

KIC 011200415

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})
011200415-01	OBS	0293.01	4.639559	135.106565	85.7	3.686	23.1	25.3	1.65	6591	2.04	1500.90
011200415-02	OBS	No	22.240162	149.674608	65.1	28.126	8.1	8.9	1.65	6591	1.43	185.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011200415-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
011200415-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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 011200415-01

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
011200415-01	11200415	3724.01	11200405	1:1	7.6	1	-1	16.80	12.05	369.15	Direct-PRF	0	0.47	0.30

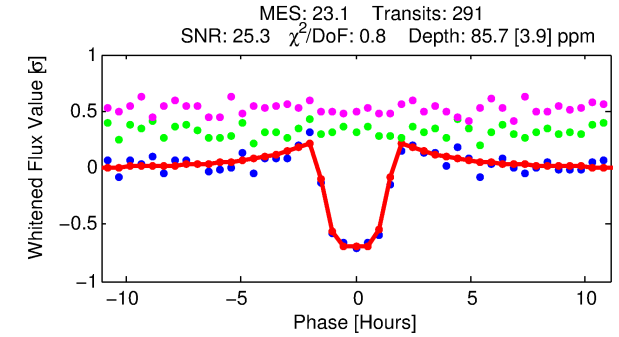
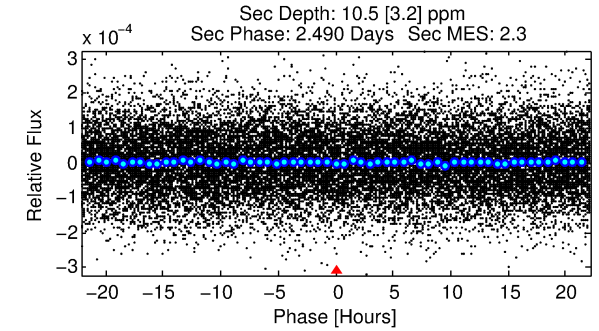
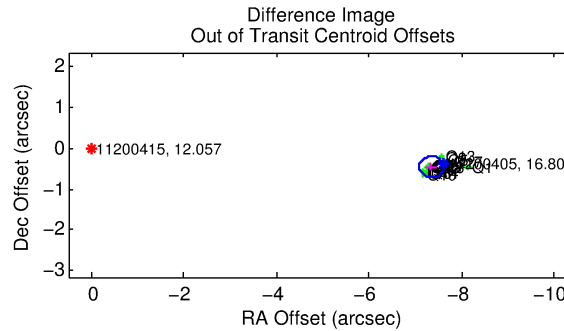
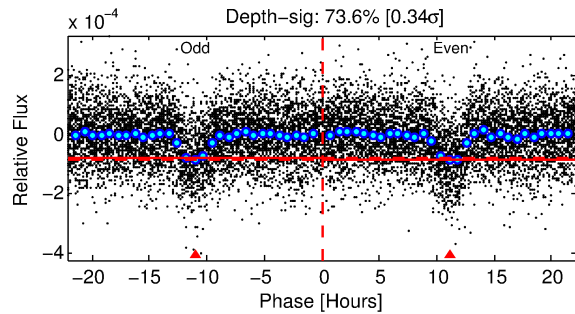
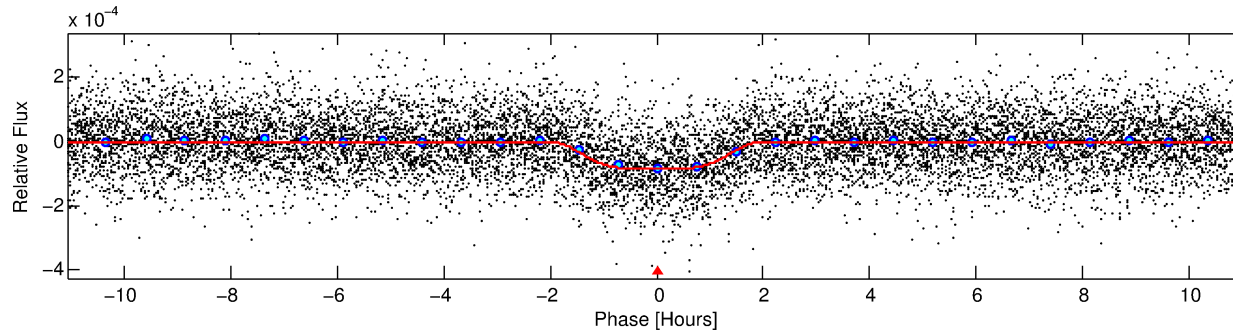
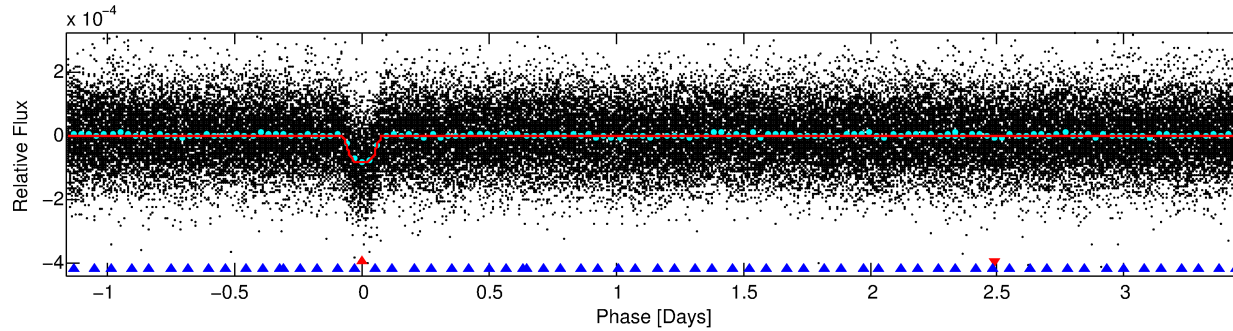
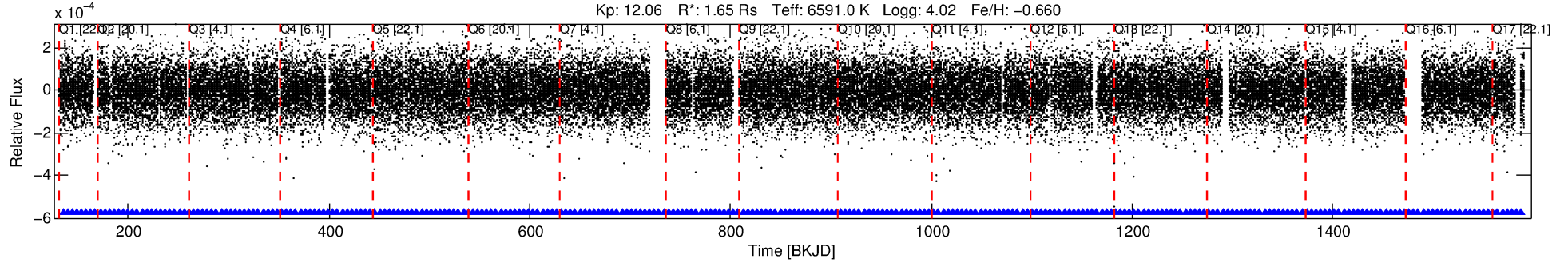
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 11200415 Candidate: 1 of 2 Period: 4.640 d

KOI: K00293.01 Corr: 0.881

Kp: 12.06 R*: 1.65 Rs Teff: 6591.0 K Logg: 4.02 Fe/H: -0.660



DV Fit Results:

Period = 4.63956 [0.00001] d
Epoch = 135.1066 [0.0022] BKJD
Rp/R* = 0.0114 [0.0003]
a/R* = 2.46 [0.18]
b = 0.98 [0.00]
Seff = 1500.90 [706.98]
Teq = 1587 [187] K
Rp = 2.04 [0.56] Re
a = 0.0552 [0.0154] AU
Ag = 4.25 [2.35] [1.38σ]
Teff = 3523 [291] K [5.59σ]

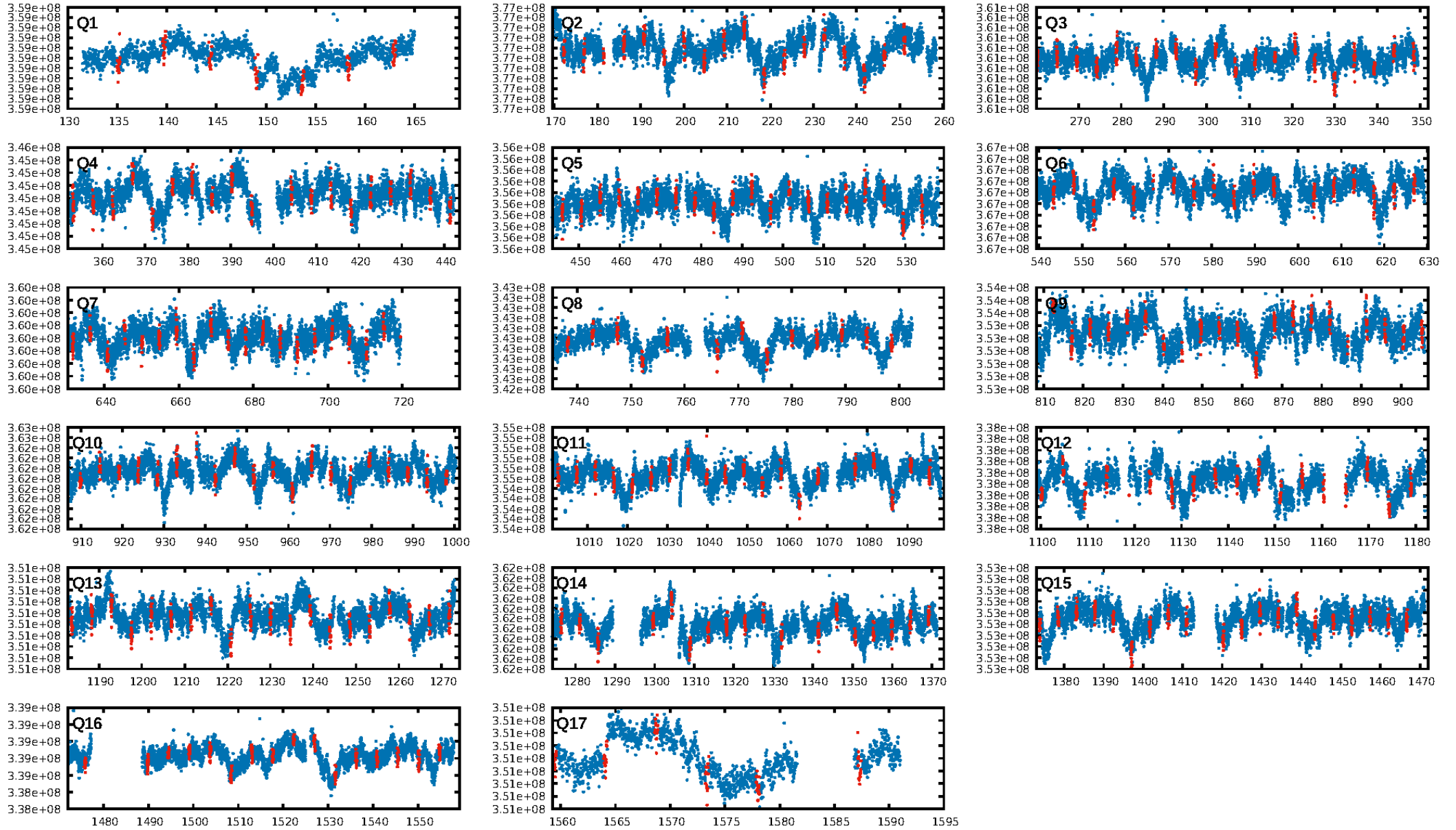
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.89σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 3.60e-114
RollingBand-fgt: 1.00 [278/278]
GhostDiagnostic-chr: -0.2416
Centroid-sig: 0.0%
Centroid-so: 27.396 arcsec [81.90σ]
OotOffset-rm: 7.358 arcsec [84.55σ]
KicOffset-rm: 7.434 arcsec [82.95σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.94 [16/17]
DiffImageOverlap-fno: 1.00 [17/17]

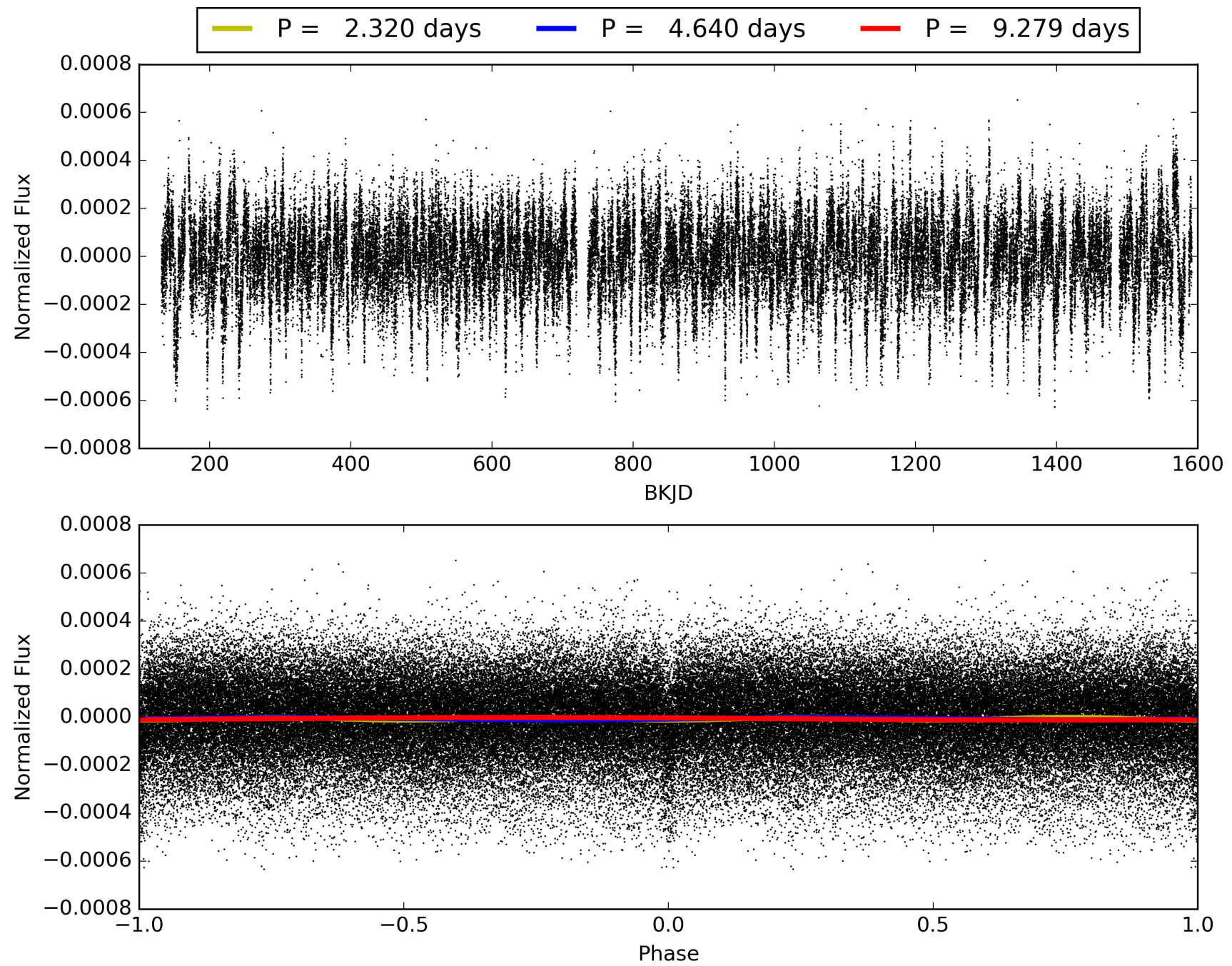
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:30:48 Z

