

KIC 003112129

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})
003112129-01	OBS	4144.01	0.975310	132.170784	110.7	0.956	11.8	17.1	0.94	5957	0.99	2626.08
003112129-02	OBS	No	0.975311	131.679961	112.3	0.950	13.2	17.7	0.94	5957	1.06	2626.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003112129-01	OBS	PC	1.00	0	0	0	0	MOD_SEC_DV—MOD_SEC_ALT—PLANET_PERIOD_IS_HALF_ALT—HAS_SEC_TCE
003112129-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

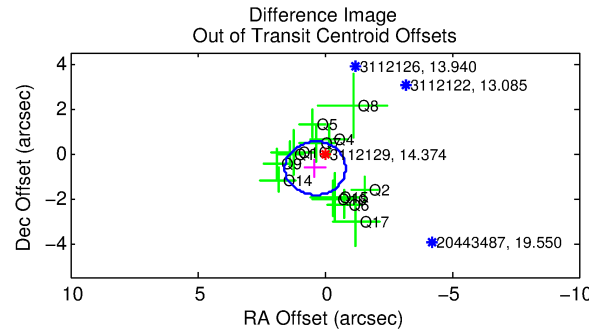
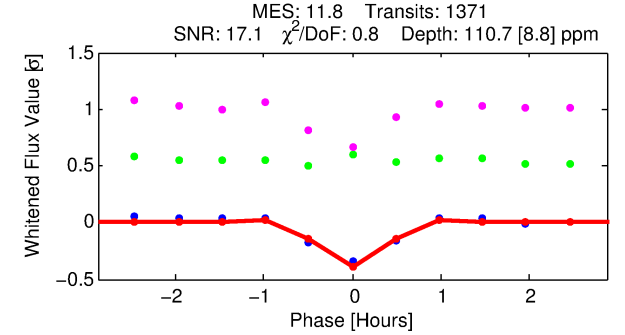
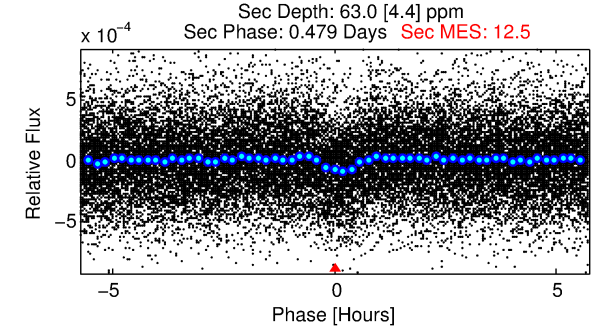
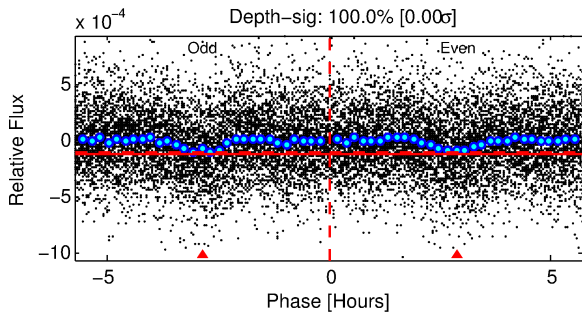
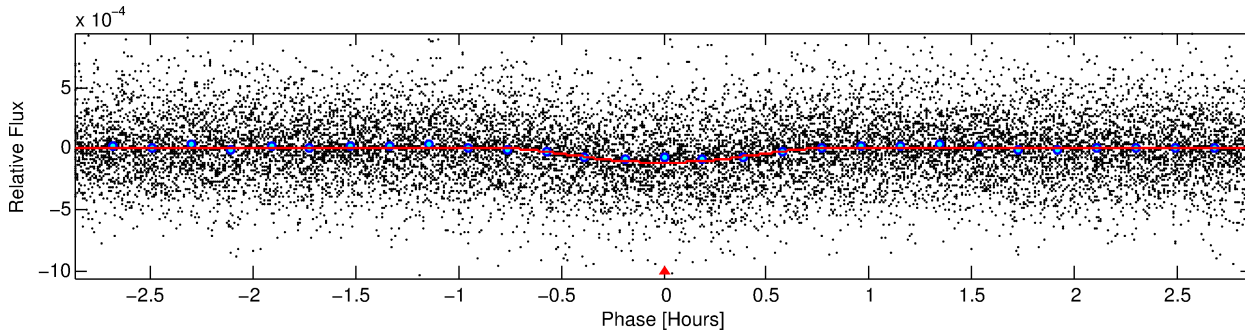
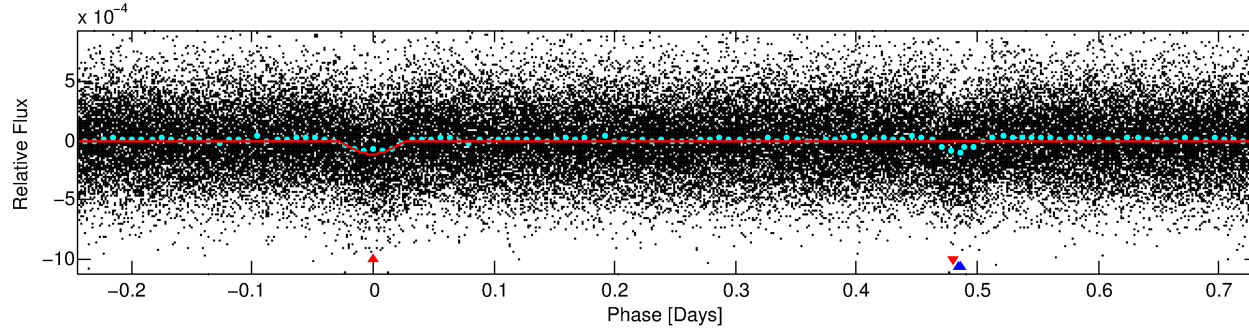
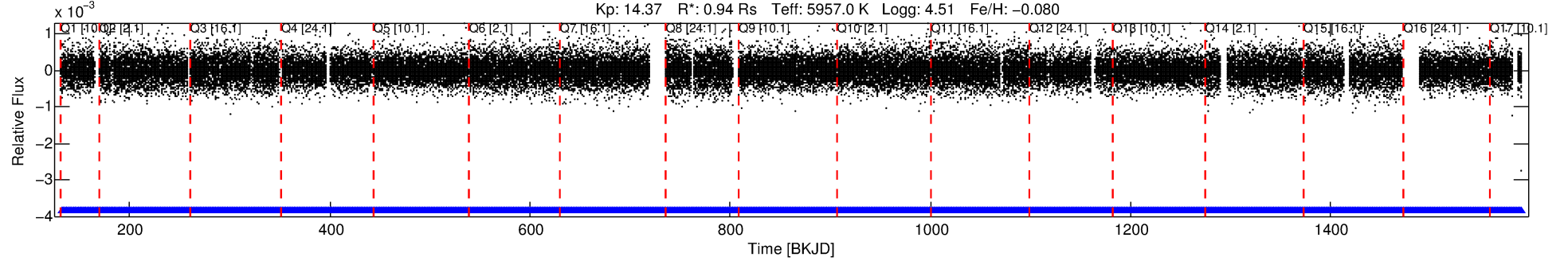
Ephemeris Match Information For 003112129-01

No Significant Match Found

DV One-Page Summary

KIC: 3112129 Candidate: 1 of 2 Period: 0.975 d
KOI: K04144.01 Corr: 0.936

Kp: 14.37 R*: 0.94 Rs Teff: 5957.0 K Logg: 4.51 Fe/H: -0.080



DV Fit Results:

Period = 0.97531 [0.00001] d
Epoch = 132.1708 [0.0010] BKJD
Rp/R* = 0.0097 [0.0106]
a/R* = 7.89 [39.88]
b = 0.00 [1349.73]
Seff = 2626.08 [444.67]
Teq = 1825 [77] K
Rp = 0.99 [1.09] Re
a = 0.0194 [0.0020] AU
Ag = 13.33 [29.20] [0.42σ]
Teffp = 5393 [2946] K [1.21σ]

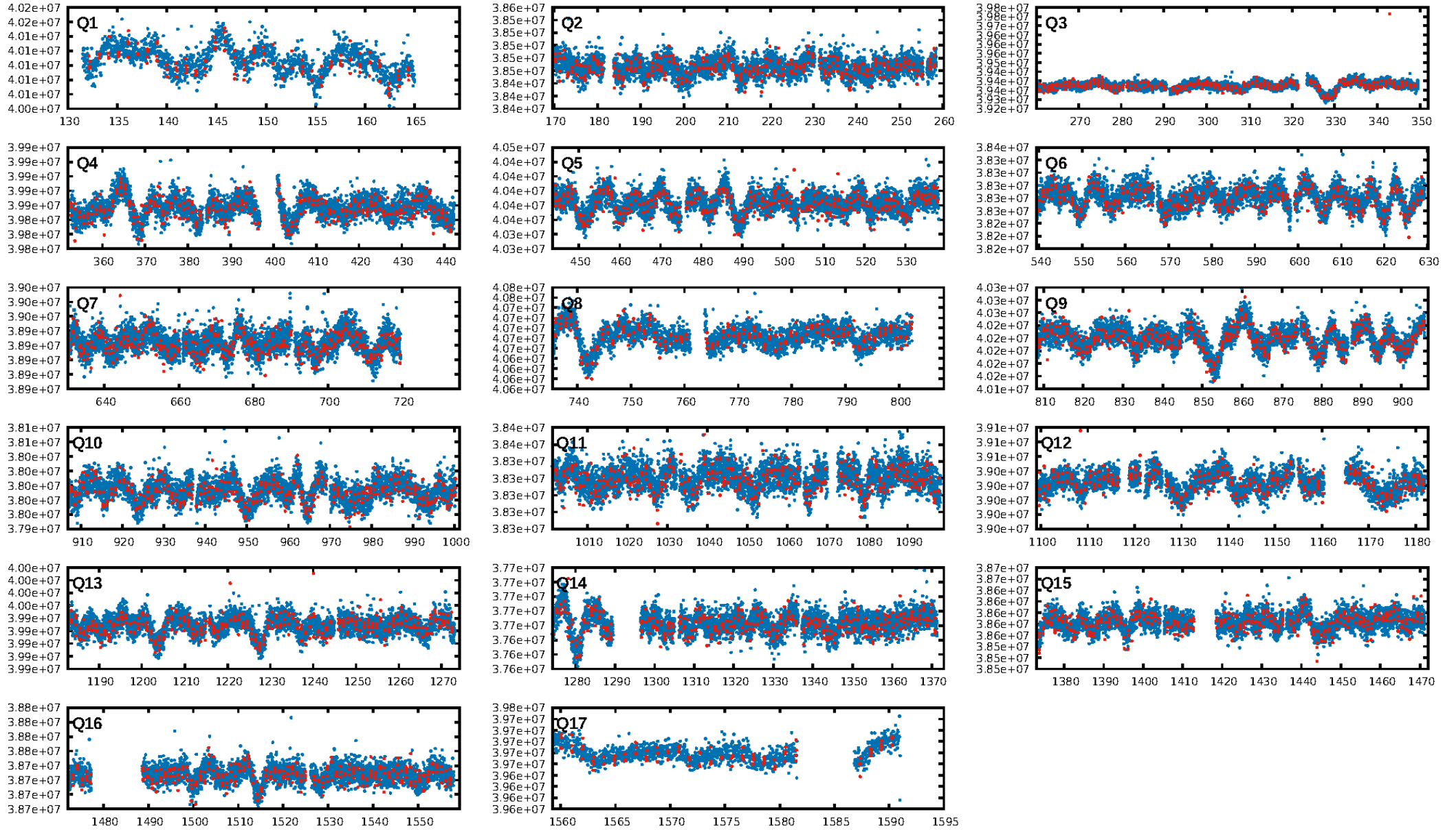
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.17e-73
RollingBand-fgt: 1.00 [1310/1310]
GhostDiagnostic-chr: -16.94
Centroid-sig: 15.3%
Centroid-so: 1.263 arcsec [1.85σ]
OotOffset-rm: 0.758 arcsec [1.91σ]
KicOffset-rm: 0.507 arcsec [1.35σ]
OotOffset-st: 4/2/3/4 [13]
KicOffset-st: 4/2/3/4 [13]
DiffImageQuality-fgm: 0.69 [9/13]
DiffImageOverlap-fno: 1.00 [17/17]

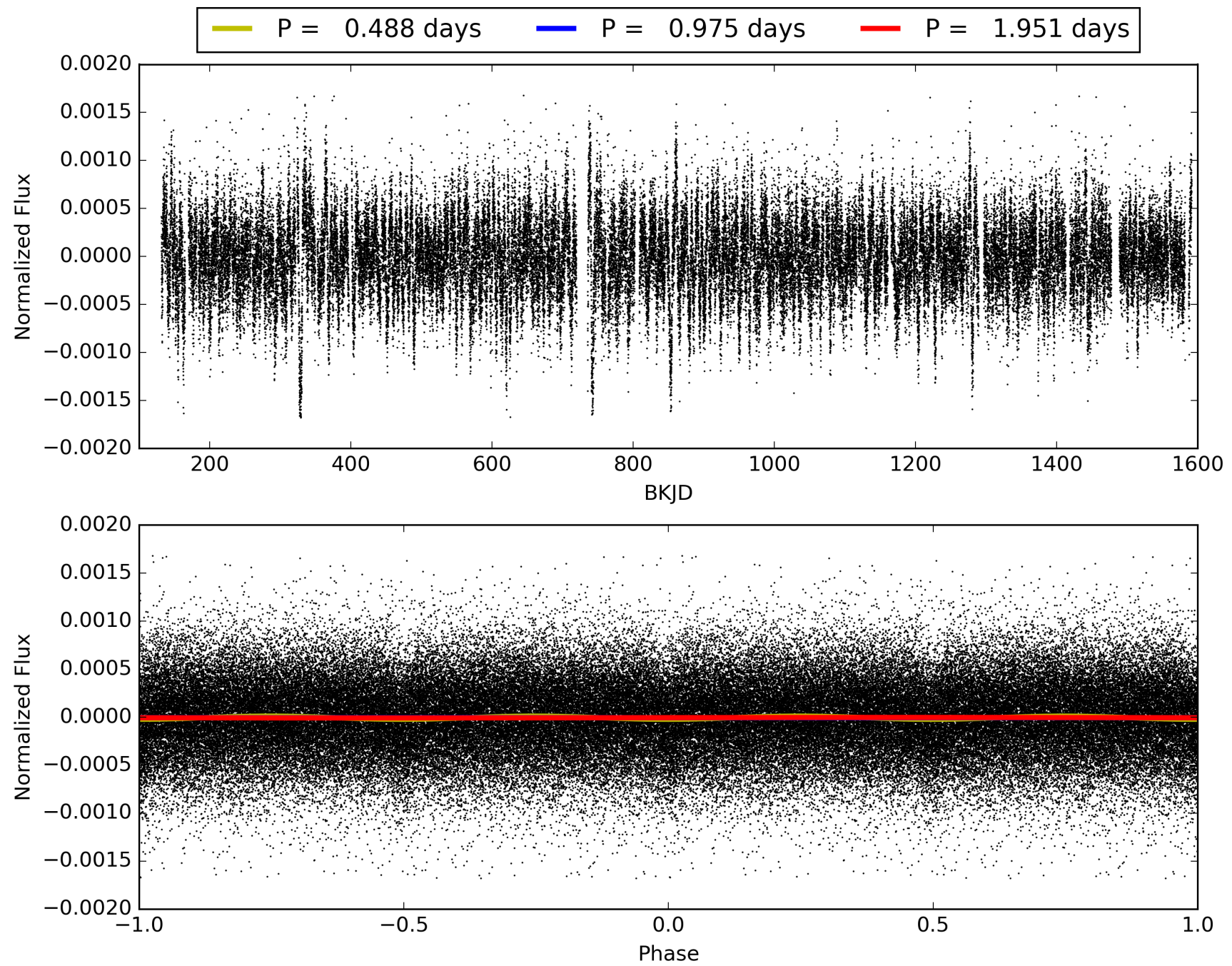
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:54:30 Z

