

KIC 010992011

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})
010992011-01	OBS	4025.01	0.974466	132.374926	161.8	2.127	20.4	21.1	0.82	5043	1.27	1242.08
010992011-02	OBS	No	0.974467	131.884679	88.0	1.853	11.8	11.4	0.82	5043	0.94	1242.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010992011-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
010992011-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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.

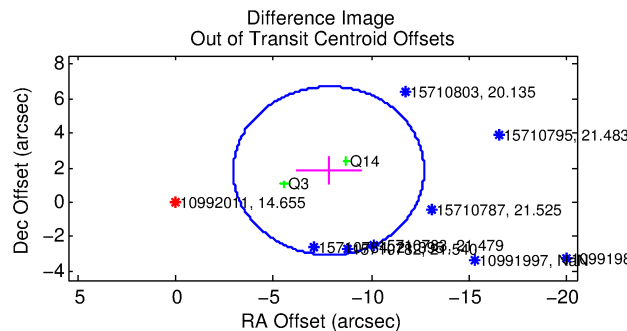
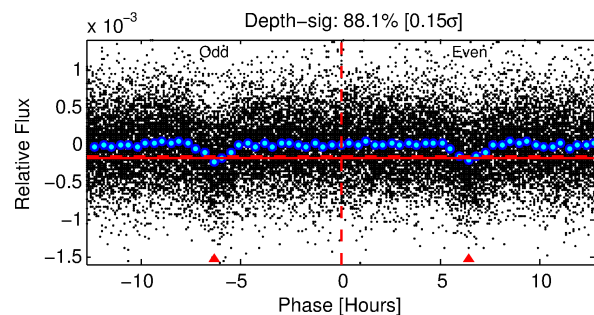
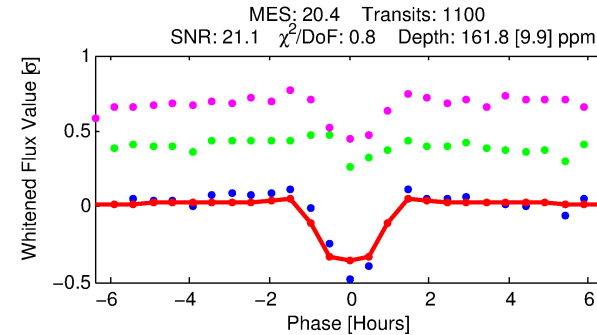
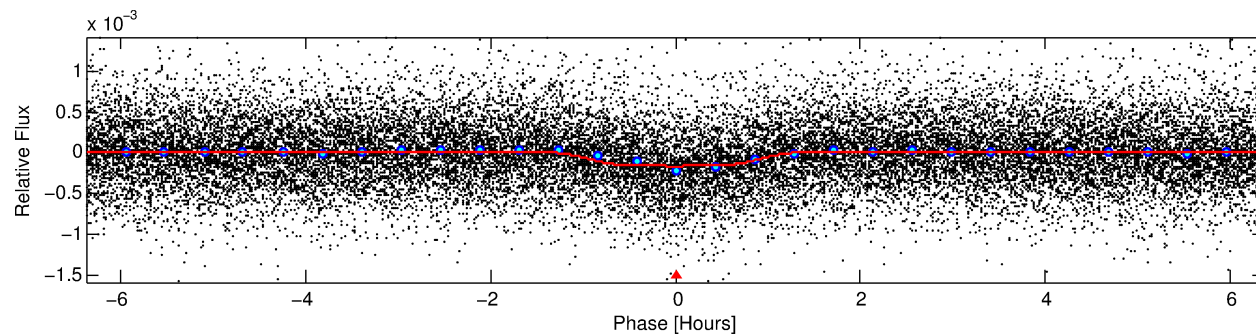
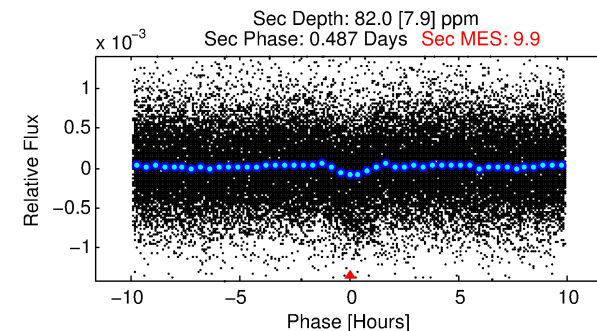
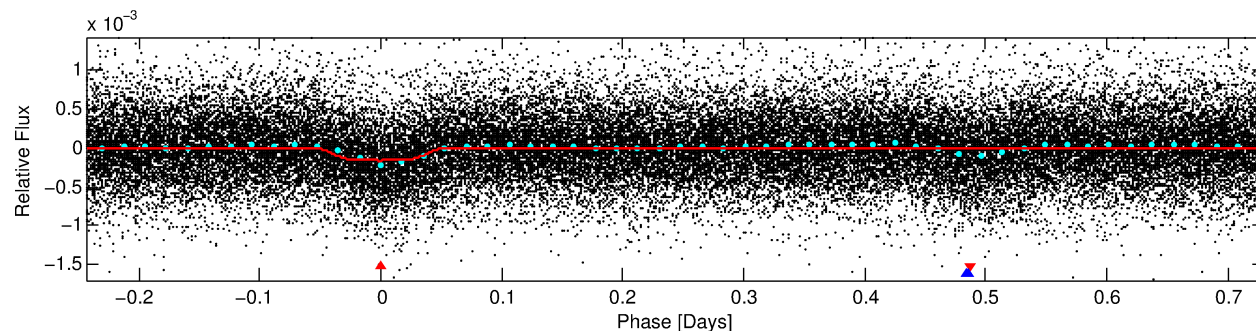
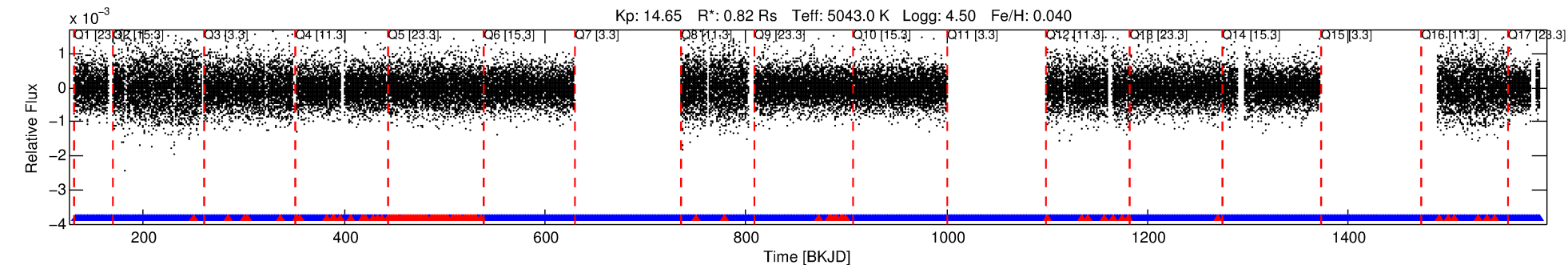
Ephemeris Match Information For 010992011-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010992011-01	10992011	7398.01	10991989	1:1	20.3	-4	1	10.28	14.65	54.51	Direct-PRF	0	1.14	0.30

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10992011 Candidate: 1 of 2 Period: 0.974 d
KOI: K04025.01 Corr: 0.913



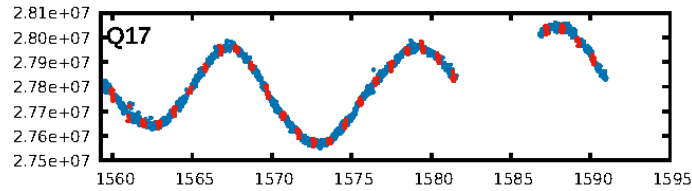
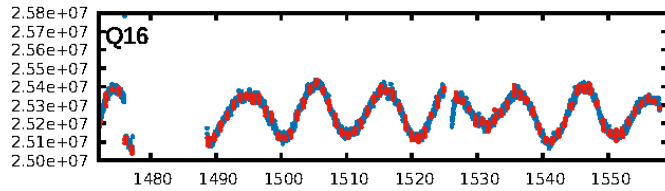
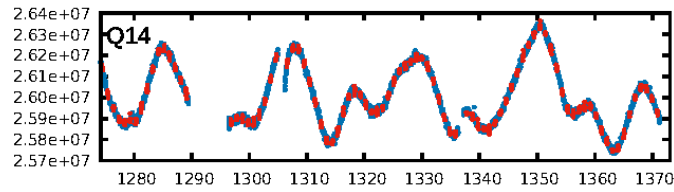
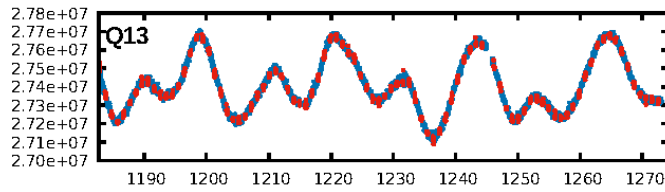
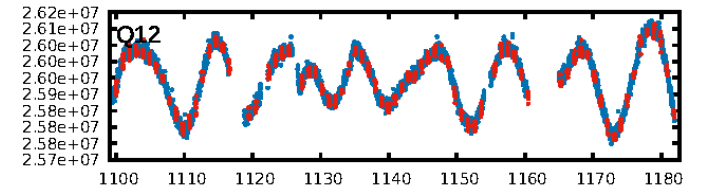
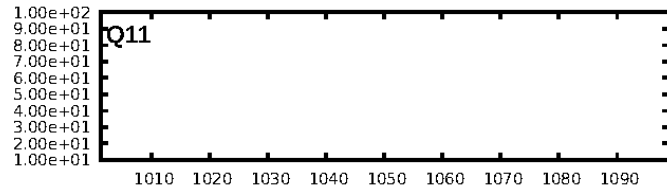
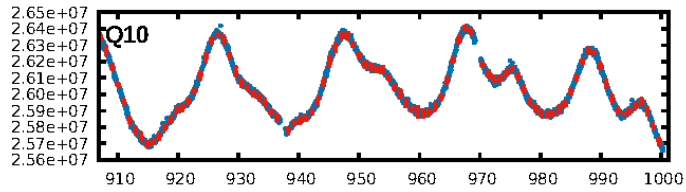
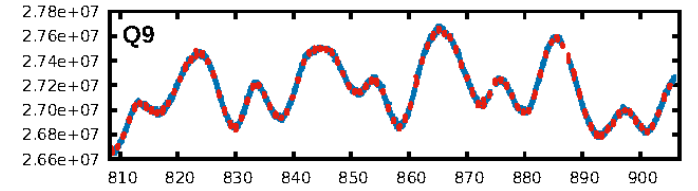
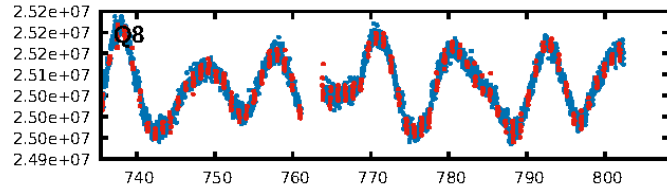
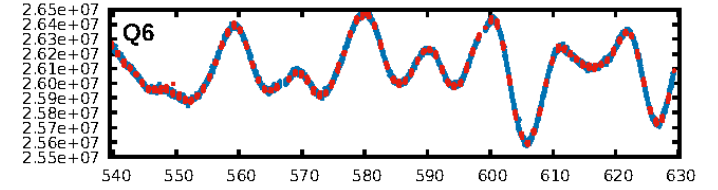
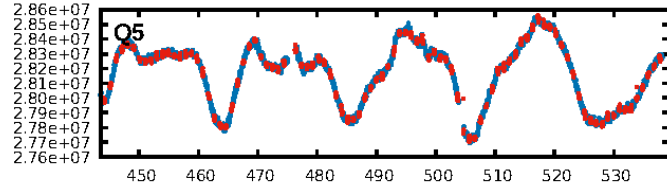
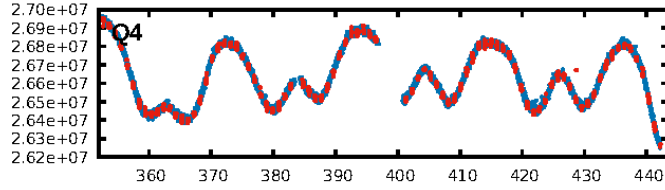
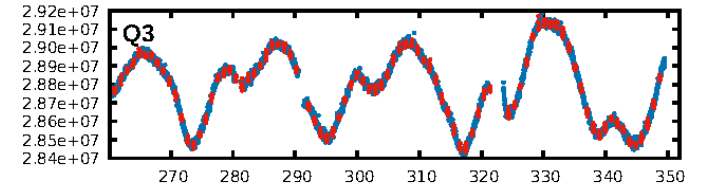
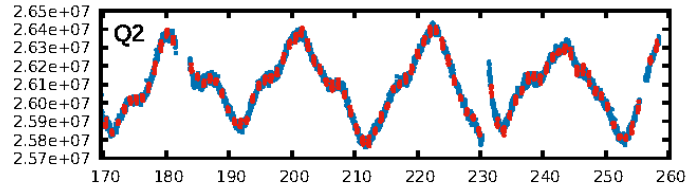
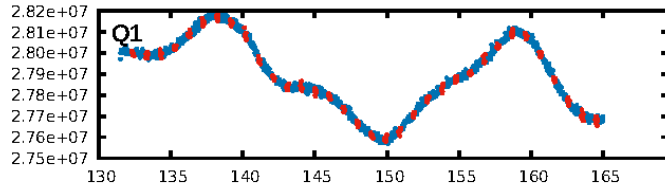
DV Fit Results:

Period = 0.97447 [0.00000] d
Epoch = 132.3749 [0.0012] BKJD
Rp/R* = 0.0143 [0.0055]
a/R* = 1.87 [2.08]
b = 0.90 [0.33]
Seff = 1242.08 [264.44]
Teff = 1514 [81] K
Rp = 1.28 [0.52] Re
a = 0.0177 [0.0019] AU
Ag = 8.68 [6.93] [1.11σ]
Teffp = 4017 [795] K [3.13σ]

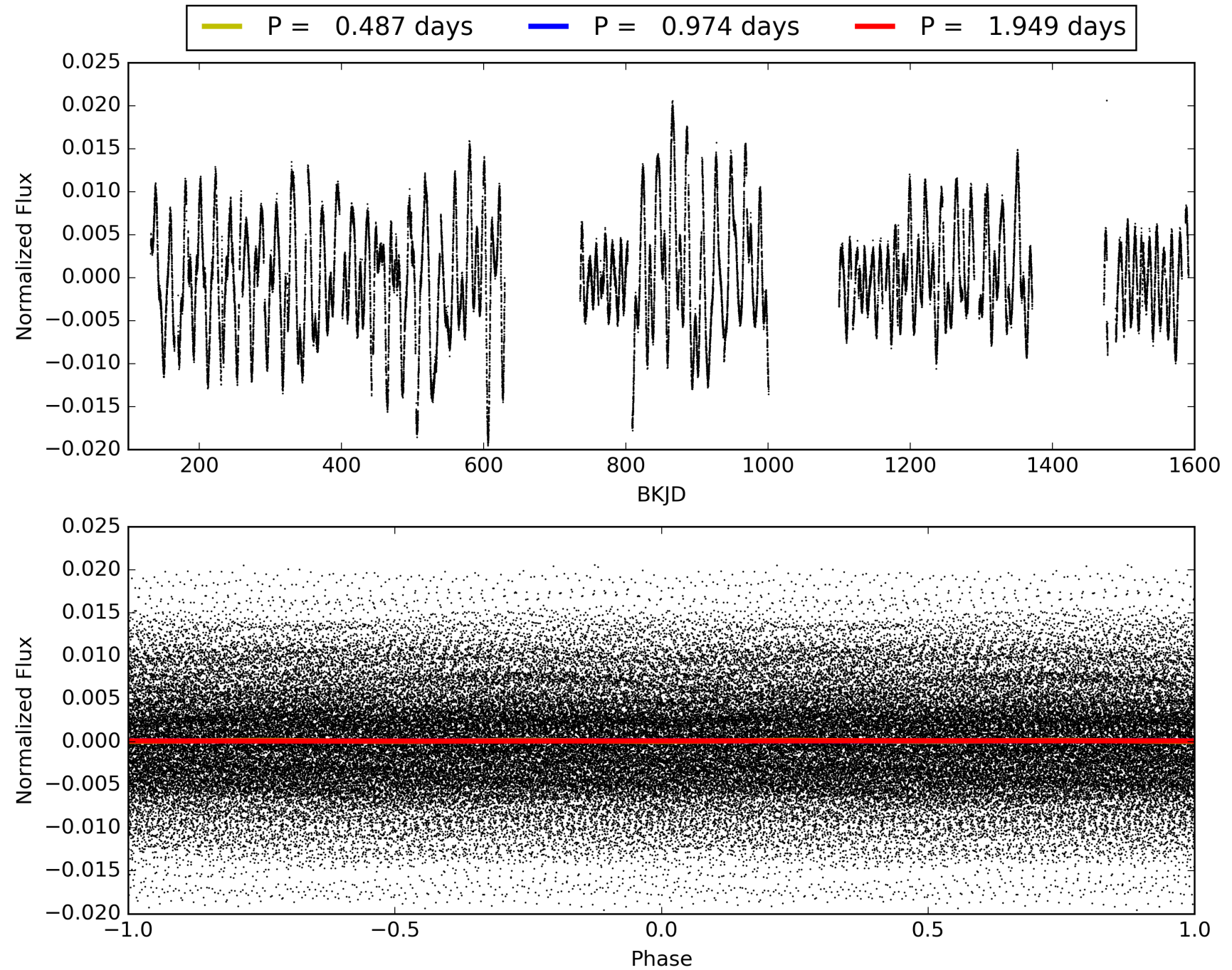
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.20e-86
RollingBand-fgt: 0.89 [922/1039]
GhostDiagnostic-chr: -0.2308
Centroid-sig: 0.0%
Centroid-so: 8.303 arcsec [12.77σ]
OotOffset-rm: 8.035 arcsec [4.95σ]
KicOffset-rm: 7.929 arcsec [4.92σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 010992011-01, PDC Light Curves