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

TCE 011200415-01, PDC Light Curves

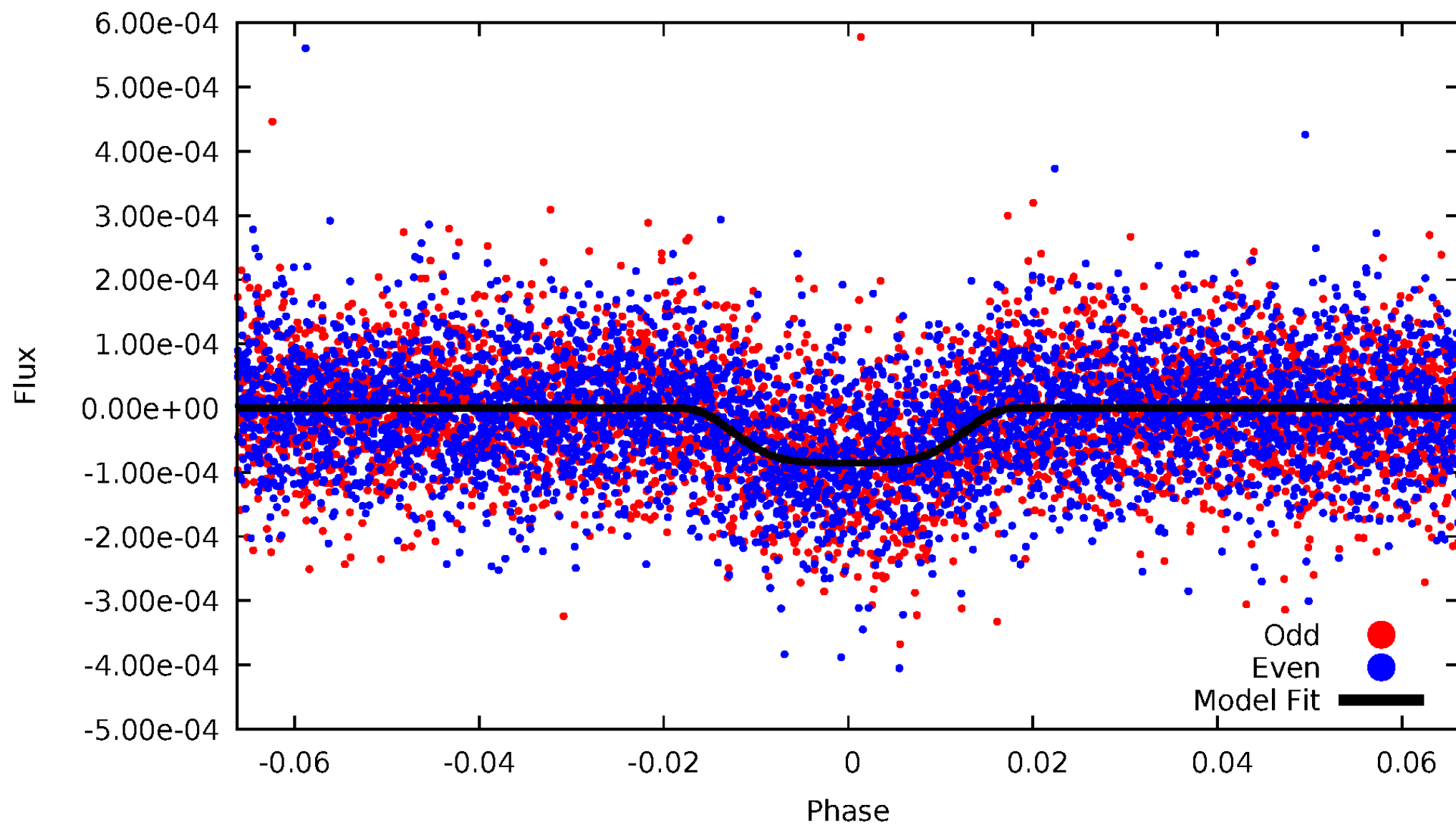


TCE 011200415-01



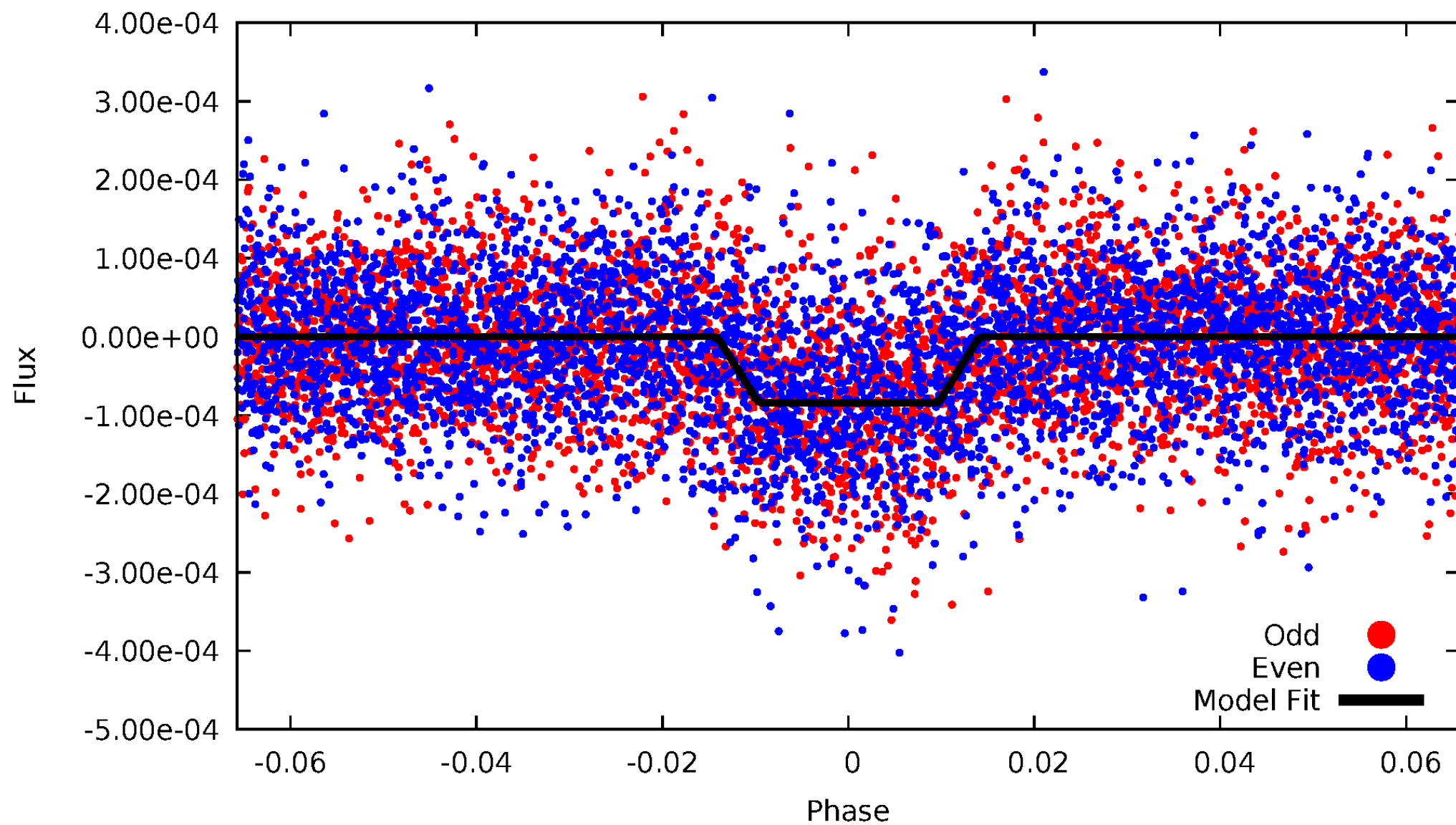
DV Odd/Even

TCE 011200415-01

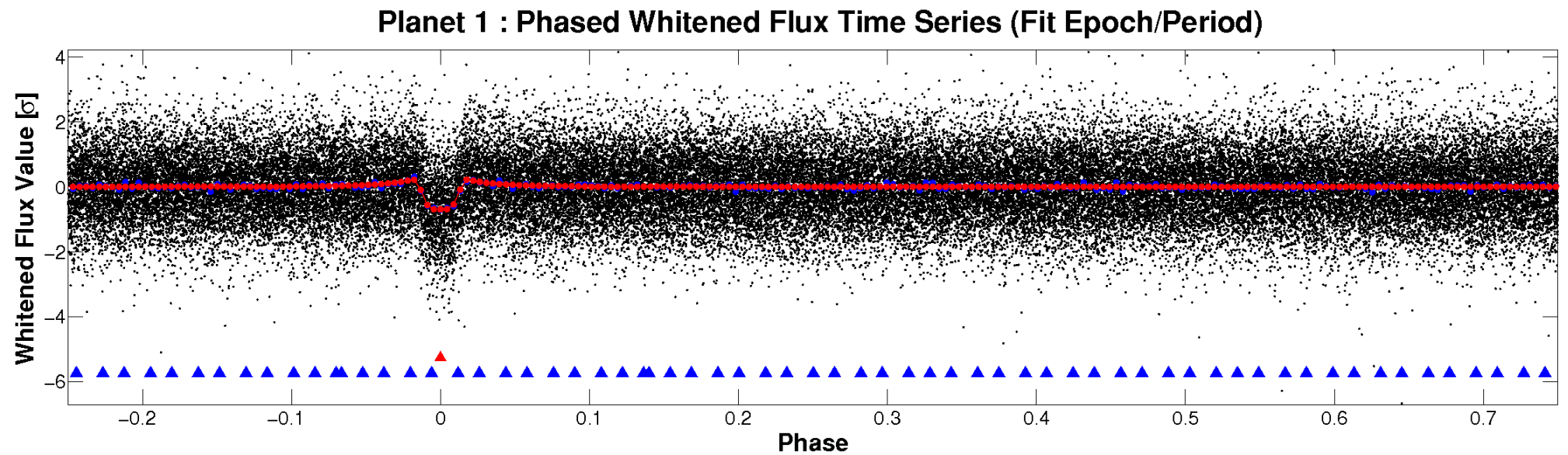
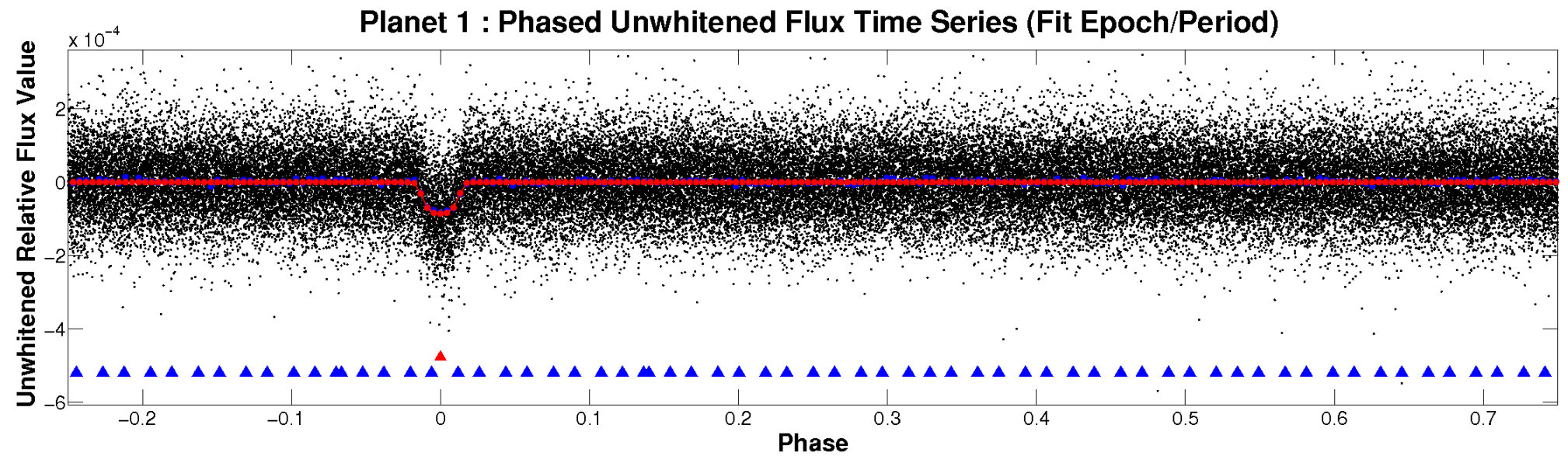