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

TCE 003112129-01, PDC Light Curves

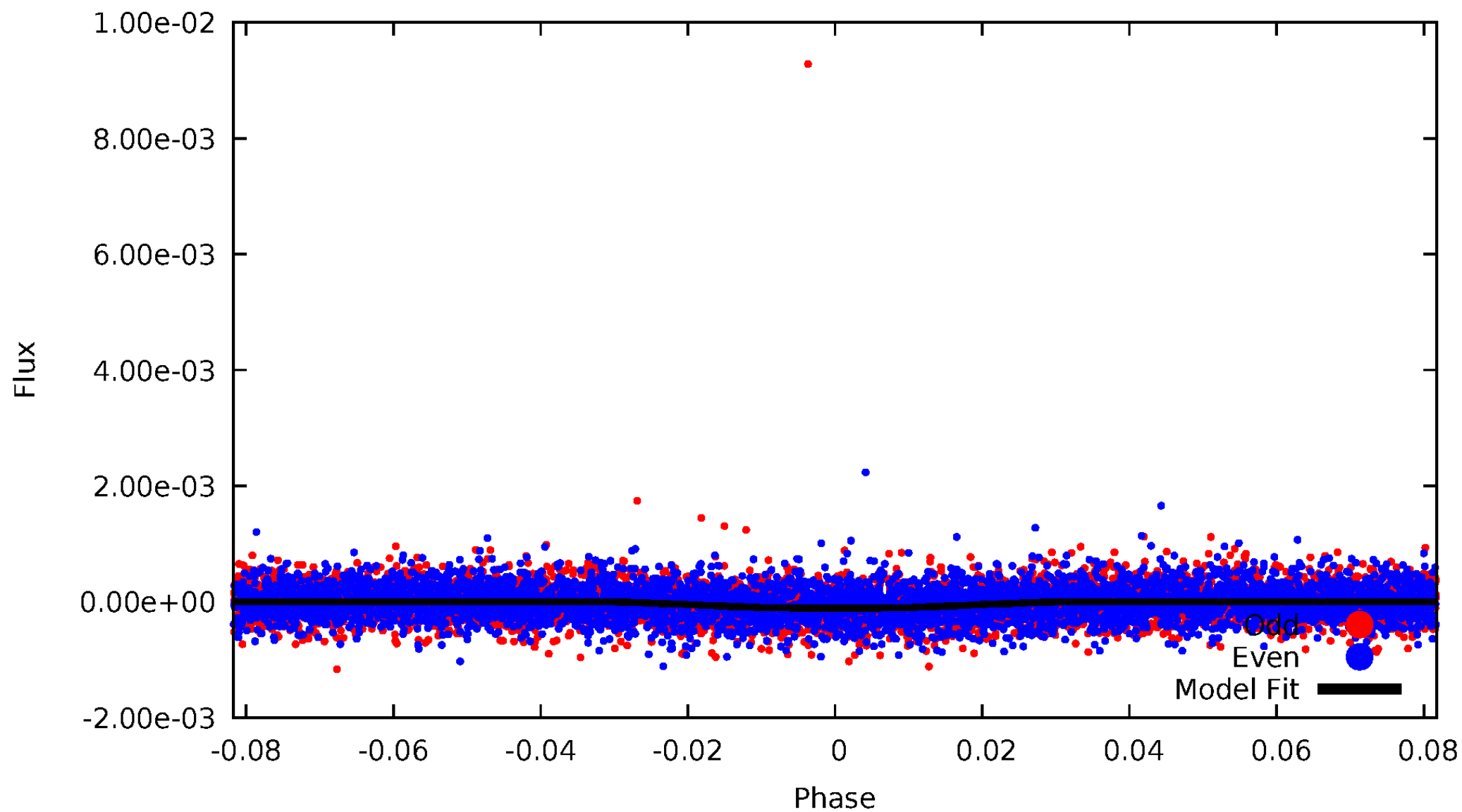


TCE 003112129-01



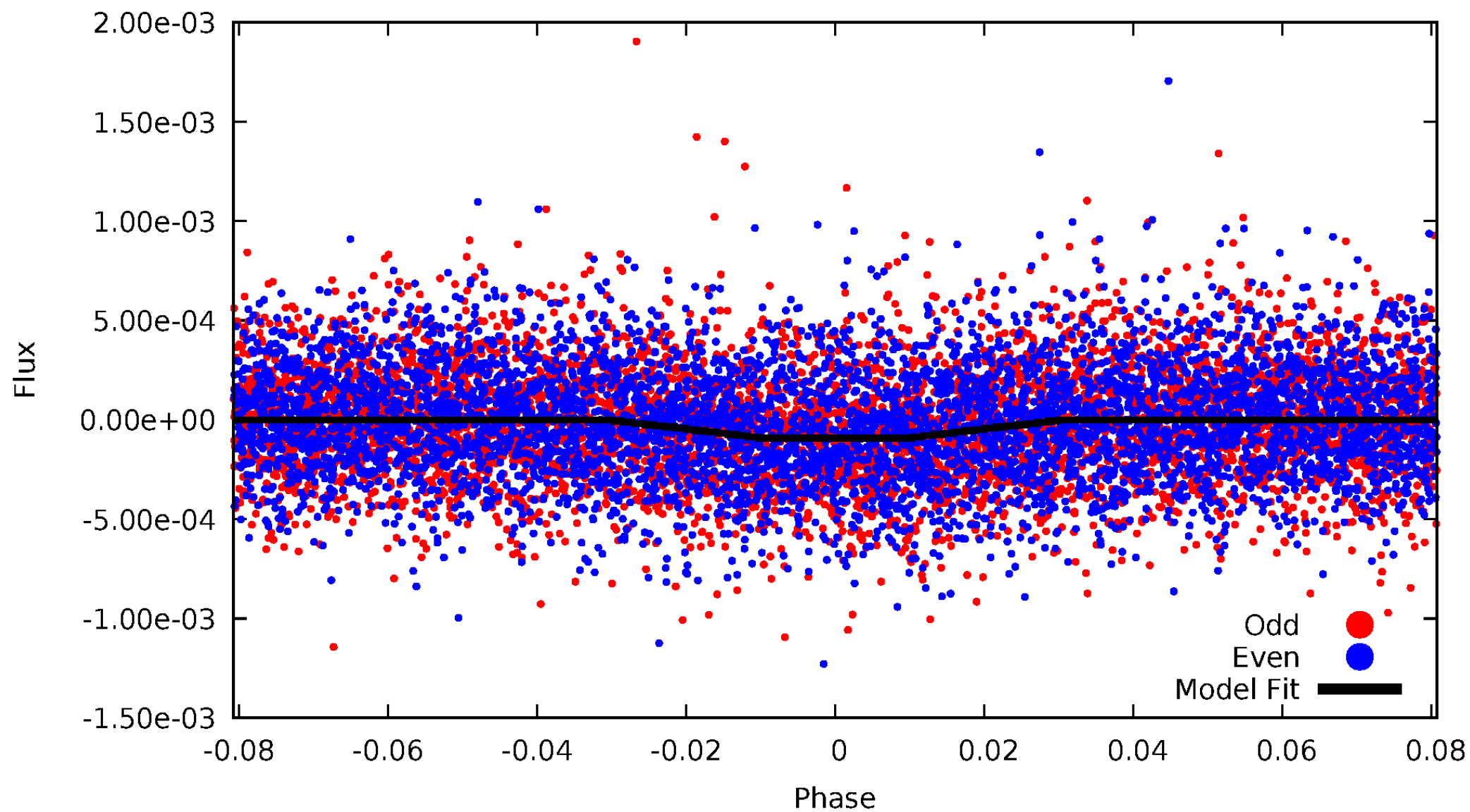
DV Odd/Even

TCE 003112129-01

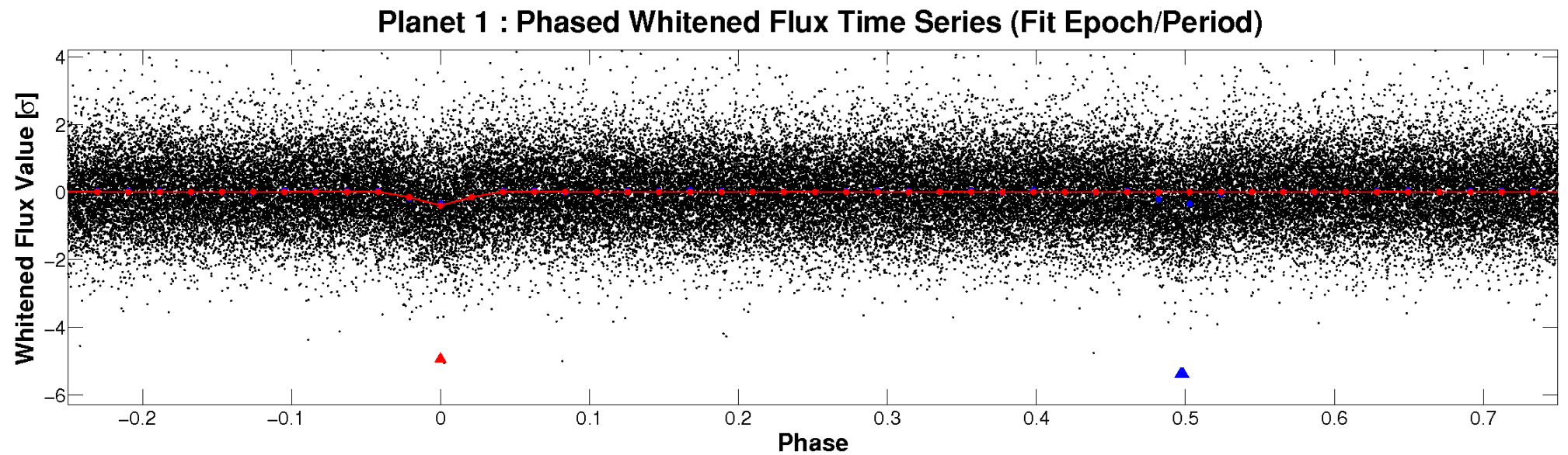
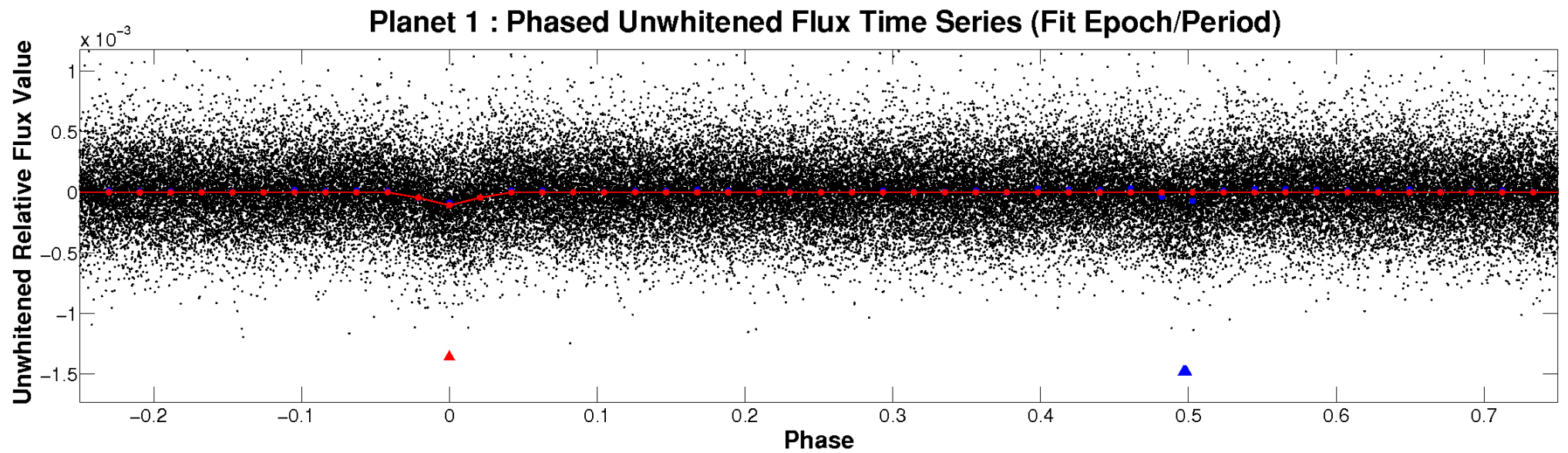


ALT Odd/Even

TCE 003112129-01

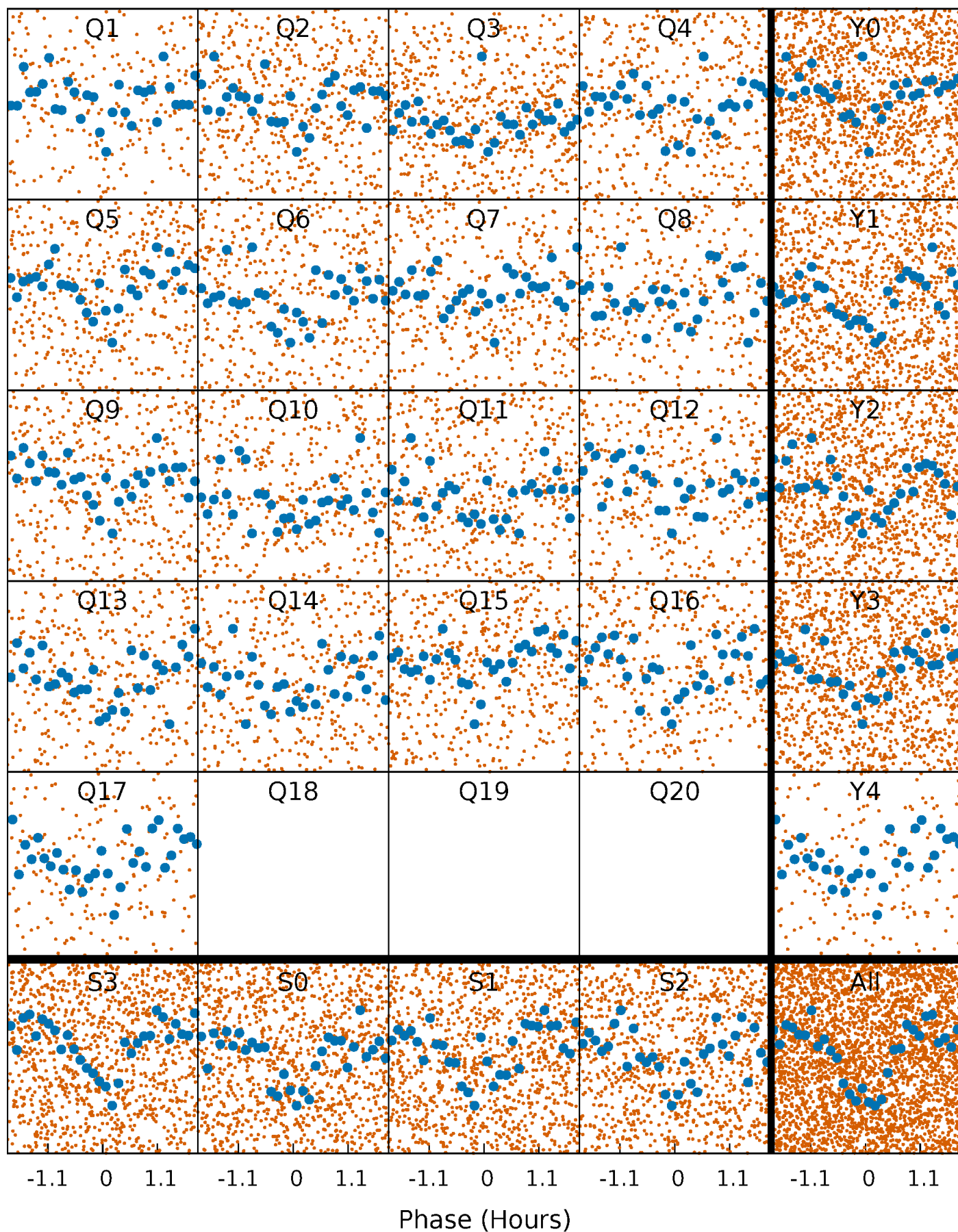


Non-Whitened Vs. Whitened Light Curve



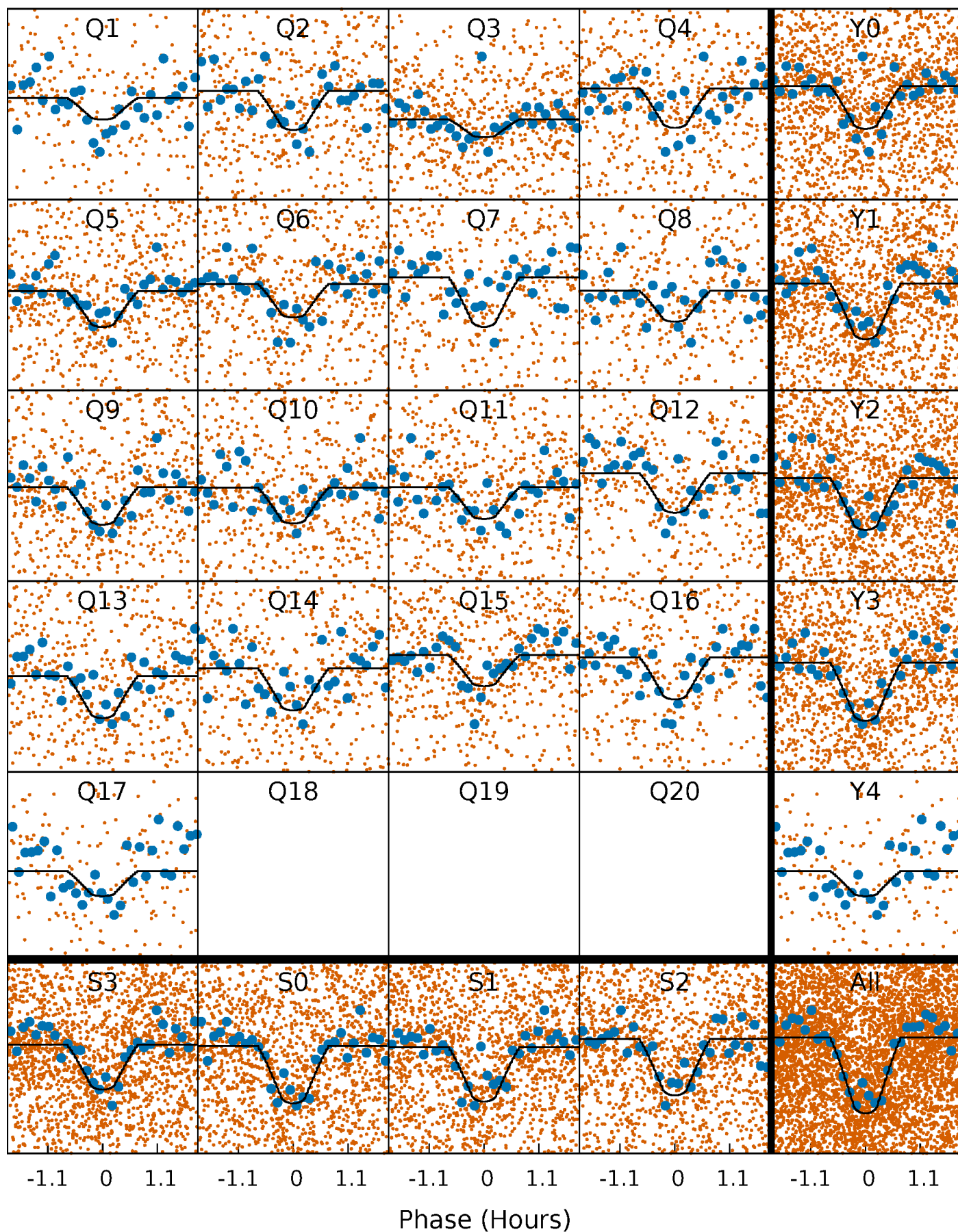
PDC Quarter-Phased Transit Curves

TCE 003112129-01 P= 0.975310 Days $T_0=132.170784$ (BKJD)



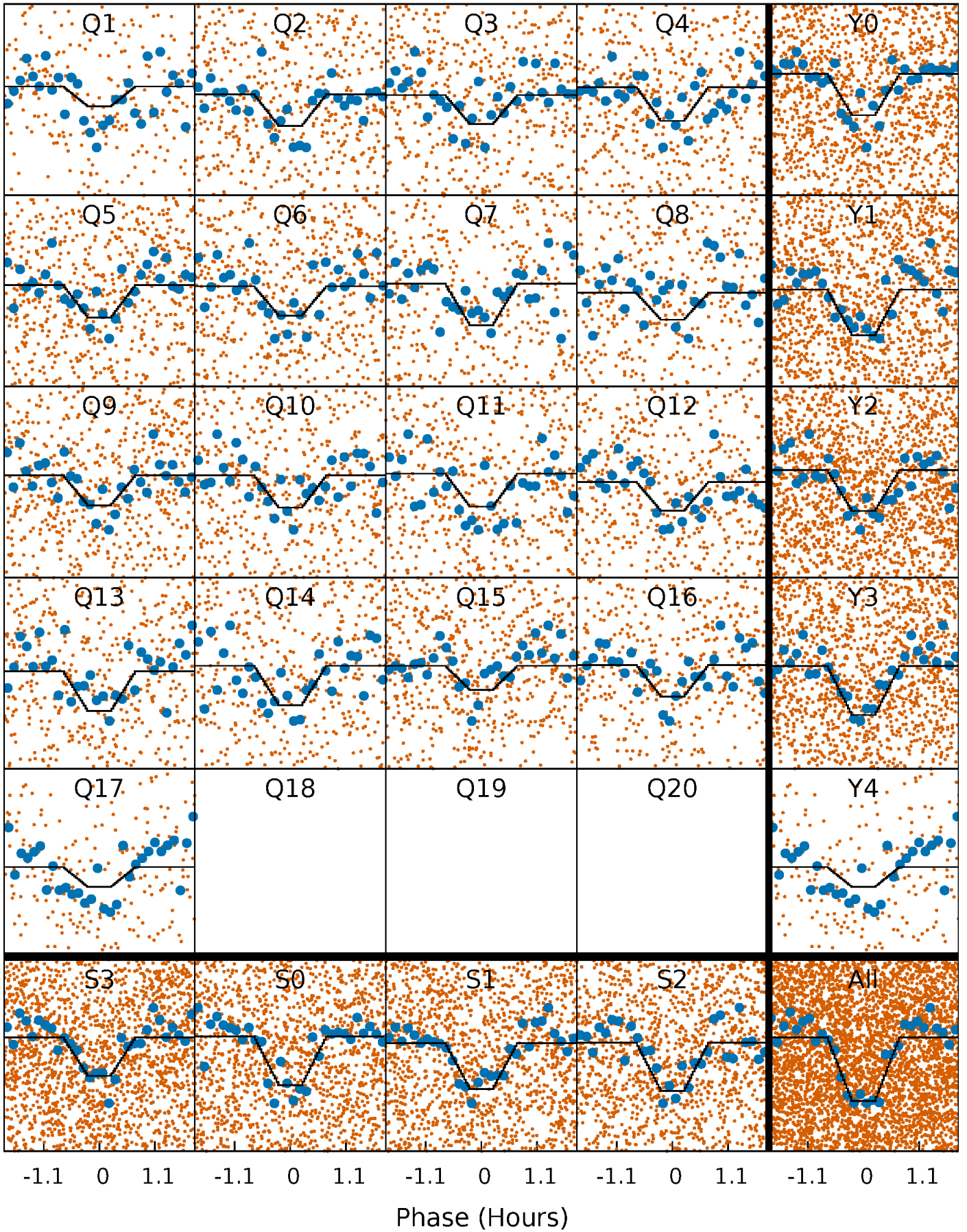
DV Quarter-Phased Transit Curves

TCE 003112129-01 P= 0.975310 Days $T_0=132.170784$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

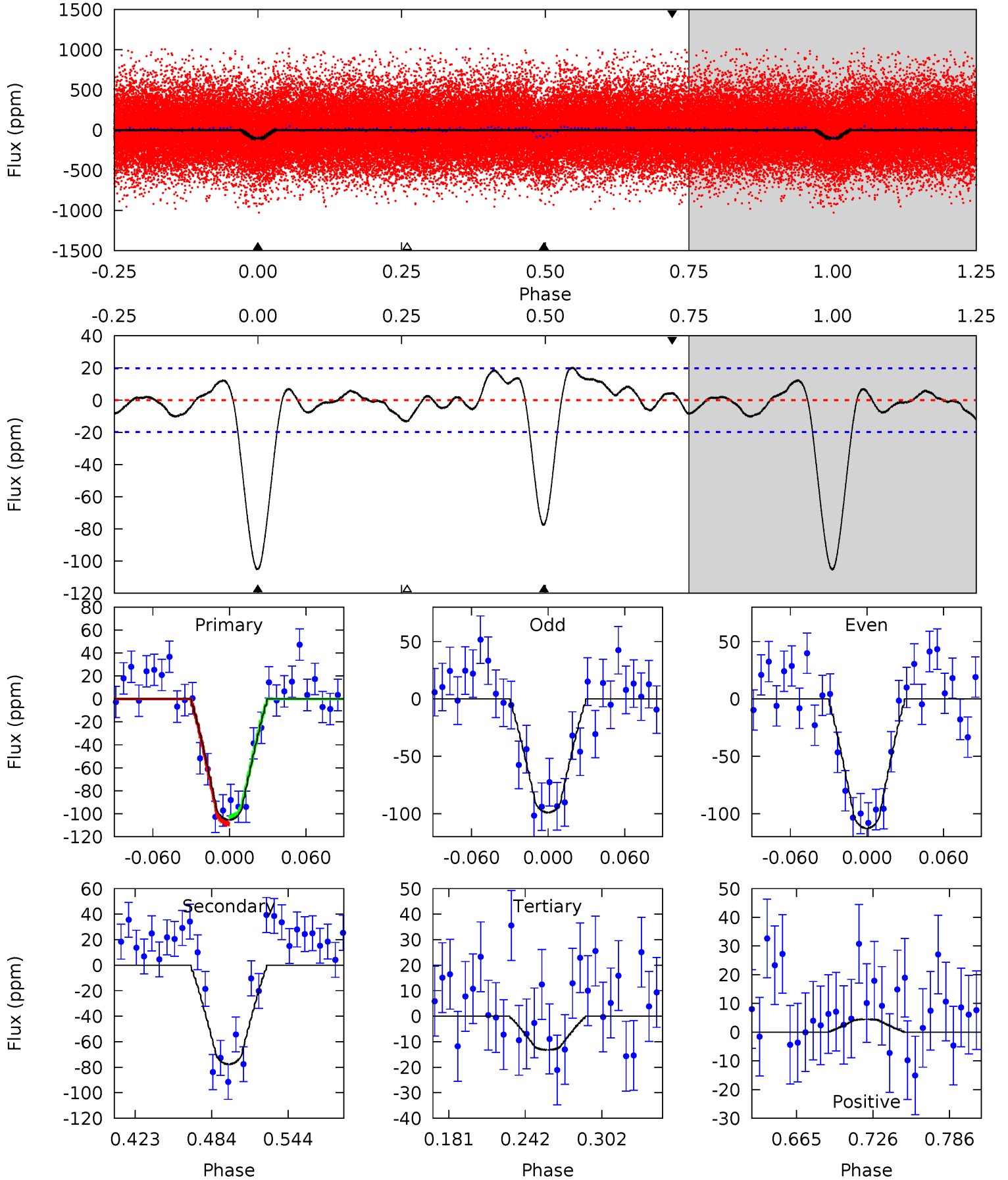
TCE 003112129-01 P= 0.975309 Days $T_0=132.171523$ (BKJD)