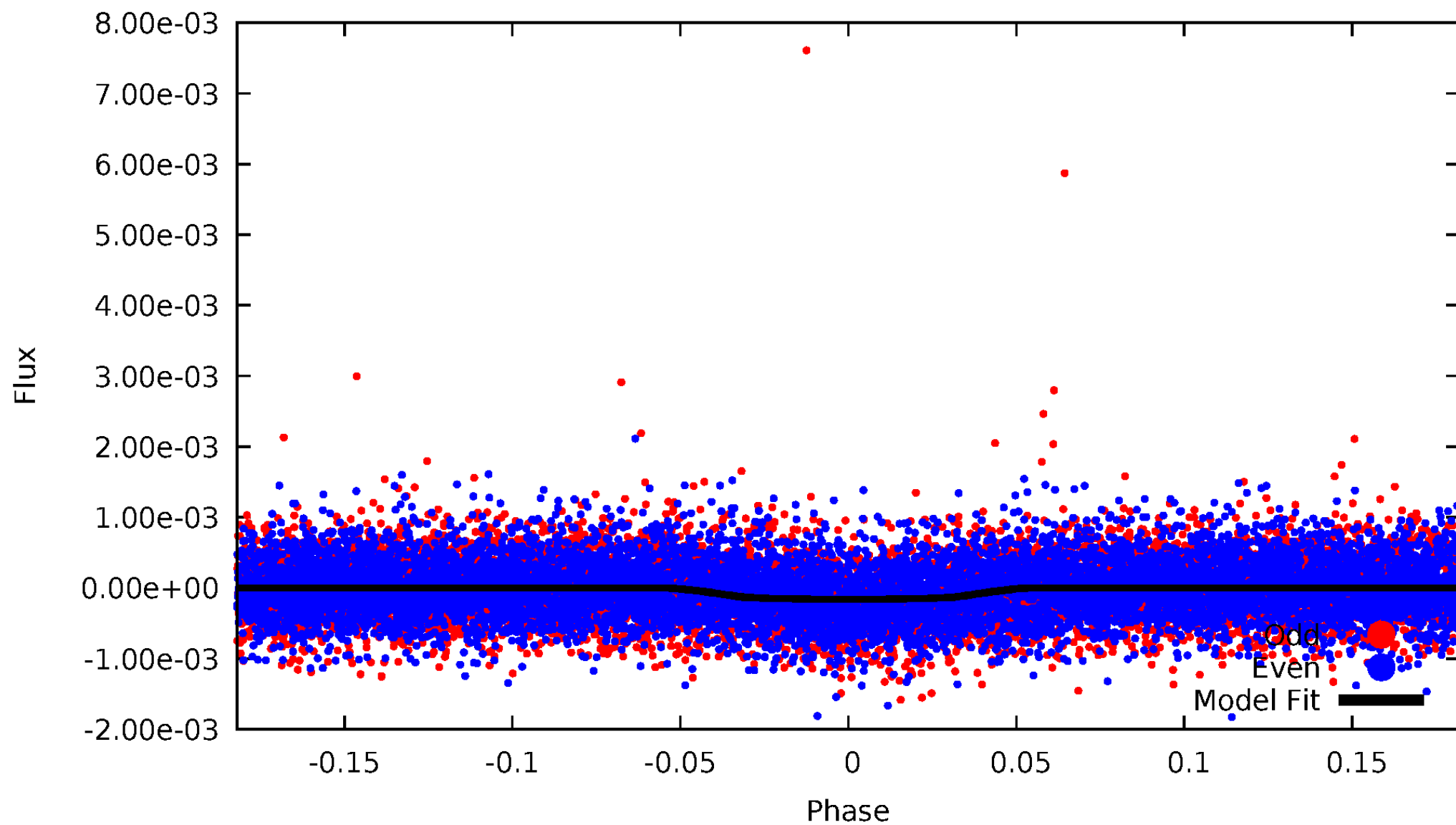


TCE 010992011-01



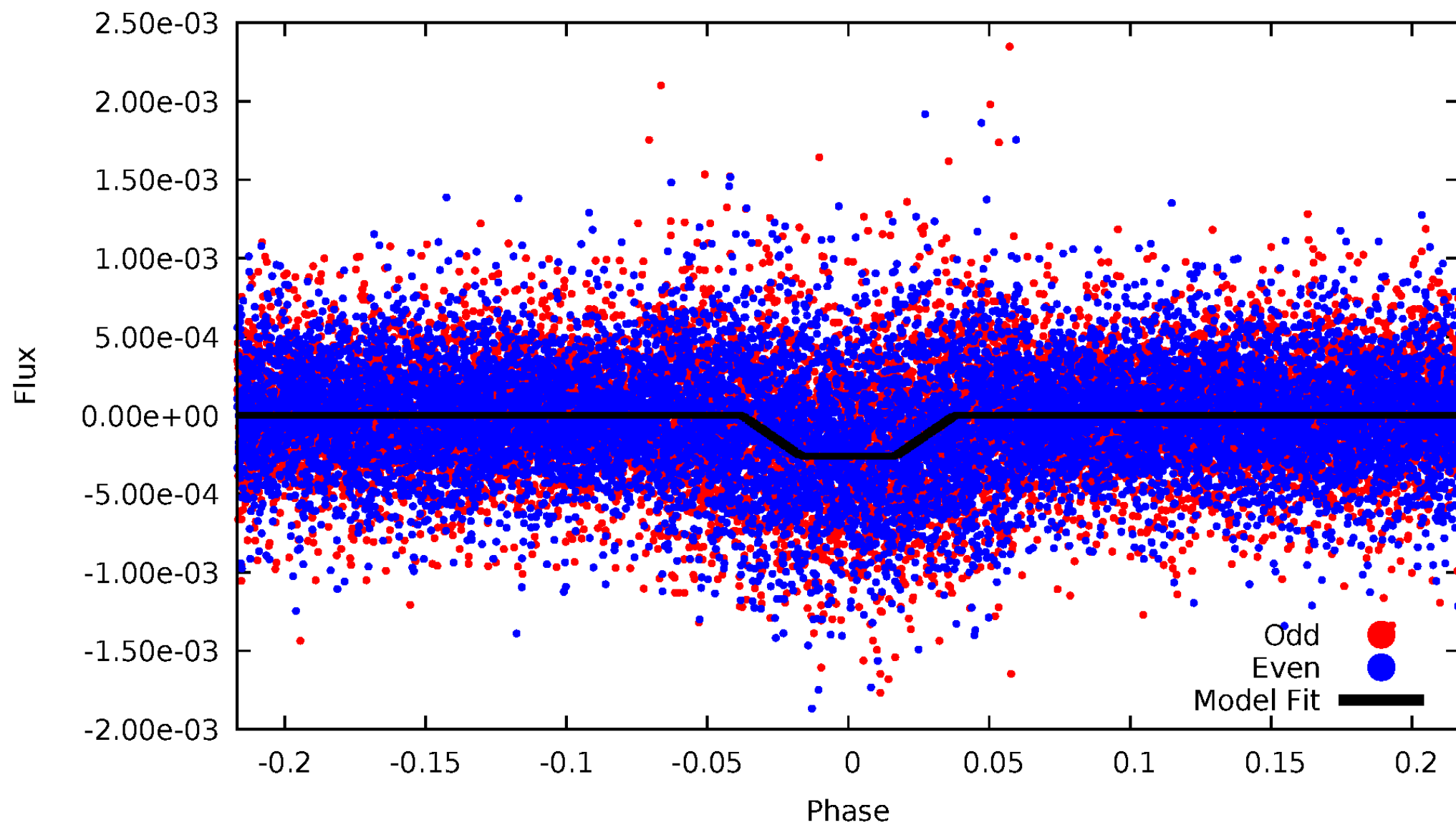
DV Odd/Even

TCE 010992011-01

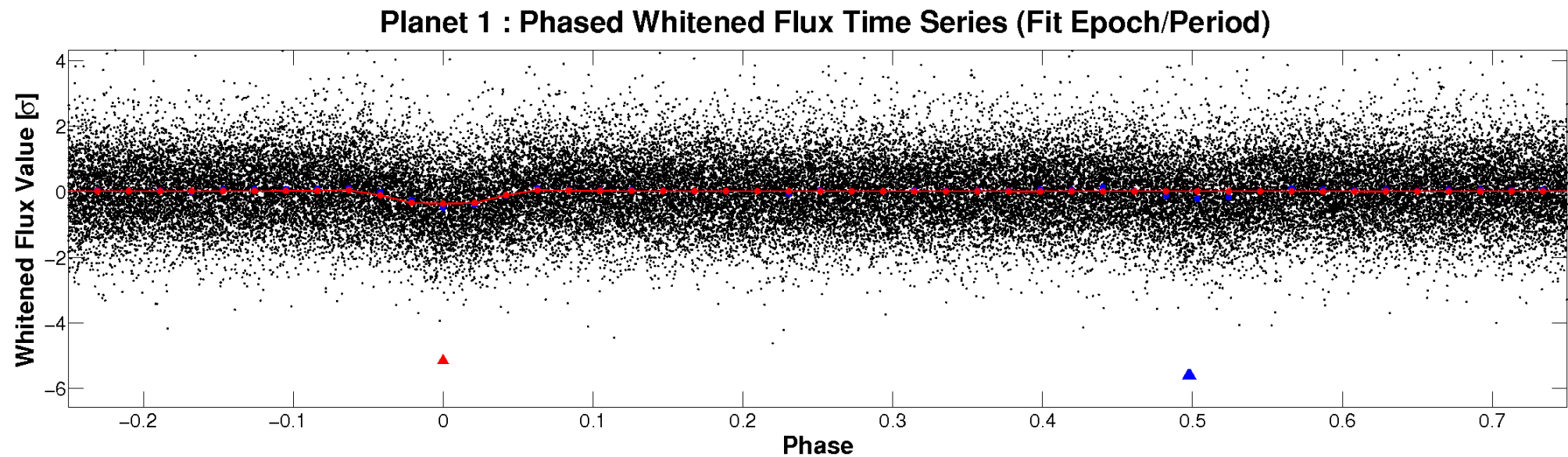
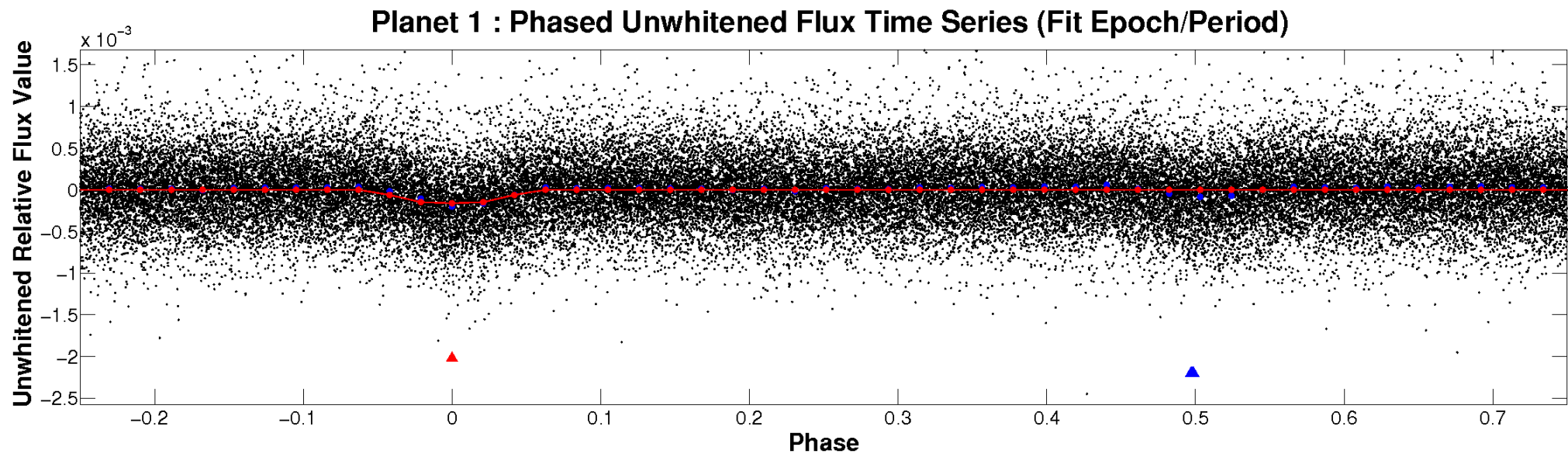


ALT Odd/Even

TCE 010992011-01

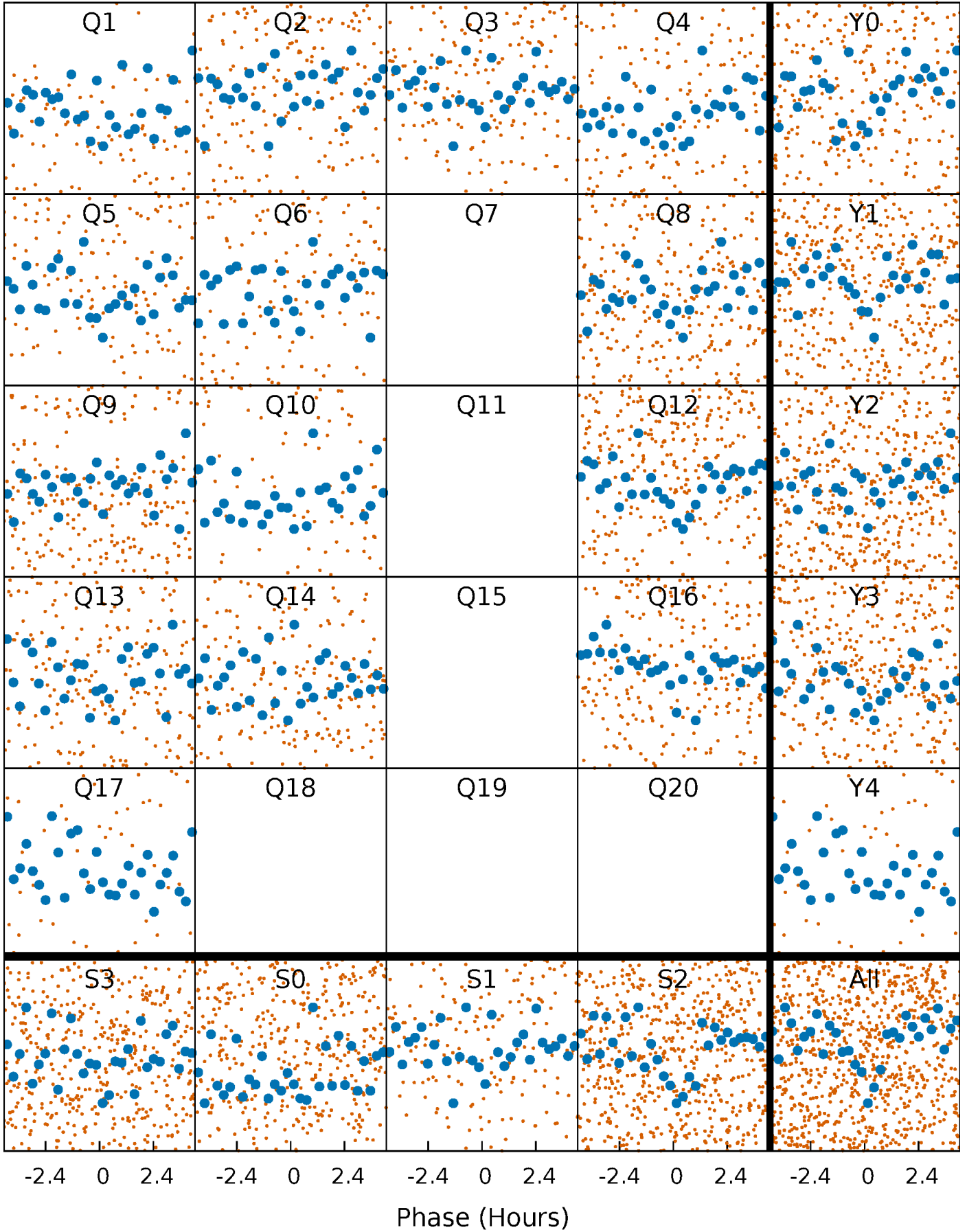


Non-Whitened Vs. Whitened Light Curve



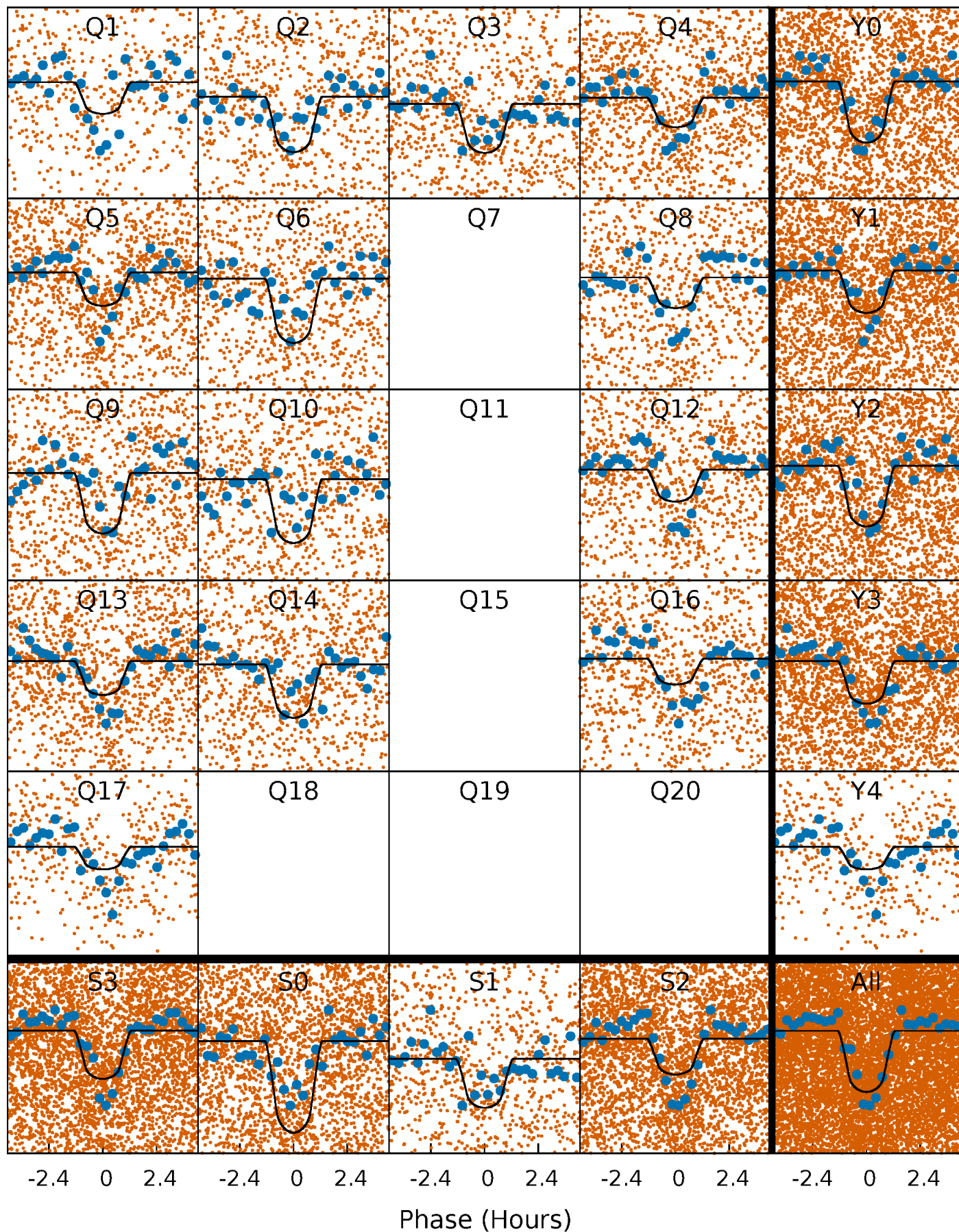
PDC Quarter-Phased Transit Curves

TCE 010992011-01 P= 0.974466 Days $T_0=132.374926$ (BKJD)



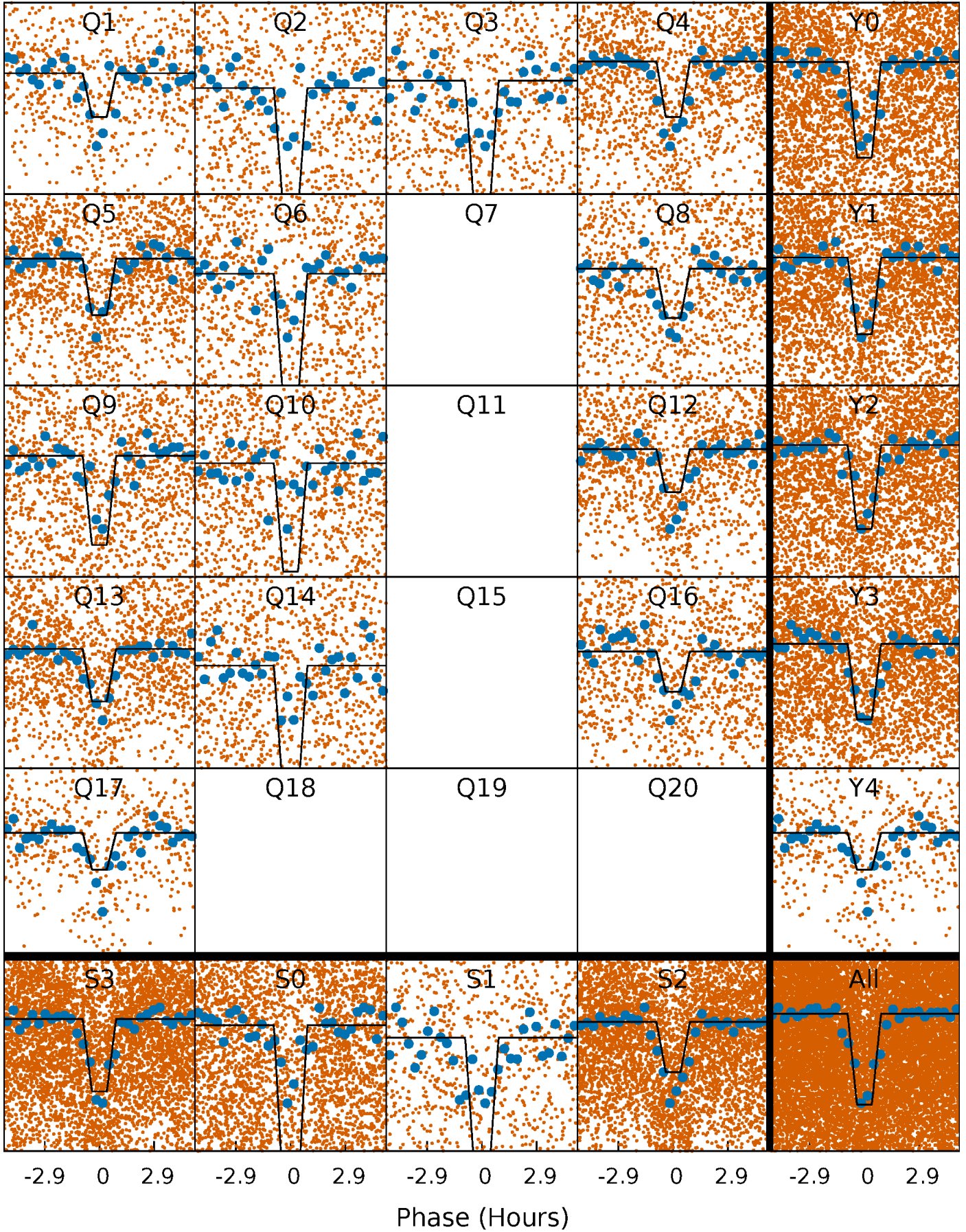
DV Quarter-Phased Transit Curves

TCE 010992011-01 P= 0.974466 Days $T_0=132.374926$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

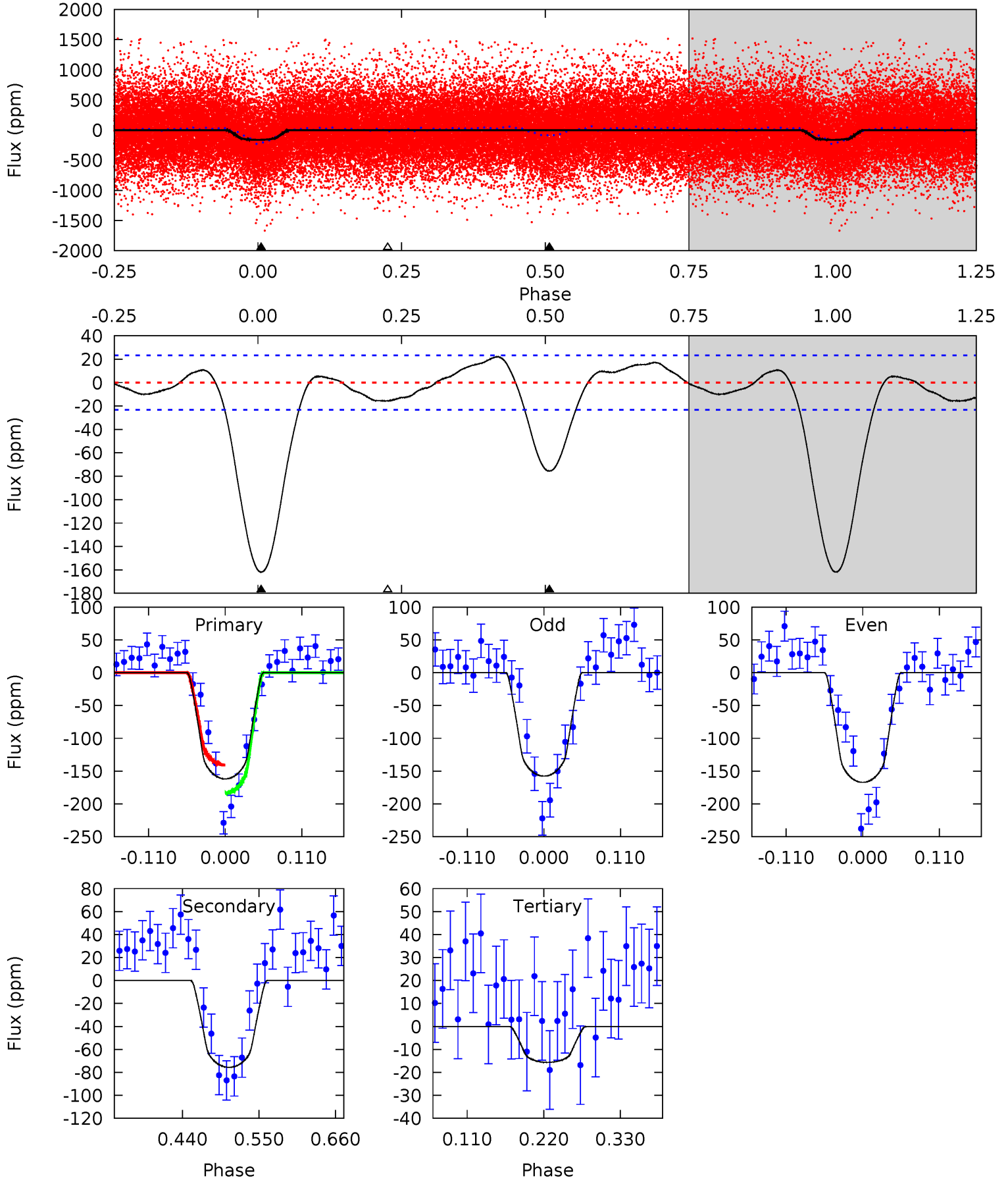
TCE 010992011-01 P= 0.974474 Days $T_0=132.373484$ (BKJD)