ALT Odd/Even

TCE 011200415-01

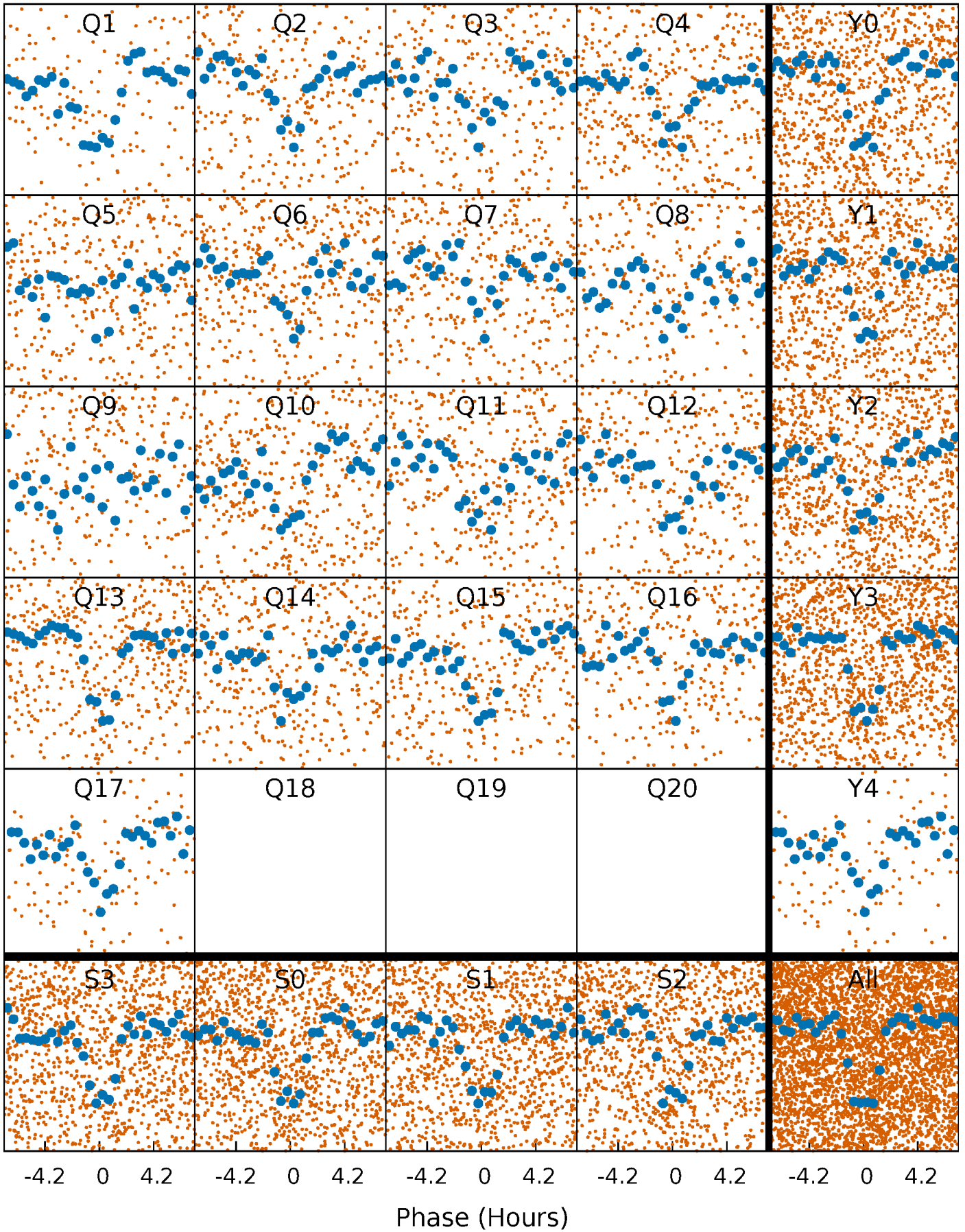


Non-Whitened Vs. Whitened Light Curve



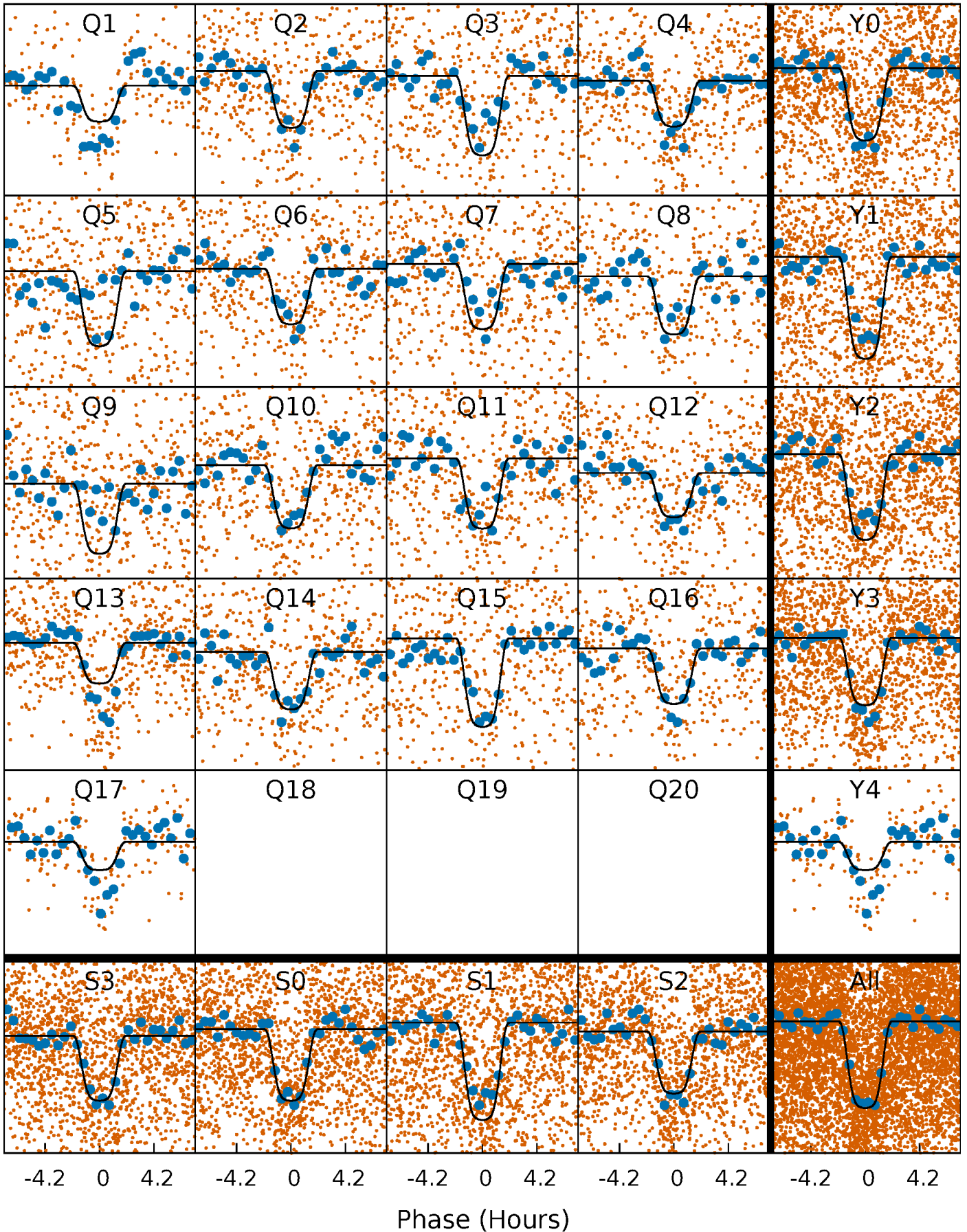
PDC Quarter-Phased Transit Curves

TCE 011200415-01 P= 4.639559 Days $T_0=135.106565$ (BKJD)



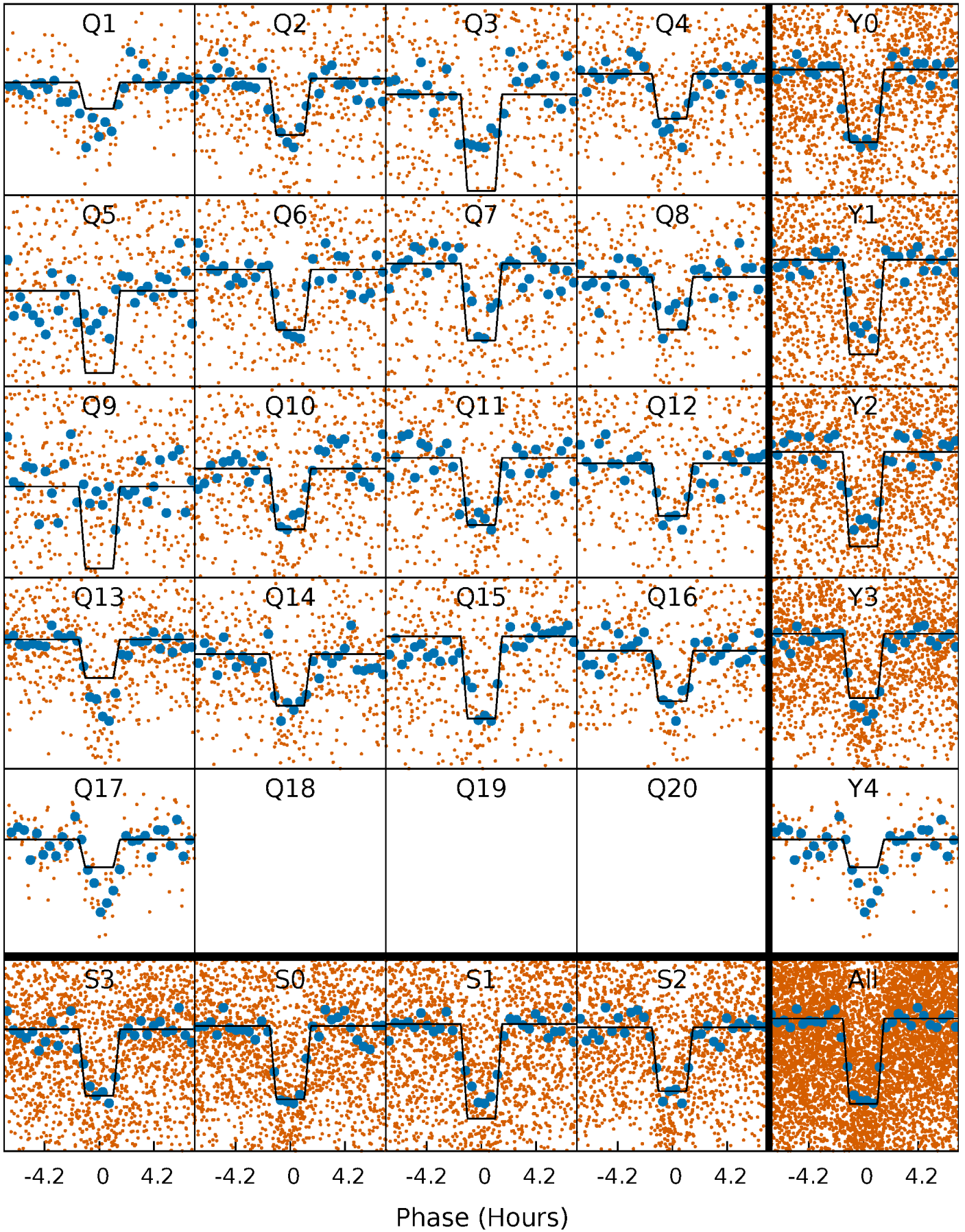
DV Quarter-Phased Transit Curves

TCE 011200415-01 P= 4.639559 Days $T_0=135.106565$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

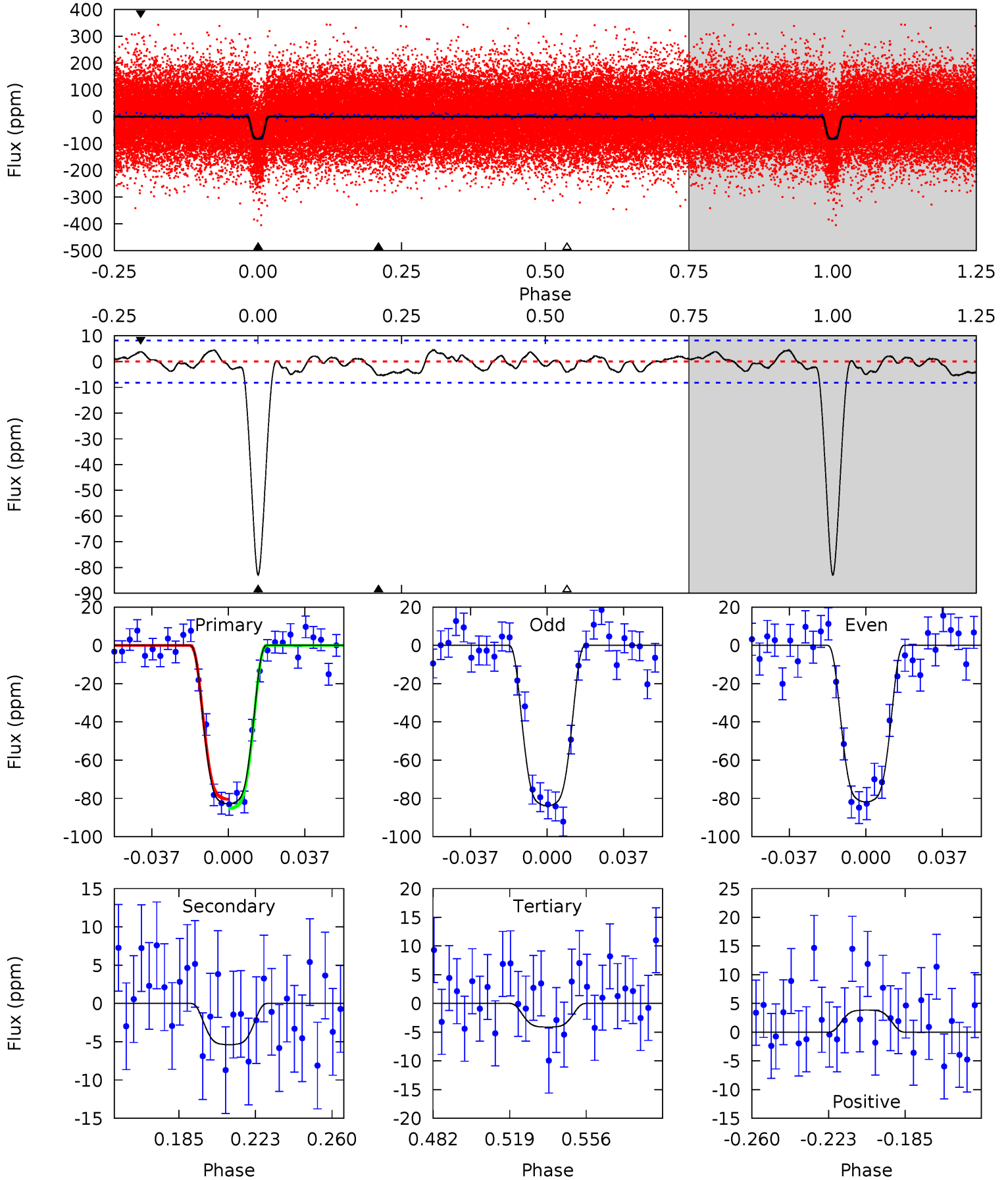
TCE 011200415-01 P= 4.639533 Days $T_0=135.112885$ (BKJD)



DV Model-Shift Uniqueness Test

011200415-01, P = 4.639559 Days, E = 130.467006 Days

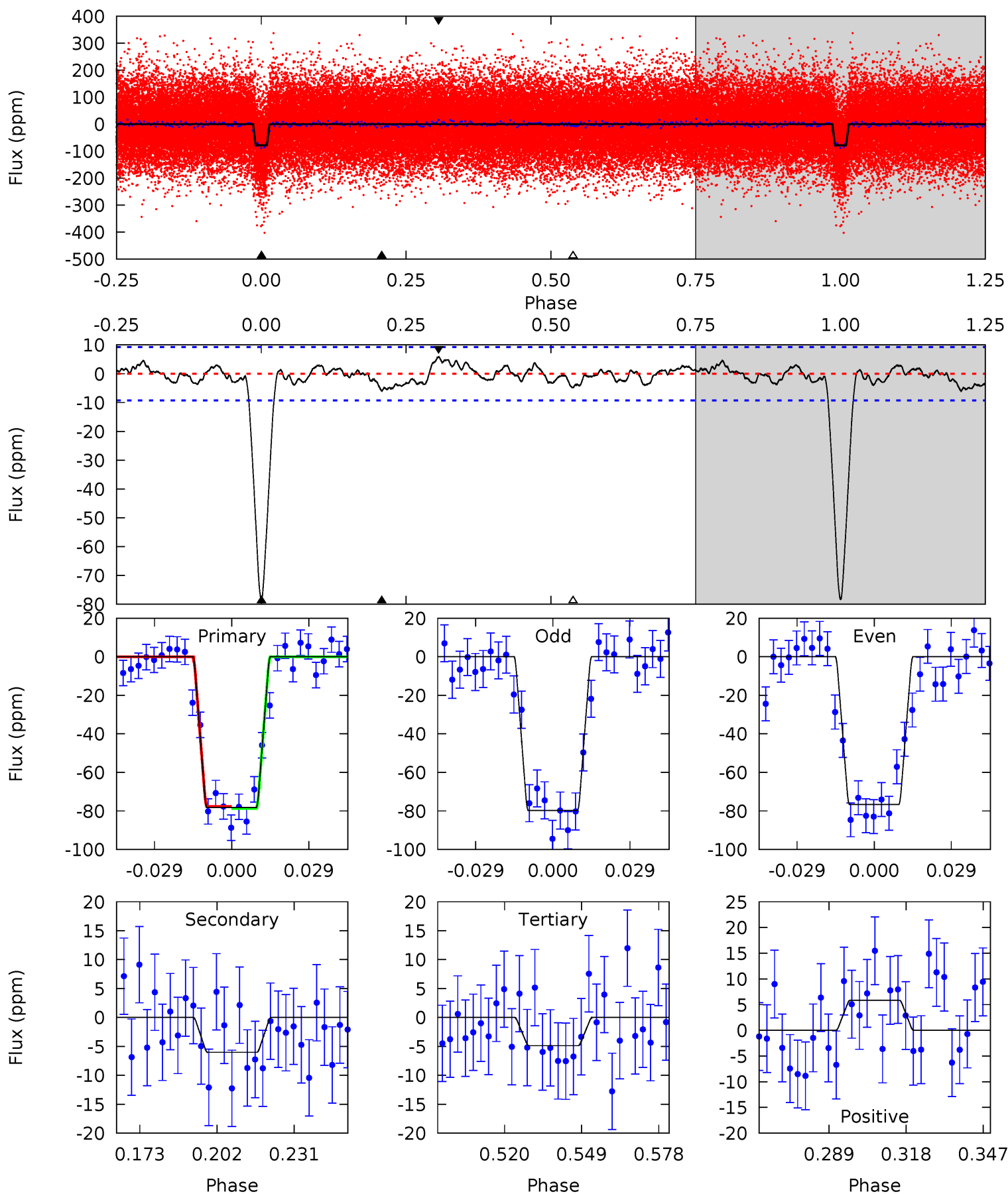
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.1	3.13	2.39	2.24	4.77	2.08	1.32	45.7	45.9	0.74	0.90	0.59	0.95	0.05	1.43



Alt Model-Shift Uniqueness Test

011200415-01, P = 4.639533 Days, E = 130.473352 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.7	3.13	2.54	3.05	4.82	2.19	1.16	38.1	37.6	0.59	0.08	0.79	0.94	0.07	0.26



Stellar Parameters For KIC 011200415

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6591^{+169}_{-186}	$4.024^{+0.273}_{-0.117}$	$-0.660^{+0.350}_{-0.300}$	$1.646^{+0.329}_{-0.452}$	$1.045^{+0.177}_{-0.122}$	$0.330^{+0.539}_{-0.125}$
	+3%/-3%	+7%/-3%	+53%/-45%	+20%/-27%	+17%/-12%	+163%/-38%
Source	PHO1	FLK73	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 011200415-01 / KOI 0293.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5 ± 2	$2.00^{+0.27}_{-0.35}$	2179^{+140}_{-184}	3397^{+184}_{-223}	$2.324^{+1.191}_{-0.782}$
Alt.	-6 ± 2	$1.63^{+0.22}_{-0.26}$	2188^{+138}_{-181}	3750^{+197}_{-261}	$3.972^{+1.959}_{-1.399}$

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

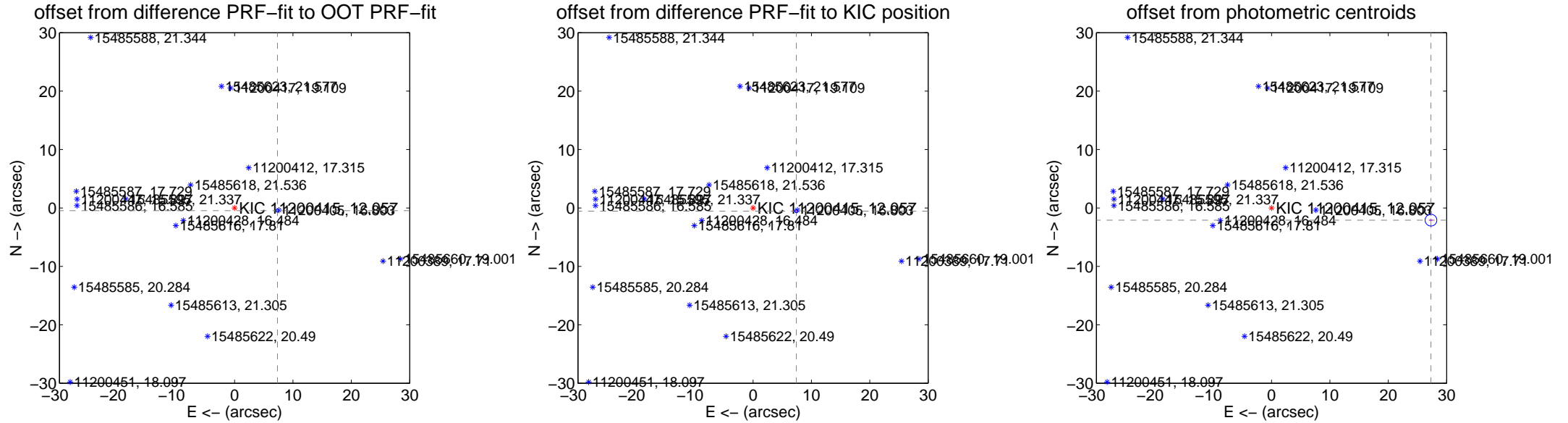
DV Centroid Data

Supplemental centroid analysis for 011200415-01. Kepler magnitude: 12.06. Transit SNR 25.27

