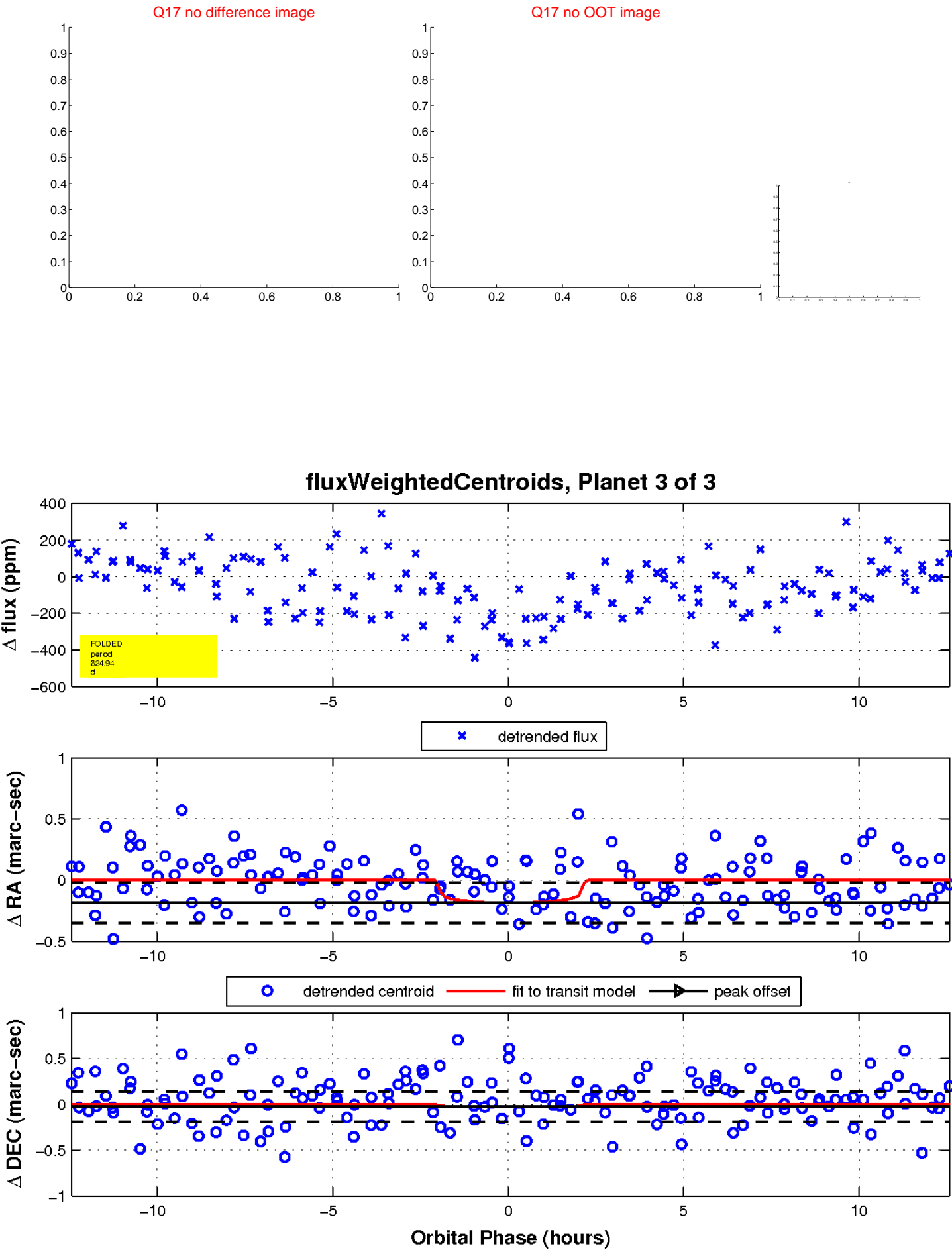
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