DV Model-Shift Uniqueness Test

003112129-01, P = 0.975310 Days, E = 131.195474 Days

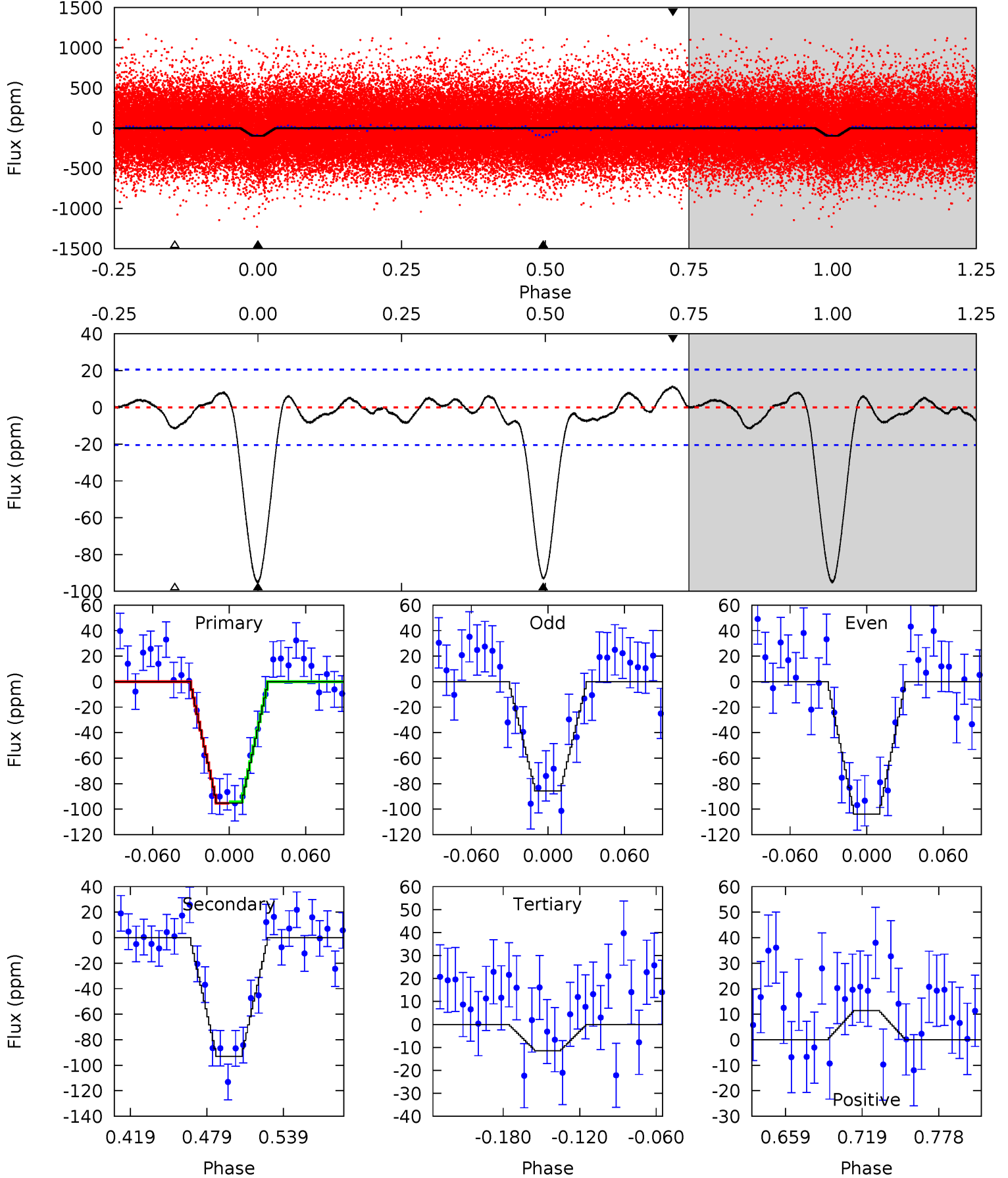
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.8	18.3	3.11	1.06	4.67	1.88	1.61	21.7	23.8	15.2	17.2	1.62	0.91	0.16	0.64



Alt Model-Shift Uniqueness Test

003112129-01, P = 0.975309 Days, E = 131.196214 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	21.2	2.61	2.61	4.67	1.88	1.12	19.1	19.1	18.6	18.6	2.07	0.96	0.11	0.12



Stellar Parameters For KIC 003112129

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5957^{+71}_{-89}	$4.506^{+0.024}_{-0.090}$	$-0.080^{+0.150}_{-0.200}$	$0.937^{+0.109}_{-0.051}$	$1.026^{+0.049}_{-0.073}$	$1.759^{+0.205}_{-0.497}$
	+1%/-1%	+1%/-2%	+188%/-250%	+12%/-5%	+5%/-7%	+12%/-28%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 003112129-01 / KOI 4144.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-78 ± 4	$1.32^{+0.94}_{-0.84}$	2573^{+71}_{-56}	5026^{+3562}_{-1022}	$9.168^{+62.221}_{-6.055}$
Alt.	-93 ± 4	$1.23^{+0.95}_{-0.79}$	2574^{+78}_{-55}	5432^{+4351}_{-1214}	13^{+93}_{-9}

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

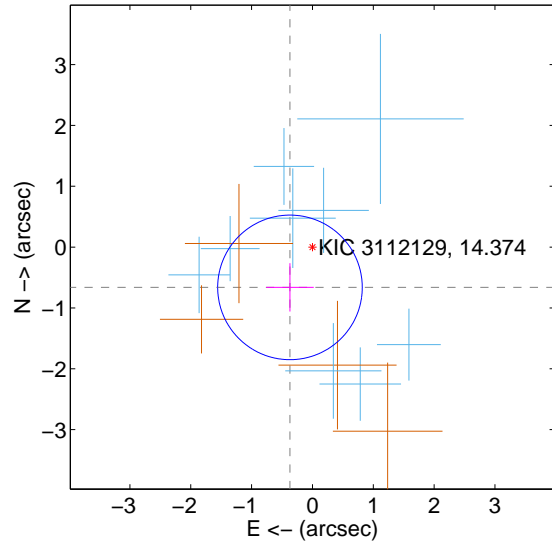
Supplemental centroid analysis for 003112129-01. Kepler magnitude: 14.37. Transit SNR 17.08

There are 9 quarters with good PRF difference image offsets

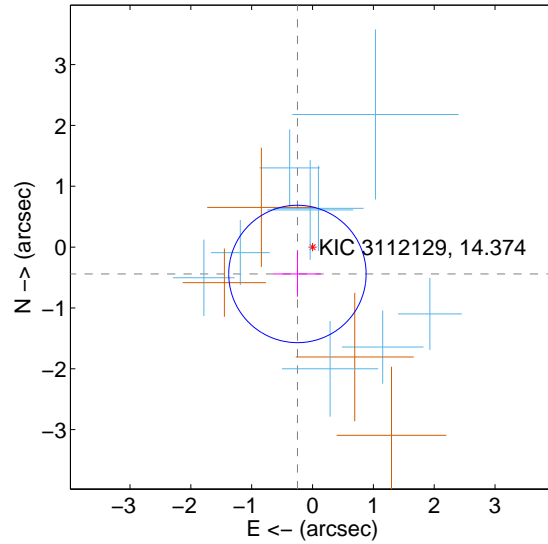
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.758 ± 0.396	1.91	0.369 ± 0.391	-0.662 ± 0.398
PRF-fit source offset from KIC position	0.507 ± 0.376	1.35	0.248 ± 0.389	-0.442 ± 0.372
photometric centroid source offset	1.26 ± 0.68	1.85	-0.58 ± 0.63	1.12 ± 0.70

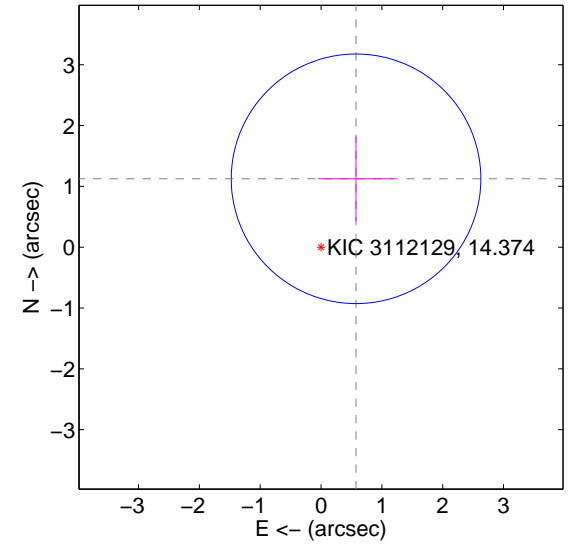
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

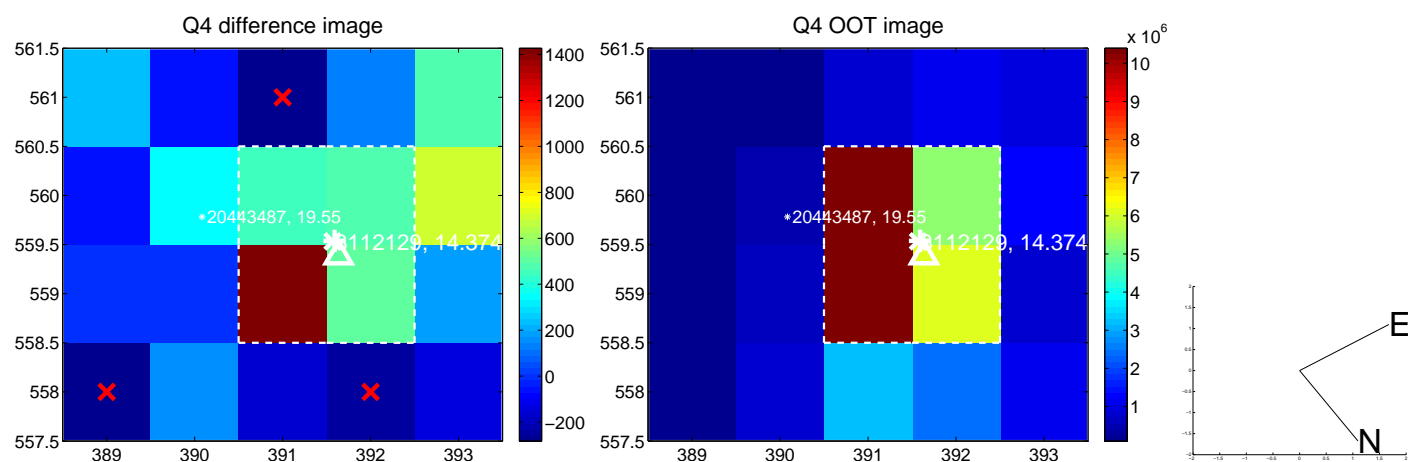
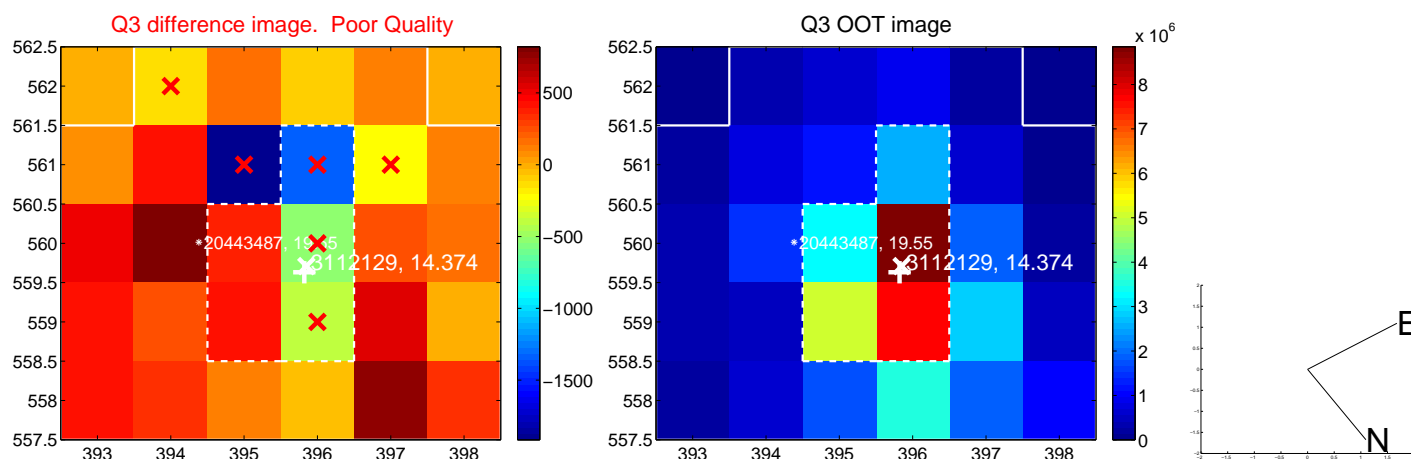
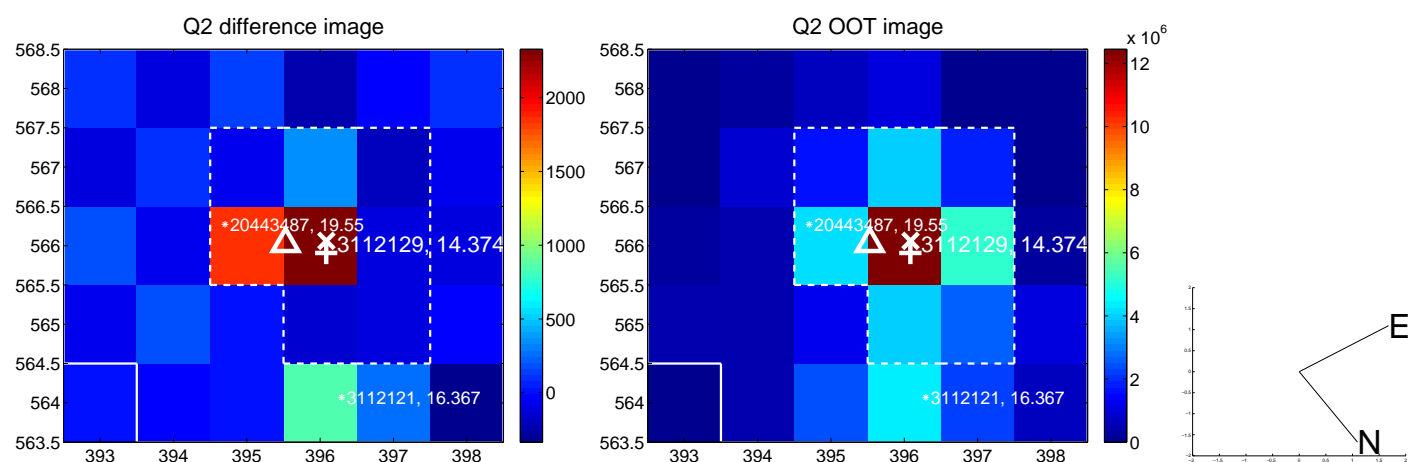
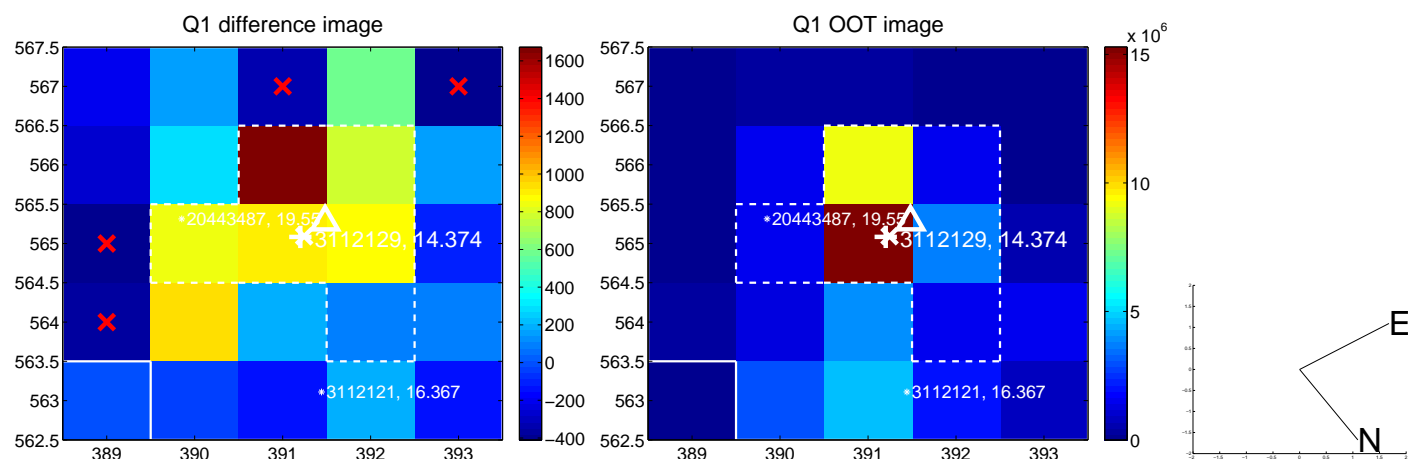