There are 16 quarters with good PRF difference image offsets

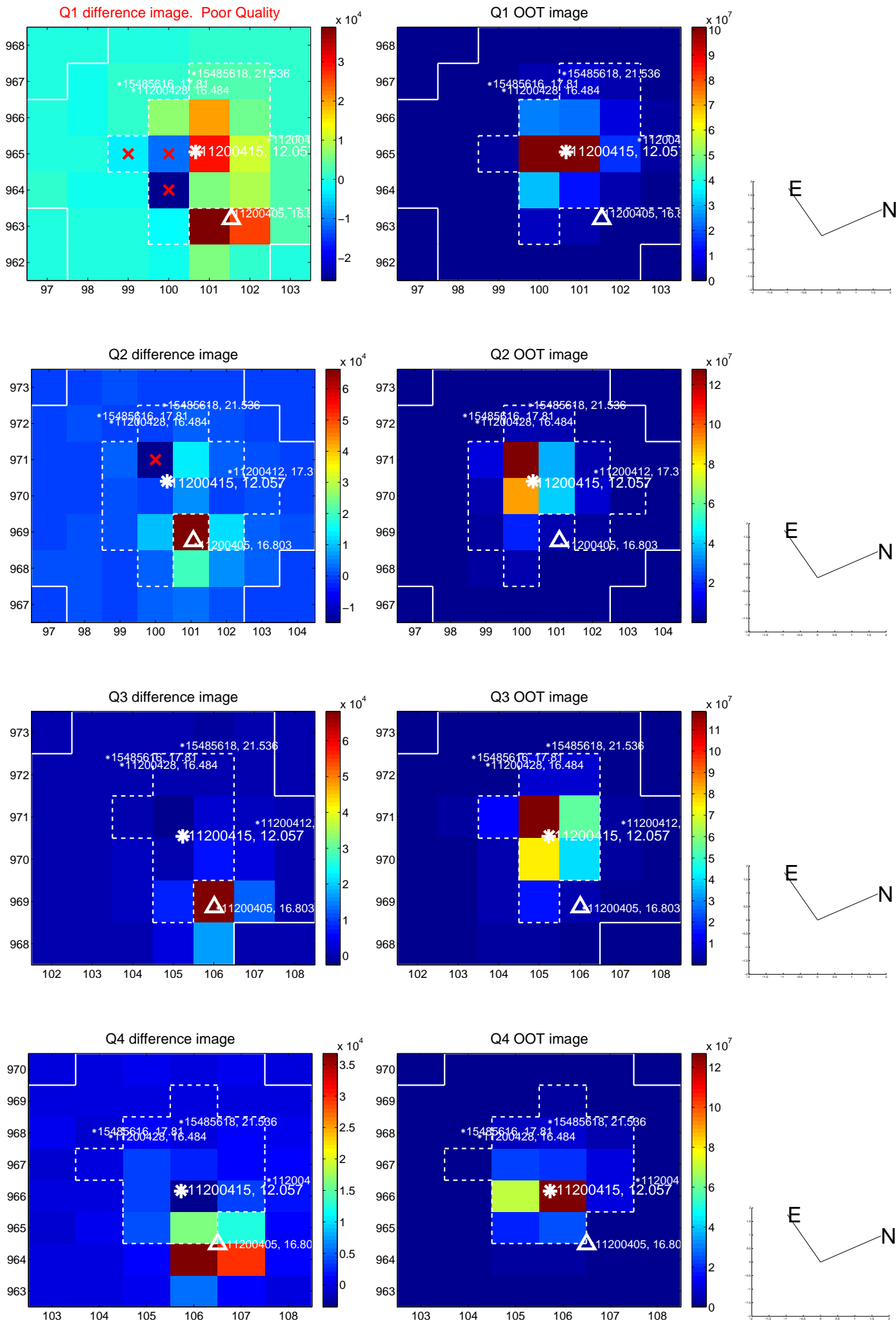
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.358 ± 0.087	84.55	-7.344 ± 0.088	-0.455 ± 0.072
PRF-fit source offset from KIC position	7.434 ± 0.090	82.95	-7.414 ± 0.090	-0.543 ± 0.073
photometric centroid source offset	27.40 ± 0.33	81.90	-27.32 ± 0.33	-2.09 ± 0.27

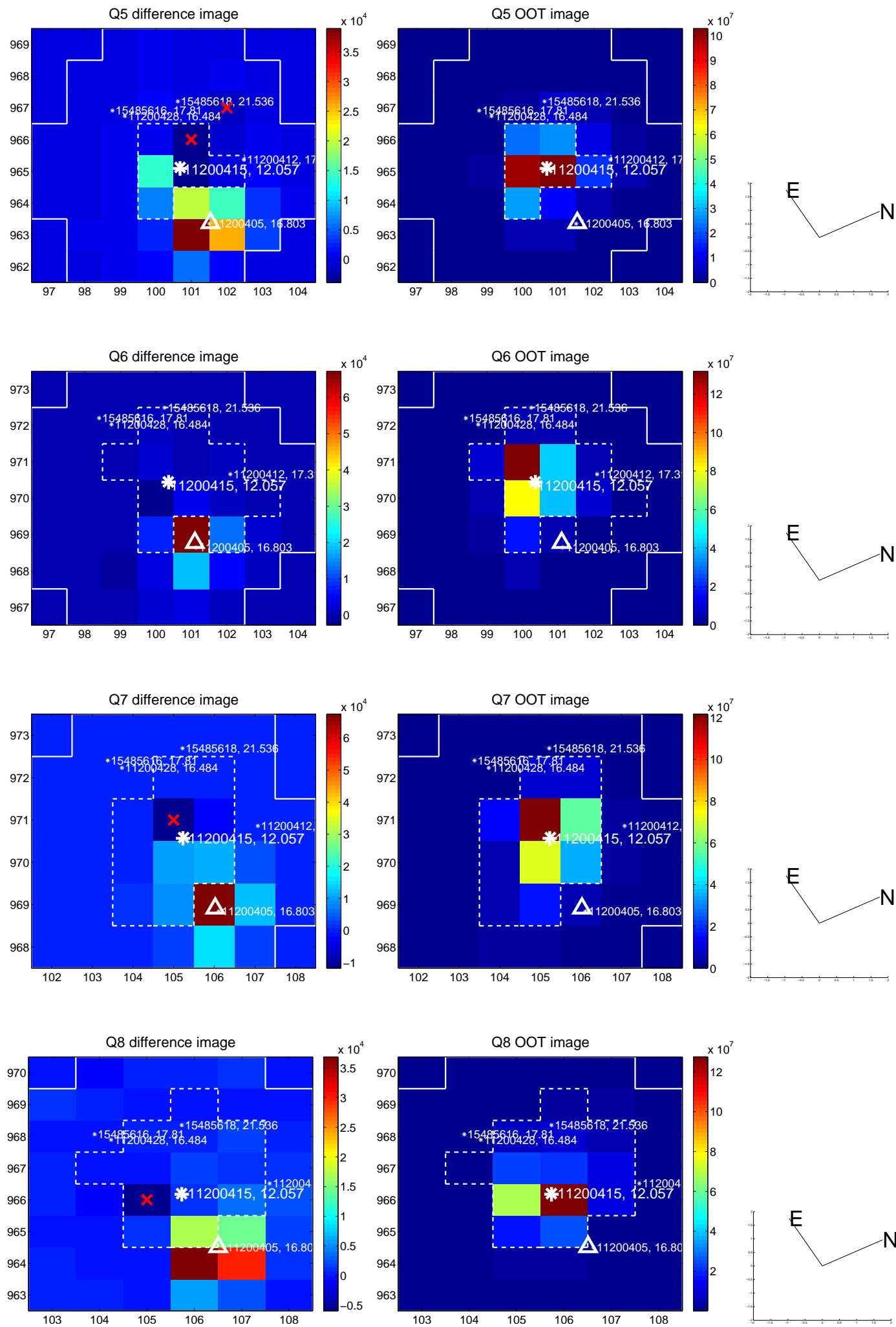


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

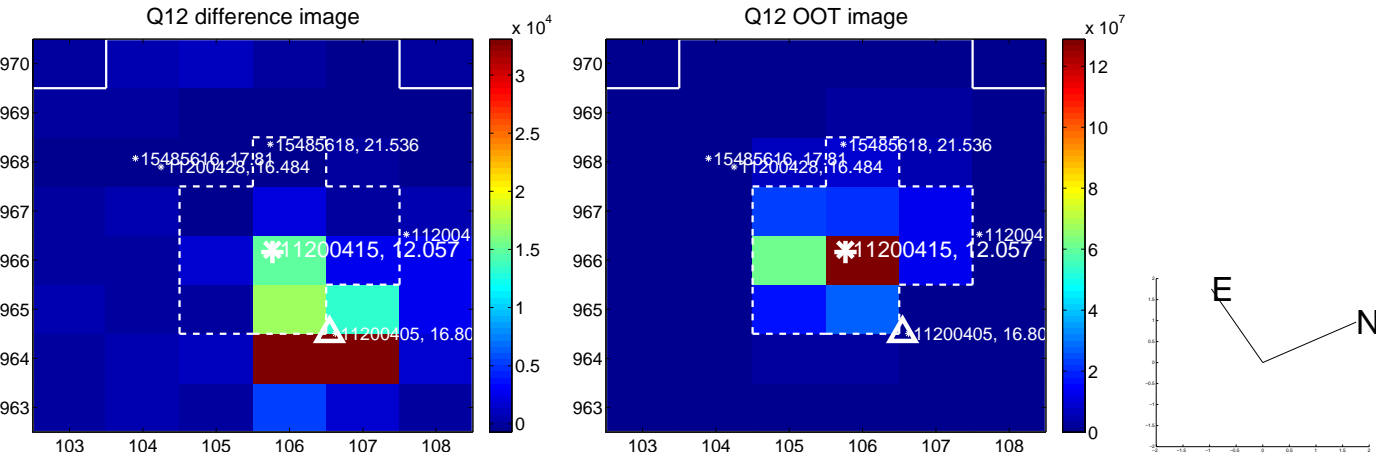
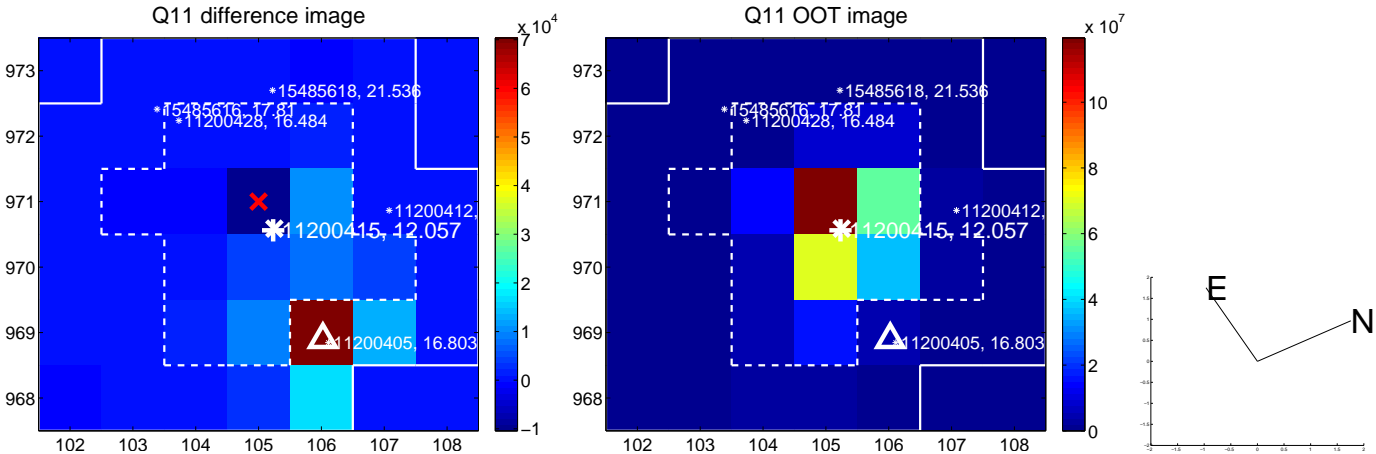
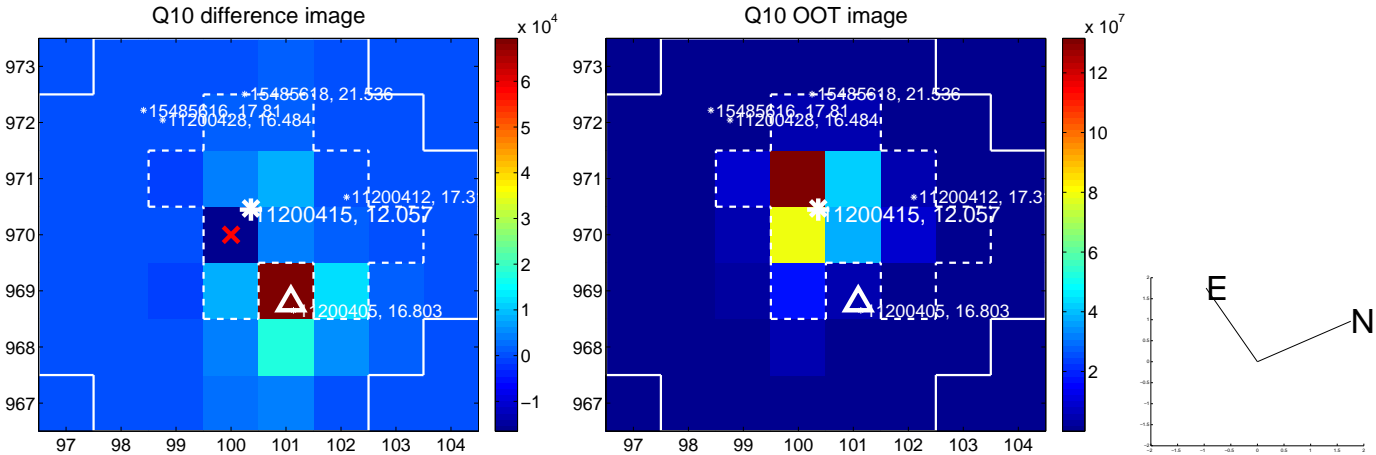
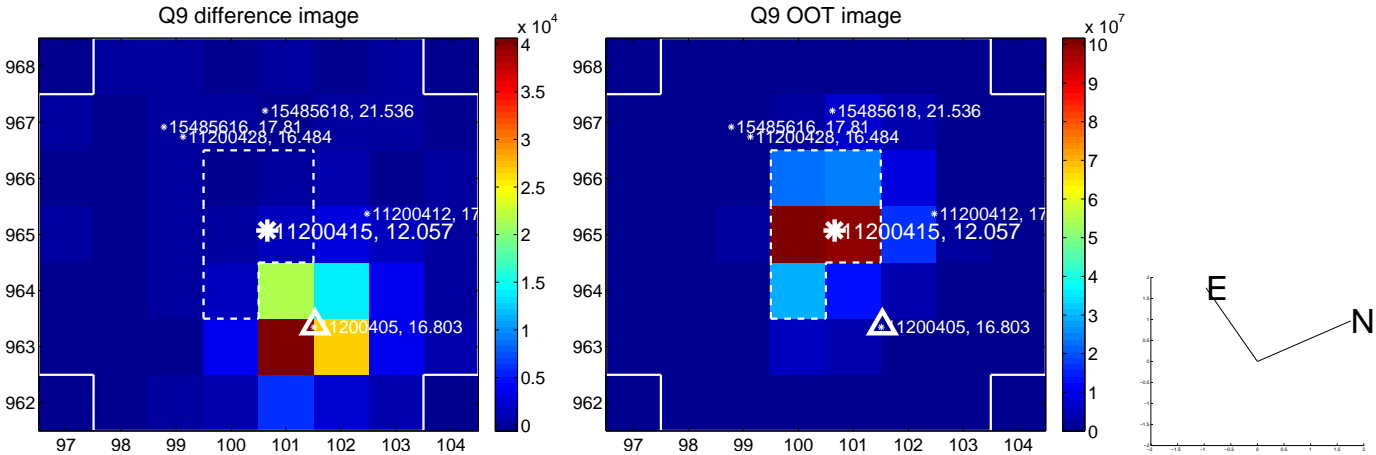
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