DV Model-Shift Uniqueness Test

010992011-01, P = 0.974466 Days, E = 131.400460 Days

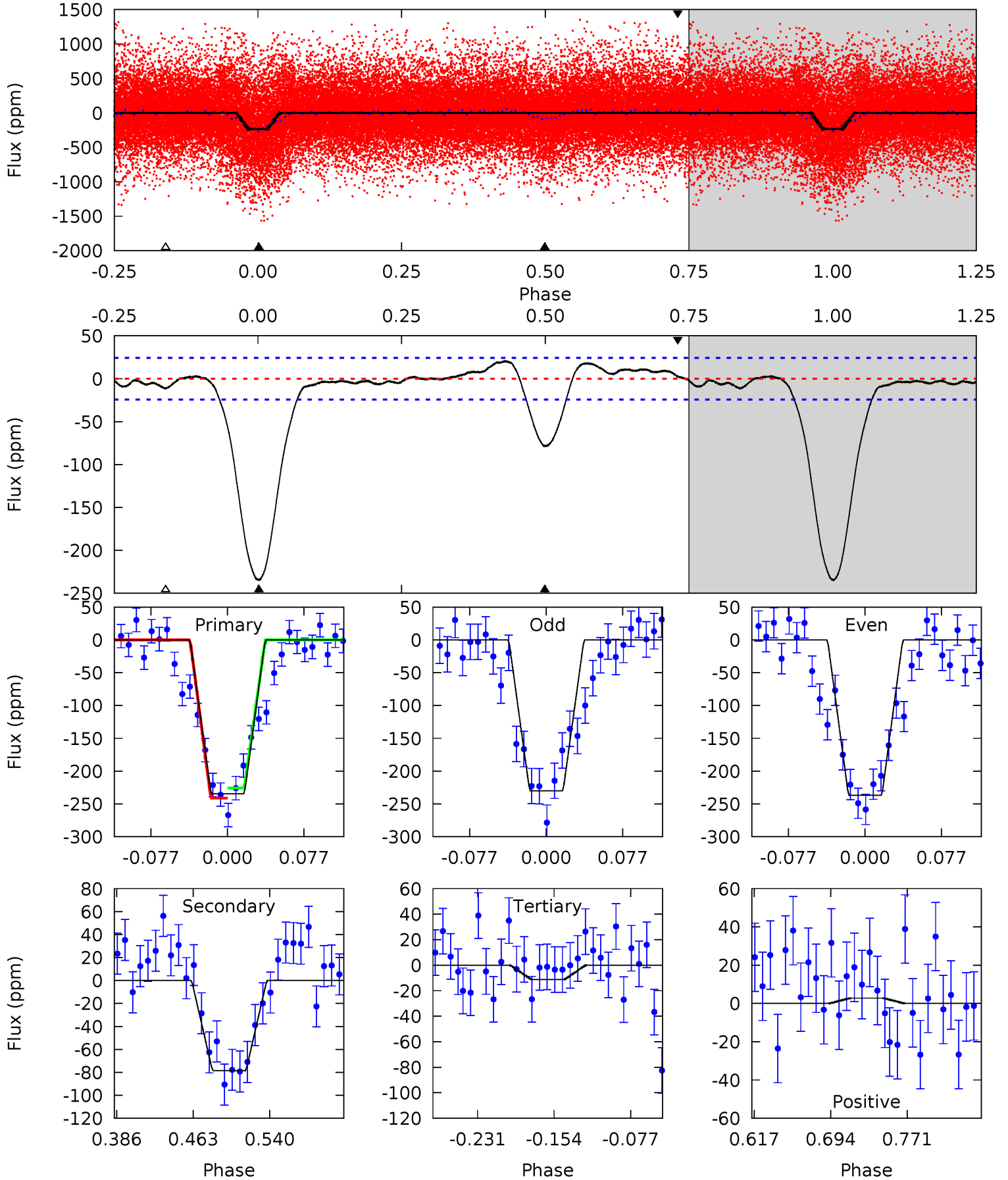
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.6	14.8	3.06	0	4.54	1.60	1.99	28.5	31.6	11.7	14.8	0.94	1.02	0.12	4.21



Alt Model-Shift Uniqueness Test

010992011-01, P = 0.974474 Days, E = 131.399010 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.7	15.0	2.14	0.52	4.62	1.77	1.32	42.5	44.1	12.8	14.4	0.66	1.02	0.08	1.48



Stellar Parameters For KIC 010992011

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+168}_{-152}	$4.502^{+0.096}_{-0.072}$	$0.040^{+0.250}_{-0.300}$	$0.819^{+0.077}_{-0.094}$	$0.776^{+0.090}_{-0.055}$	$1.992^{+0.738}_{-0.452}$
	+3%/-3%	+2%/-2%	+625%/-750%	+9%/-11%	+12%/-7%	+37%/-23%
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 010992011-01 / KOI 4025.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-76 ± 5	$1.25^{+0.50}_{-0.48}$	2110^{+88}_{-90}	4140^{+886}_{-469}	$8.403^{+13.314}_{-4.089}$
Alt.	-79 ± 5	$1.44^{+0.52}_{-0.48}$	2115^{+95}_{-87}	3966^{+670}_{-400}	$6.545^{+8.253}_{-3.070}$

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

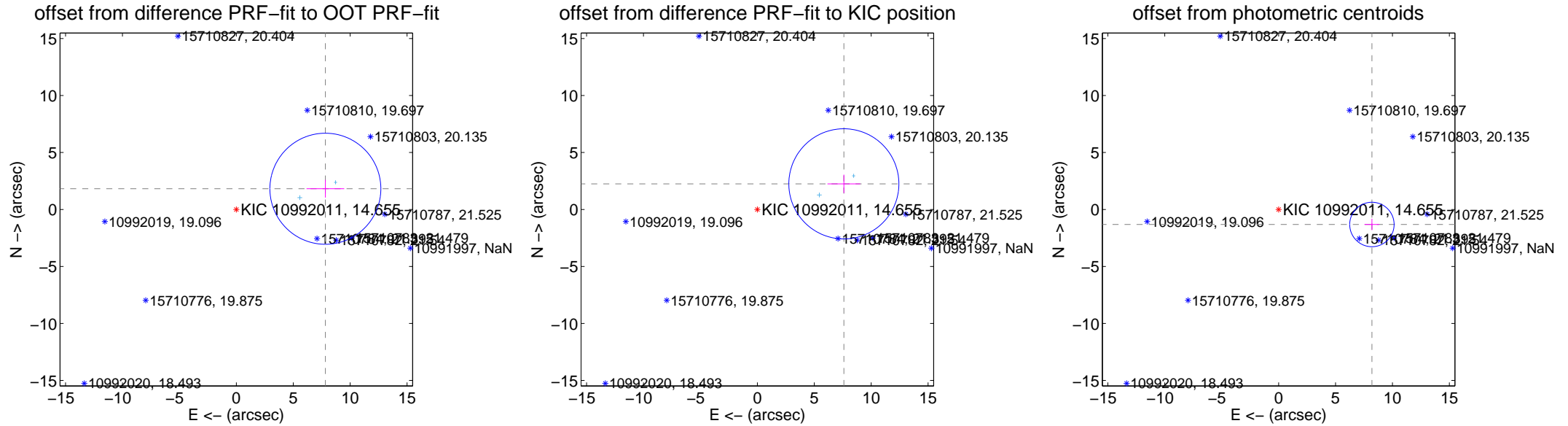
DV Centroid Data

Supplemental centroid analysis for 010992011-01. Kepler magnitude: 14.65. Transit SNR 21.06

There are 2 quarters with good PRF difference image offsets

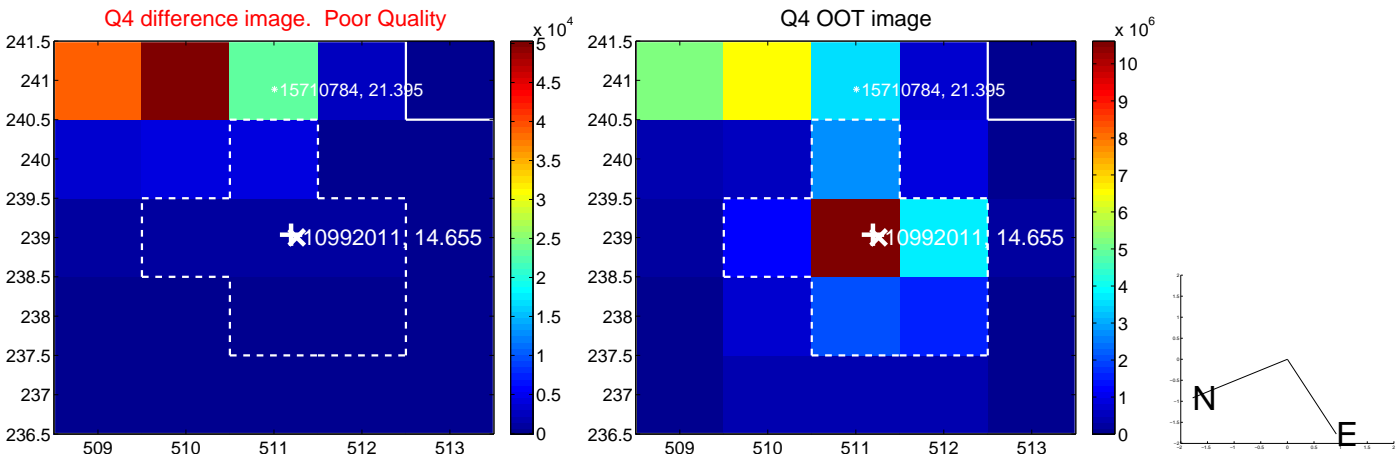
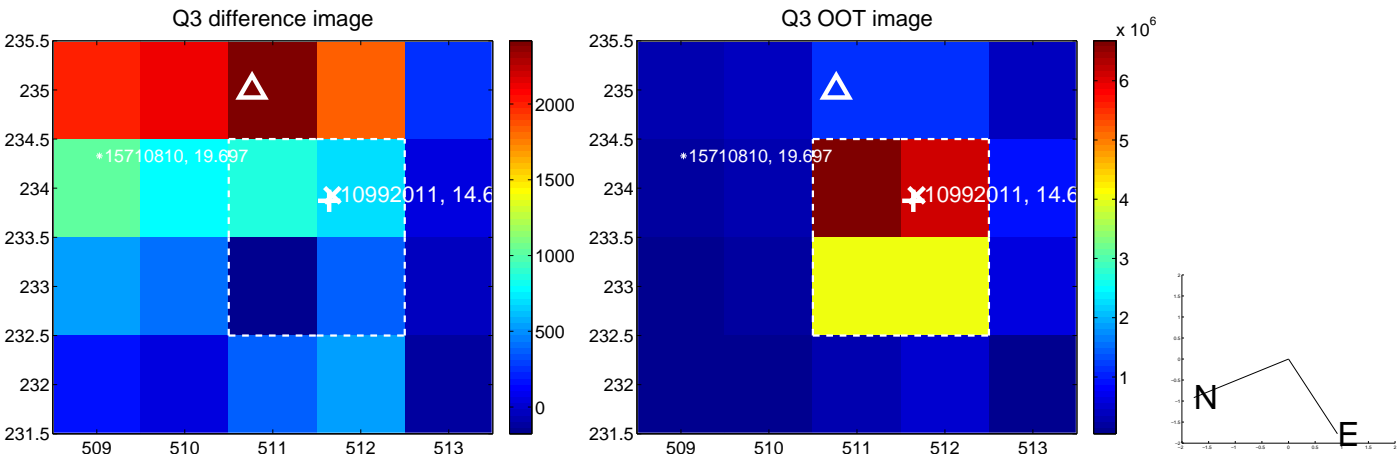
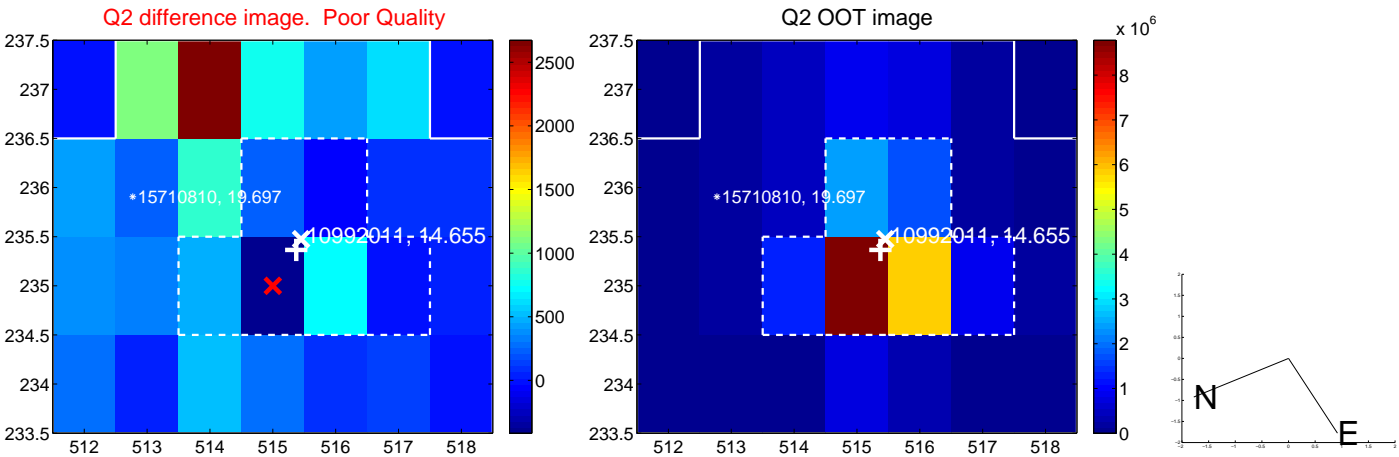
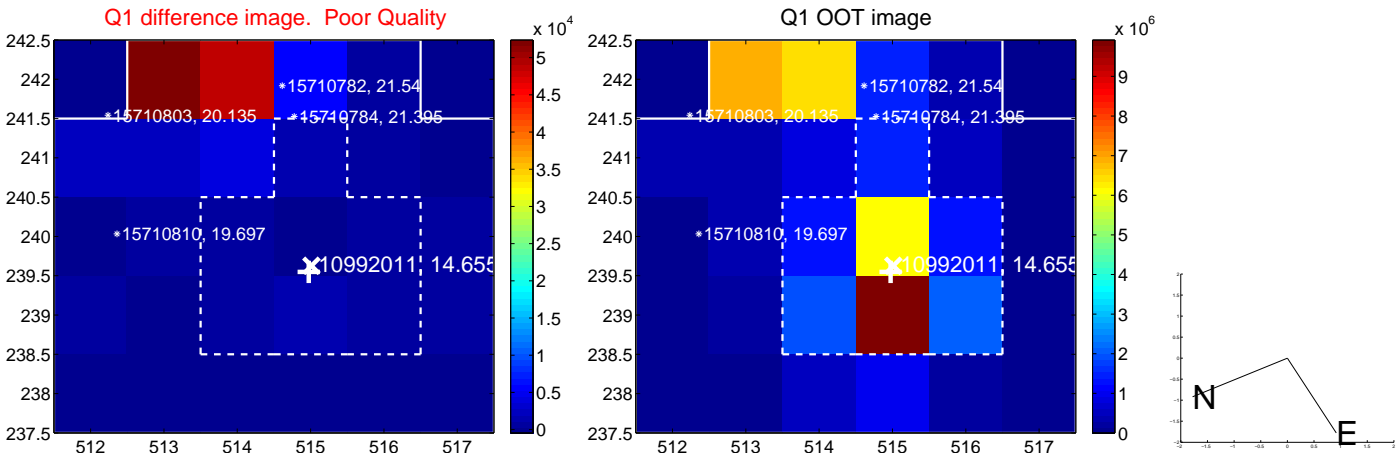
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.035 \pm 1.625	4.95	-7.826 \pm 1.658	1.819 \pm 0.778
PRF-fit source offset from KIC position	7.929 \pm 1.612	4.92	-7.604 \pm 1.443	2.249 \pm 0.806
photometric centroid source offset	8.30 \pm 0.65	12.77	-8.20 \pm 0.65	-1.32 \pm 0.50

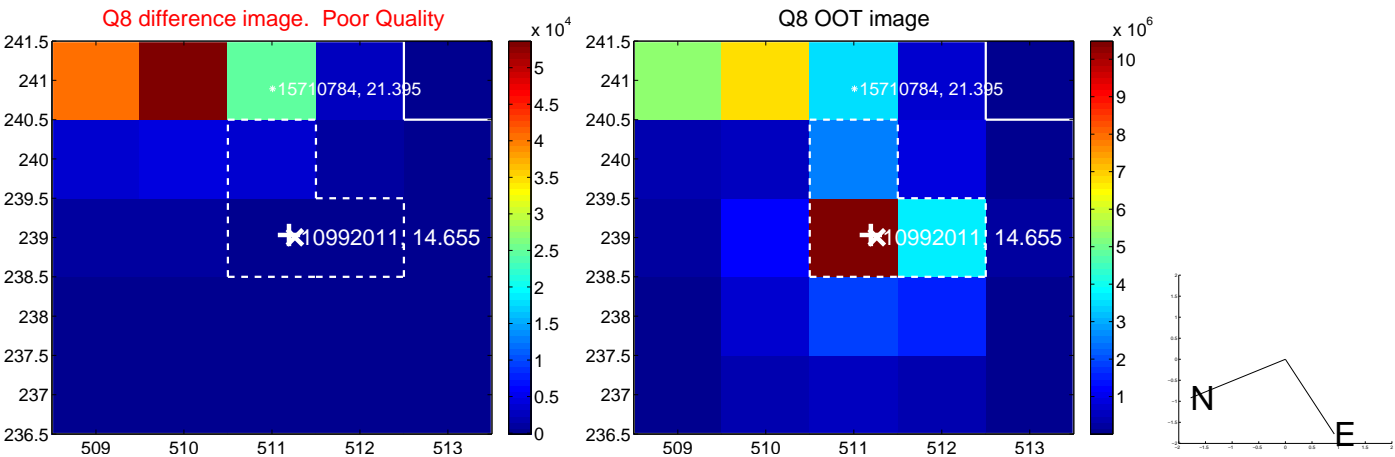
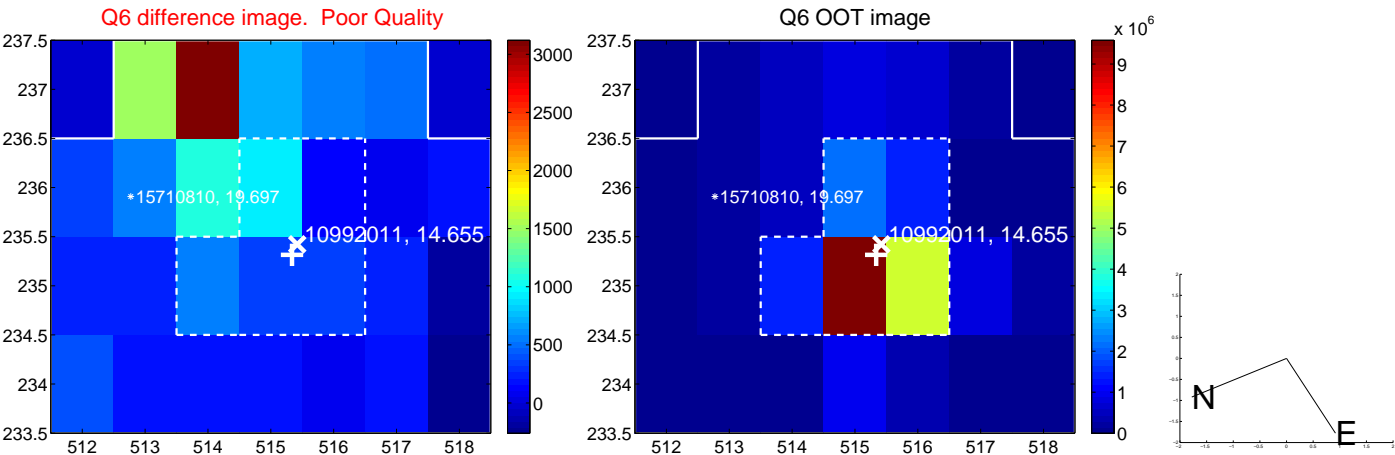
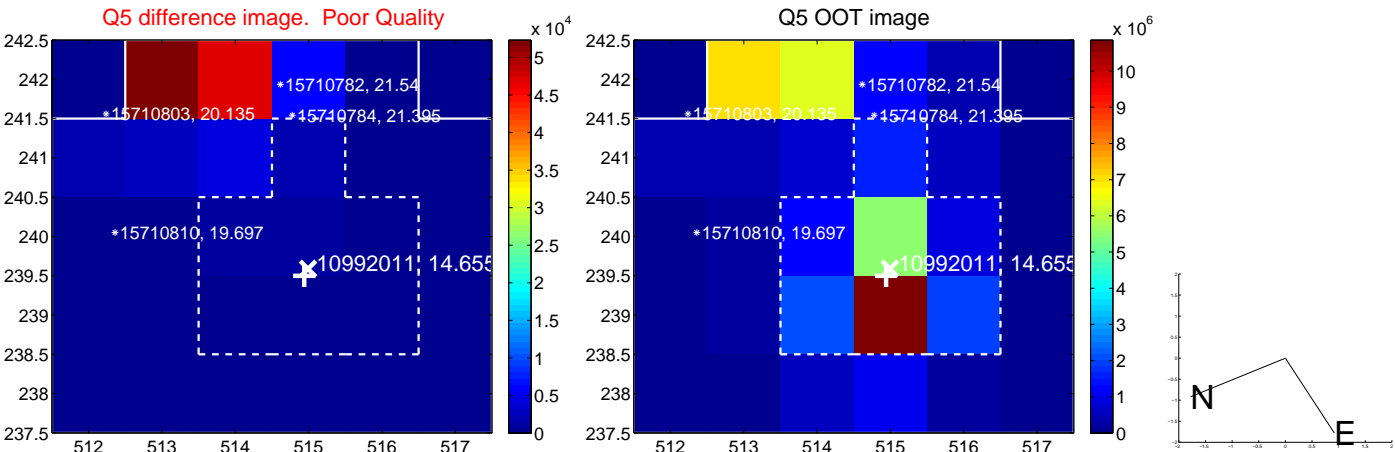