offset from photometric centroids

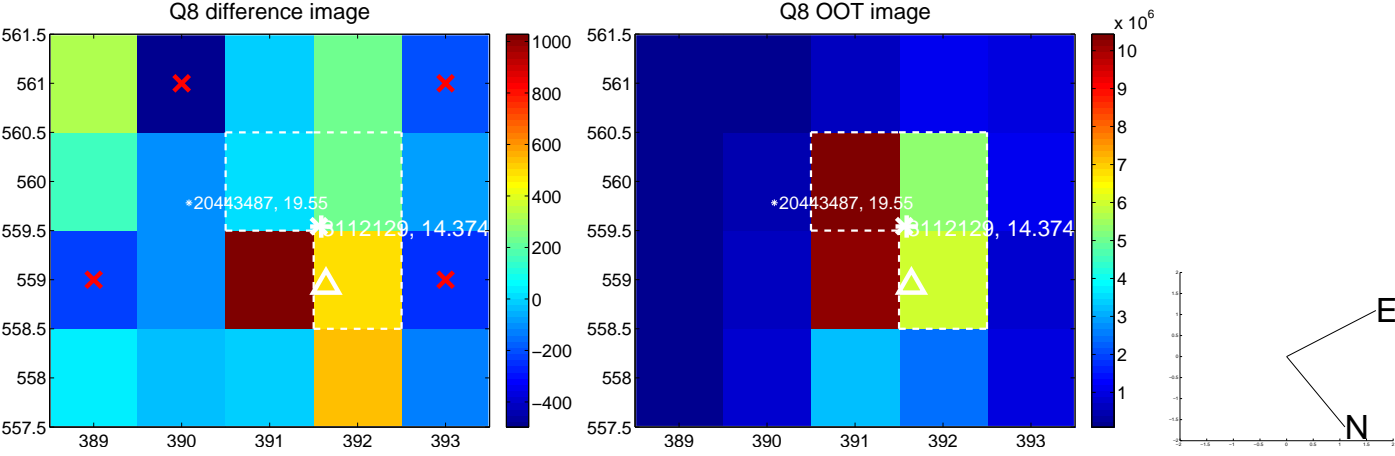
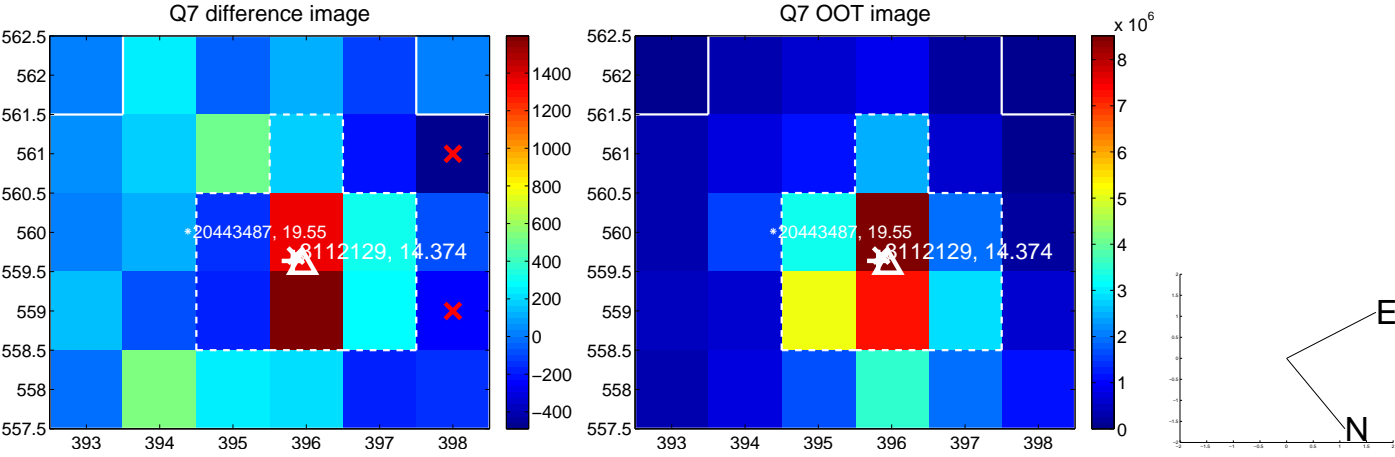
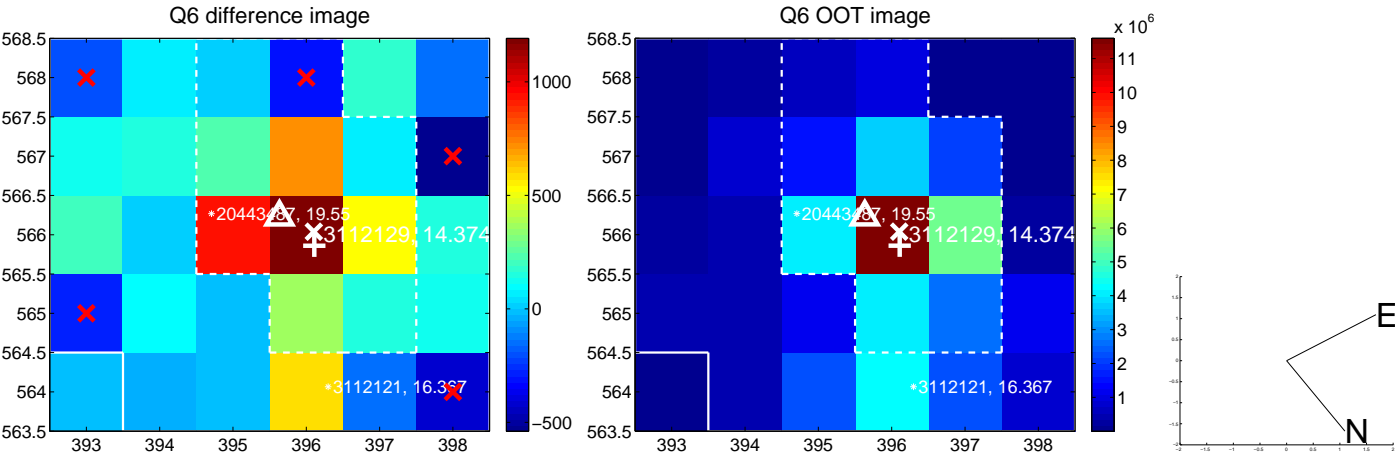
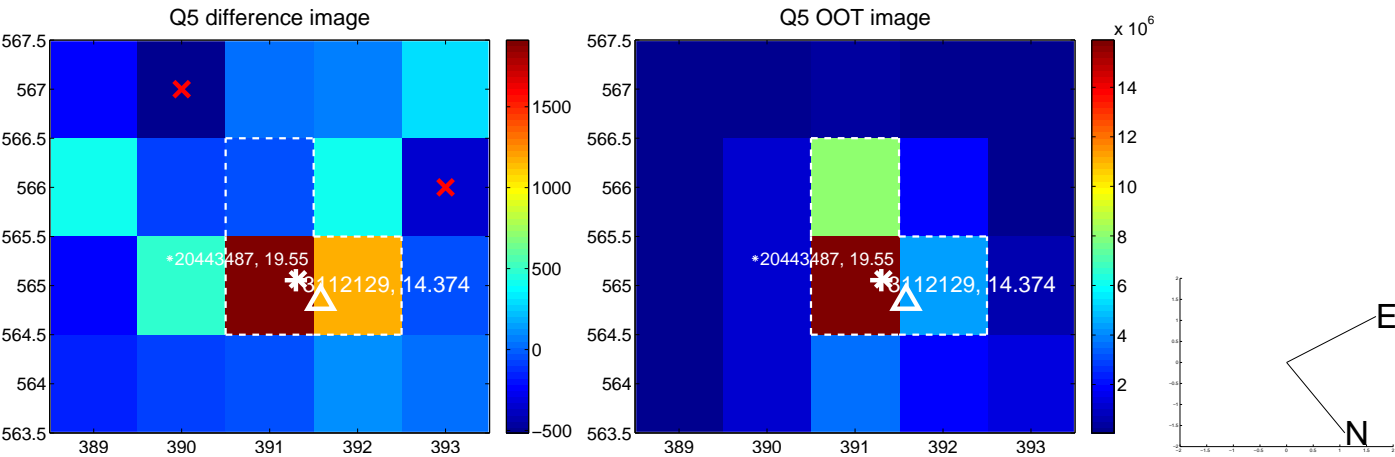


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

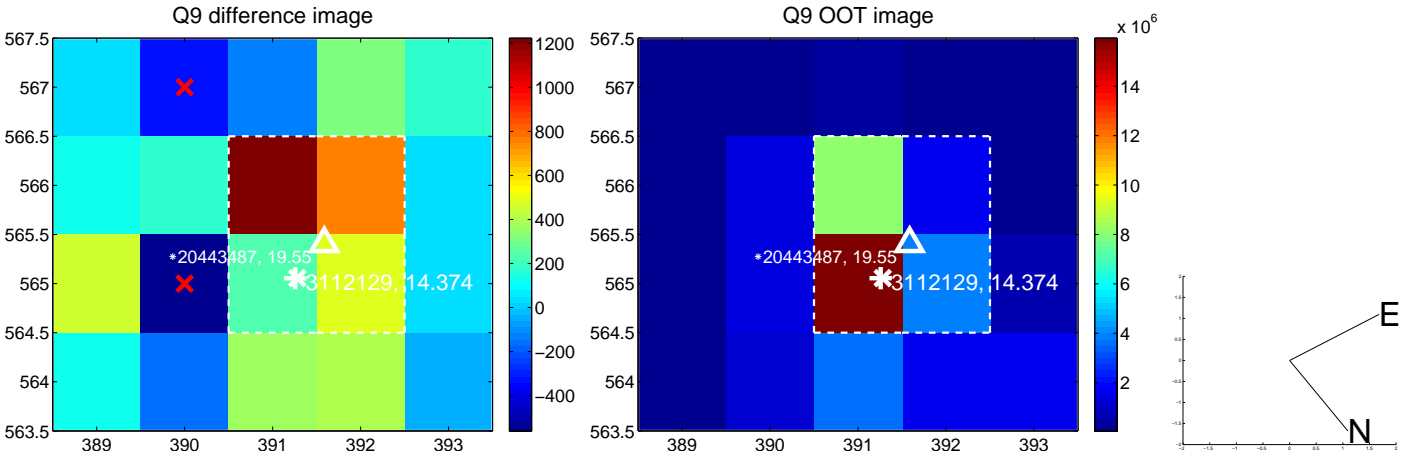
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



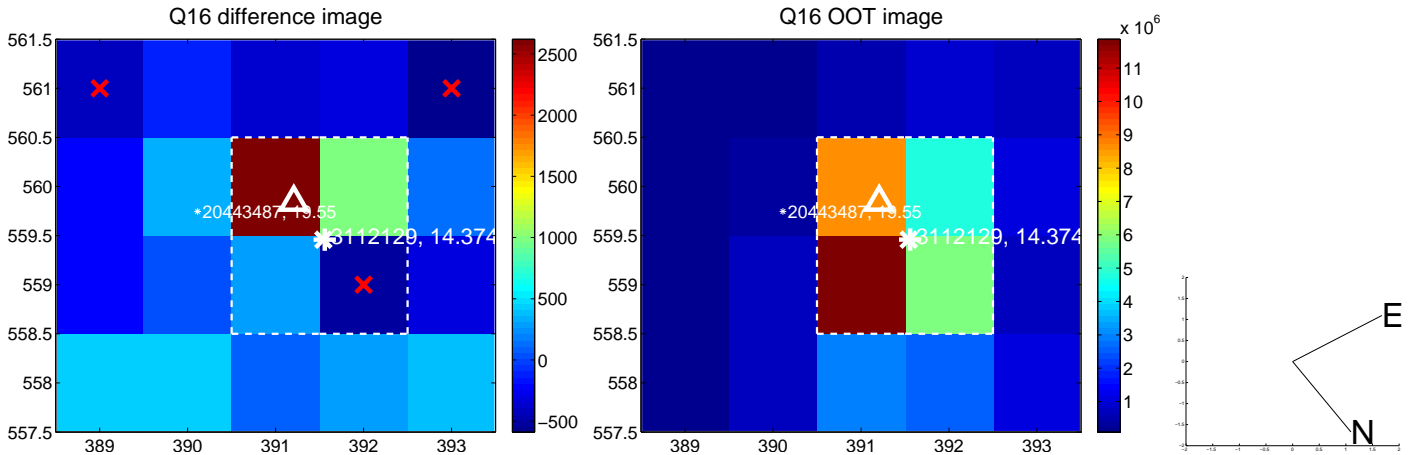
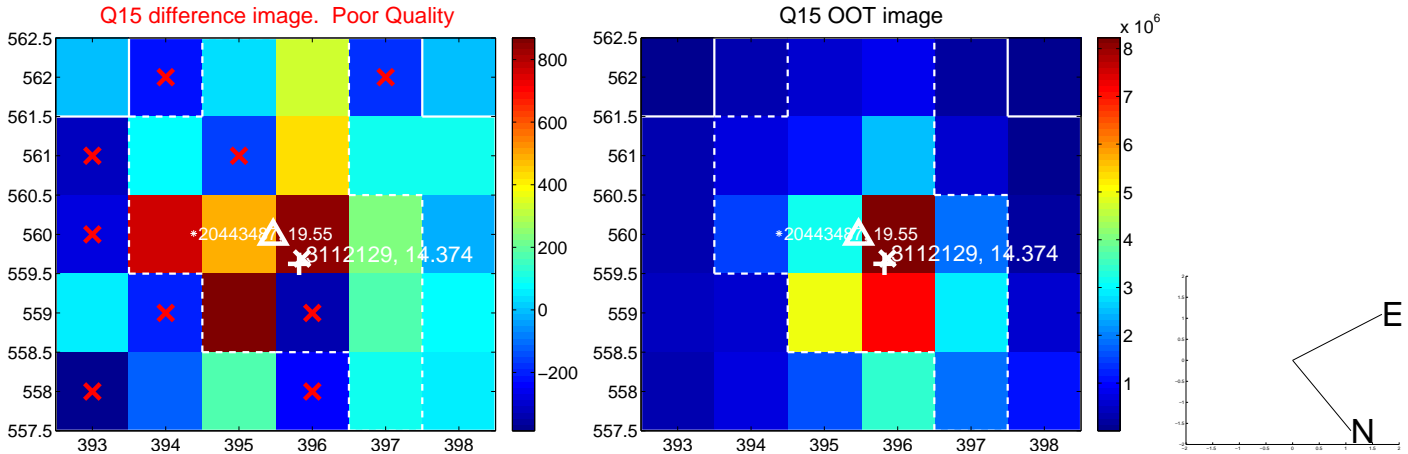
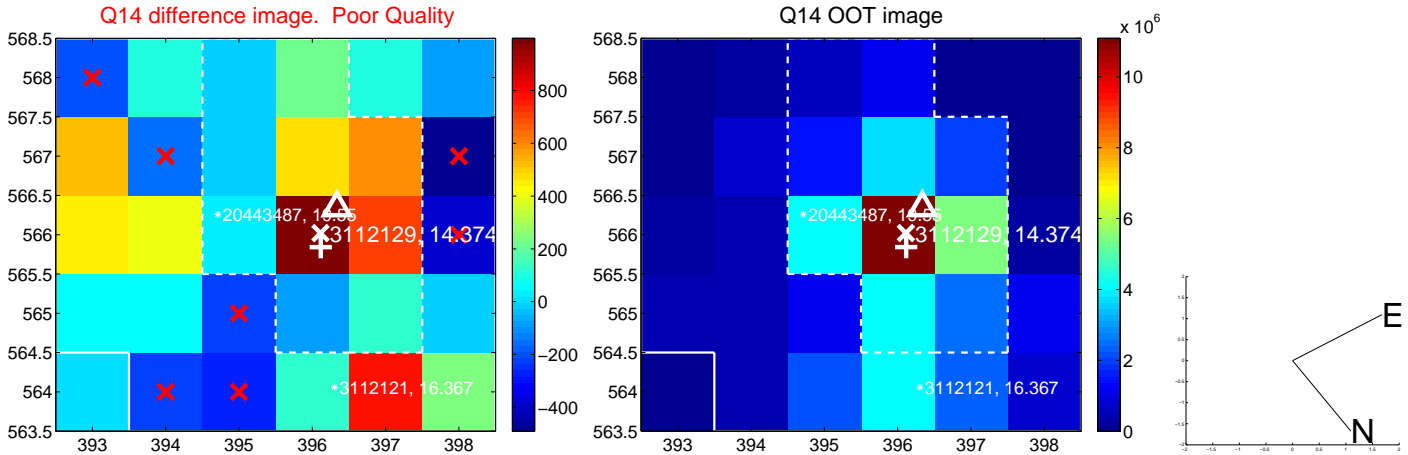
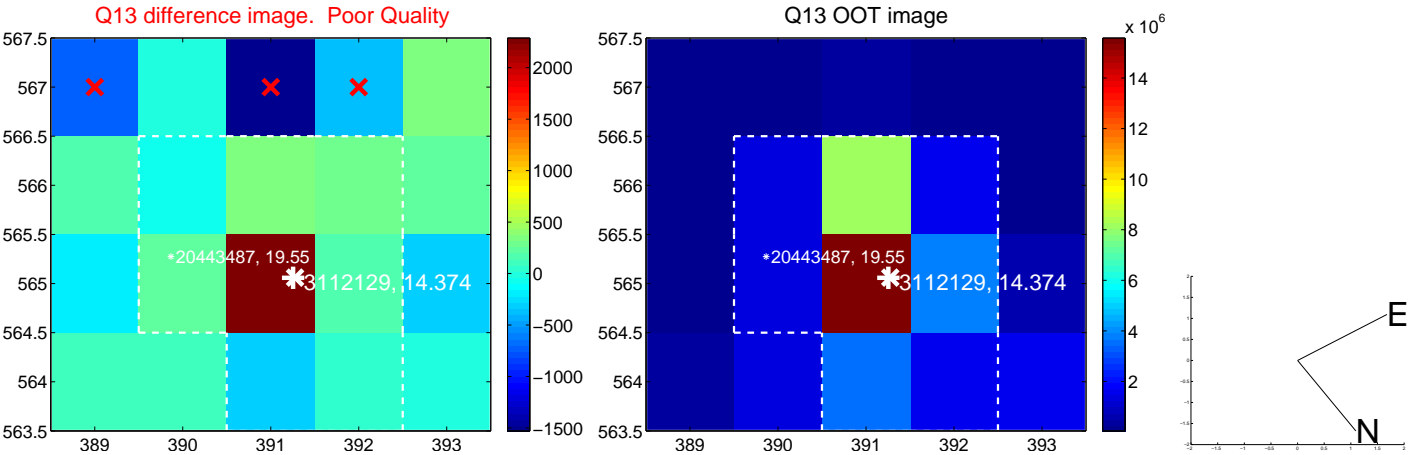
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



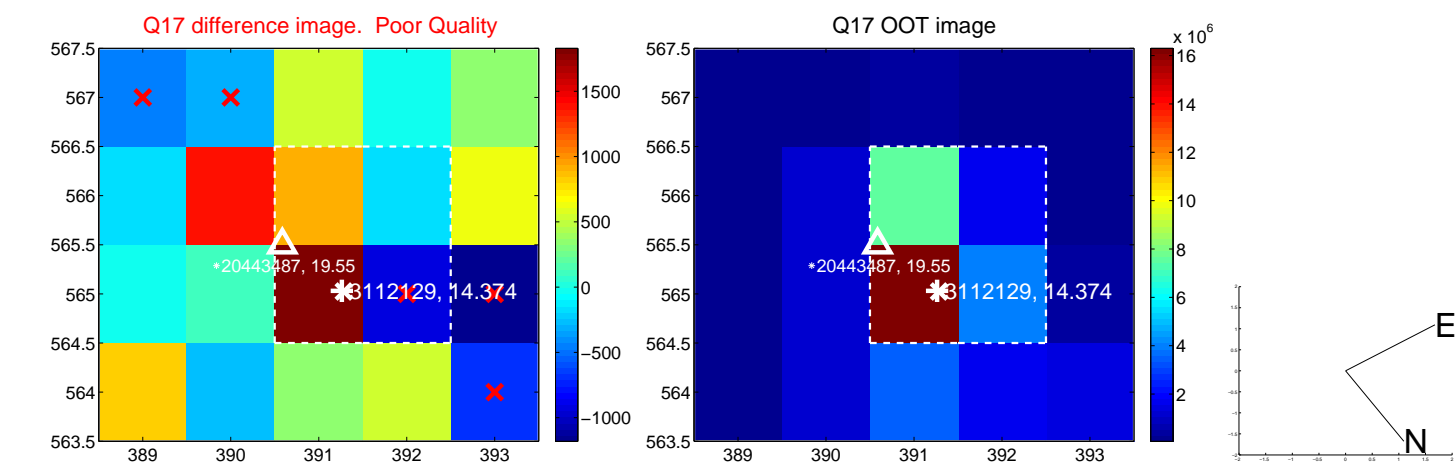
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



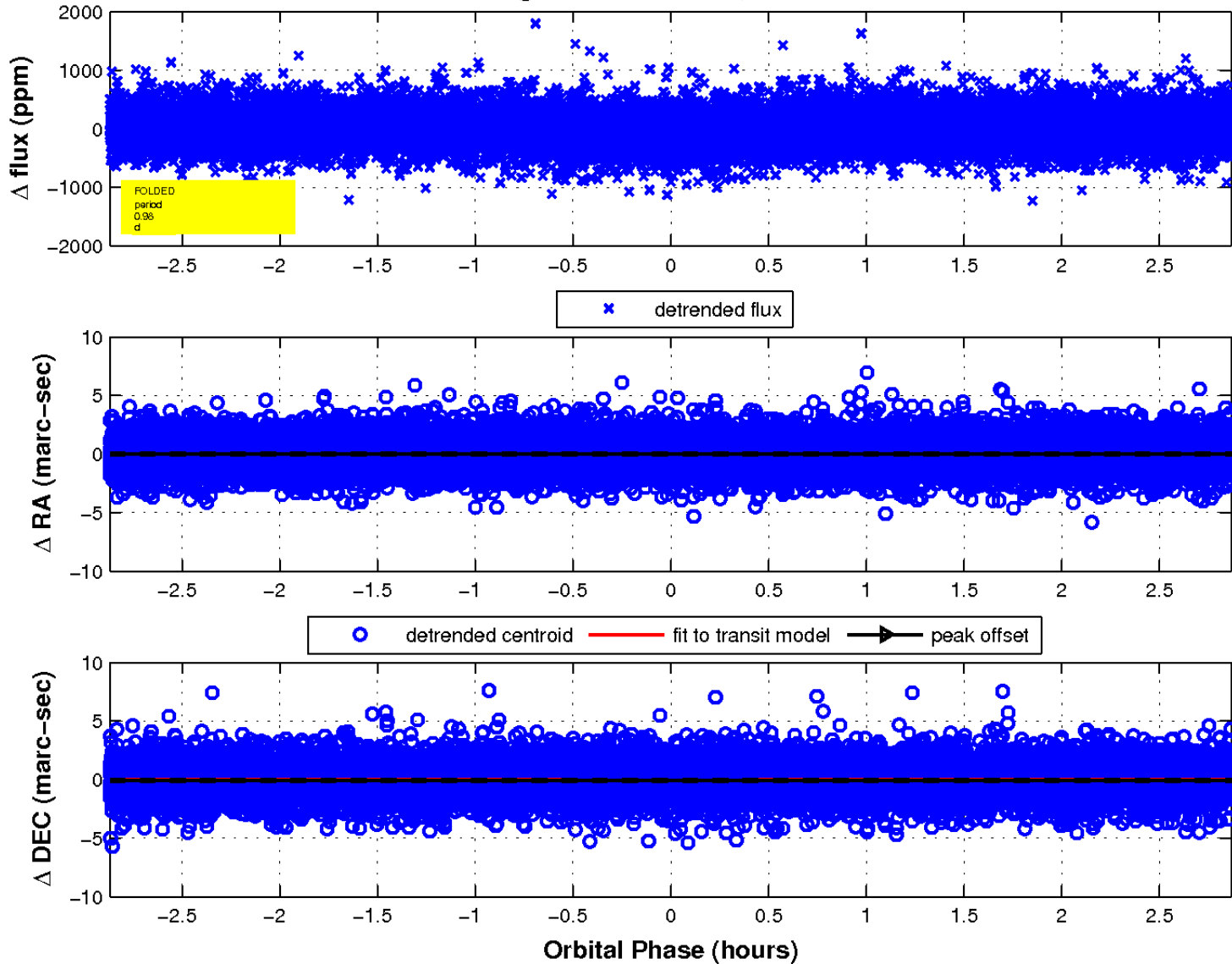
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