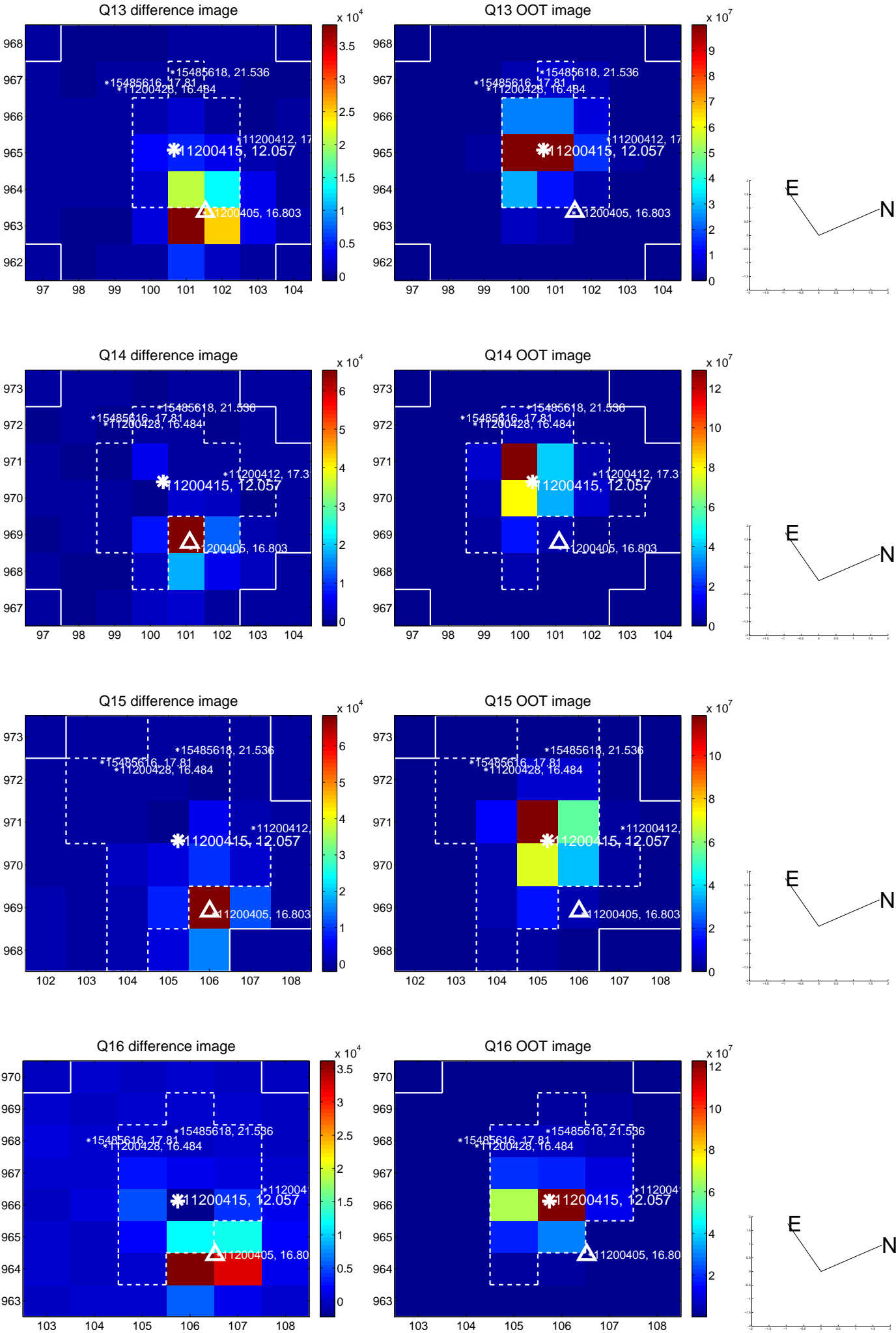
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



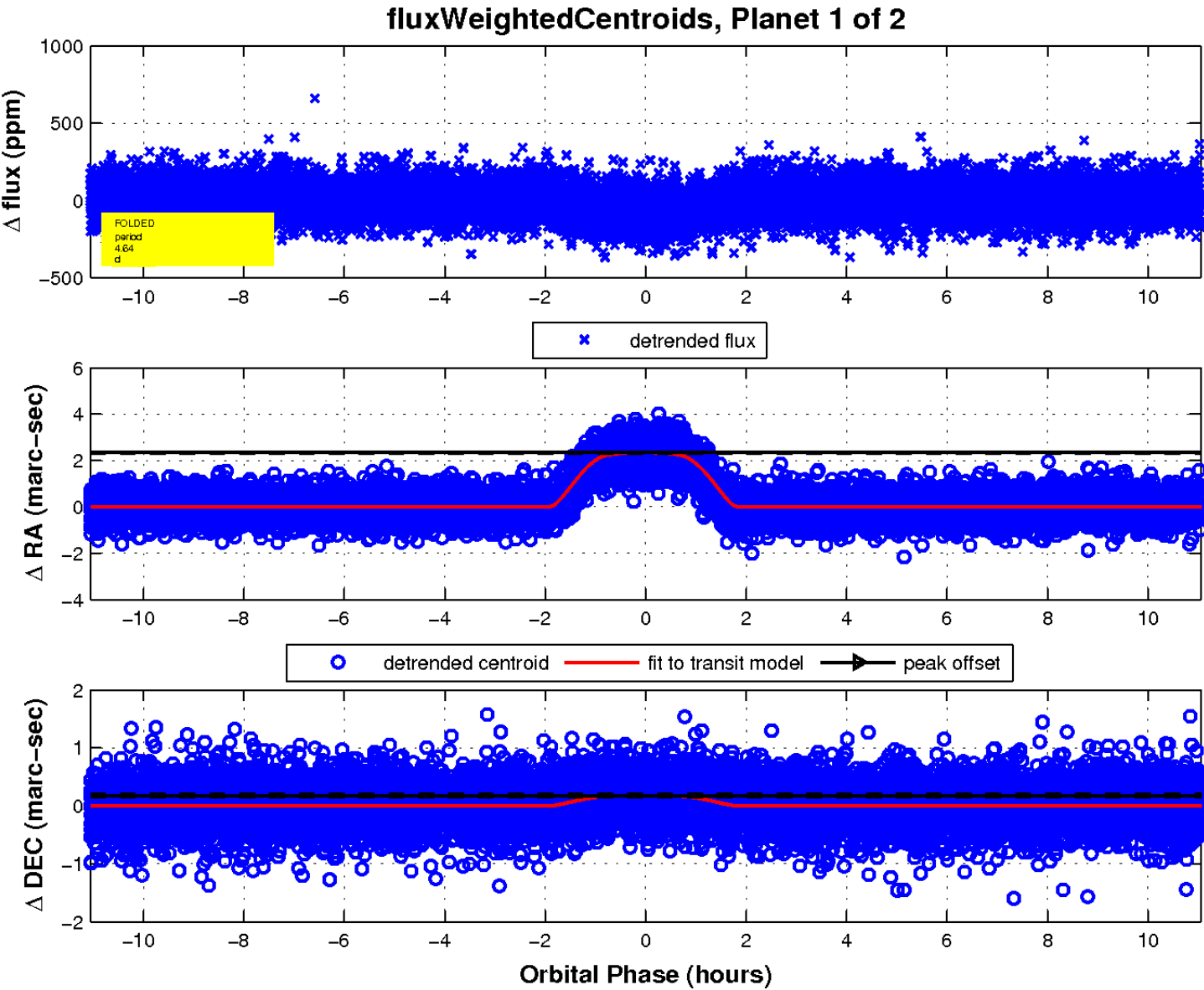
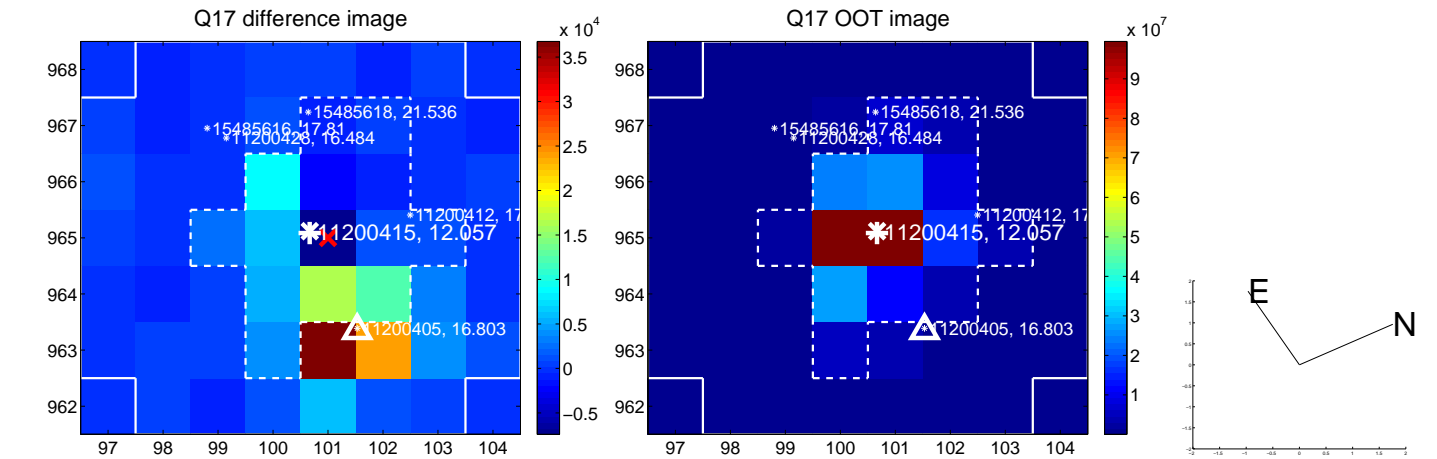
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

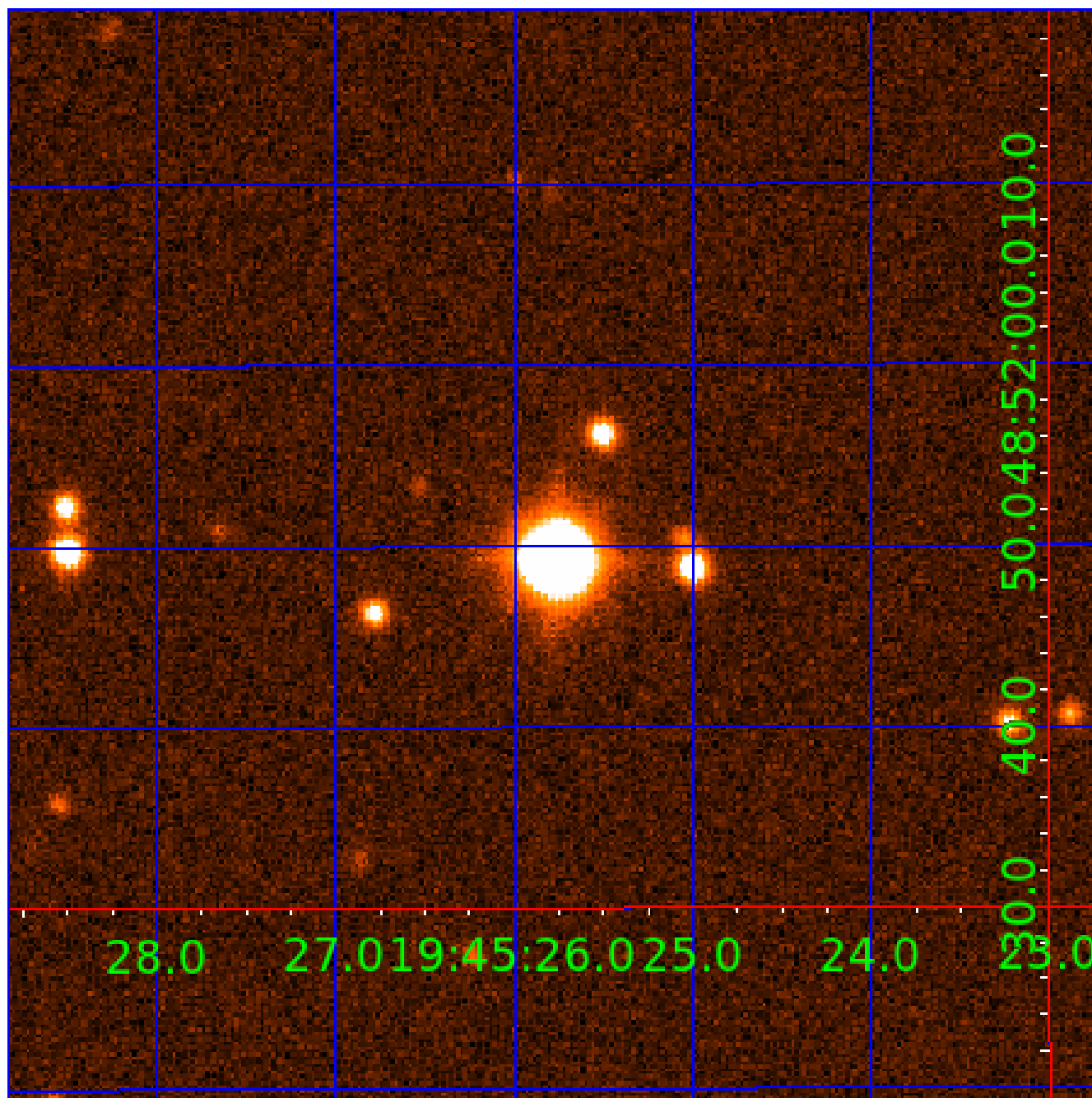


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011200415

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})
011200415-01	OBS	0293.01	4.639559	135.106565	85.7	3.686	23.1	25.3	1.65	6591	2.04	1500.90
011200415-02	OBS	No	22.240162	149.674608	65.1	28.126	8.1	8.9	1.65	6591	1.43	185.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011200415-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
011200415-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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.