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

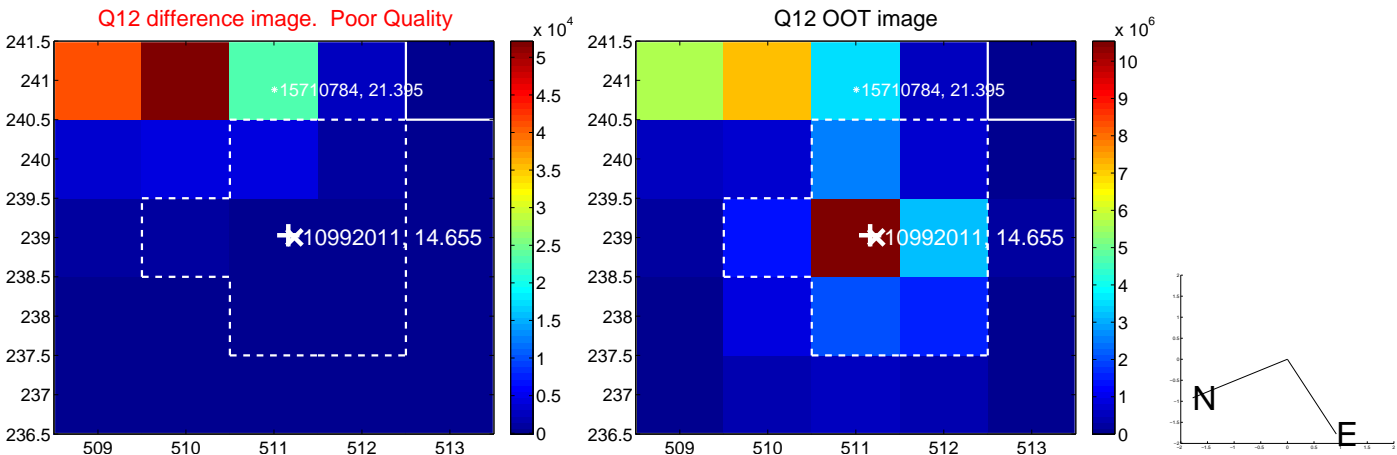
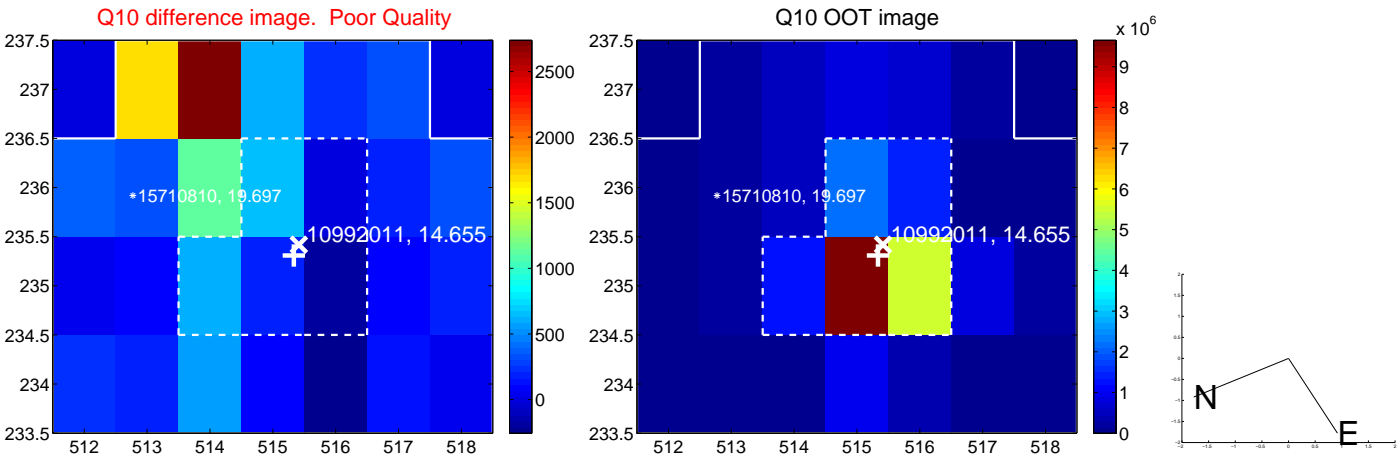
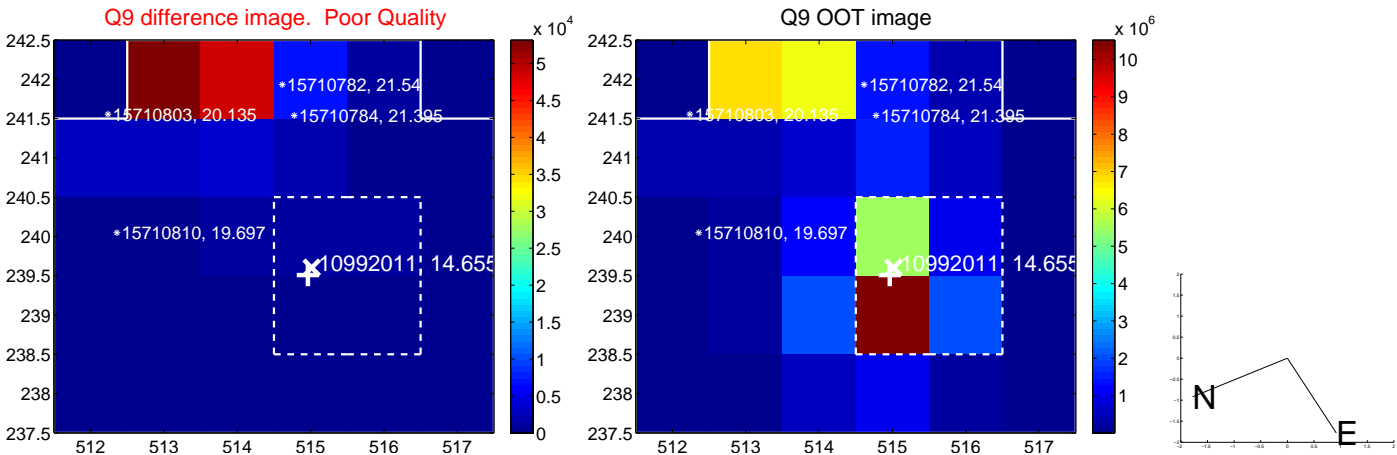
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



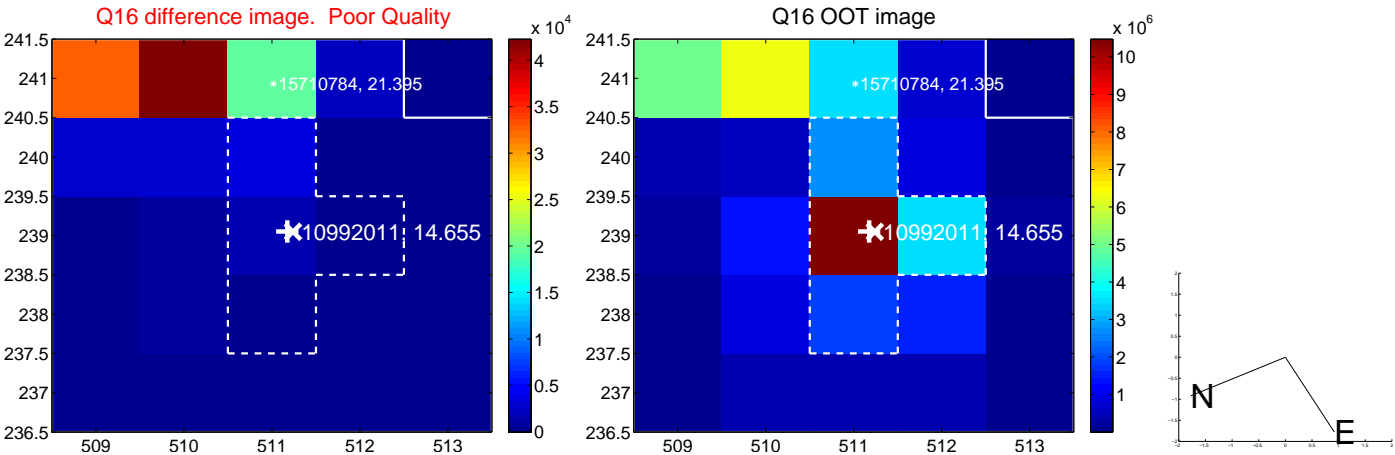
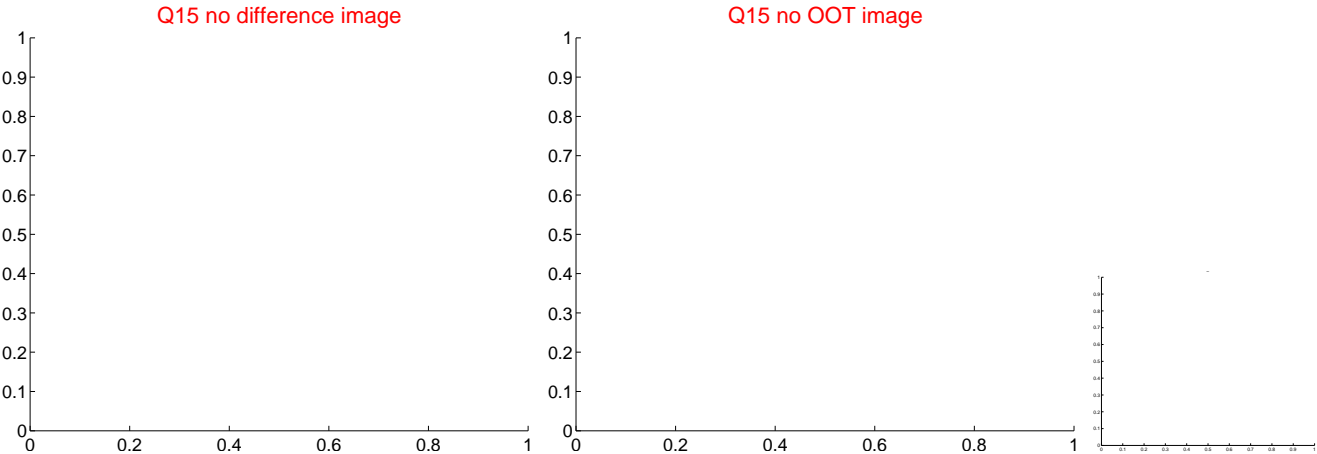
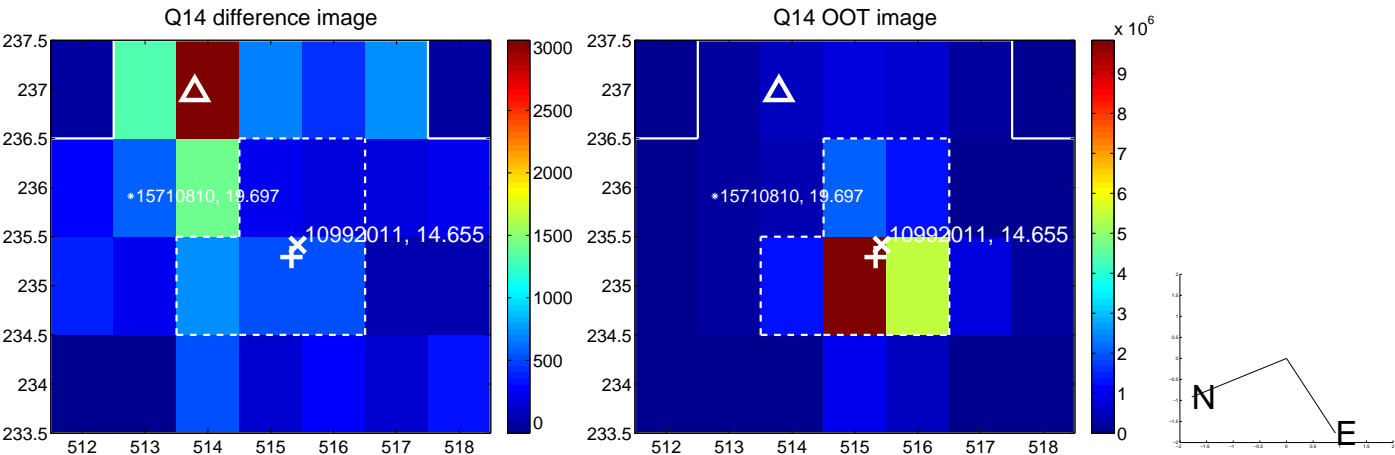
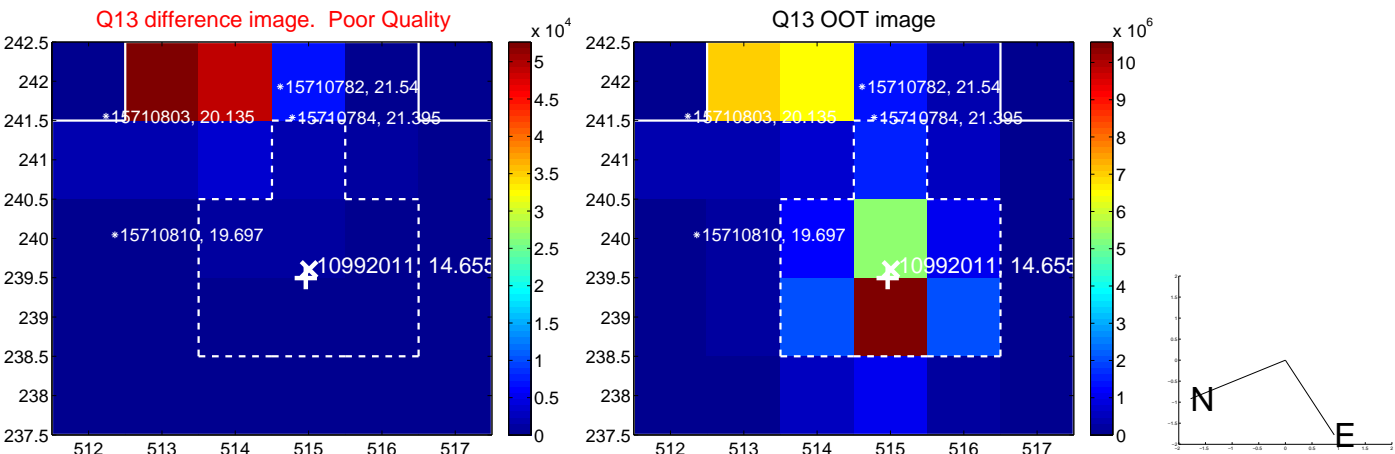
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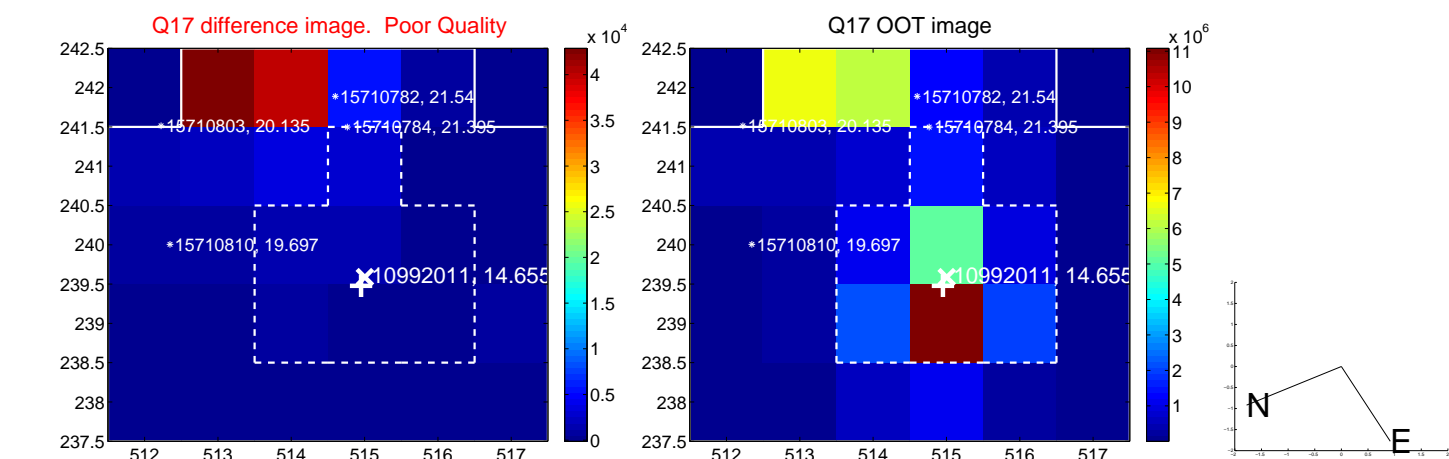
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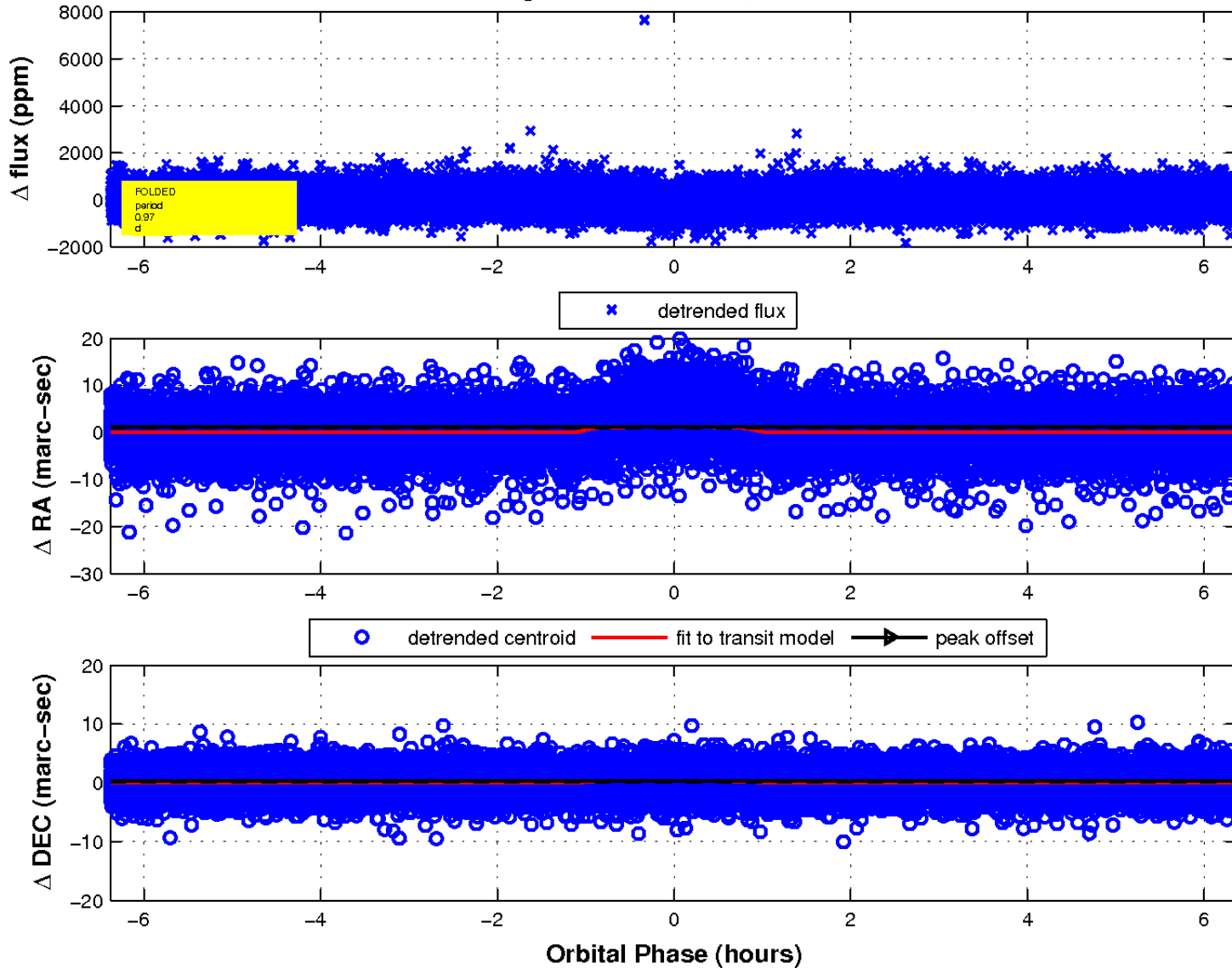
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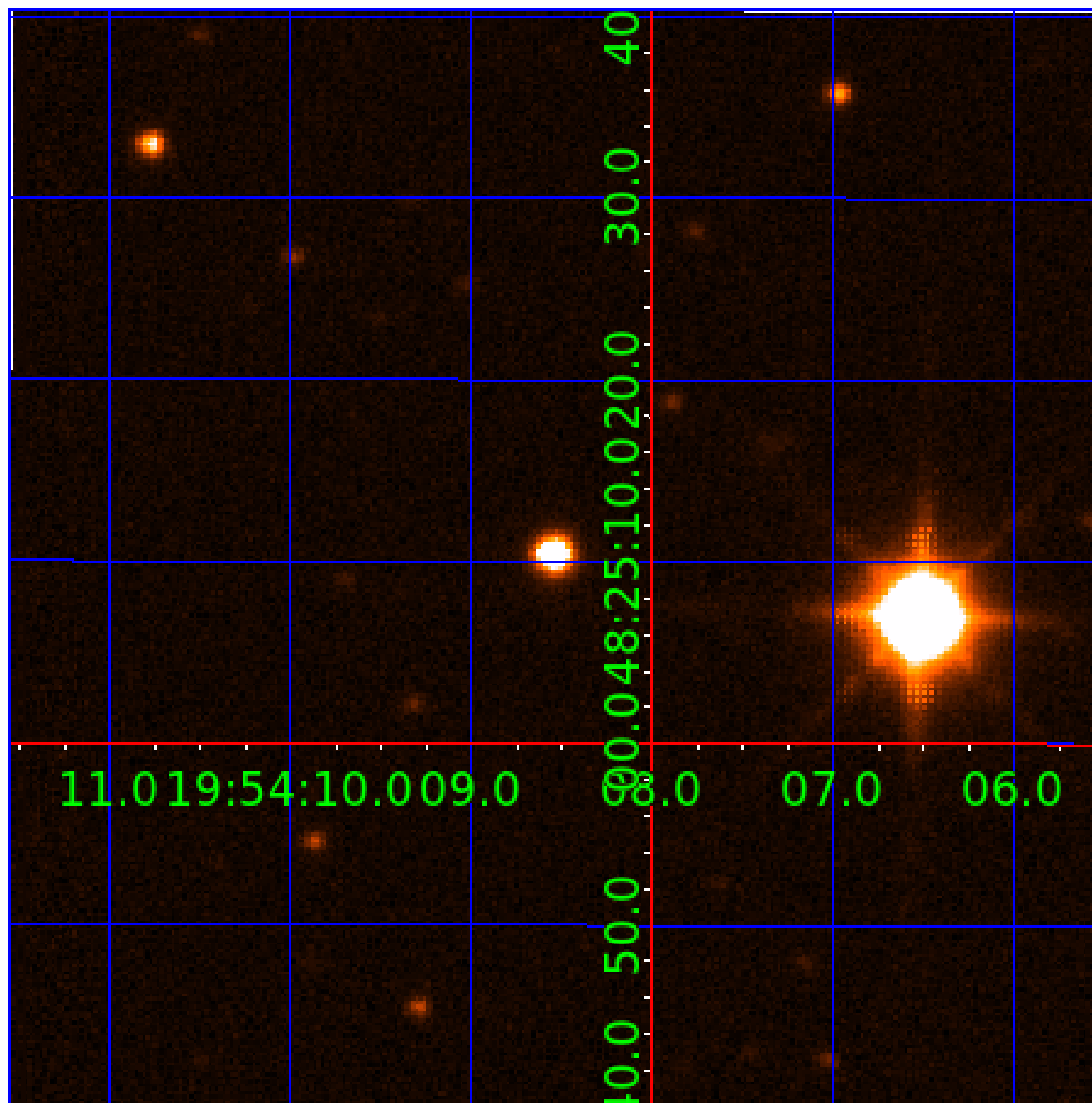