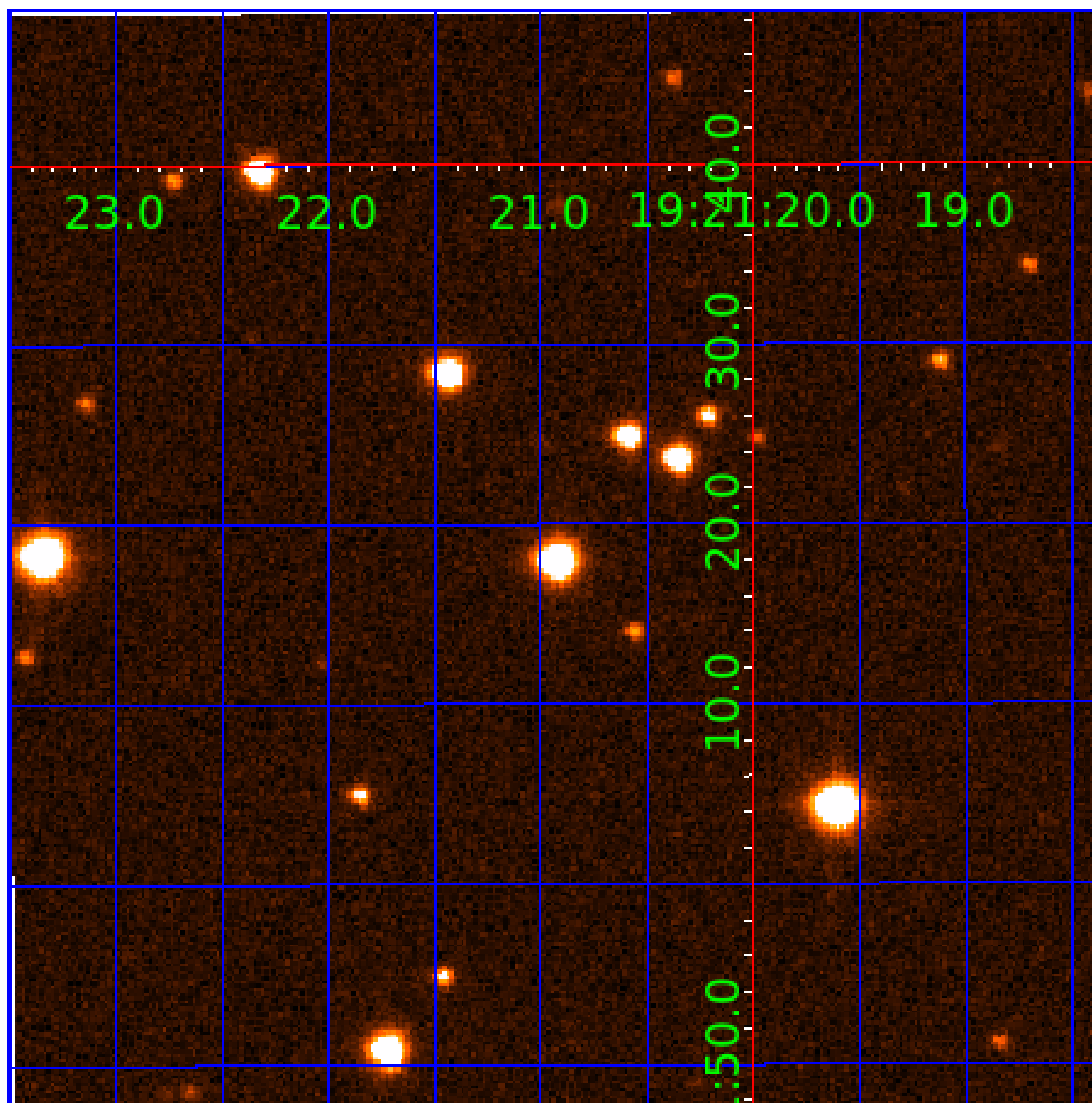


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003112129

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})
003112129-01	OBS	4144.01	0.975310	132.170784	110.7	0.956	11.8	17.1	0.94	5957	0.99	2626.08
003112129-02	OBS	No	0.975311	131.679961	112.3	0.950	13.2	17.7	0.94	5957	1.06	2626.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003112129-01	OBS	PC	1.00	0	0	0	0	MOD_SEC_DV—MOD_SEC_ALT—PLANET_PERIOD_IS_HALF_ALT—HAS_SEC_TCE
003112129-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 003112129-02

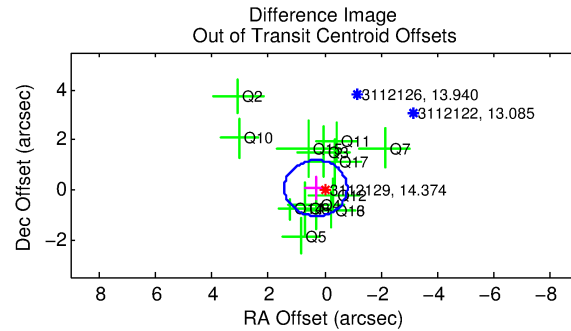
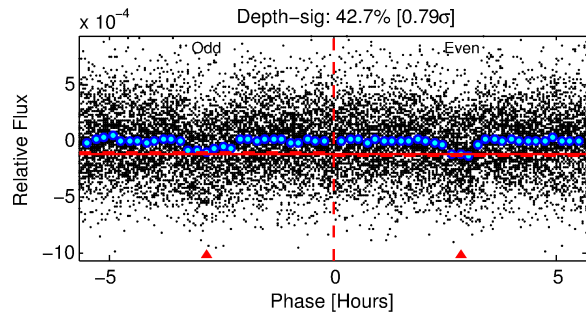
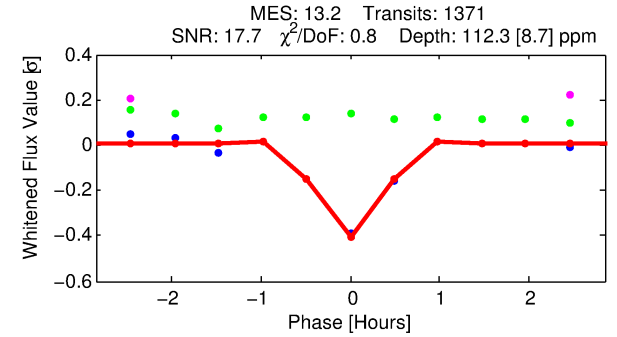
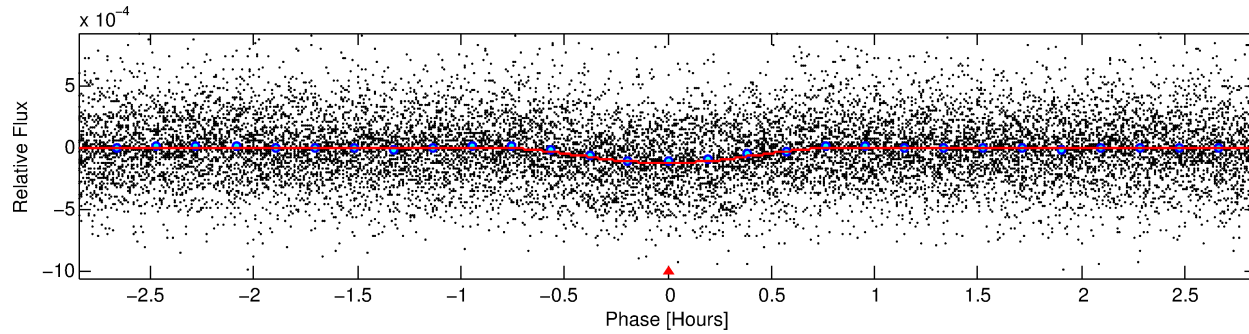
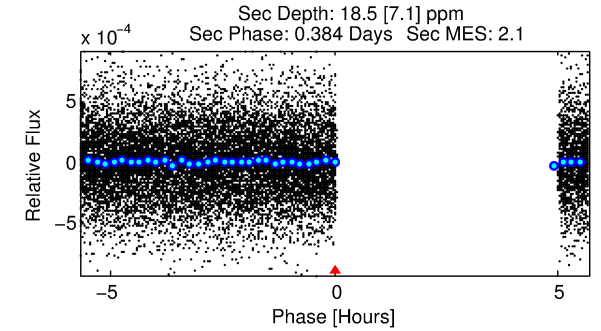
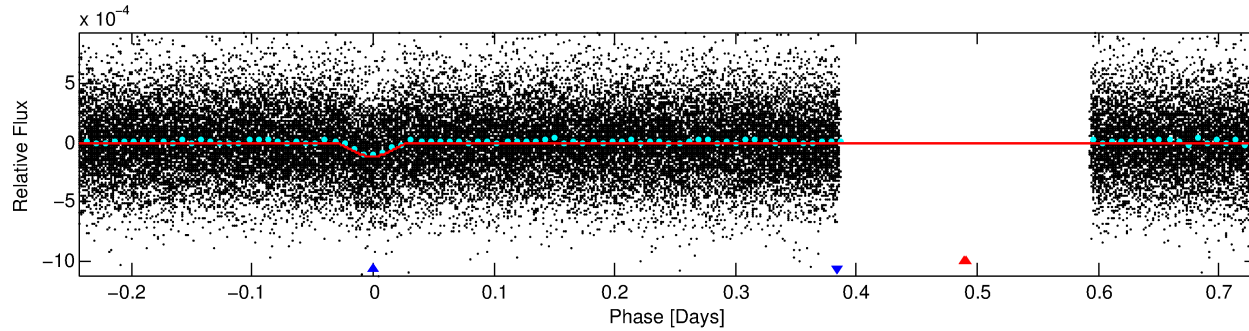
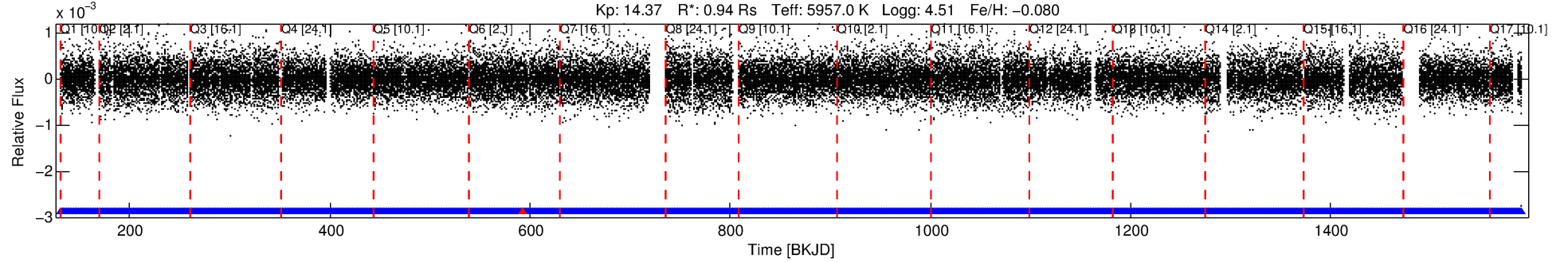
No Significant Match Found

DV One-Page Summary

KIC: 3112129 Candidate: 2 of 2 Period: 0.975 d

KOI: K04144 Corr: No Ephemeris Match

Kp: 14.37 R*: 0.94 Rs Teff: 5957.0 K Logg: 4.51 Fe/H: -0.080



DV Fit Results:

Period = 0.97531 [0.00001] d
Epoch = 131.6800 [0.0010] BKJD
Rp/R* = 0.0103 [0.0029]
a/R* = 6.12 [7.82]
b = 0.65 [1.17]
Seff = 2626.07 [444.67]
Teq = 1825 [77] K
Rp = 1.06 [0.32] Re
a = 0.0194 [0.0020] AU
Ag = 3.43 [2.38] [1.02σ]
Teffp = 3841 [652] K [3.07σ]

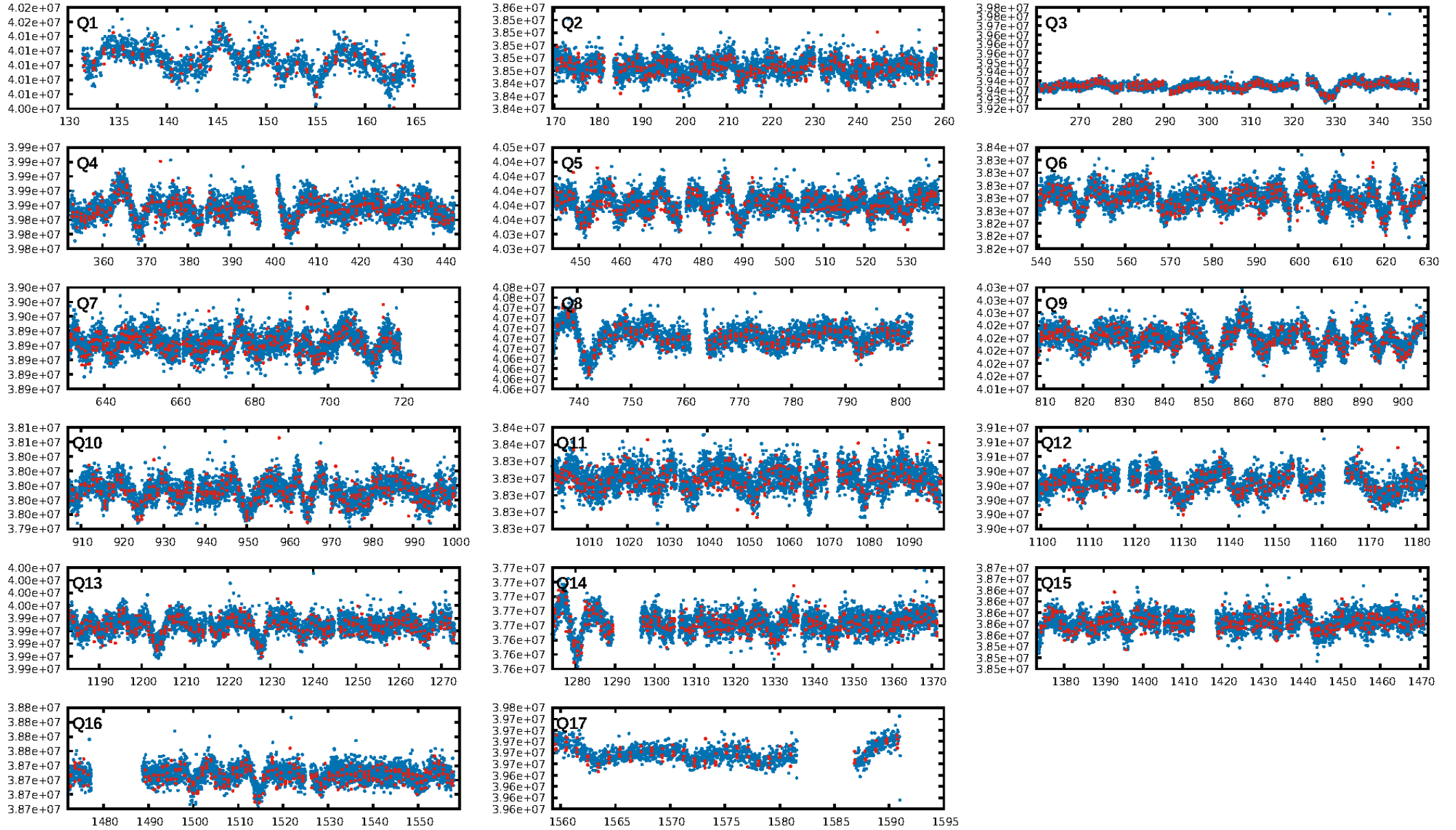
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.54e-62
RollingBand-fgt: 1.00 [1307/1308]
GhostDiagnostic-chr: 2.025
Centroid-sig: 9.3%
Centroid-so: 1.000 arcsec [1.46σ]
OotOffset-rm: 0.324 arcsec [0.87σ]
KicOffset-rm: 0.317 arcsec [0.78σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [17/17]

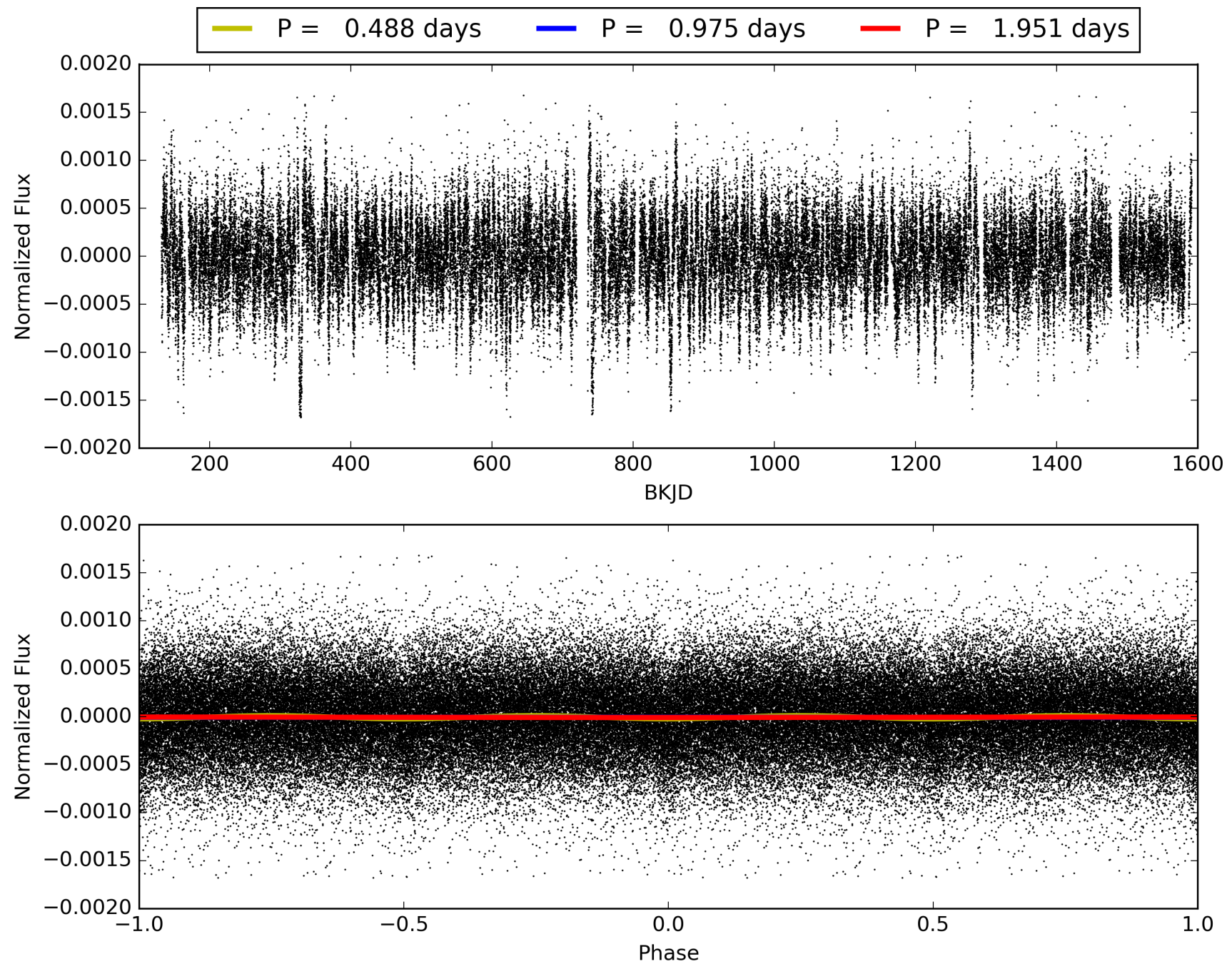
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:54:38 Z

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TCE 003112129-02, PDC Light Curves