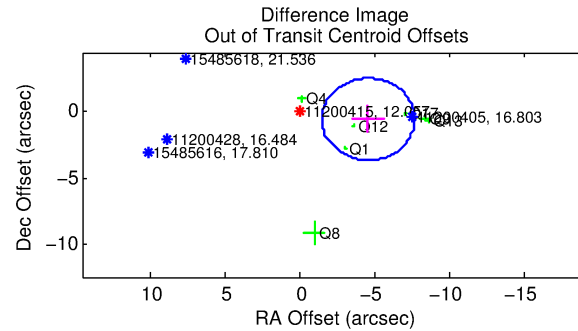
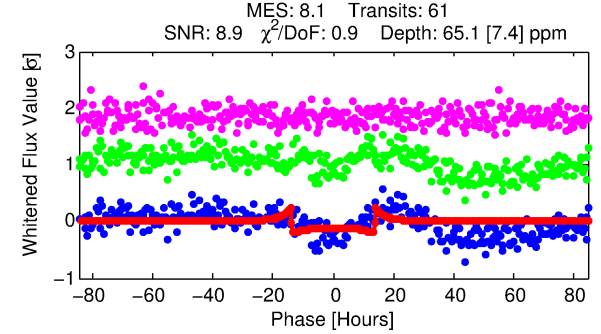
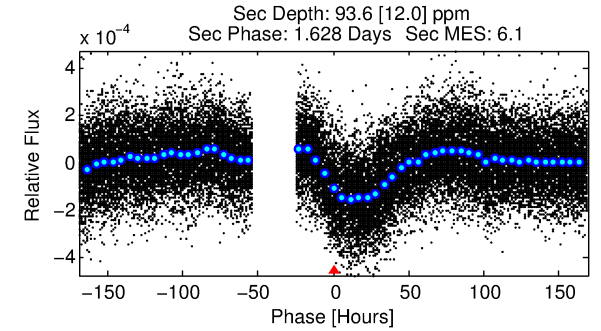
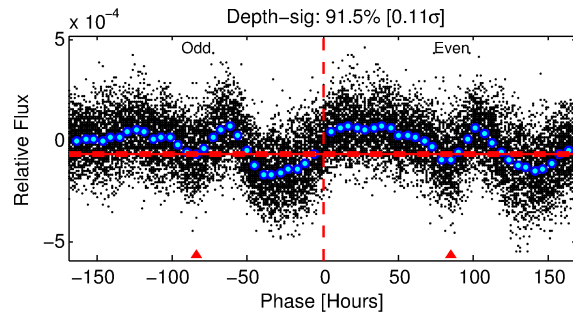
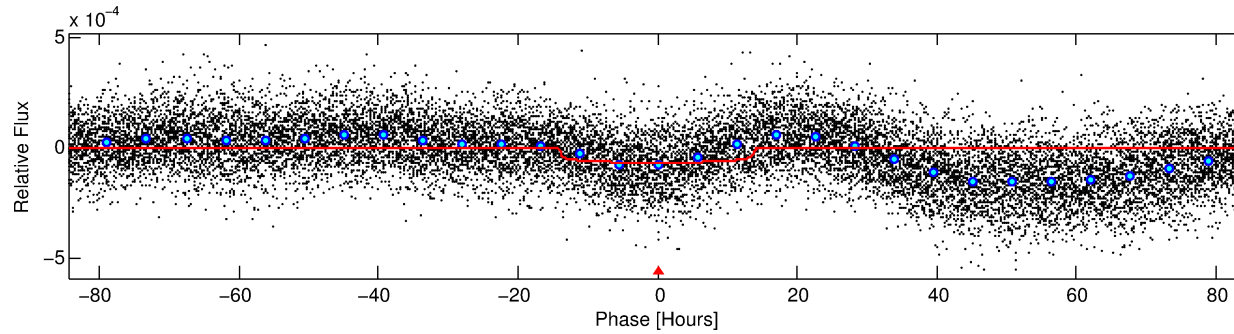
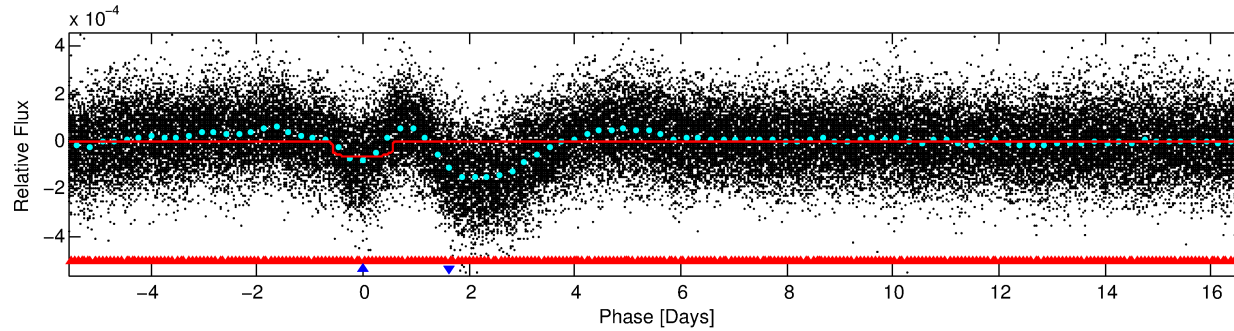
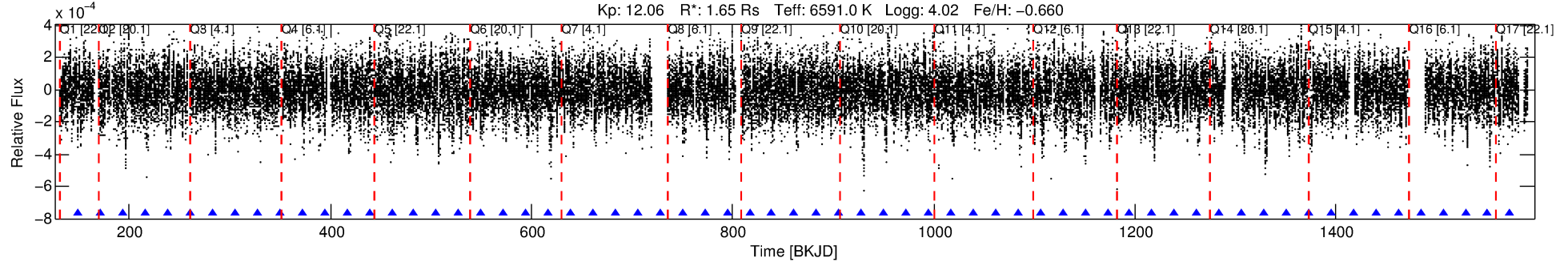
Ephemeris Match Information For 011200415-02

No Significant Match Found

DV One-Page Summary

KIC: 11200415 Candidate: 2 of 2 Period: 22.240 d
KOI: K00293 Corr: No Ephemeris Match

Kp: 12.06 R*: 1.65 Rs Teff: 6591.0 K Logg: 4.02 Fe/H: -0.660



DV Fit Results:

Period = 22.24016 [0.00028] d
Epoch = 149.6746 [0.0101] BKJD
Rp/R* = 0.0079 [0.0007]
a/R* = 4.37 [1.47]
b = 0.71 [0.24]
Seff = 185.70 [87.47]
Teq = 941 [111] K
Rp = 1.43 [0.41] Re
a = 0.1571 [0.0437] AU
Ag = 623.55 [317.02] [1.96σ]
Teffp = 7273 [453] K [13.57σ]

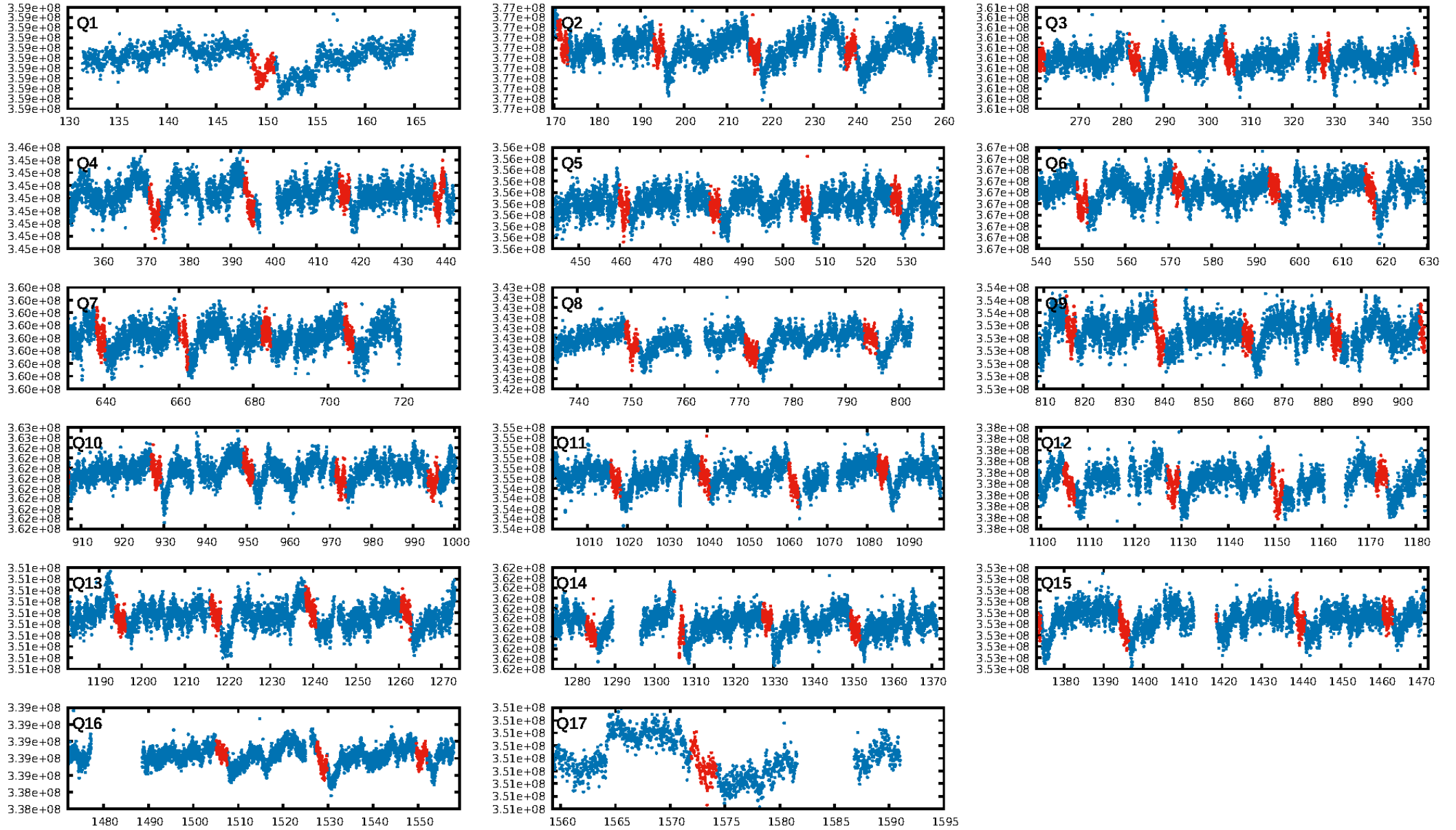
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.89σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.78e-15
RollingBand-fgt: 1.00 [59/59]
GhostDiagnostic-chr: 1.508
Centroid-sig: 16.5%
Centroid-so: 0.658 arcsec [1.13σ]
OotOffset-rm: 4.653 arcsec [4.50σ]
KicOffset-rm: 4.811 arcsec [4.07σ]
OotOffset-st: 0/0/3/4 [7]
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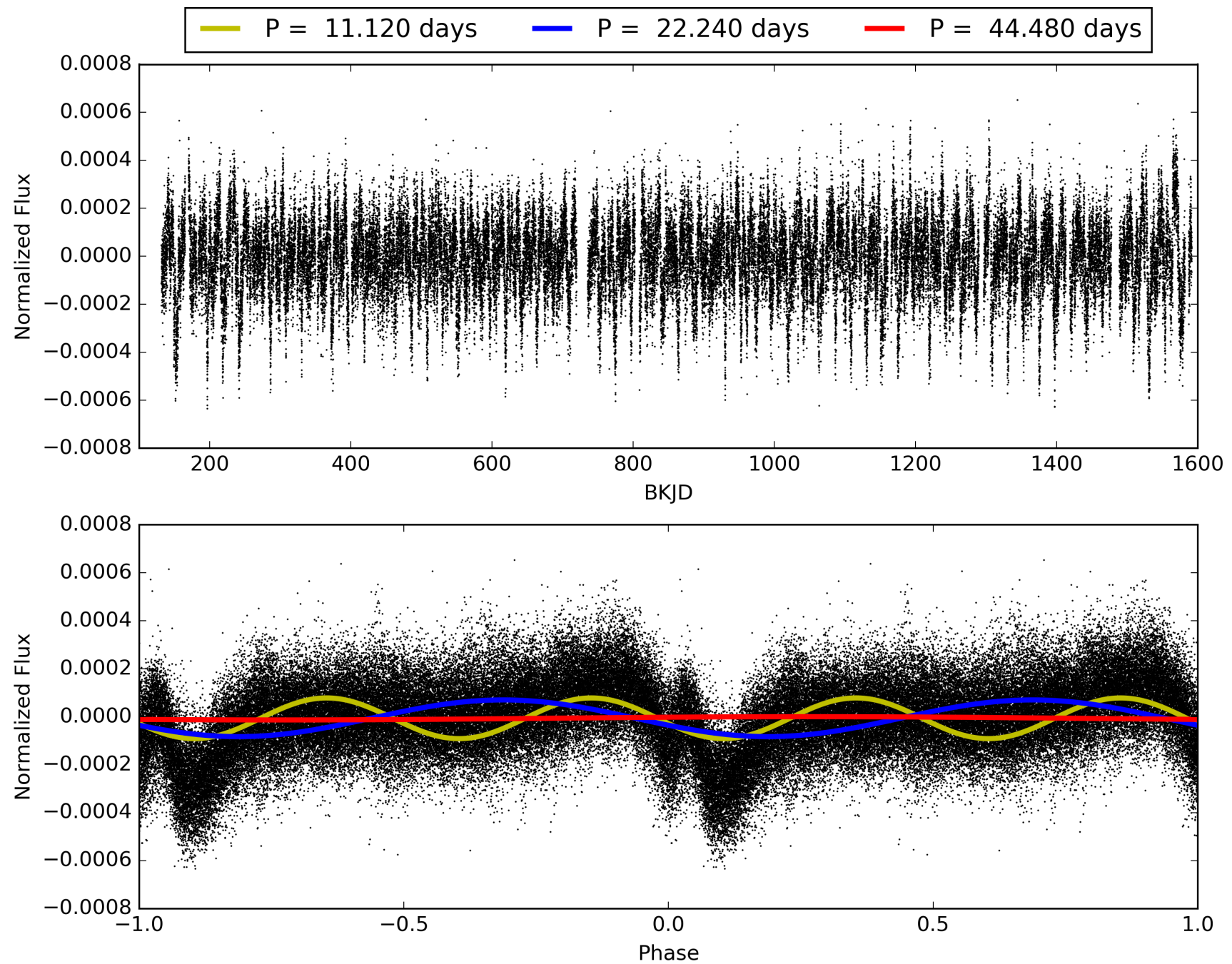
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:30:57 Z