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010992011

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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010992011-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 010992011-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
010992011-02	10992011	010991989-sec	10991989	1:1	20.3	-4	1	10.28	14.65	56.82	Direct-PRF	0	1.03	0.41

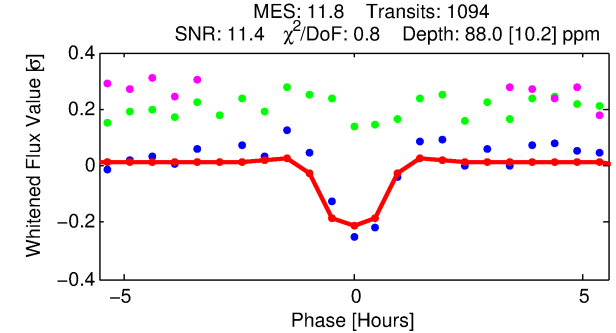
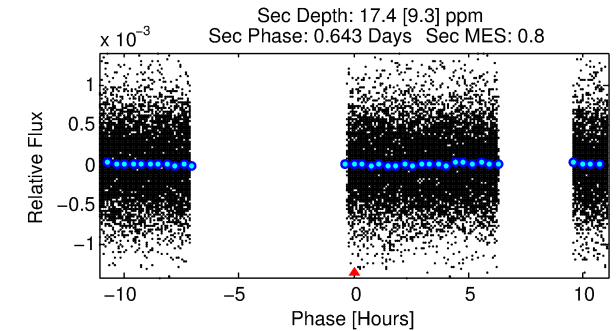
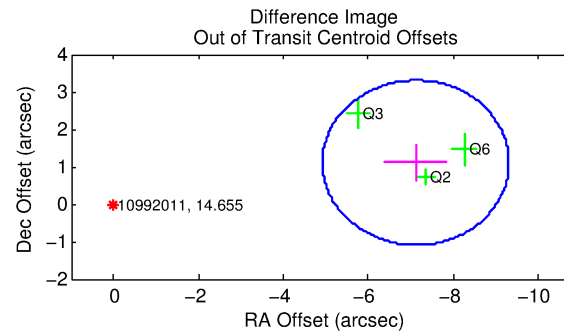
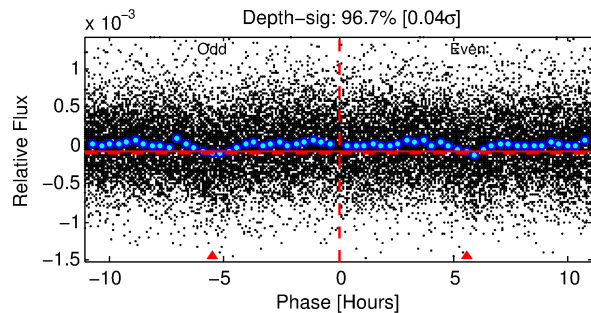
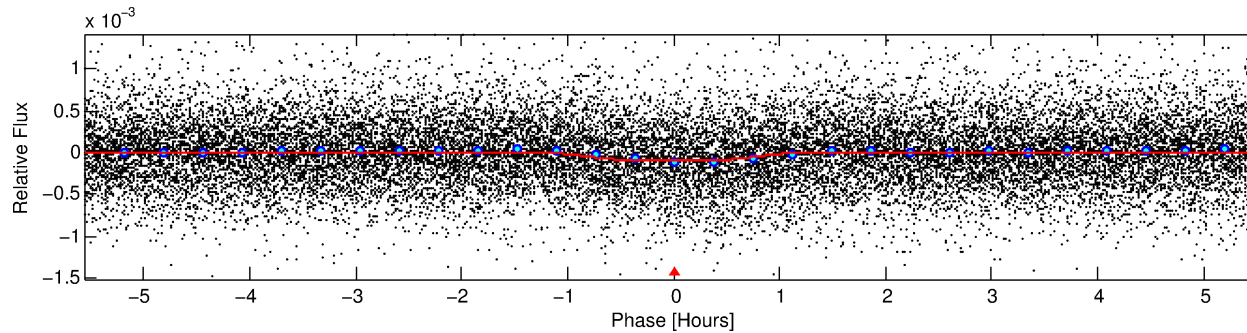
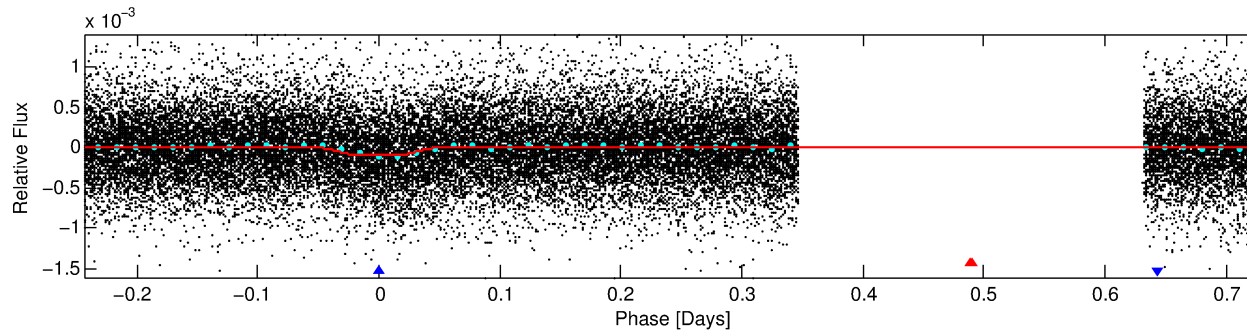
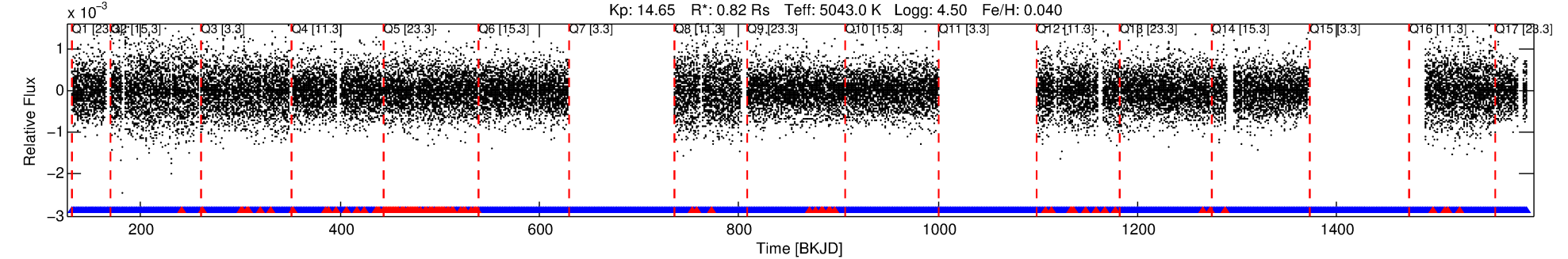
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 10992011 Candidate: 2 of 2 Period: 0.974 d

KOI: K04025 Corr: No Ephemeris Match

Kp: 14.65 R*: 0.82 Rs Teff: 5043.0 K Logg: 4.50 Fe/H: 0.040



DV Fit Results:

Period = 0.97447 [0.00001] d
Epoch = 131.8847 [0.0022] BKJD
Rp/R* = 0.0105 [0.0078]
a/R* = 2.07 [4.80]
b = 0.90 [0.66]
Seff = 1242.08 [264.44]
Teq = 1514 [81] K
Rp = 0.94 [0.71] Re
a = 0.0177 [0.0019] AU
Ag = 3.41 [5.46] [0.44σ]
Teffp = 3182 [1269] K [1.31σ]

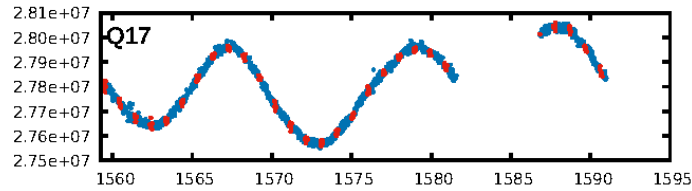
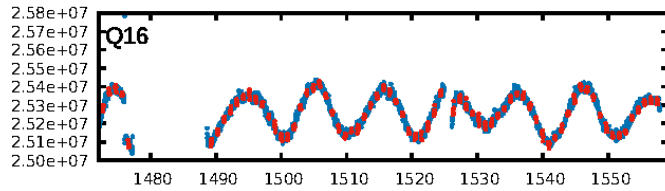
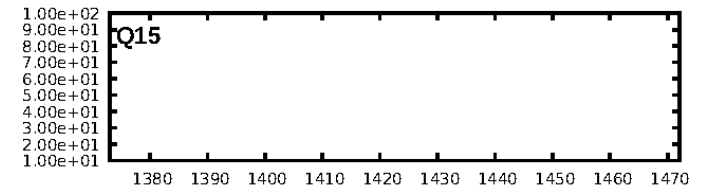
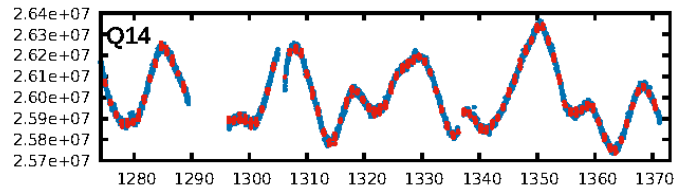
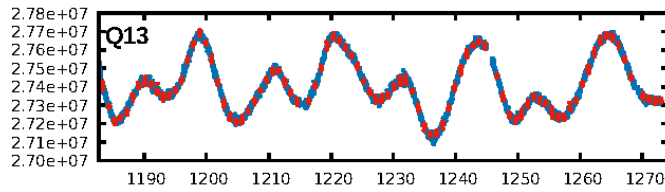
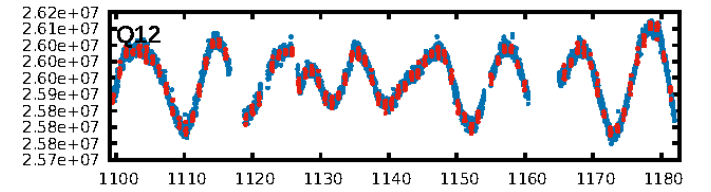
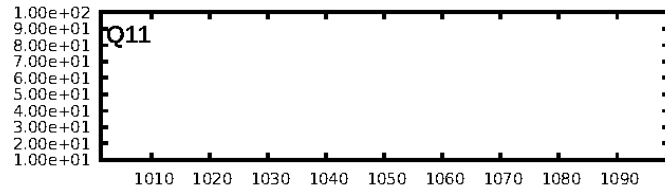
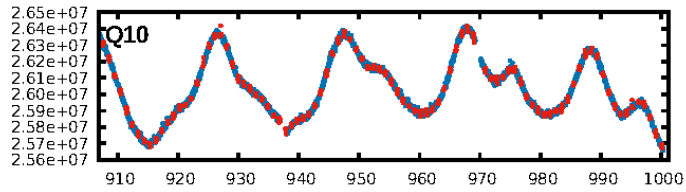
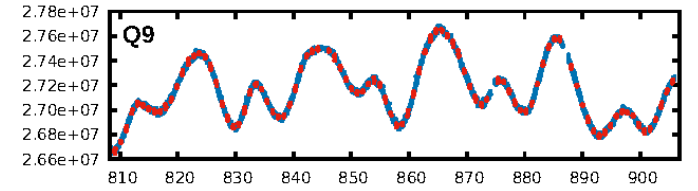
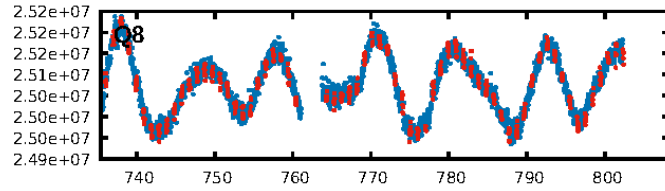
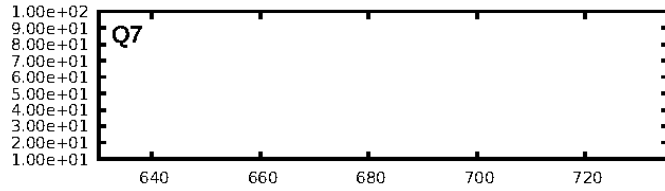
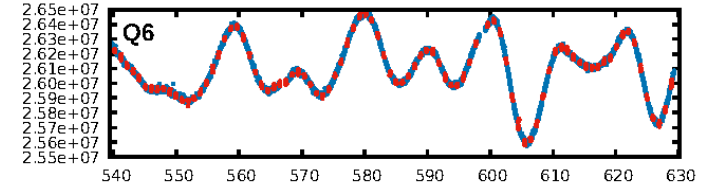
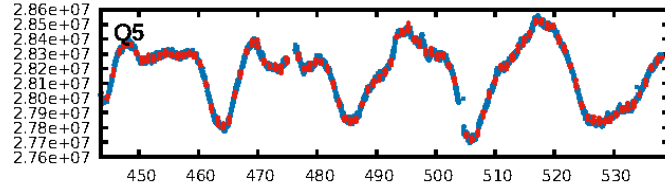
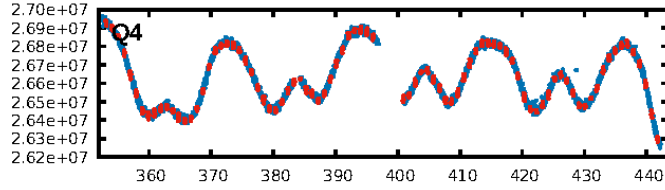
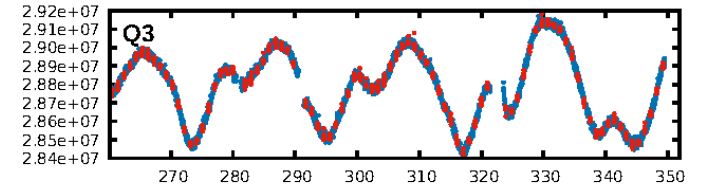
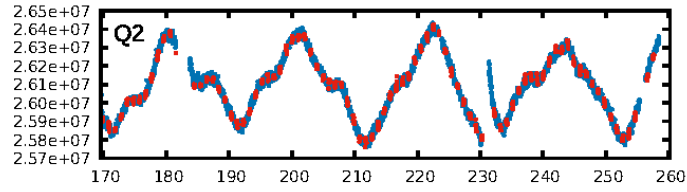
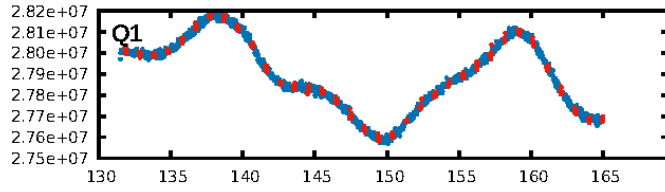
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.53e-31
RollingBand-fgt: 0.90 [924/1032]
GhostDiagnostic-chr: 0.4721
Centroid-sig: 0.1%
Centroid-so: 3.705 arcsec [2.98σ]
OotOffset-rm: 7.207 arcsec [9.82σ]
KicOffset-rm: 7.082 arcsec [10.27σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [14/14]

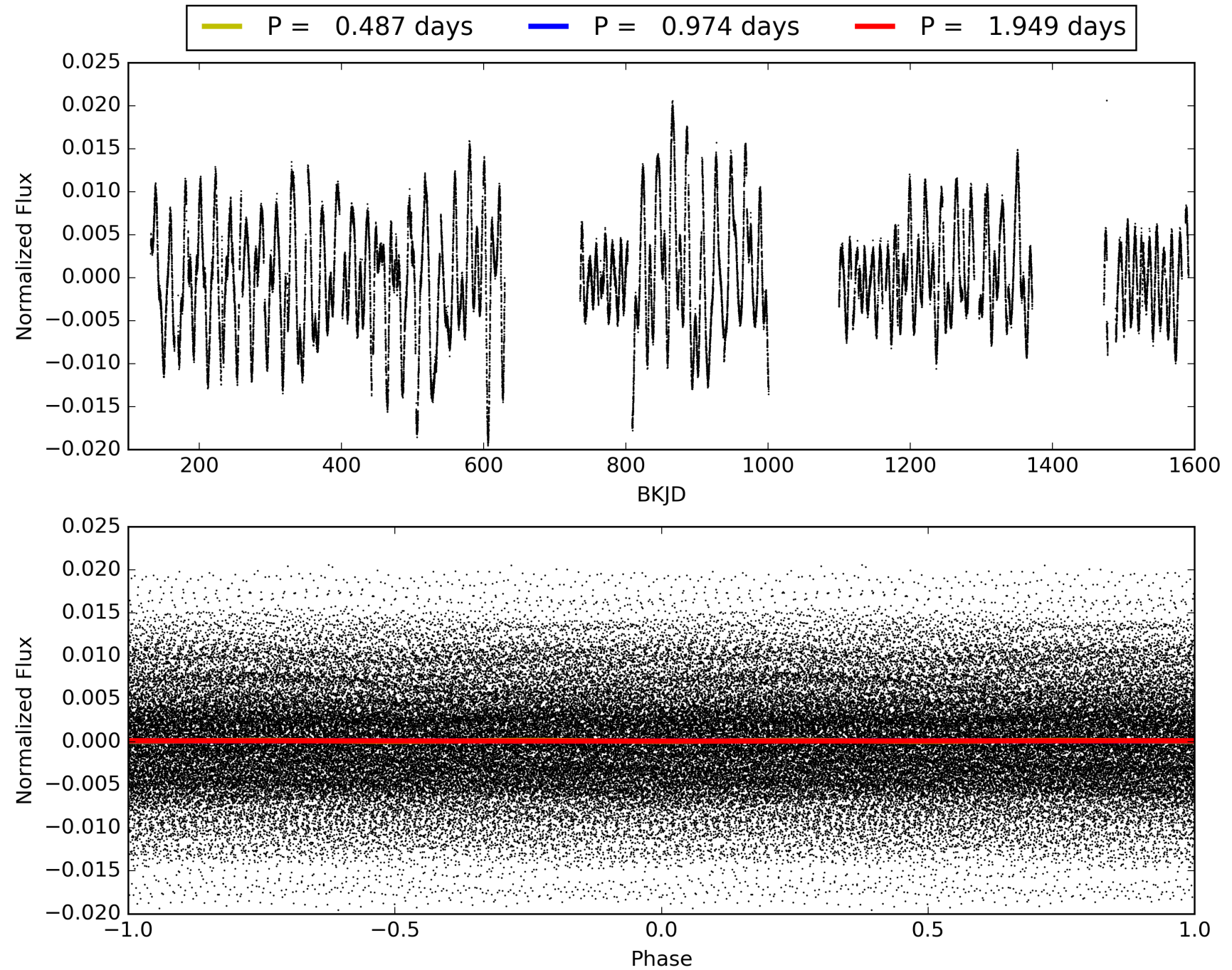
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:18:43 Z