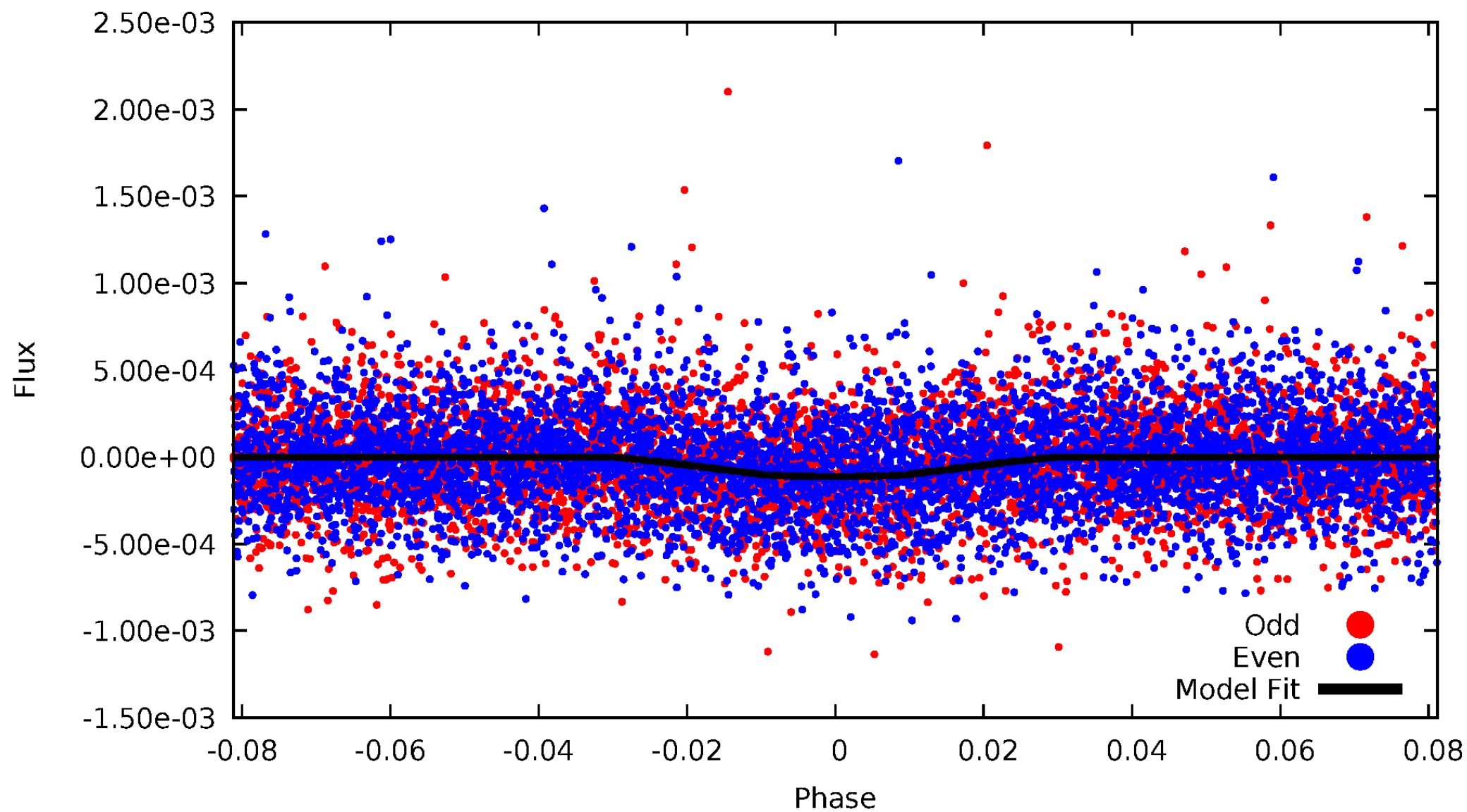


TCE 003112129-02



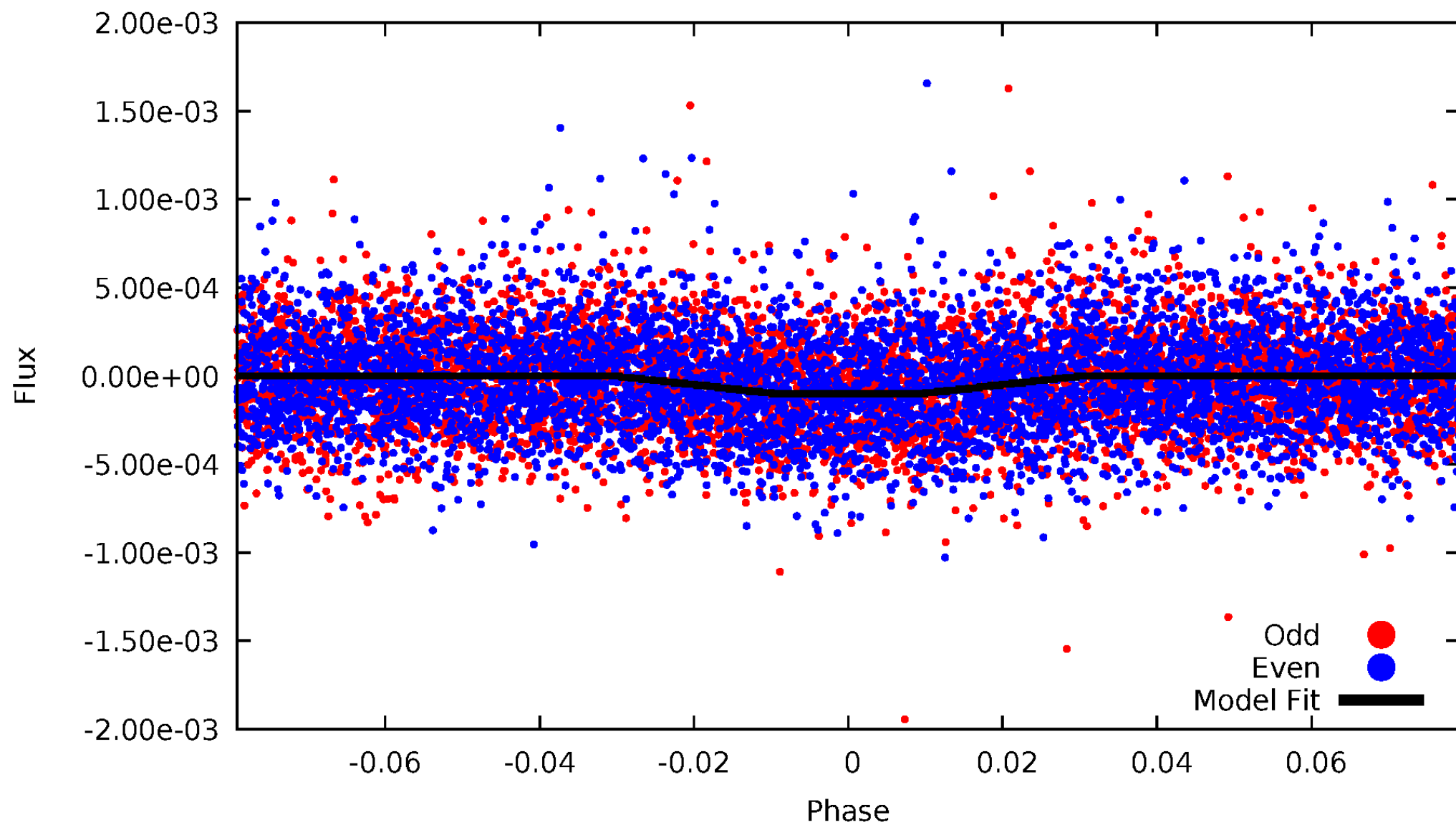
DV Odd/Even

TCE 003112129-02



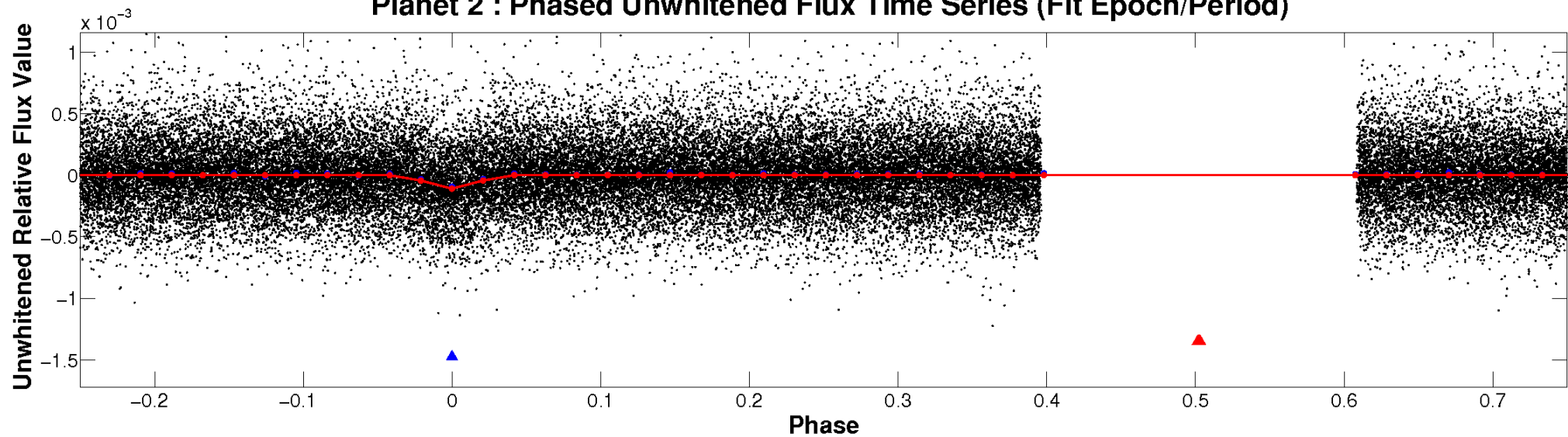
ALT Odd/Even

TCE 003112129-02

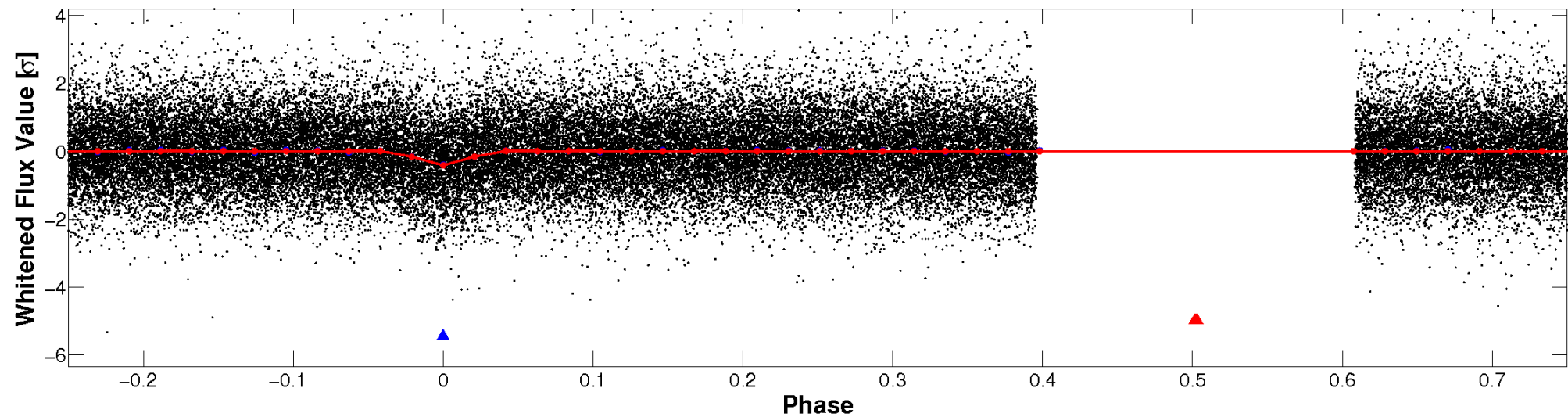


Non-Whitened Vs. Whitened Light Curve

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

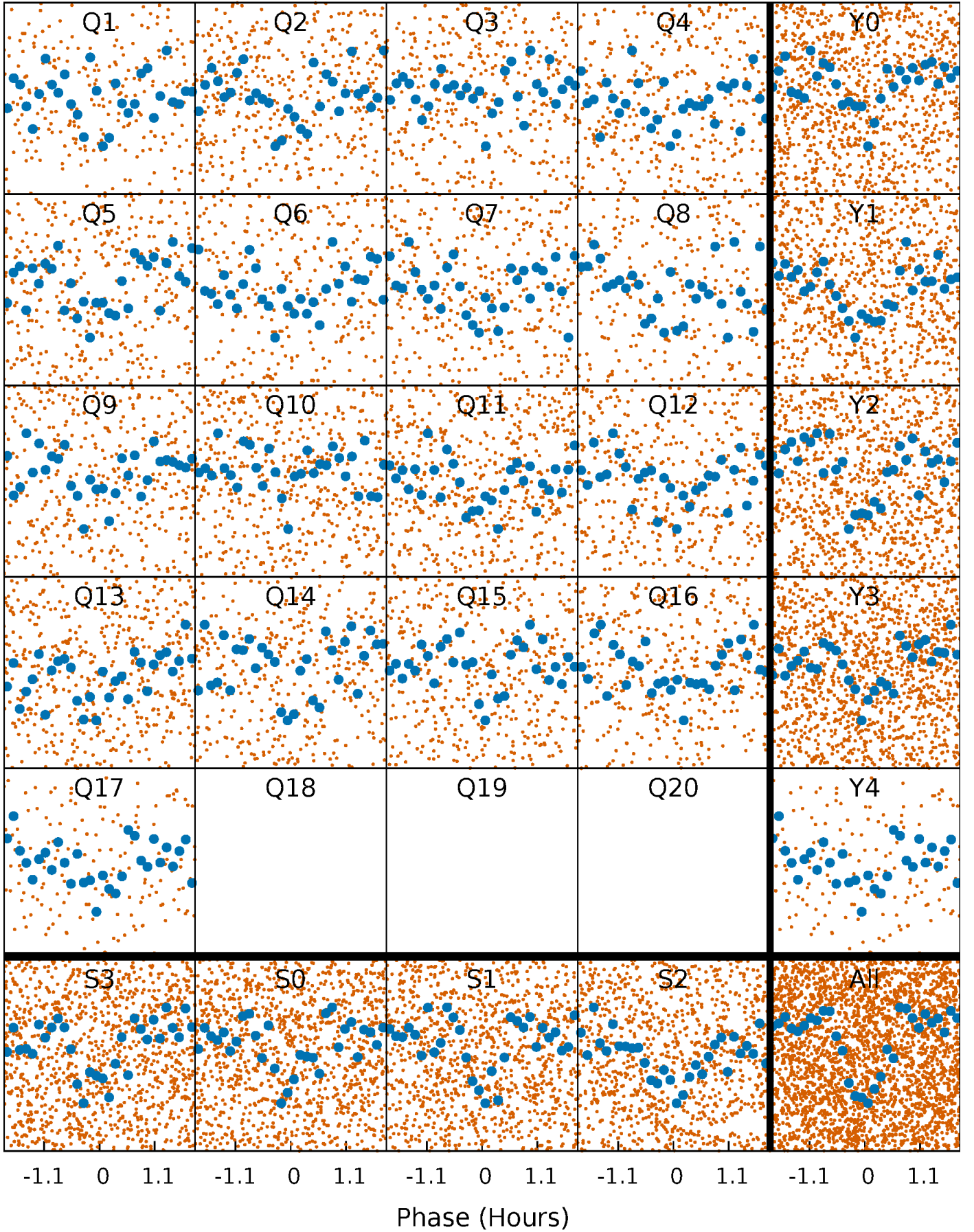


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



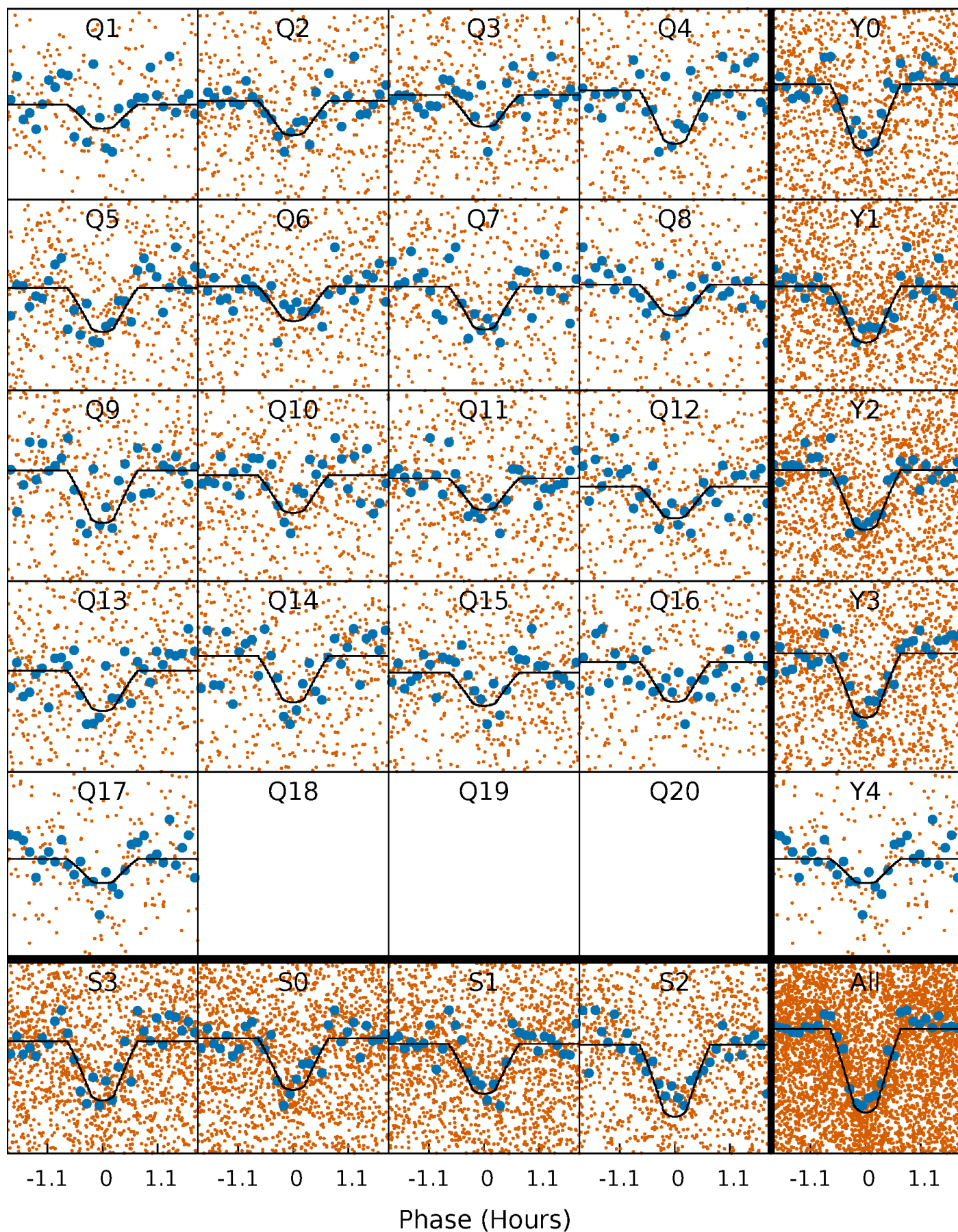
PDC Quarter-Phased Transit Curves

TCE 003112129-02 P= 0.975311 Days $T_0=131.679961$ (BKJD)



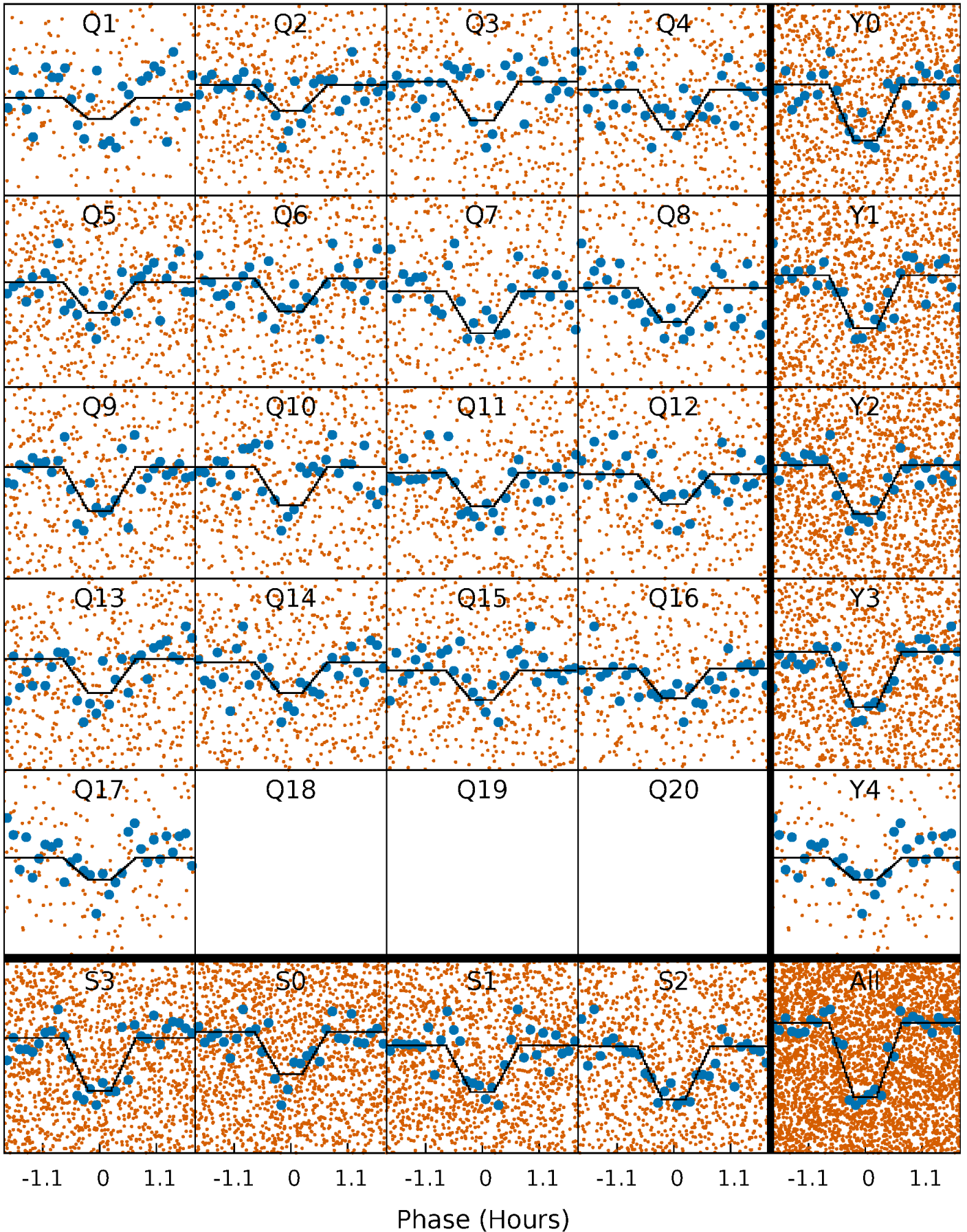
DV Quarter-Phased Transit Curves

TCE 003112129-02 P= 0.975311 Days $T_0=131.679961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