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

TCE 011200415-02, PDC Light Curves

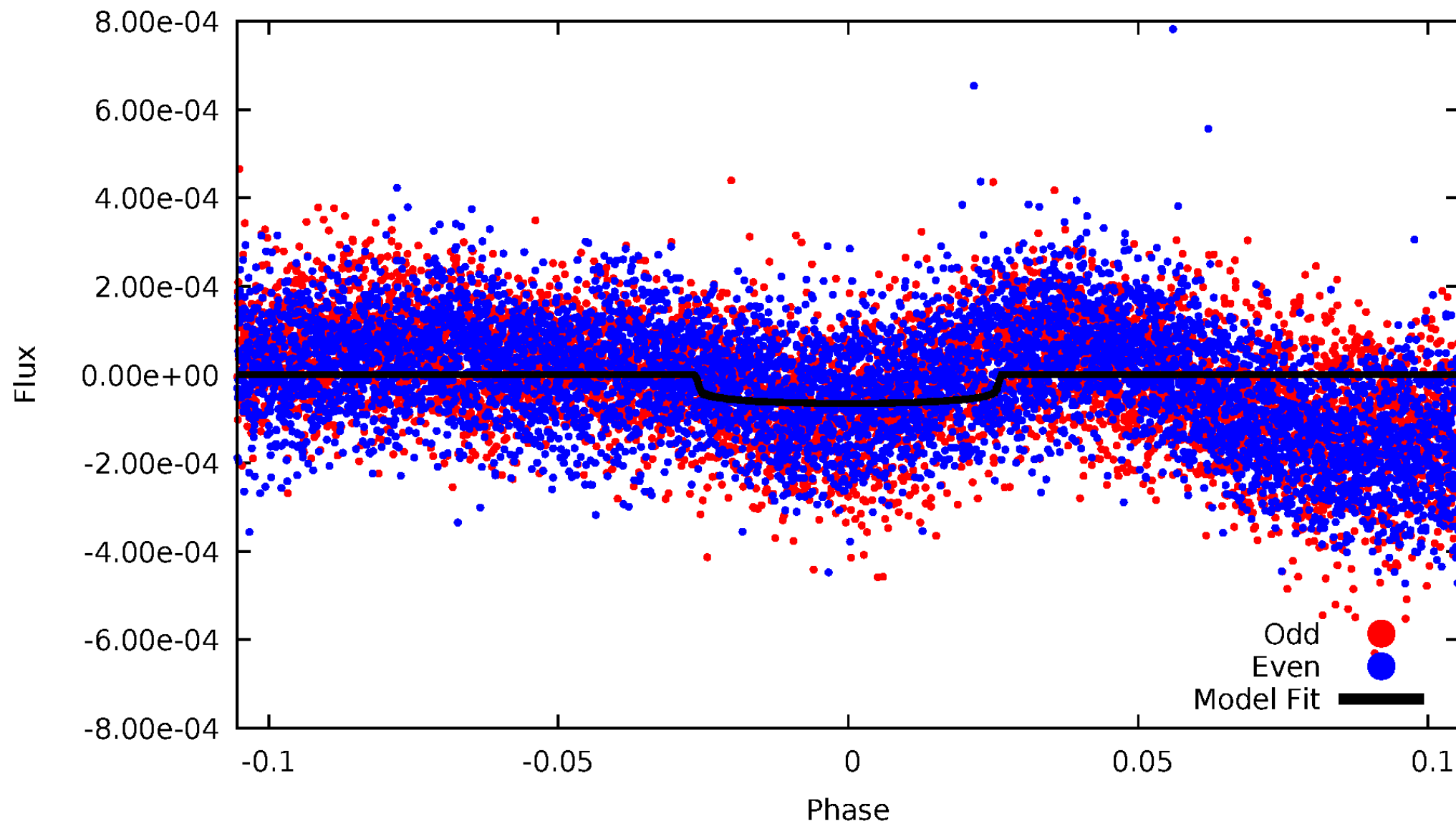


TCE 011200415-02



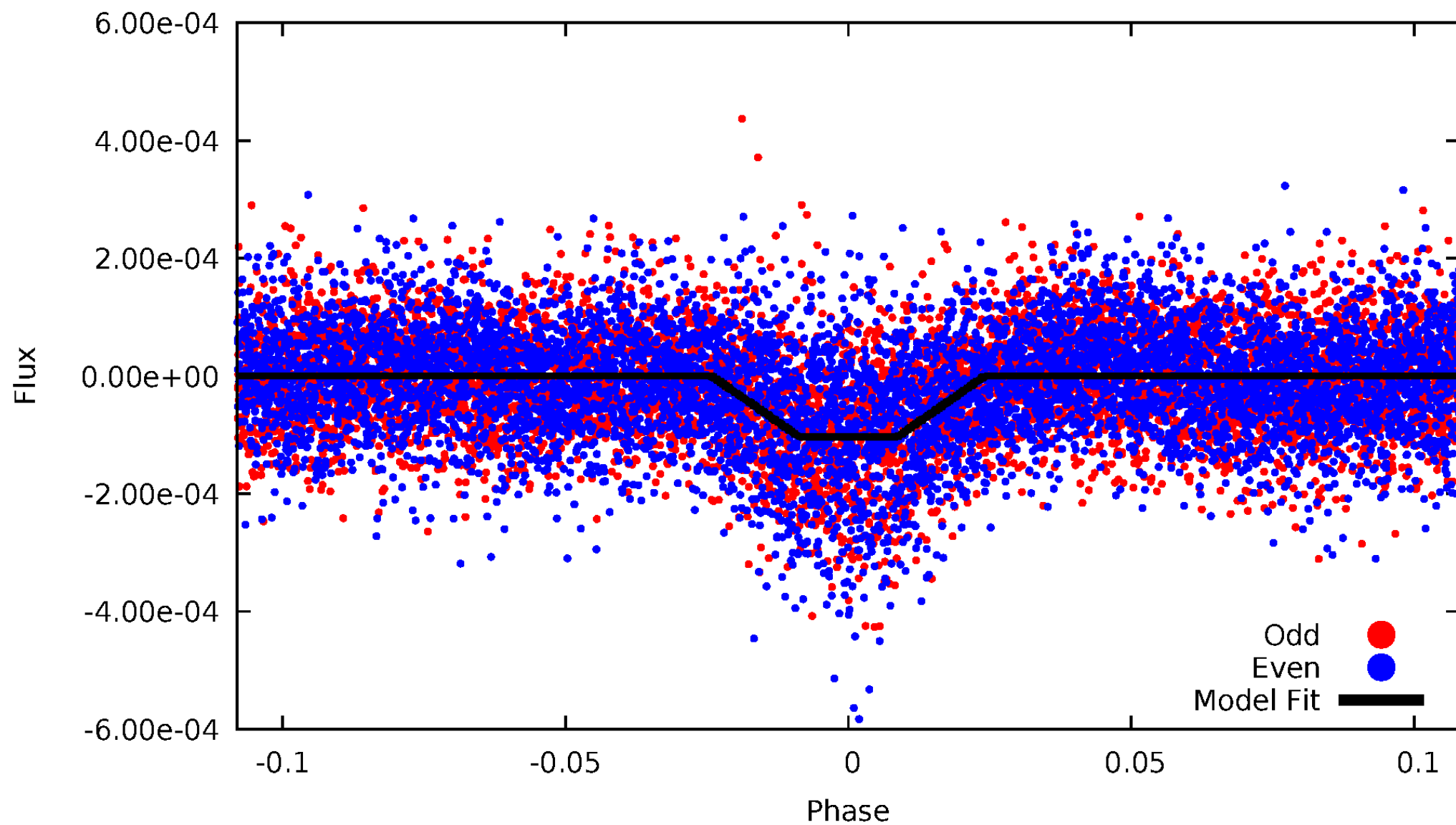
DV Odd/Even

TCE 011200415-02



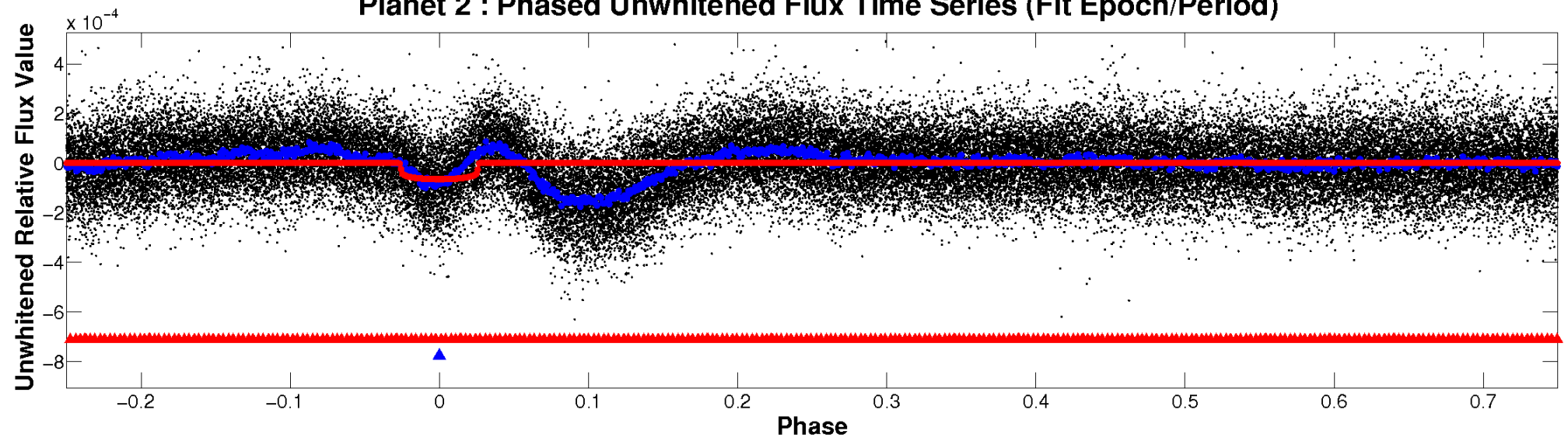
ALT Odd/Even

TCE 011200415-02

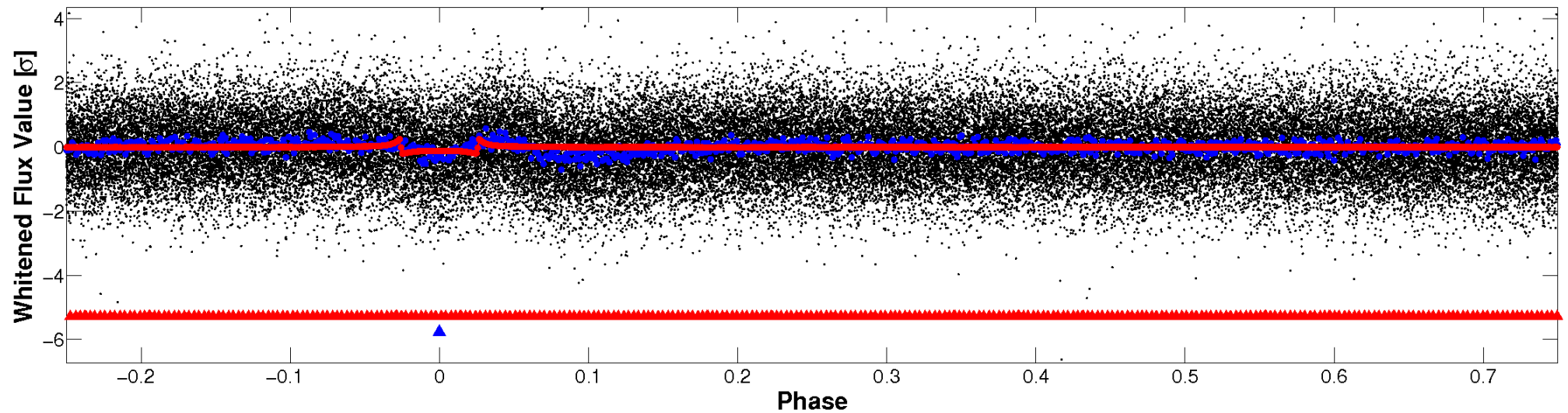


Non-Whitened Vs. Whitened Light Curve

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

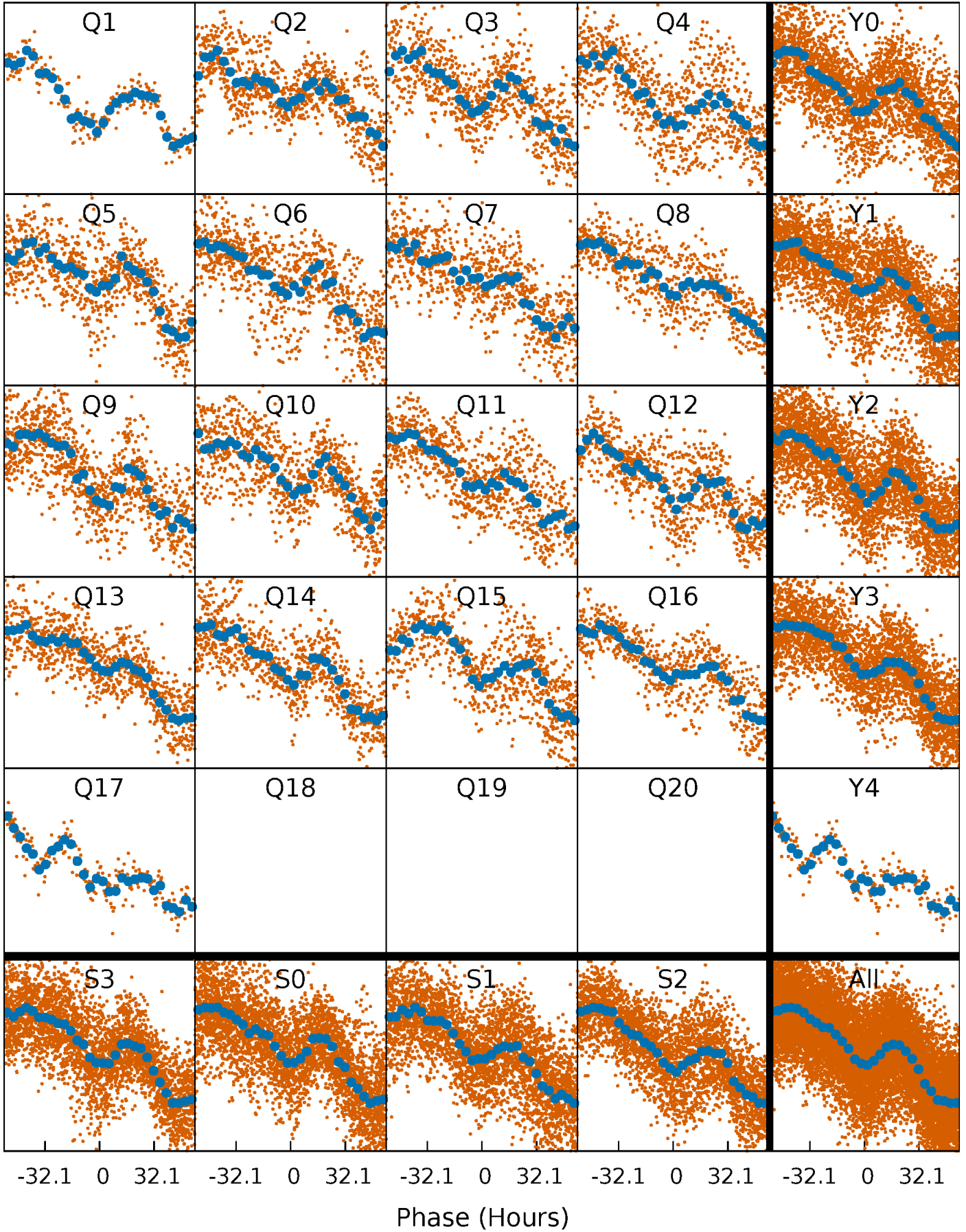


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



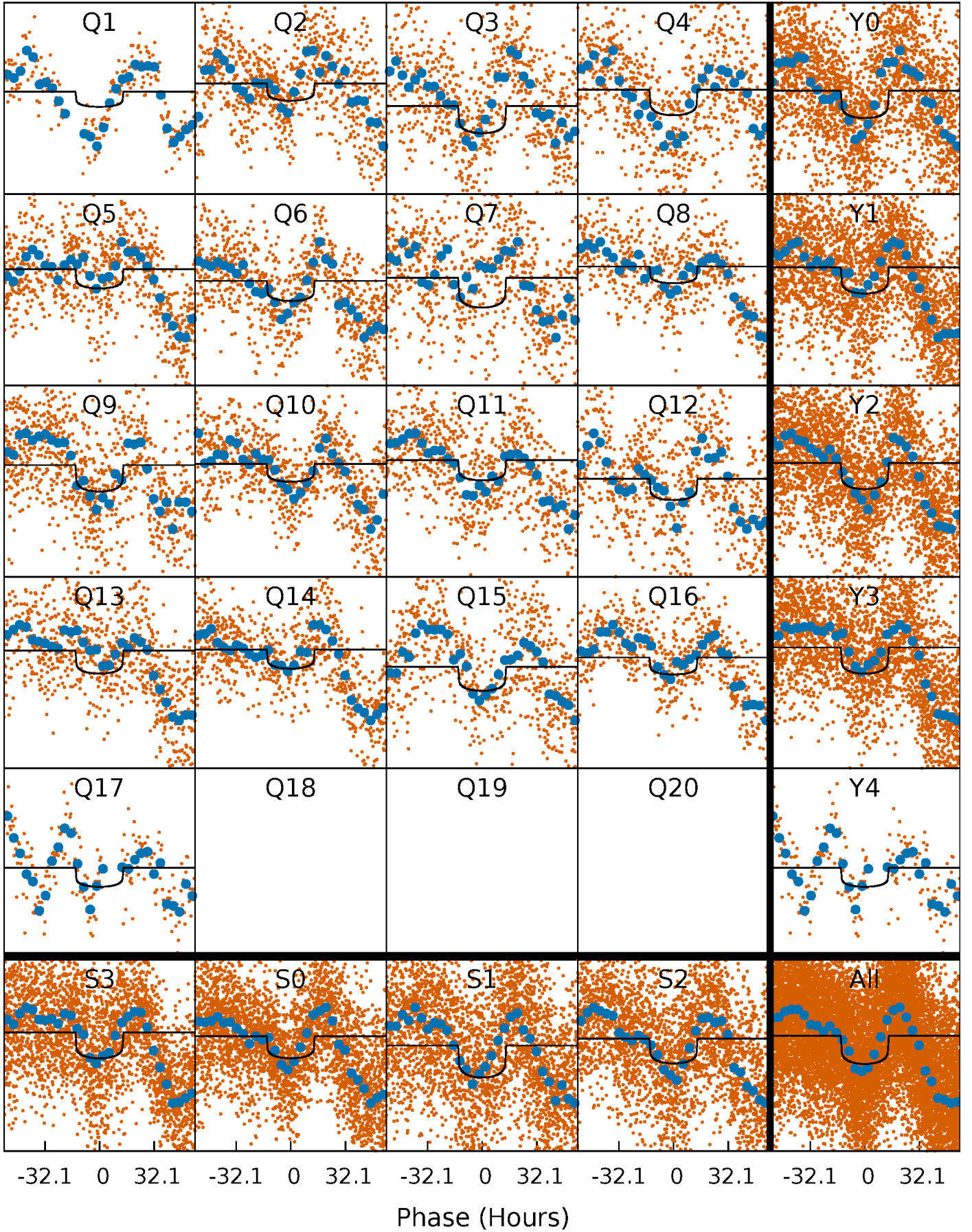
PDC Quarter-Phased Transit Curves

TCE 011200415-02 P= 22.240162 Days $T_0=149.674608$ (BKJD)