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

TCE 010992011-02, PDC Light Curves

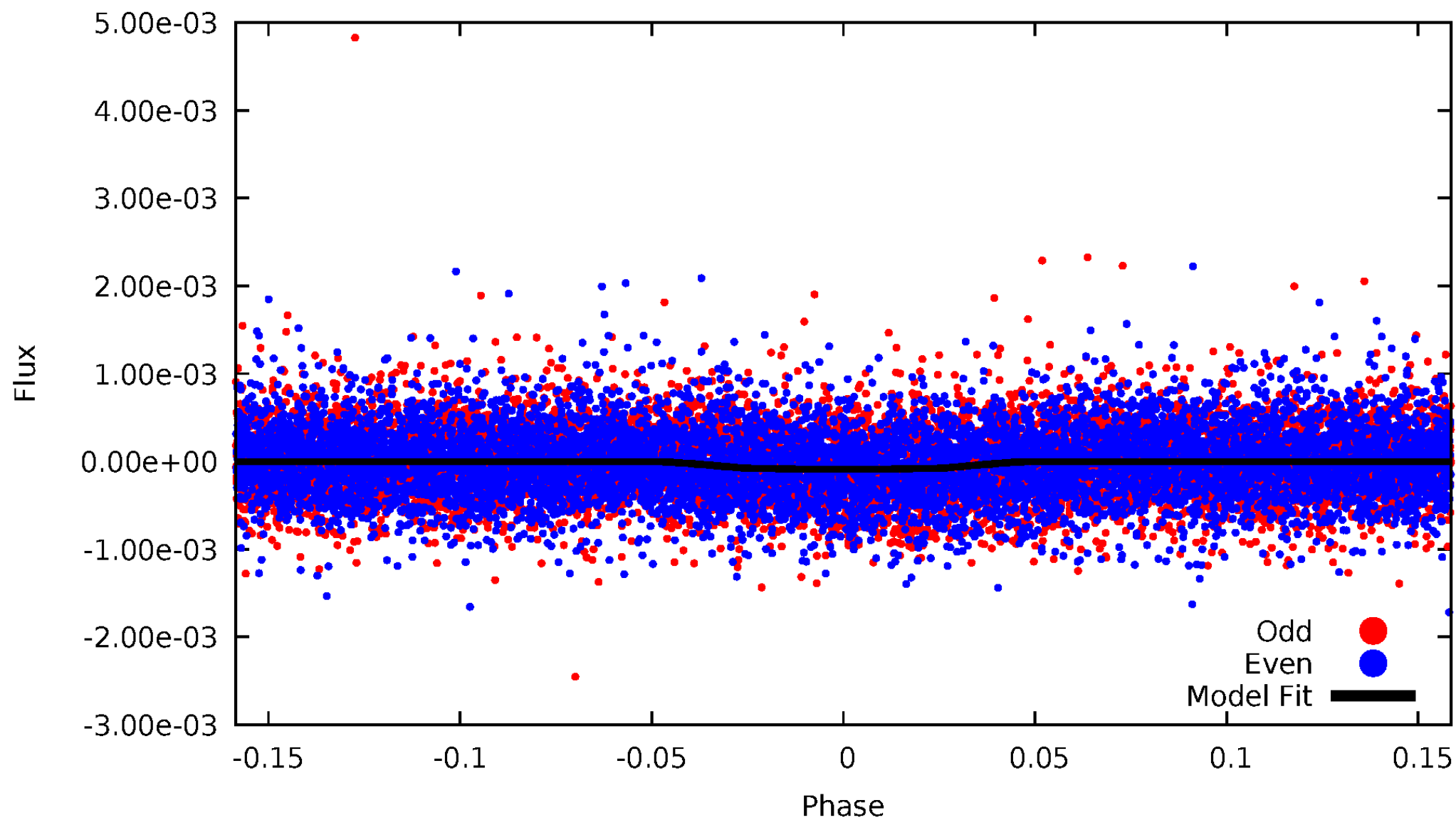


TCE 010992011-02



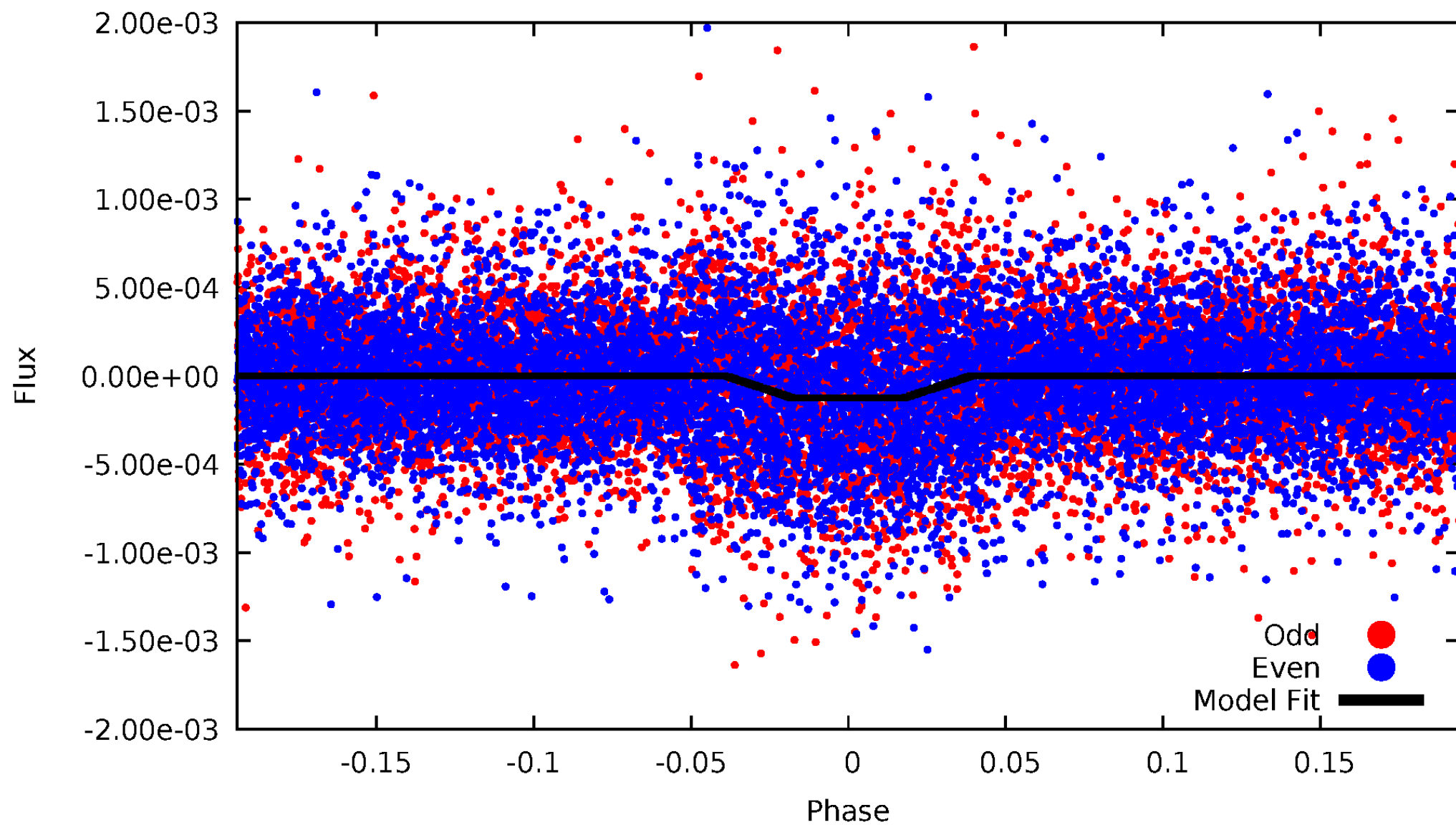
DV Odd/Even

TCE 010992011-02



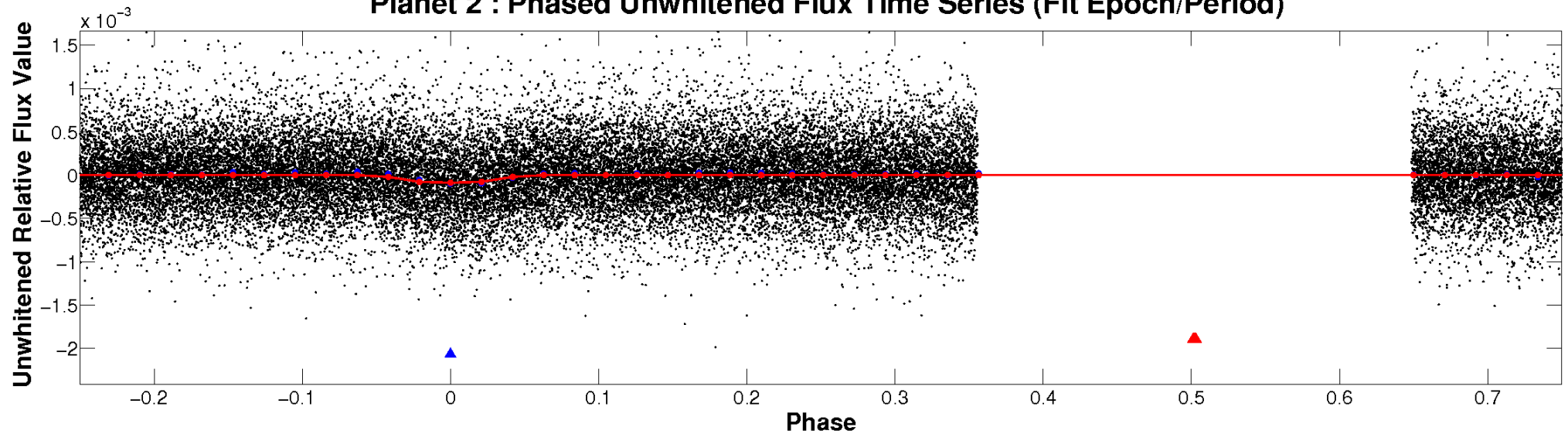
ALT Odd/Even

TCE 010992011-02

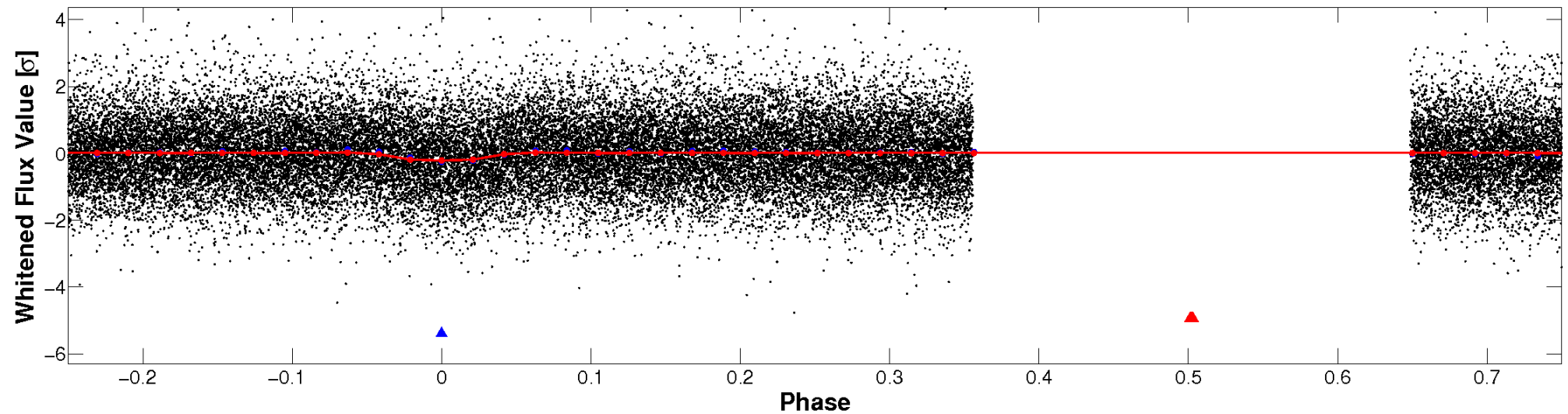


Non-Whitened Vs. Whitened Light Curve

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

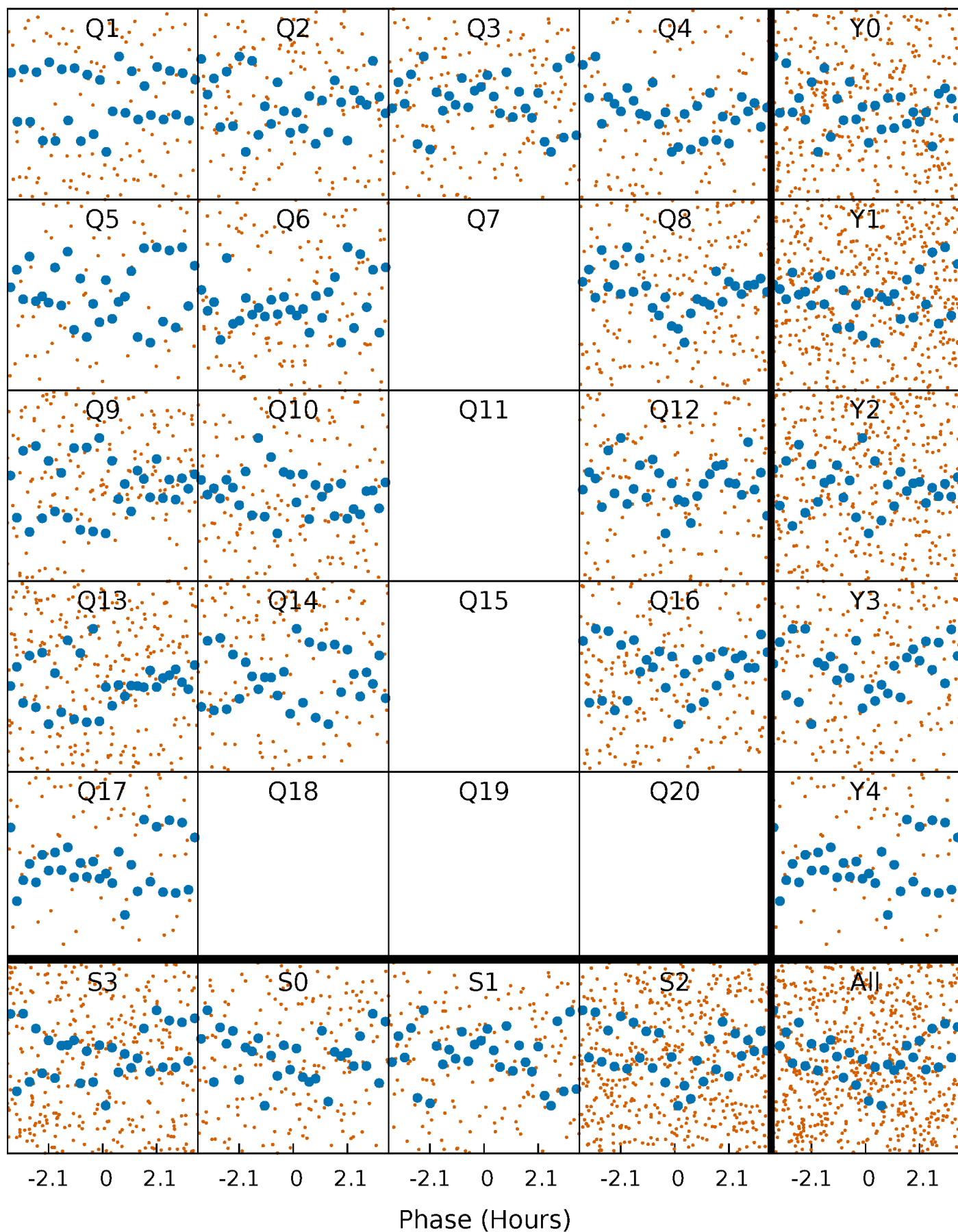


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



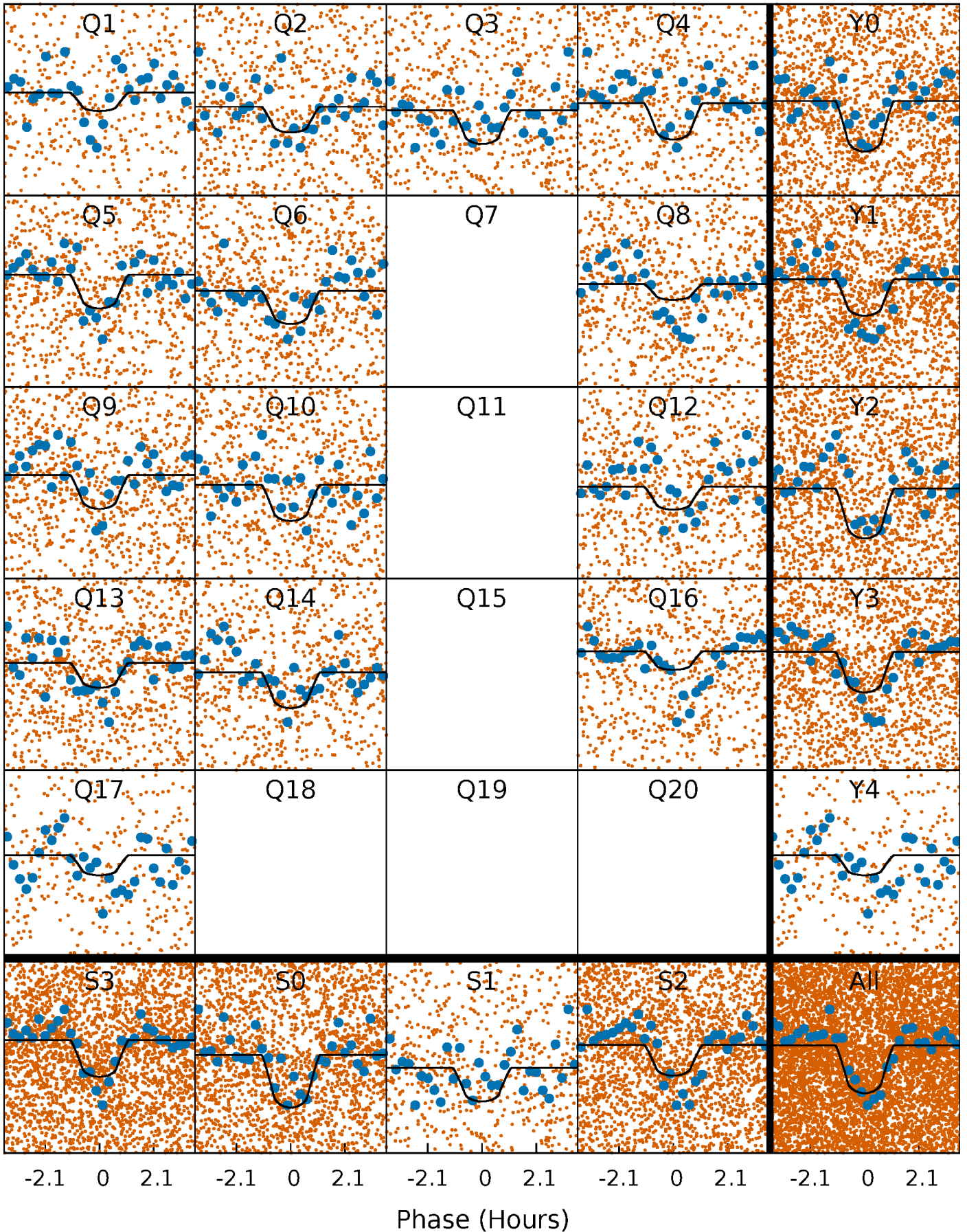
PDC Quarter-Phased Transit Curves

TCE 010992011-02 P= 0.974467 Days $T_0=131.884679$ (BKJD)



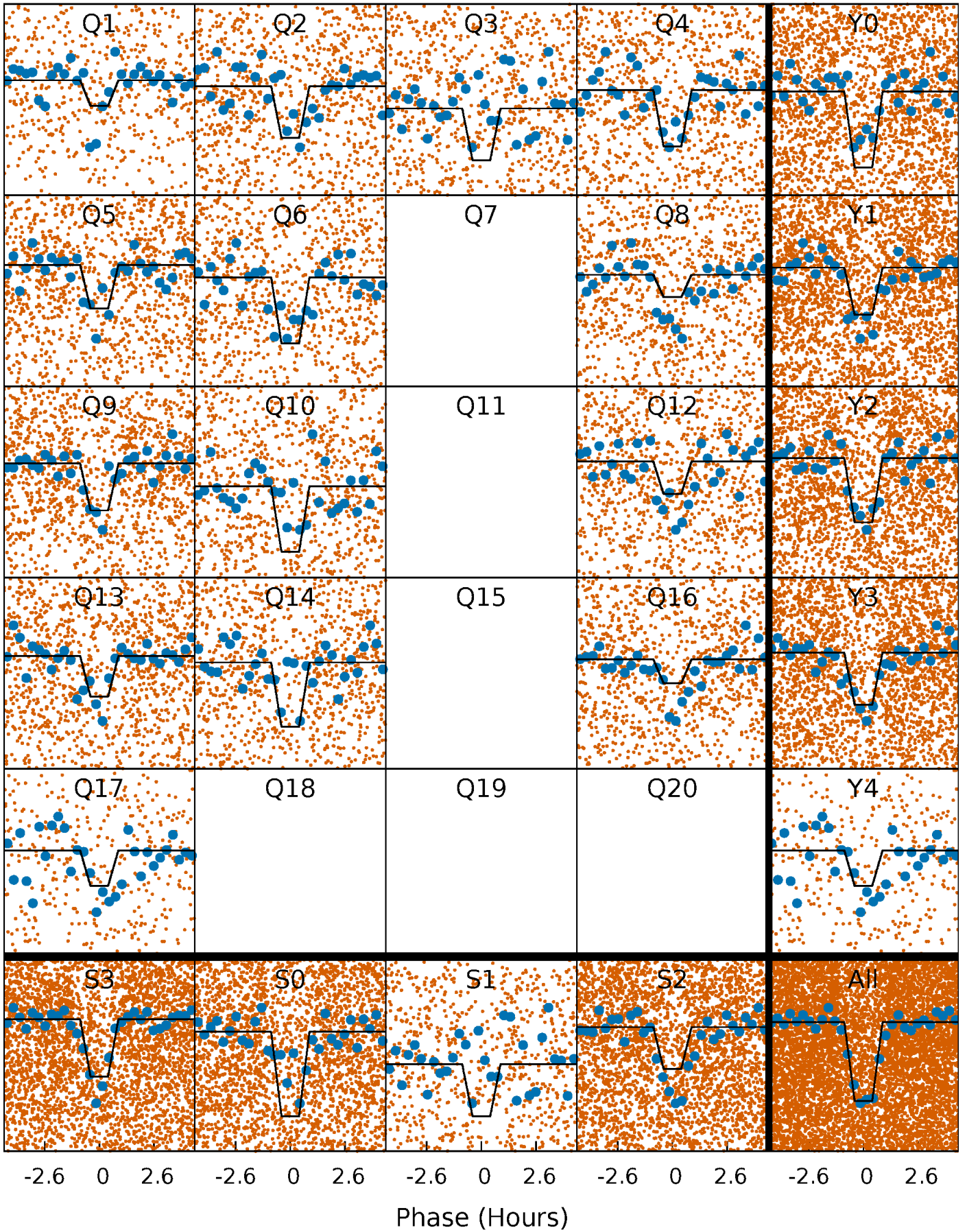
DV Quarter-Phased Transit Curves

TCE 010992011-02 P= 0.974467 Days $T_0=131.884679$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