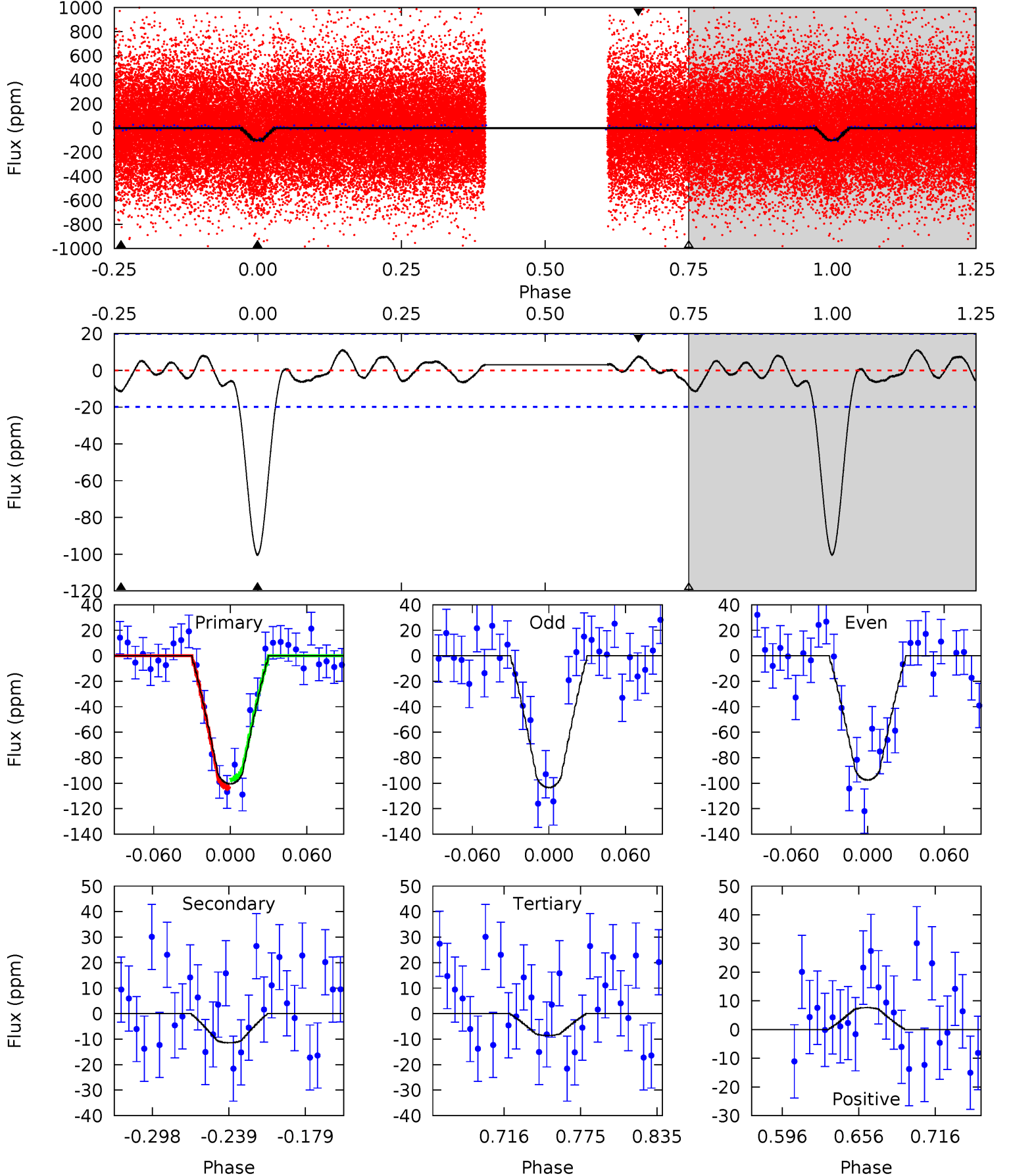
TCE 003112129-02 P= 0.975313 Days $T_0=131.677738$ (BKJD)



DV Model-Shift Uniqueness Test

003112129-02, P = 0.975311 Days, E = 130.704650 Days

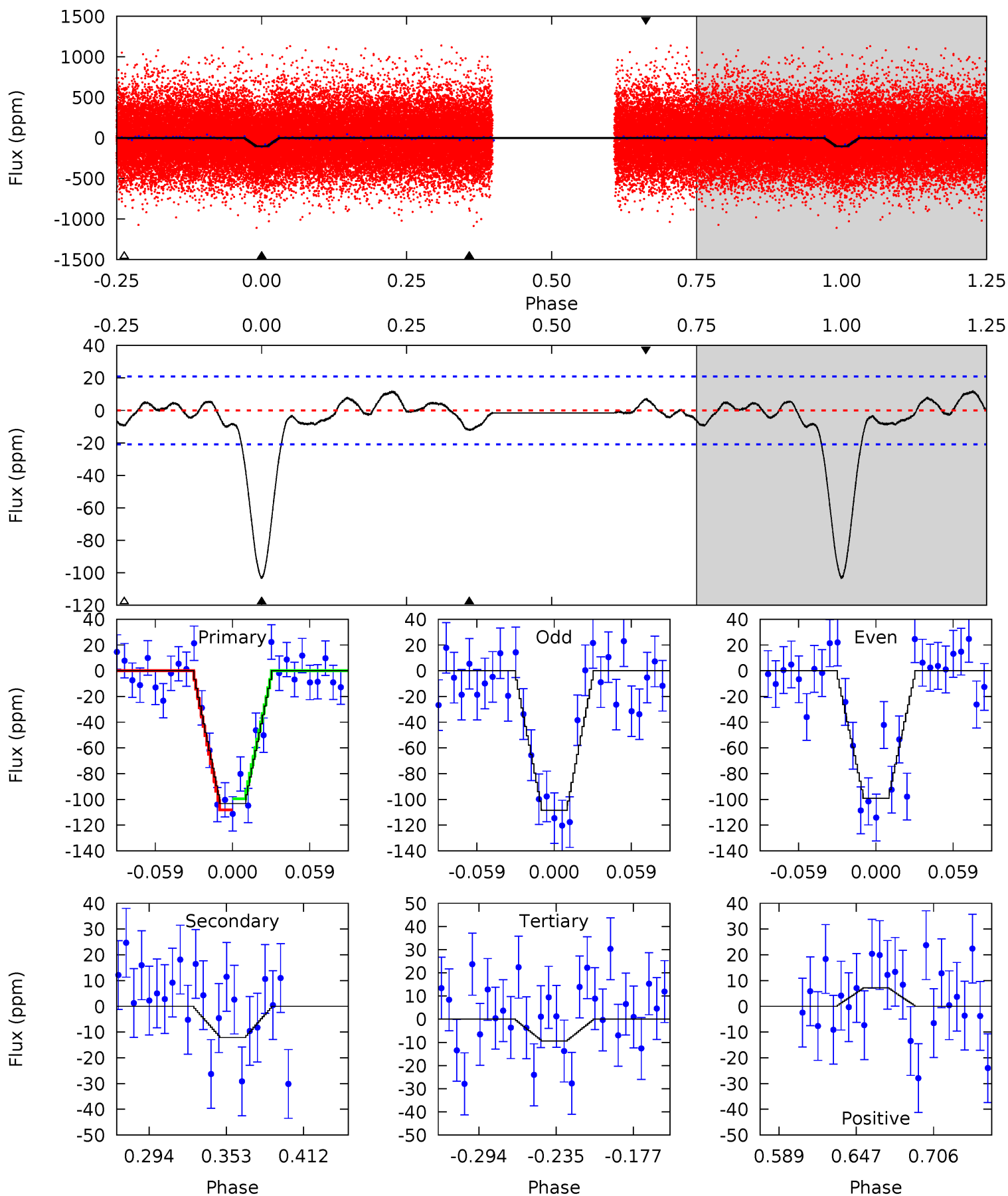
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.6	2.68	2.01	1.79	4.67	1.88	1.05	21.6	21.8	0.67	0.89	0.70	0.93	0.10	0.81



Alt Model-Shift Uniqueness Test

003112129-02, P = 0.975313 Days, E = 130.702425 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	2.71	2.10	1.60	4.67	1.89	1.11	21.0	21.5	0.61	1.11	1.06	0.91	0.10	0.96



Stellar Parameters For KIC 003112129

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5957^{+71}_{-89}	$4.506^{+0.024}_{-0.090}$	$-0.080^{+0.150}_{-0.200}$	$0.937^{+0.109}_{-0.051}$	$1.026^{+0.049}_{-0.073}$	$1.759^{+0.205}_{-0.497}$
	+1%/-1%	+1%/-2%	+188%/-250%	+12%/-5%	+5%/-7%	+12%/-28%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 003112129-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 4	$1.08^{+0.29}_{-0.30}$	2572^{+77}_{-58}	3656^{+570}_{-485}	$1.926^{+2.131}_{-0.970}$
Alt.	-12 ± 4	$1.04^{+0.31}_{-0.31}$	2575^{+83}_{-58}	3790^{+598}_{-472}	$2.323^{+2.622}_{-1.164}$

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

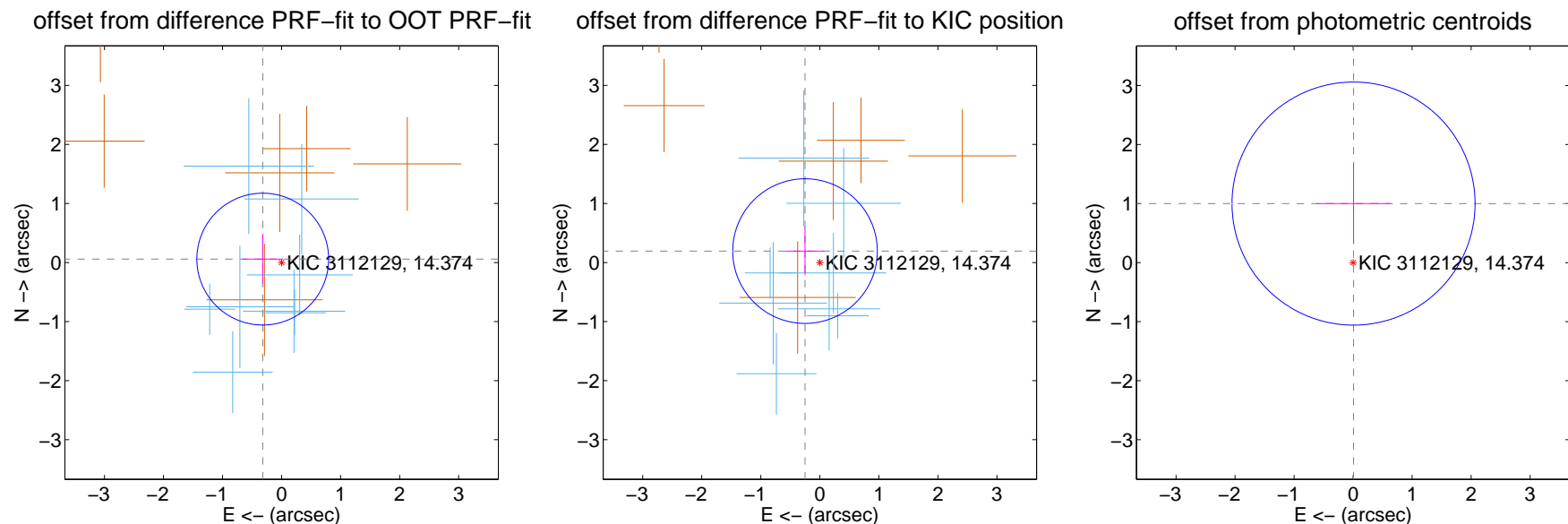
DV Centroid Data

Supplemental centroid analysis for 003112129-02. Kepler magnitude: 14.37. Transit SNR 17.68

There are 8 quarters with good PRF difference image offsets

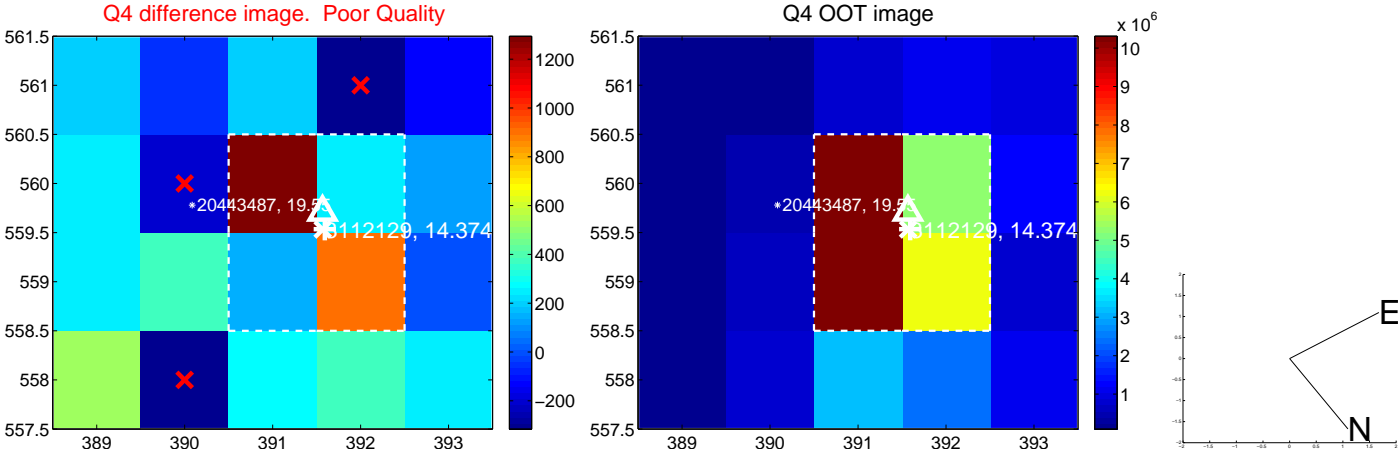
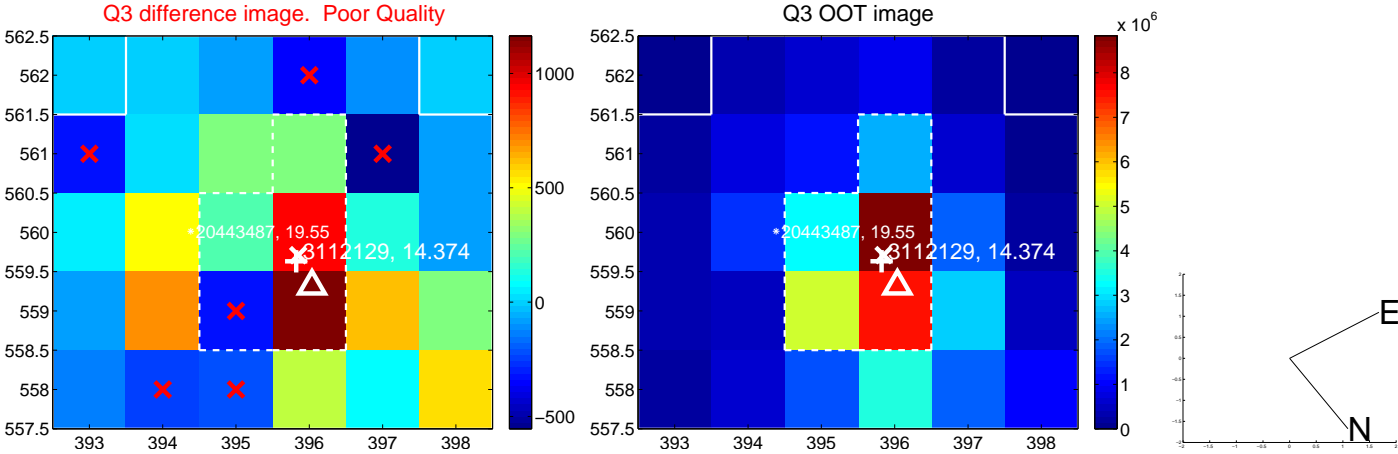
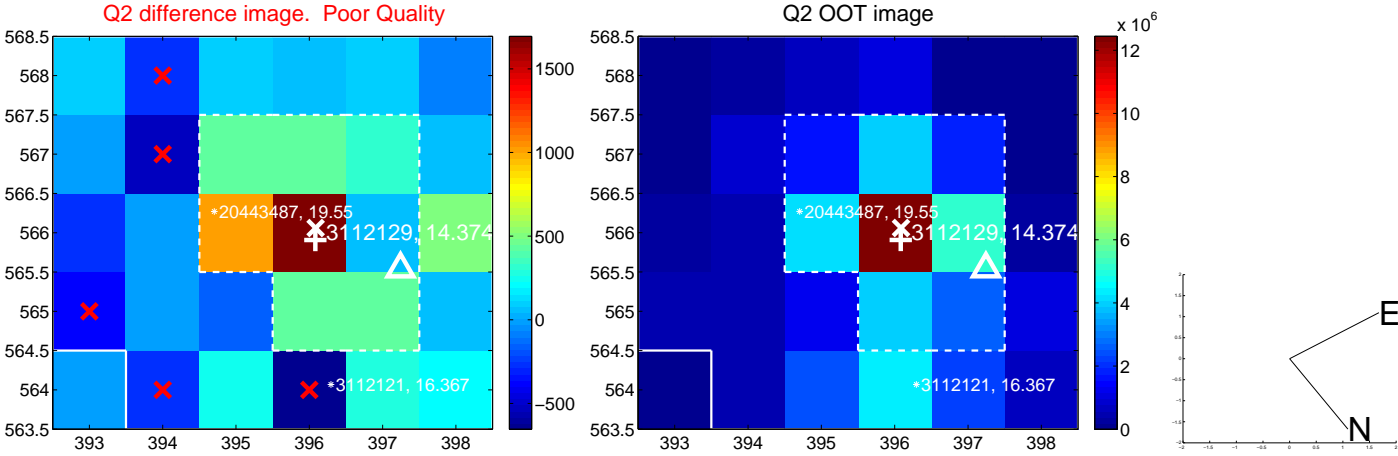
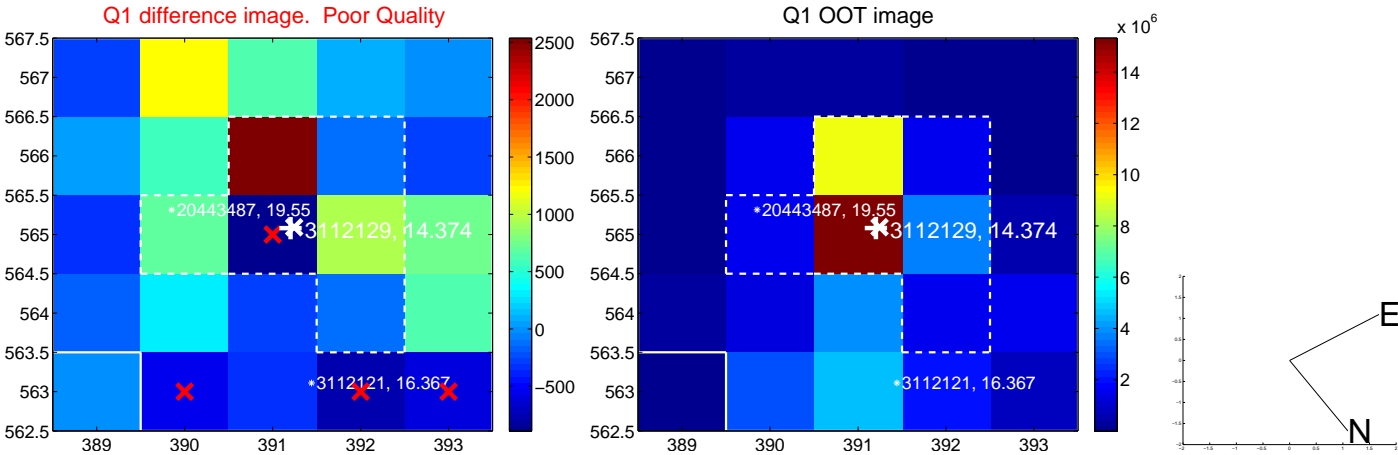
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.324 ± 0.372	0.87	0.319 ± 0.350	0.058 ± 0.426
PRF-fit source offset from KIC position	0.317 ± 0.408	0.78	0.251 ± 0.328	0.194 ± 0.409
photometric centroid source offset	1.00 ± 0.69	1.46	-0.01 ± 0.63	1.00 ± 0.69