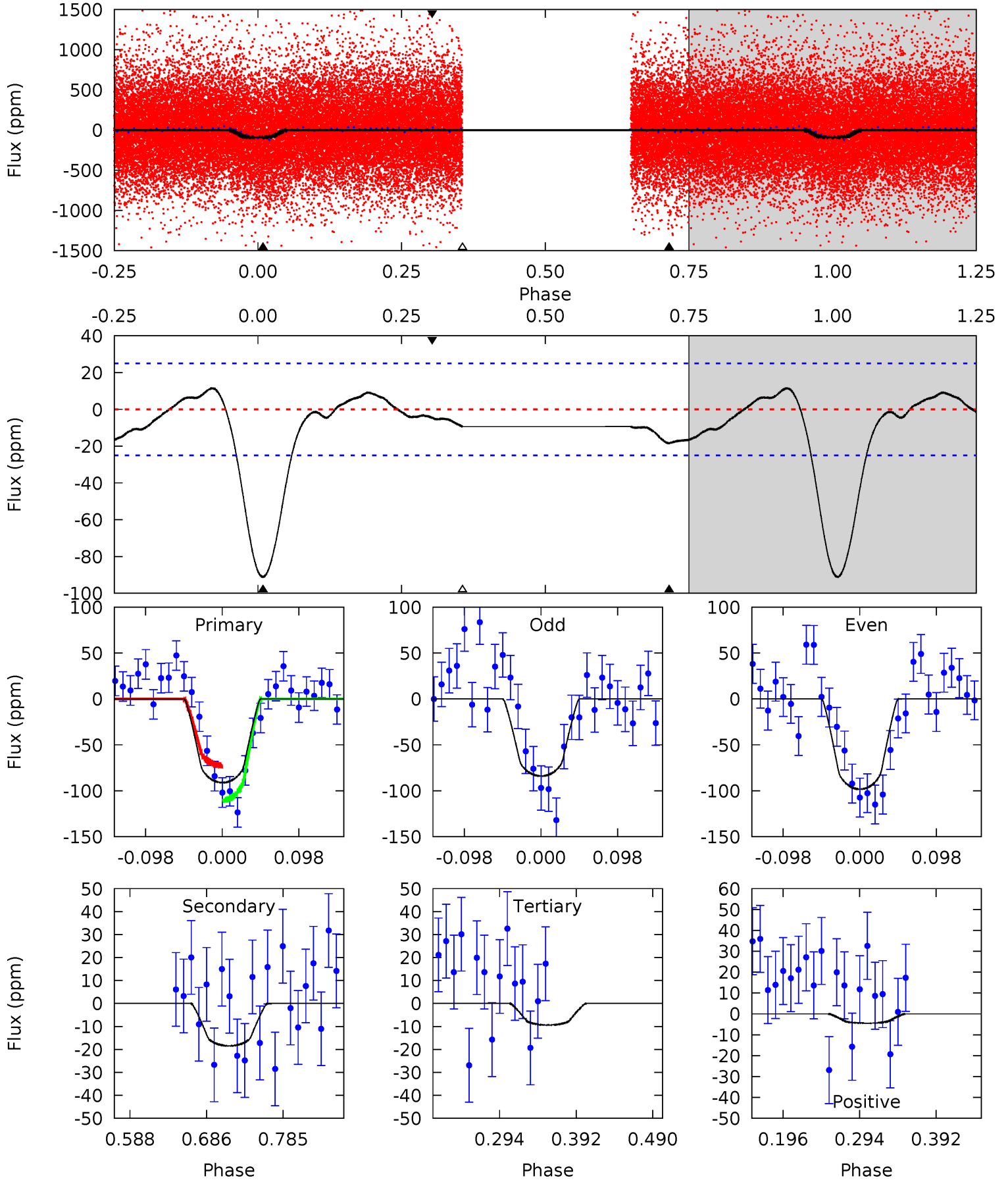
TCE 010992011-02 P= 0.974478 Days $T_0=131.883208$ (BKJD)



DV Model-Shift Uniqueness Test

010992011-02, P = 0.974467 Days, E = 130.910212 Days

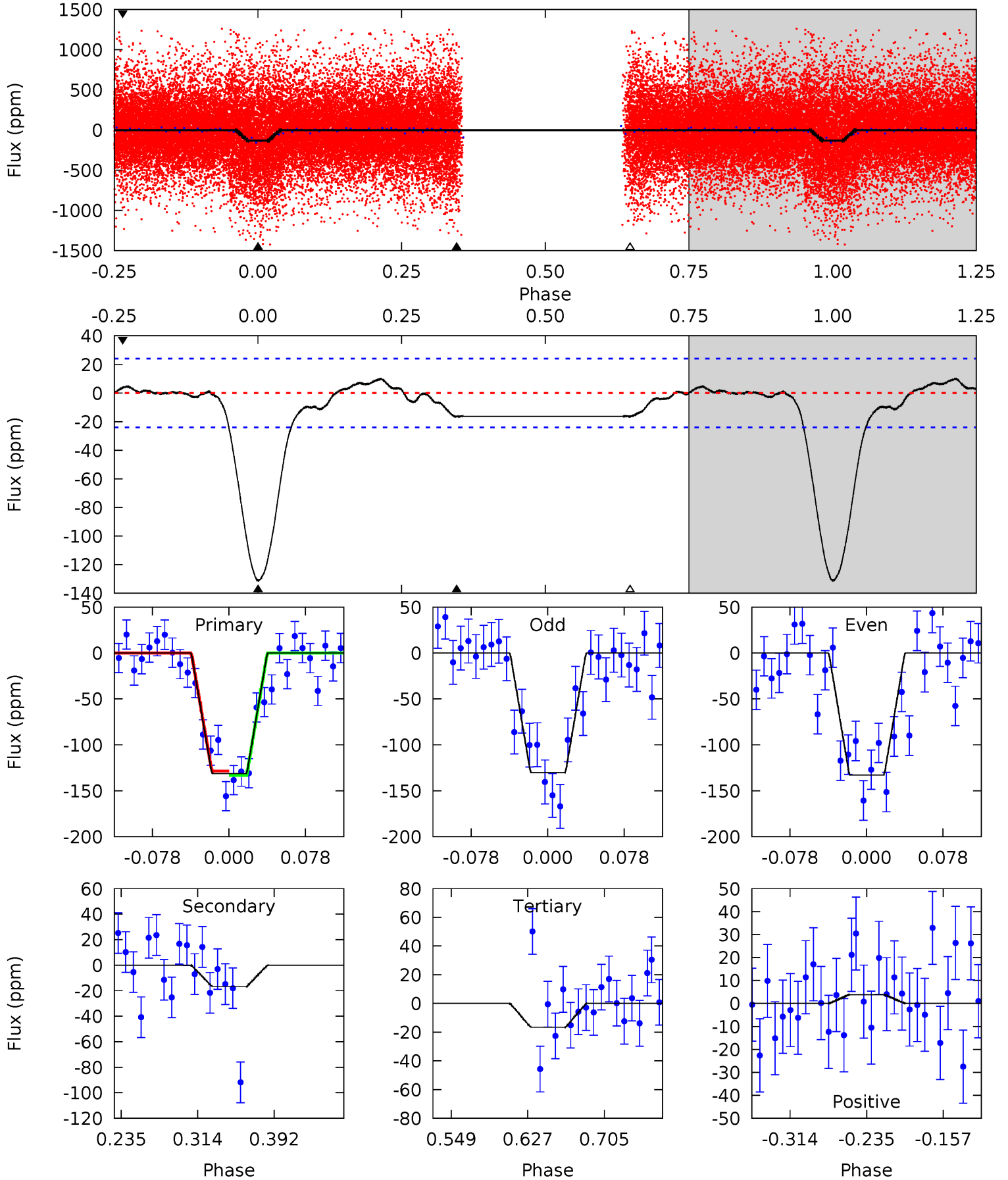
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	3.37	1.72	-0.82	4.57	1.65	0.96	14.9	17.5	1.65	4.19	1.32	0.98	0.11	3.50



Alt Model-Shift Uniqueness Test

010992011-02, P = 0.974478 Days, E = 130.908730 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	3.21	3.18	0.74	4.62	1.76	1.14	22.0	24.4	0.03	2.47	0.24	0.92	0.07	0.45



Stellar Parameters For KIC 010992011

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+168}_{-152}	$4.502^{+0.096}_{-0.072}$	$0.040^{+0.250}_{-0.300}$	$0.819^{+0.077}_{-0.094}$	$0.776^{+0.090}_{-0.055}$	$1.992^{+0.738}_{-0.452}$
	+3%/-3%	+2%/-2%	+625%/-750%	+9%/-11%	+12%/-7%	+37%/-23%
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 010992011-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-18 ± 5	$0.96^{+0.69}_{-0.57}$	2111^{+85}_{-88}	3522^{+1429}_{-672}	$3.382^{+16.337}_{-2.333}$
Alt.	-17 ± 5	$1.09^{+0.63}_{-0.58}$	2121^{+88}_{-94}	3320^{+1131}_{-548}	$2.431^{+9.072}_{-1.561}$

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

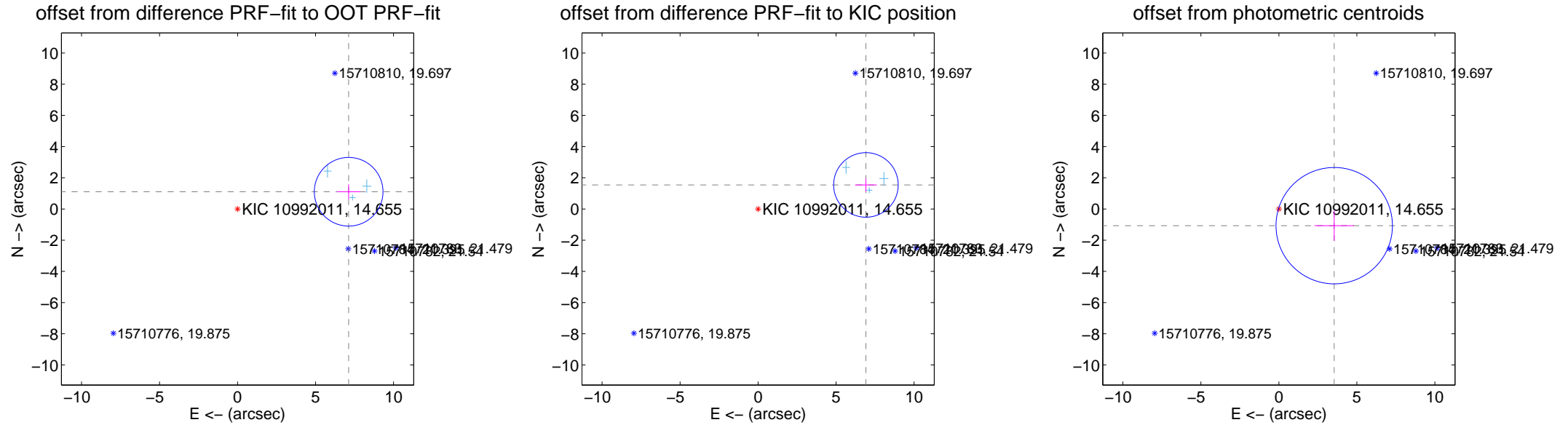
DV Centroid Data

Supplemental centroid analysis for 010992011-02. Kepler magnitude: 14.65. Transit SNR 11.45

There are 3 quarters with good PRF difference image offsets

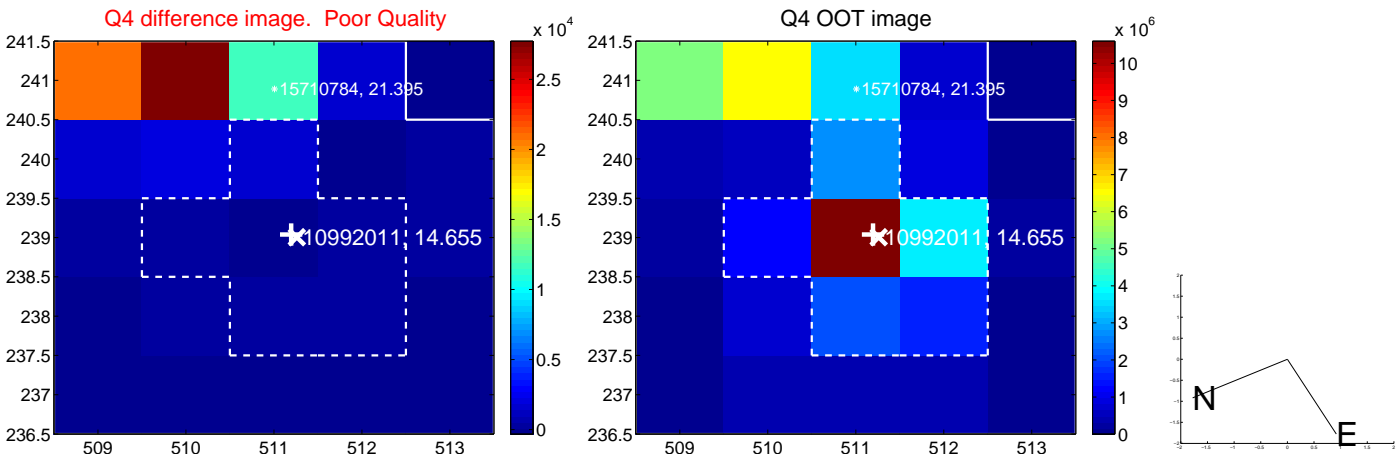
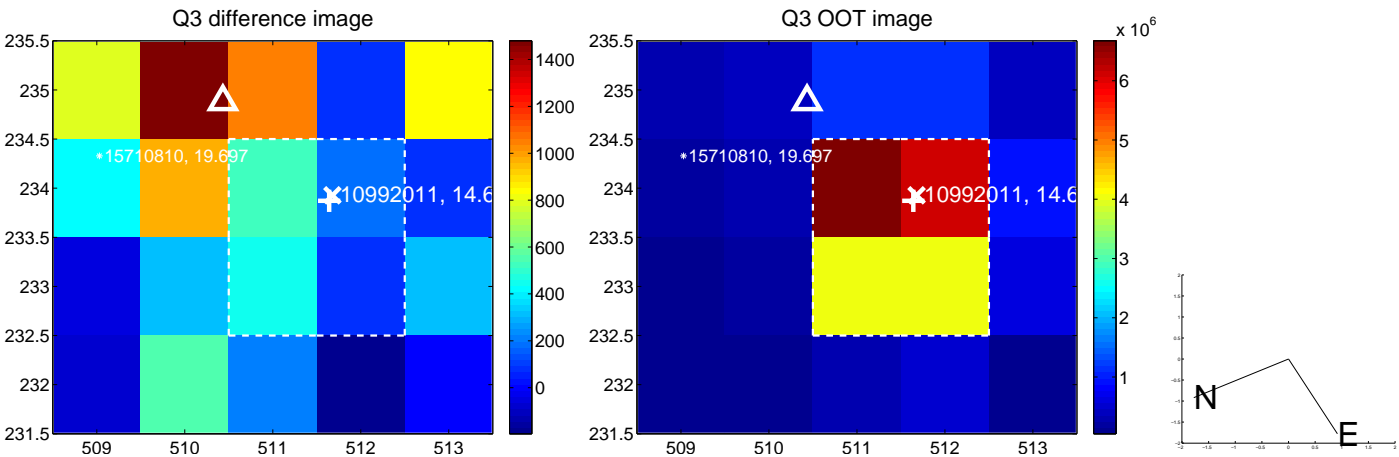
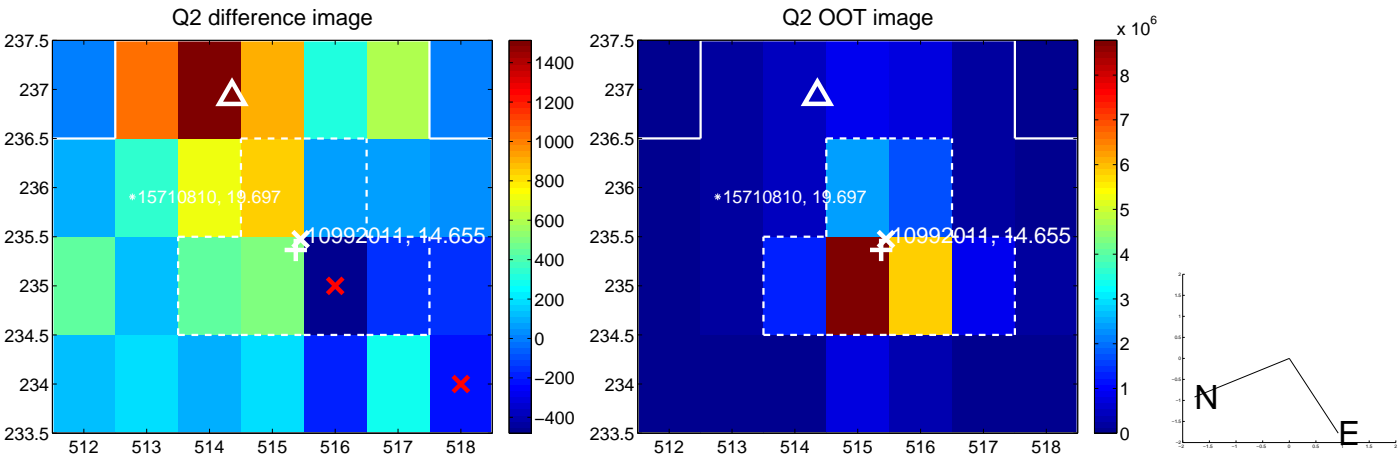
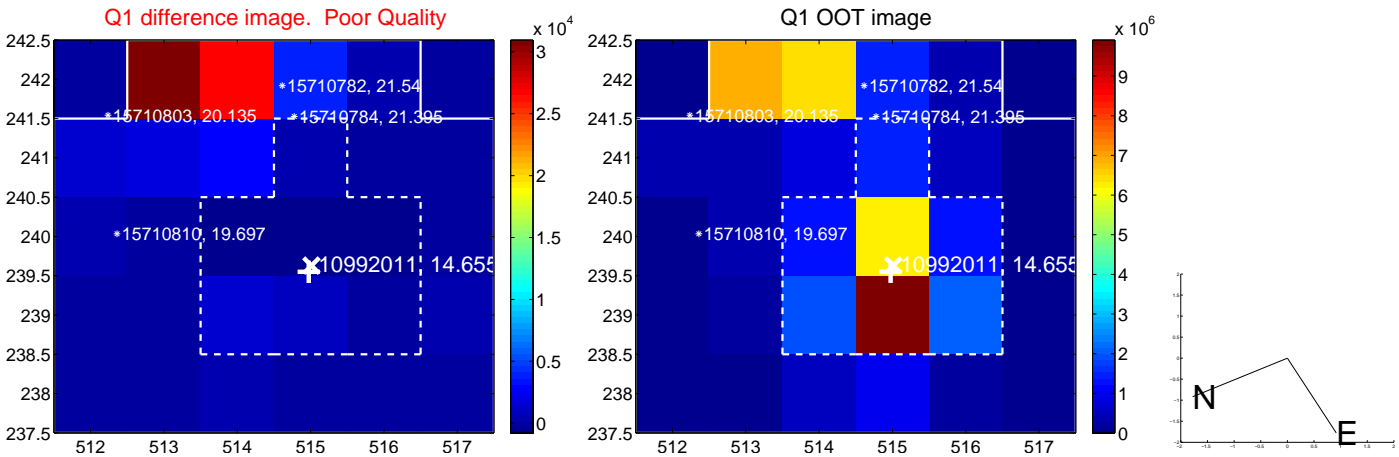
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.207 ± 0.734	9.82	-7.122 ± 0.739	1.104 ± 0.479
PRF-fit source offset from KIC position	7.082 ± 0.690	10.27	-6.912 ± 0.700	1.542 ± 0.427
photometric centroid source offset	3.70 ± 1.24	2.98	-3.55 ± 1.27	-1.07 ± 0.97