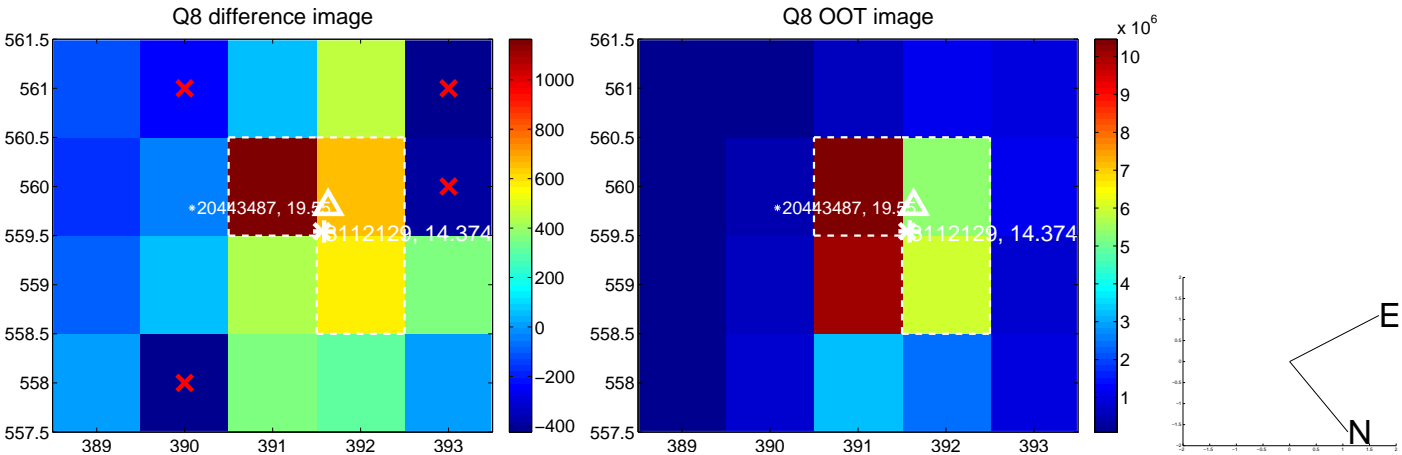
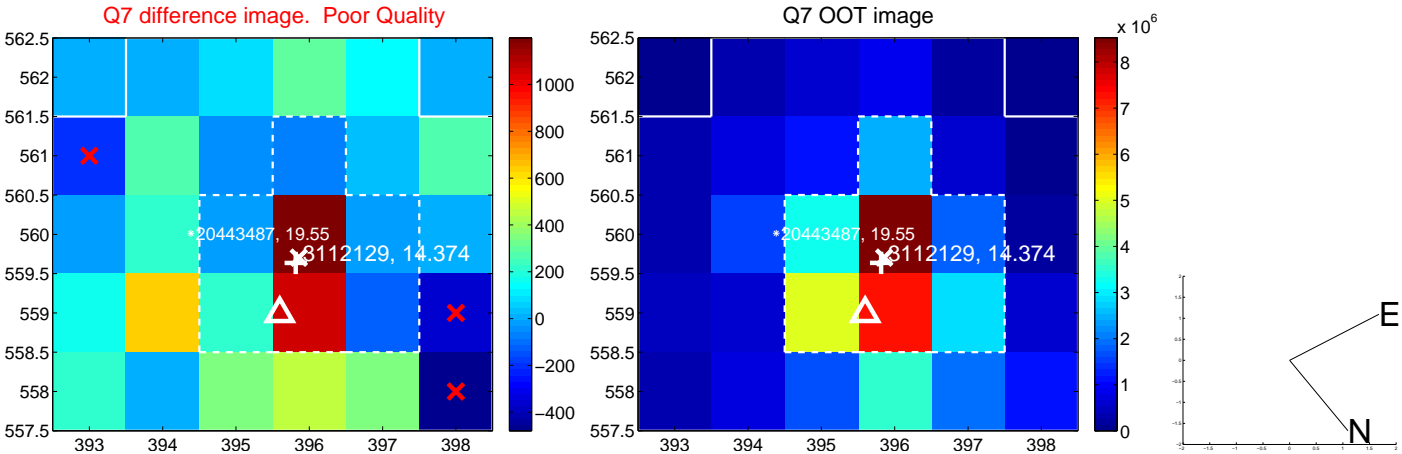
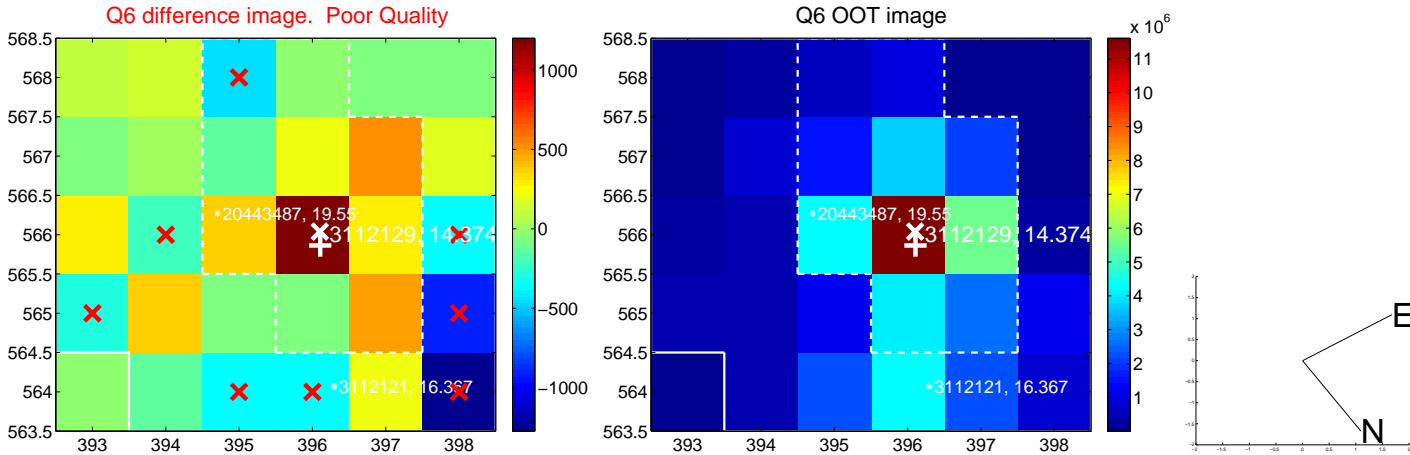
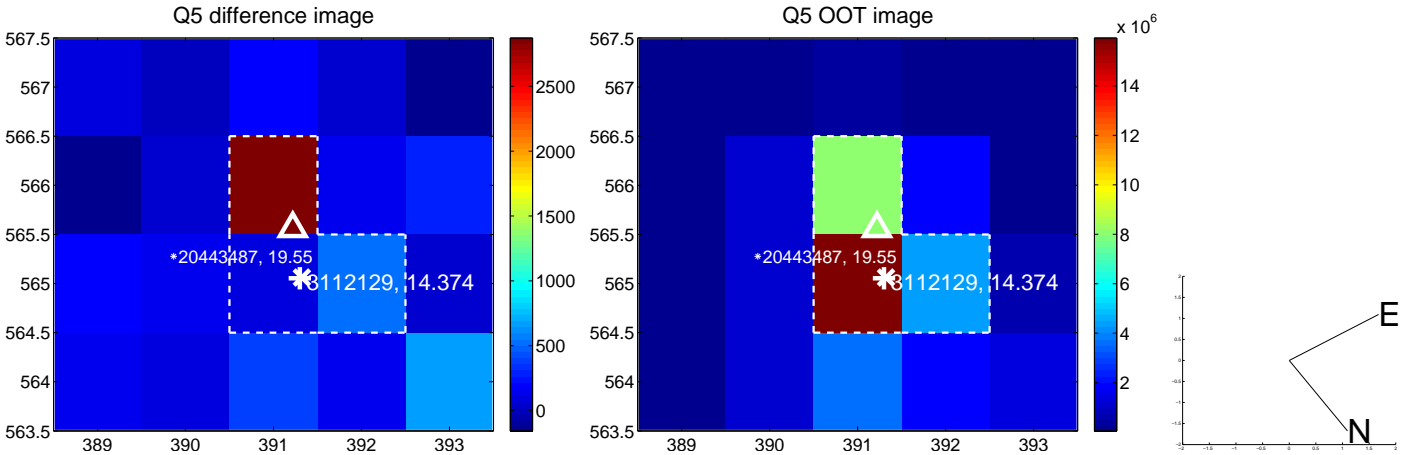


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

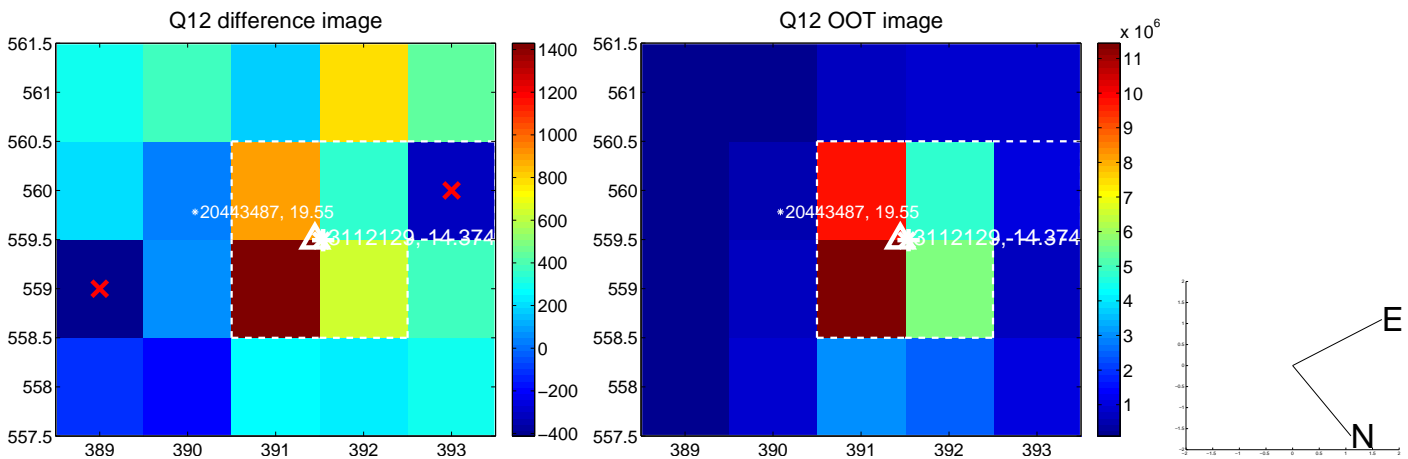
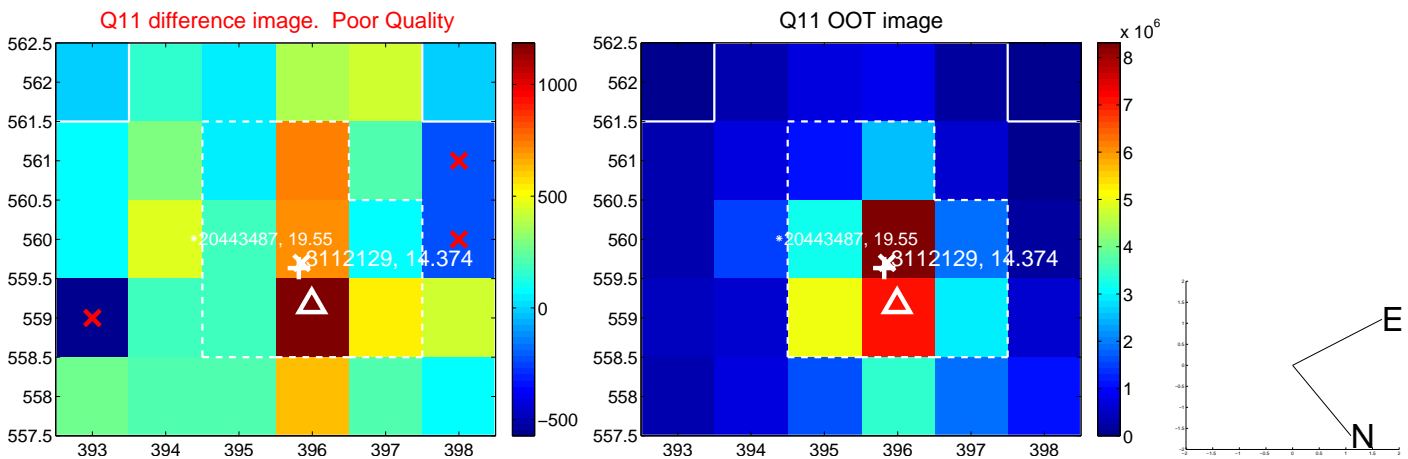
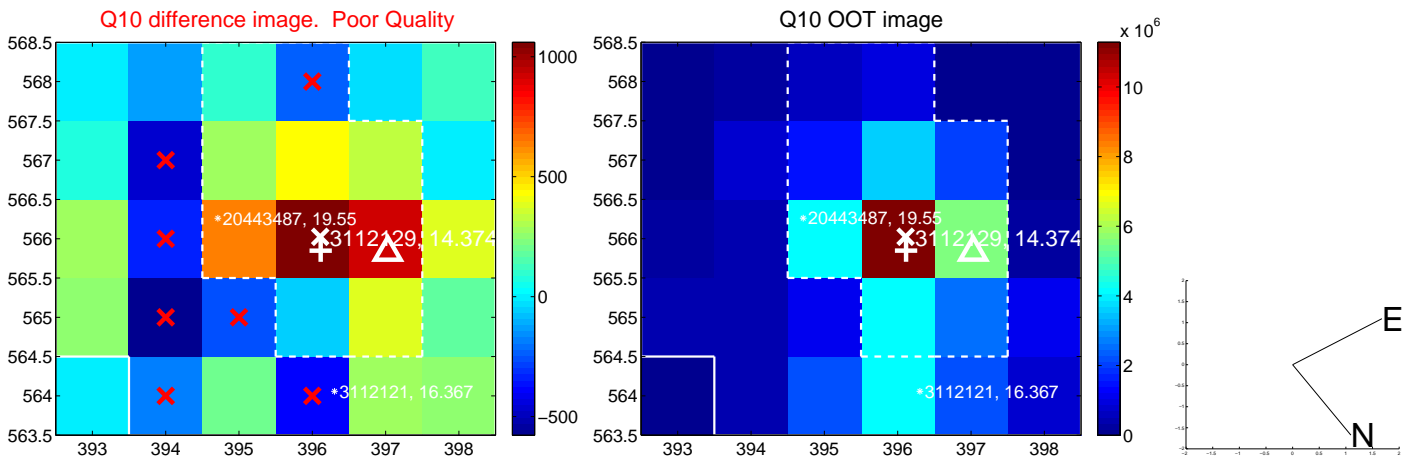
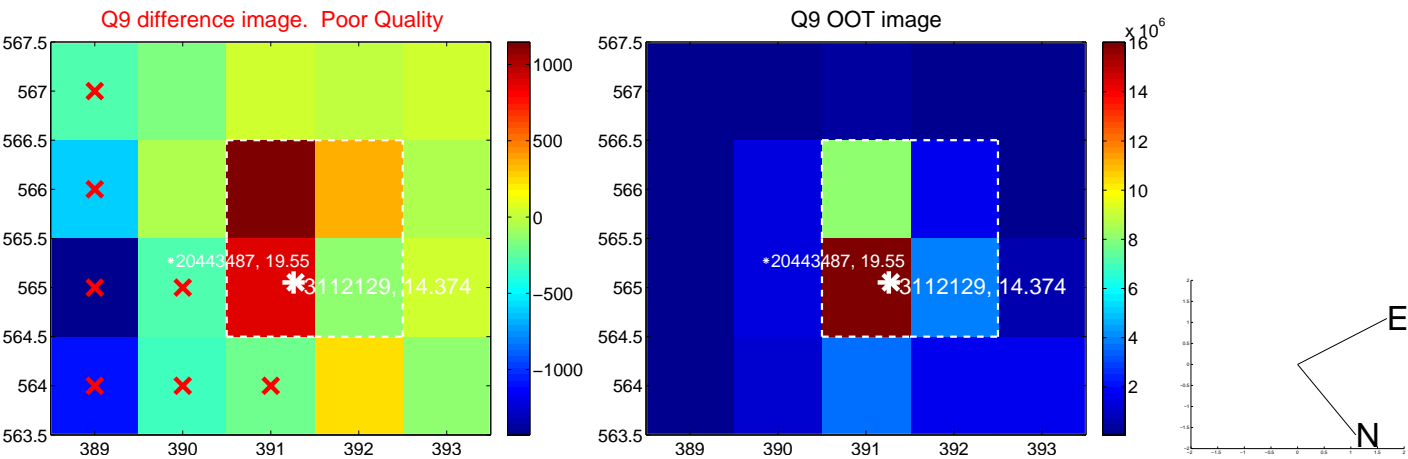
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



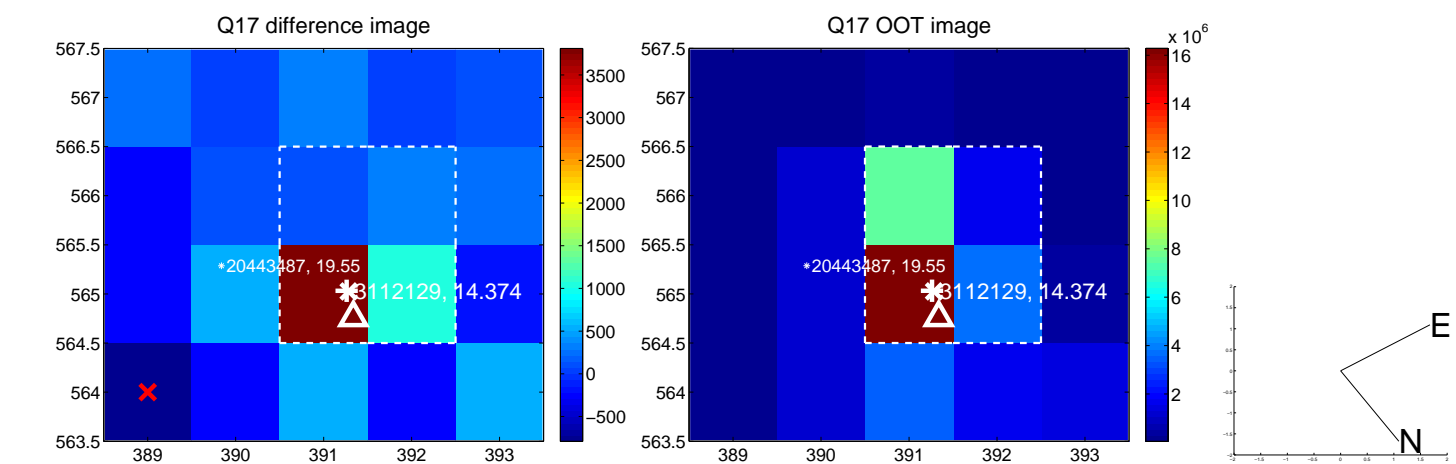
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



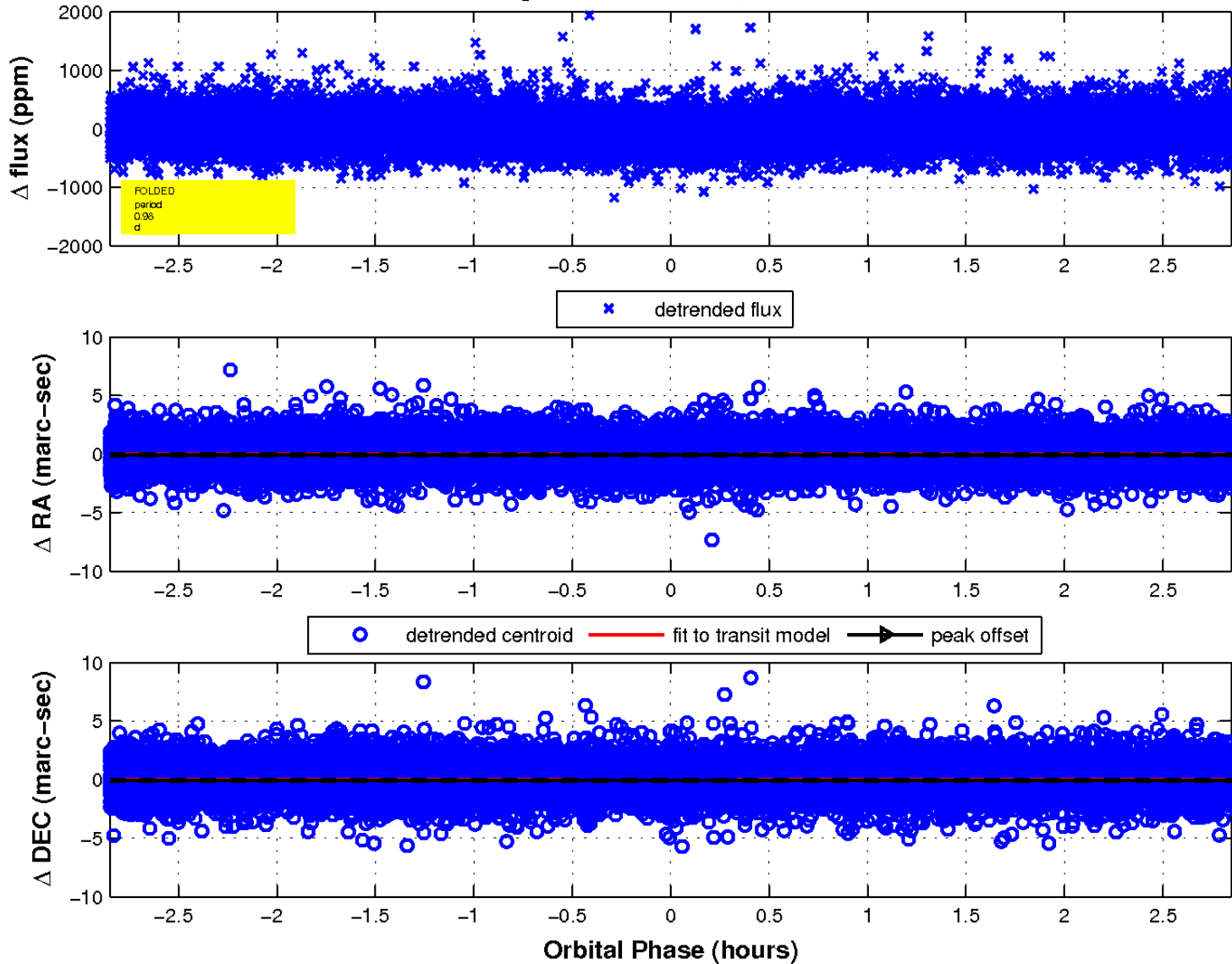
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