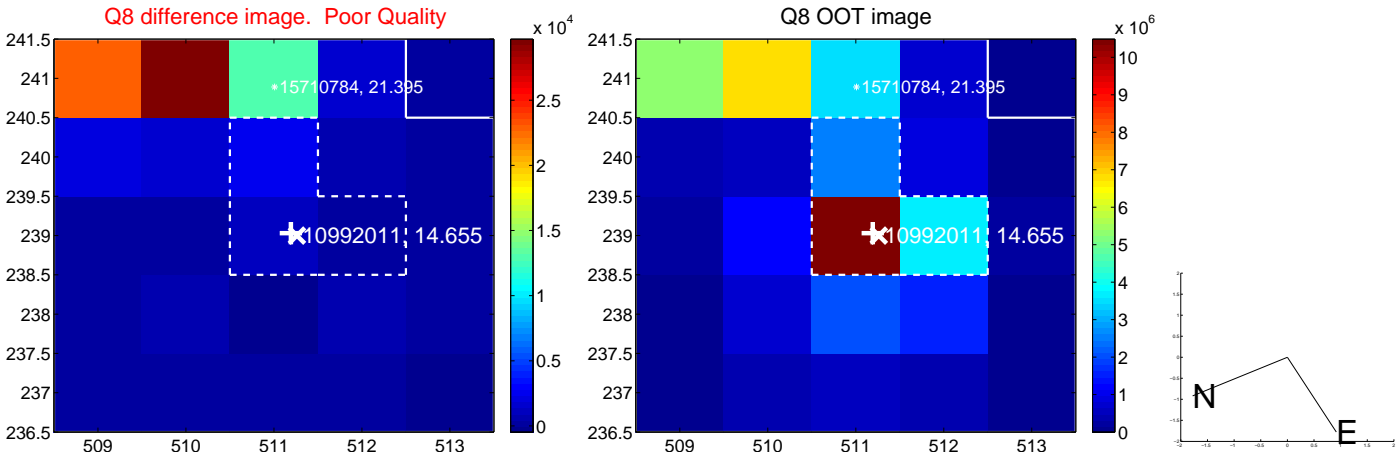
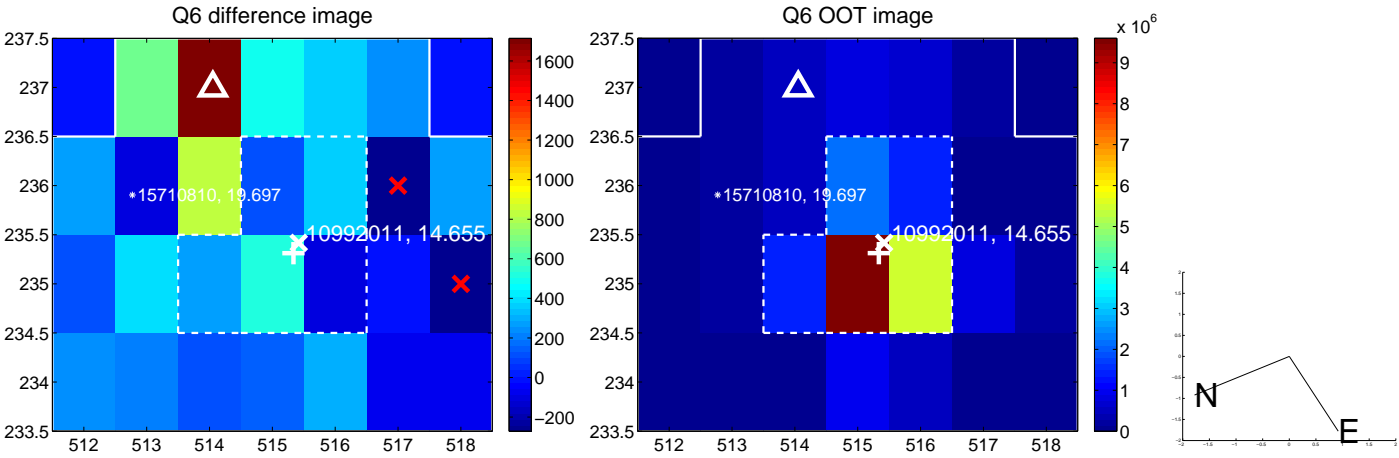
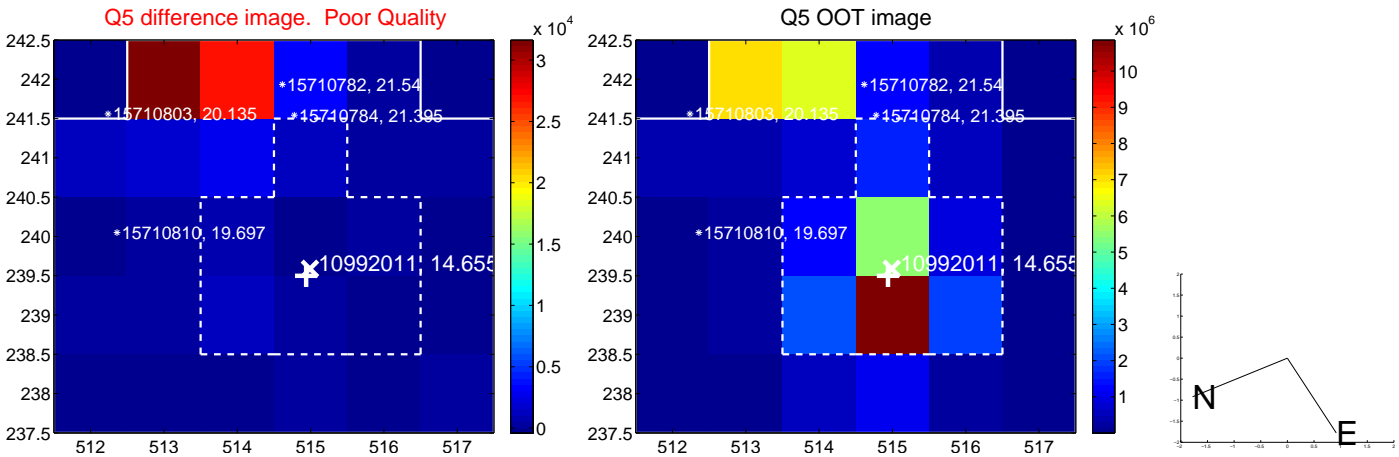


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

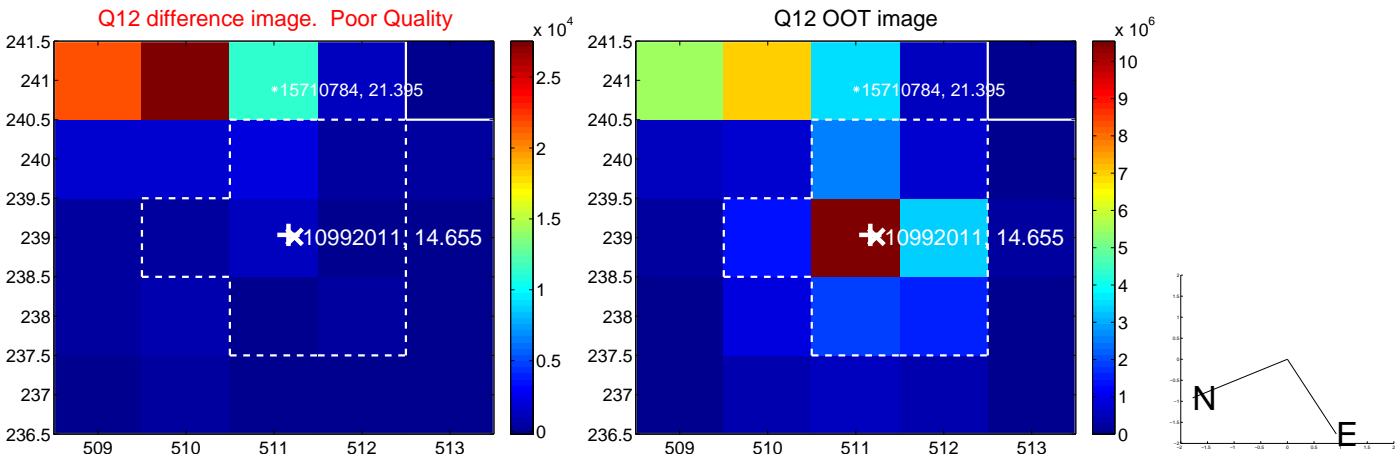
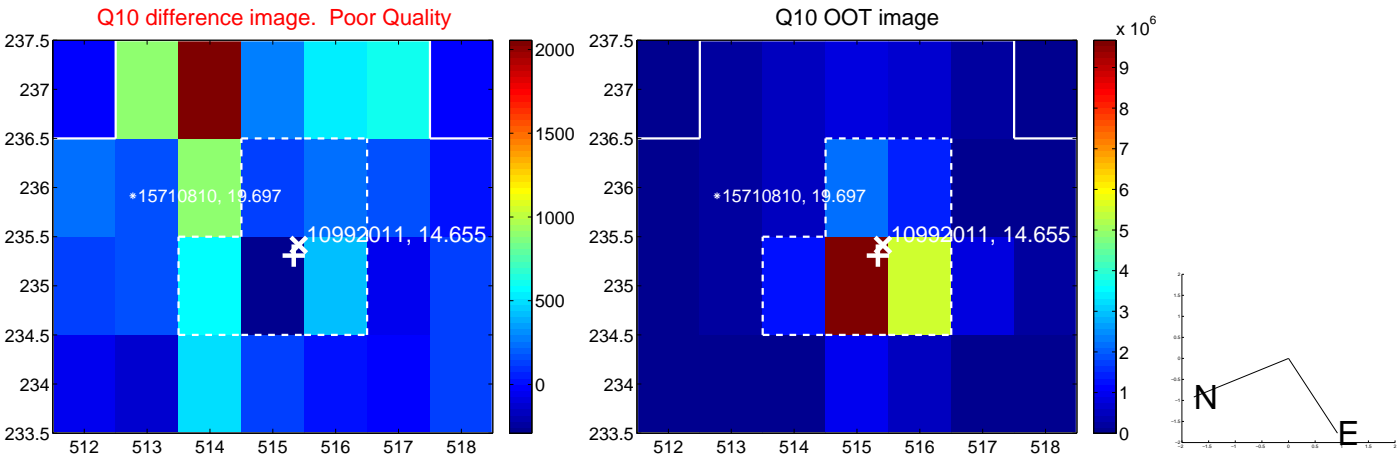
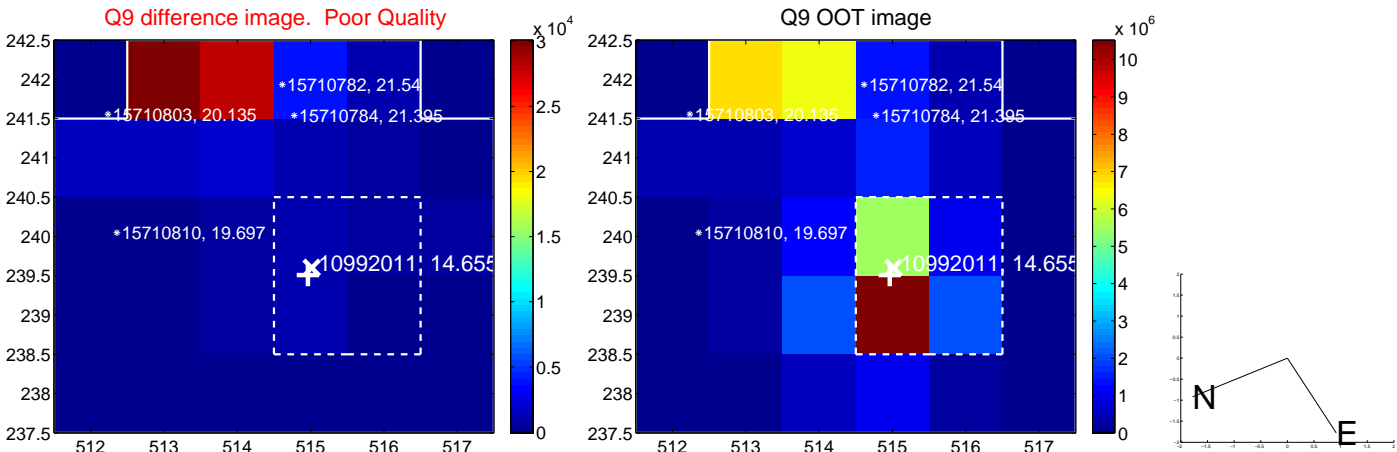
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



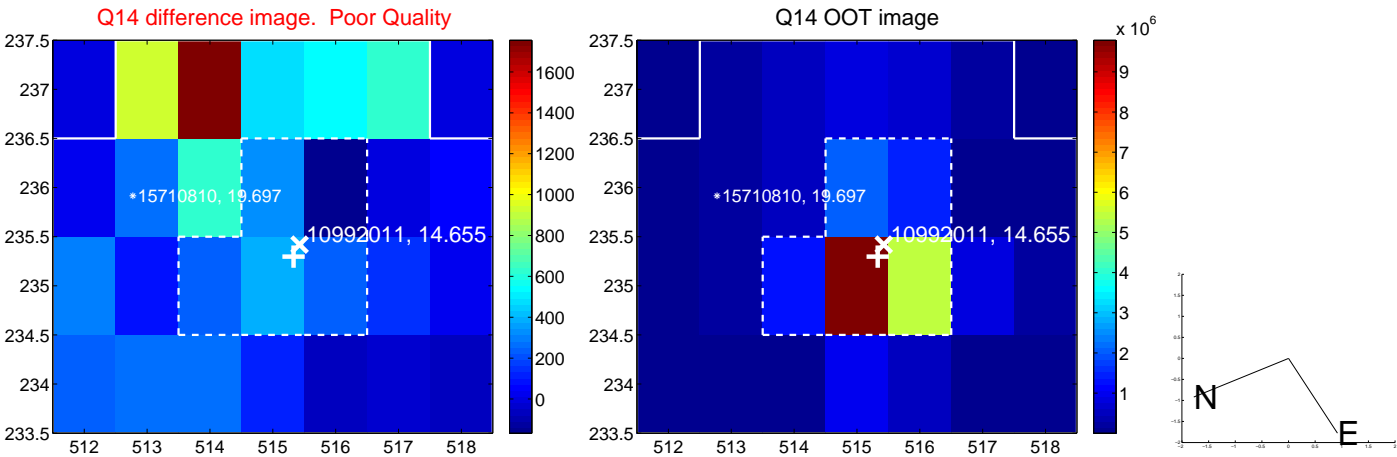
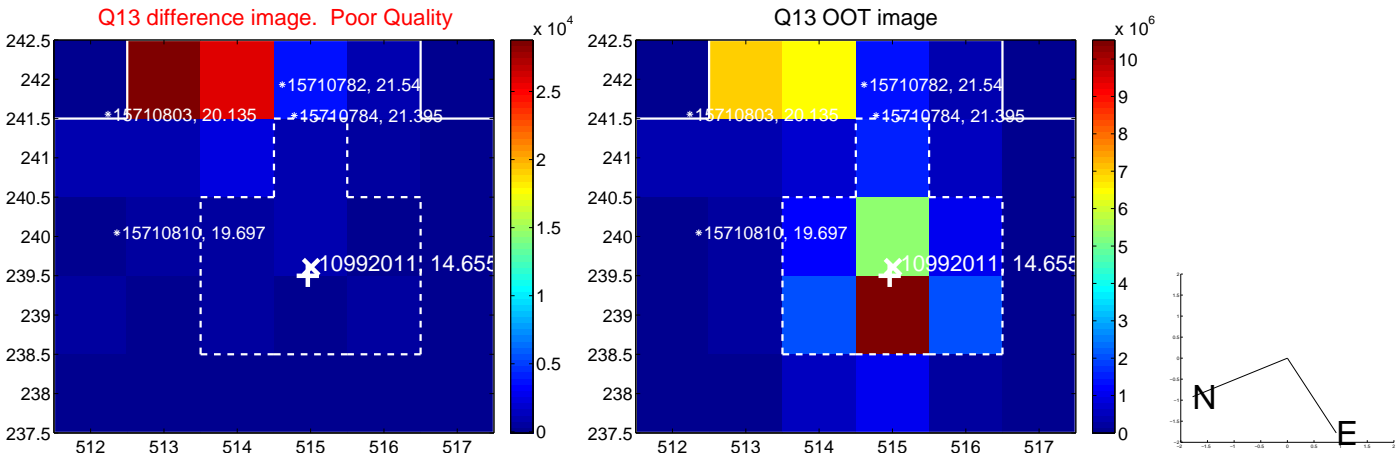
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



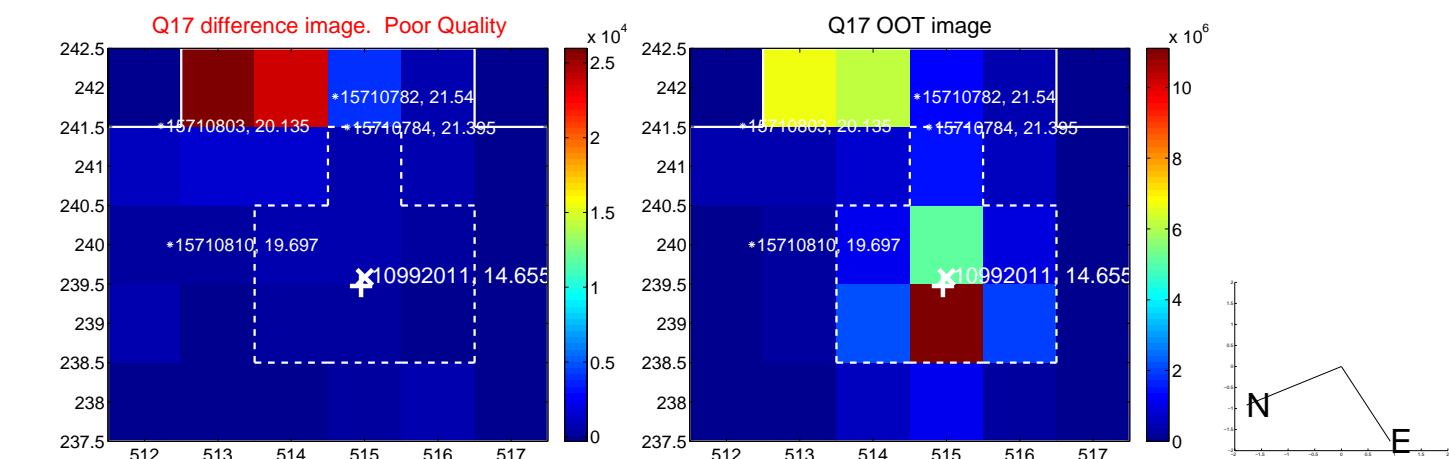
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



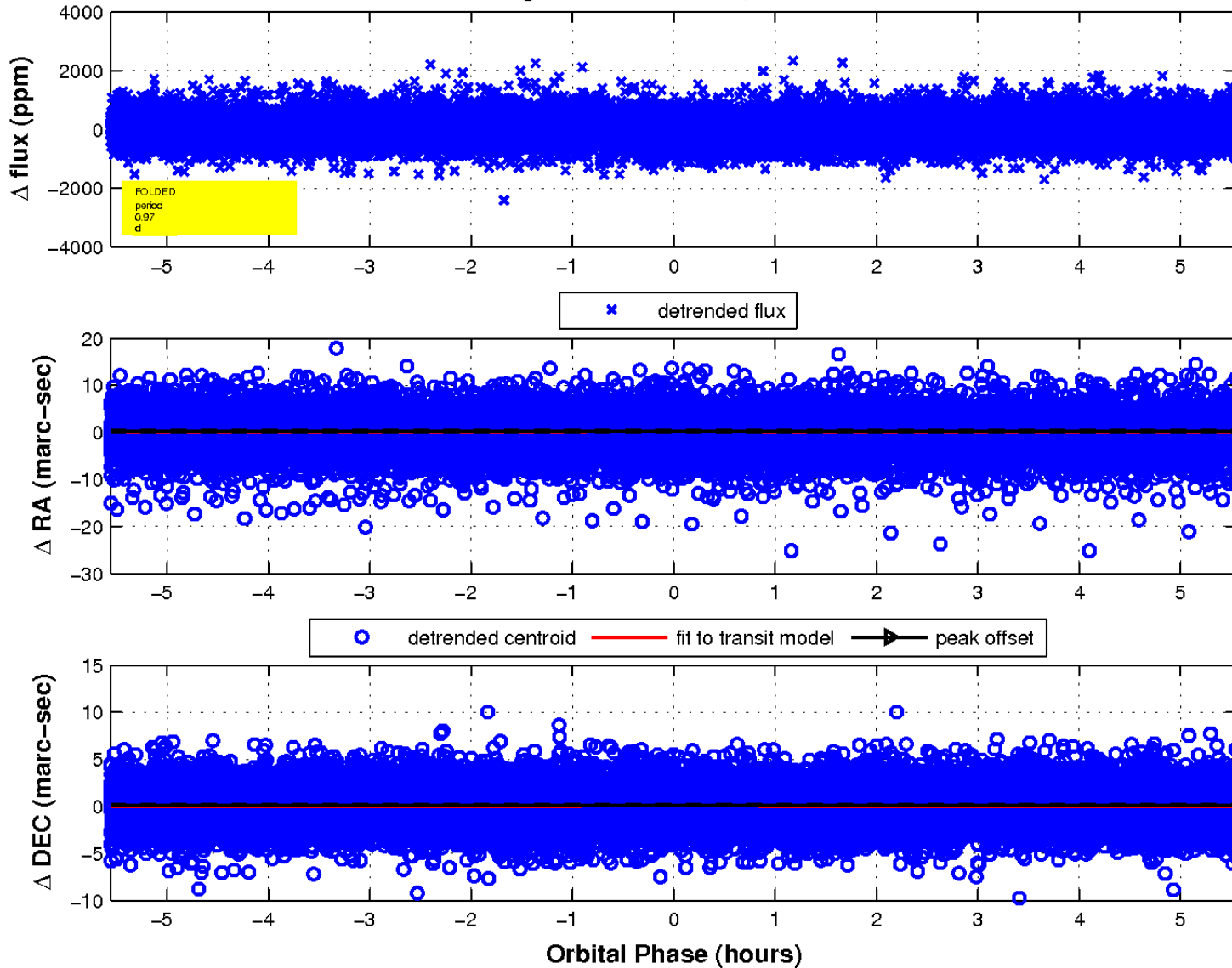
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