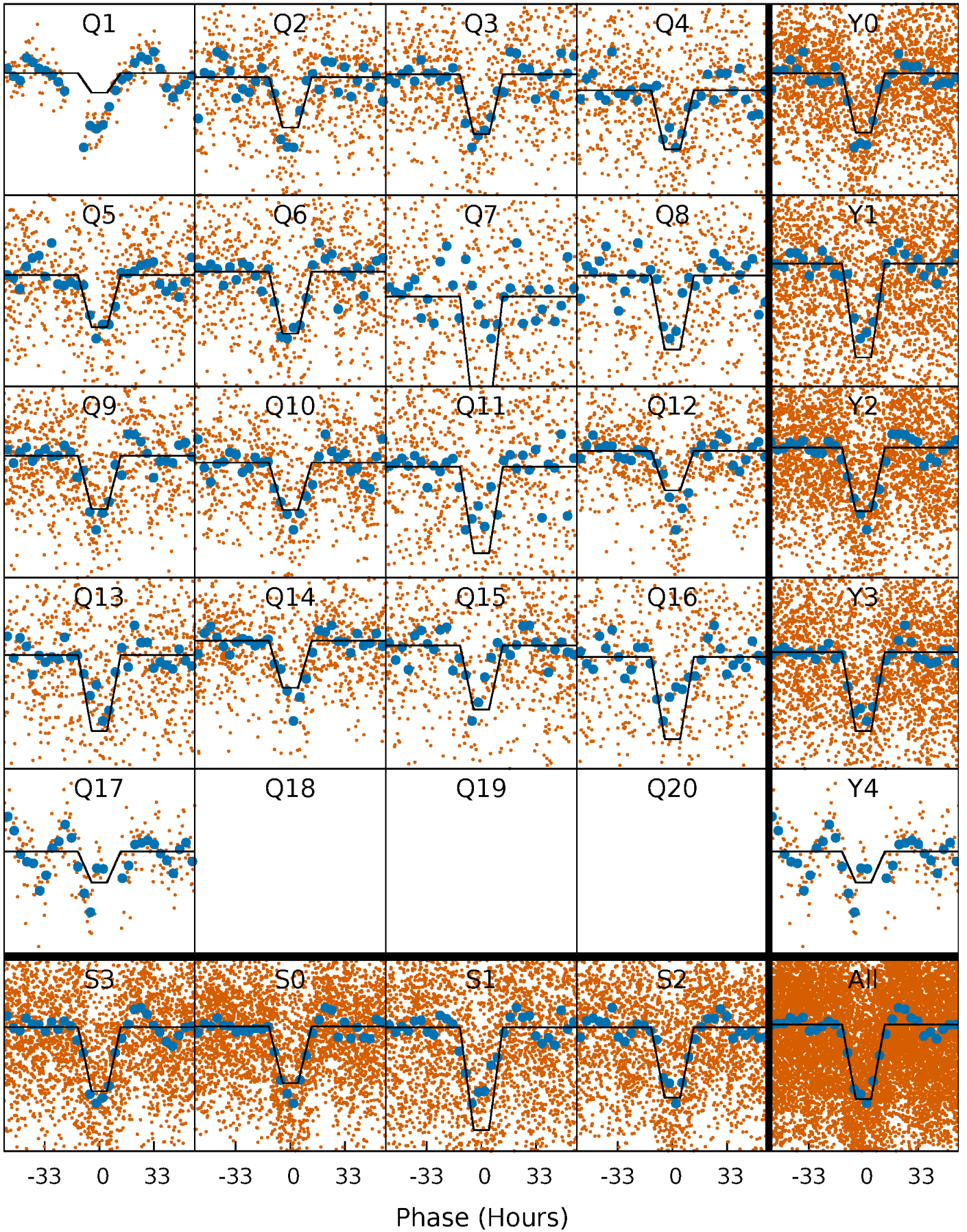
DV Quarter-Phased Transit Curves

TCE 011200415-02 P= 22.240162 Days $T_0=149.674608$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

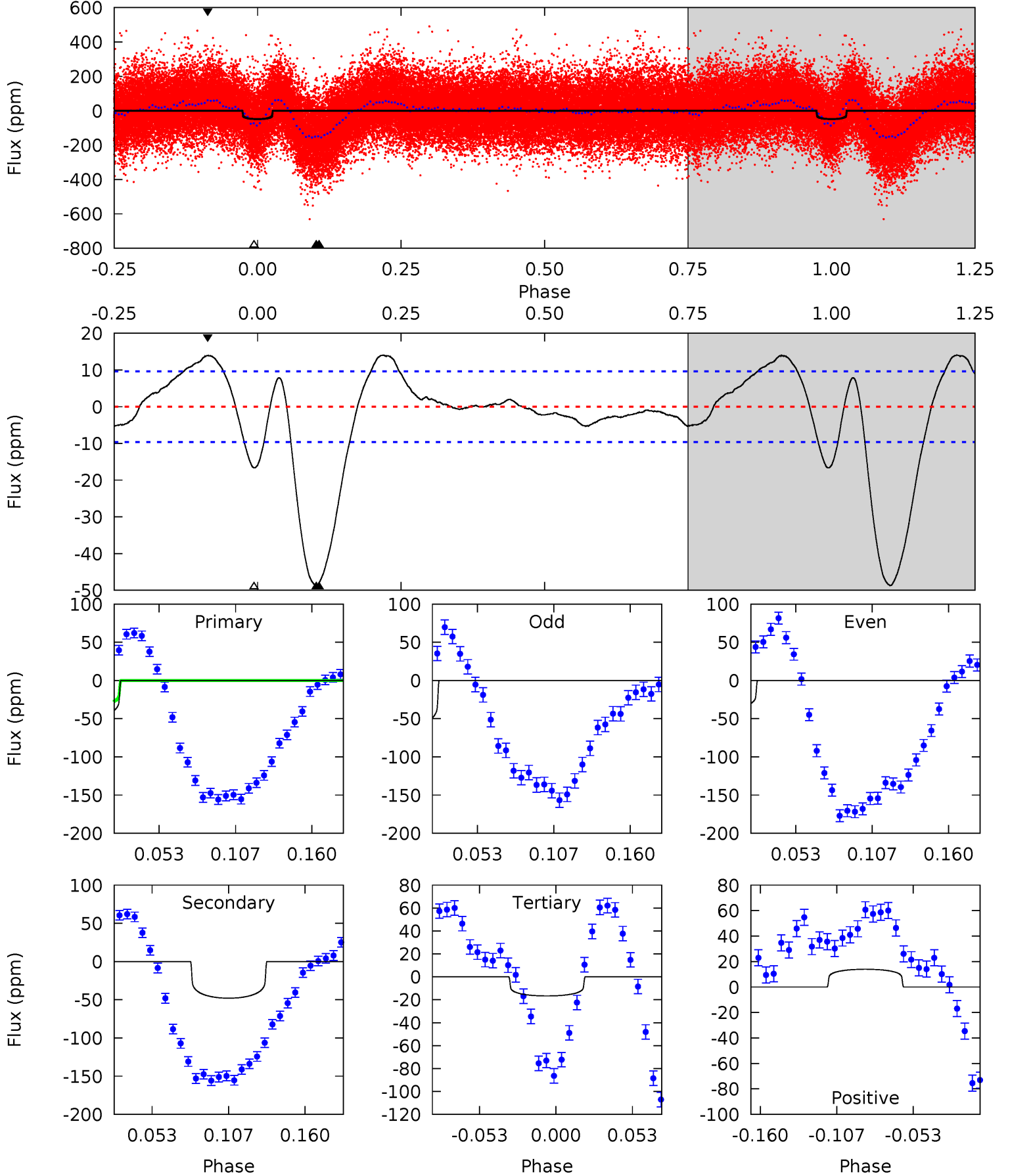
TCE 011200415-02 P= 22.241118 Days $T_0=149.640814$ (BKJD)



DV Model-Shift Uniqueness Test

011200415-02, P = 22.240162 Days, E = 127.434446 Days

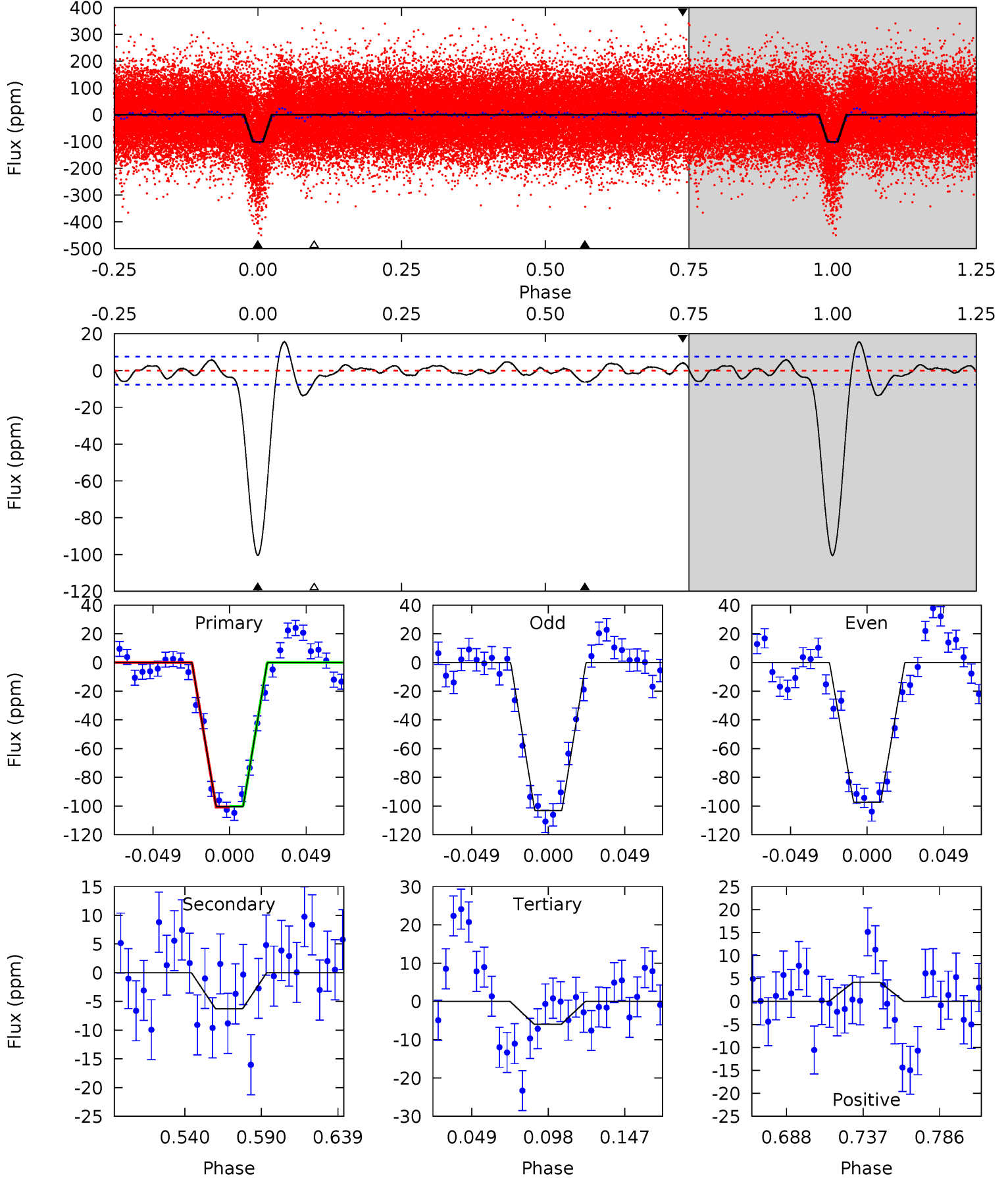
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	23.4	8.13	6.80	4.69	1.93	3.05	15.6	17.0	15.3	16.6	5.68	0.97	0.22	7.22



Alt Model-Shift Uniqueness Test

011200415-02, P = 22.241118 Days, E = 127.399696 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.2	3.89	3.70	2.58	4.71	1.97	2.07	58.5	59.7	0.19	1.31	1.81	1.22	0.13	0.18



Stellar Parameters For KIC 011200415

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6591^{+169}_{-186}	$4.024^{+0.273}_{-0.117}$	$-0.660^{+0.350}_{-0.300}$	$1.646^{+0.329}_{-0.452}$	$1.045^{+0.177}_{-0.122}$	$0.330^{+0.539}_{-0.125}$
	+3%/-3%	+7%/-3%	+53%/-45%	+20%/-27%	+17%/-12%	+163%/-38%
Source	PHO1	FLK73	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 011200415-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-48 ± 2	$1.39^{+0.24}_{-0.24}$	1293^{+83}_{-102}	6129^{+352}_{-288}	345^{+148}_{-87}
Alt.	-6 ± 2	$1.79^{+0.26}_{-0.30}$	1296^{+83}_{-105}	3677^{+189}_{-205}	27^{+13}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

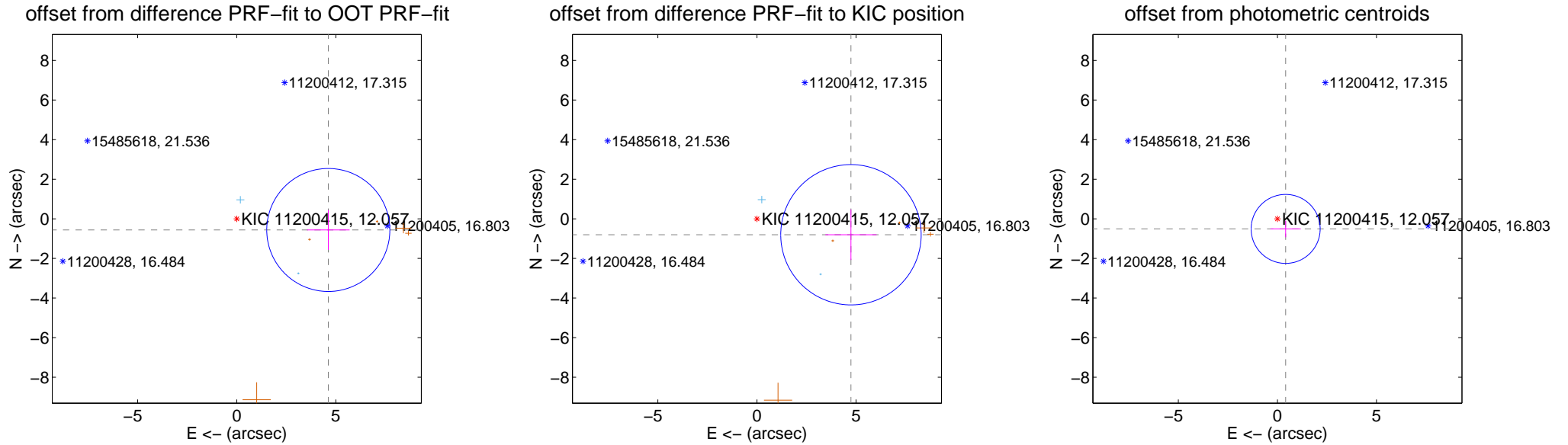
DV Centroid Data

Supplemental centroid analysis for 011200415-02. Kepler magnitude: 12.06. Transit SNR 8.91

There are 2 quarters with good PRF difference image offsets

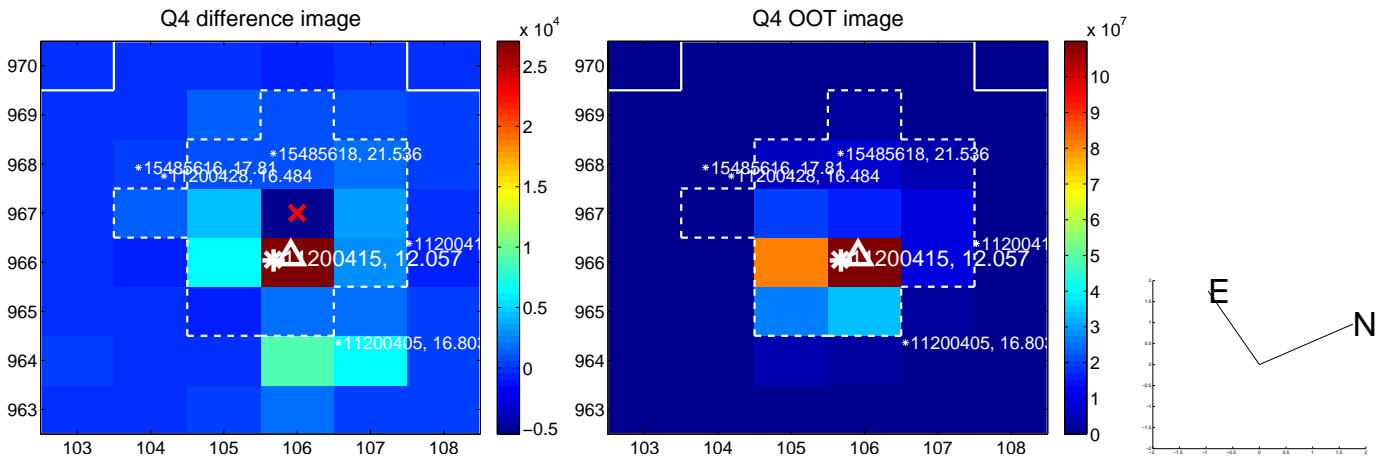
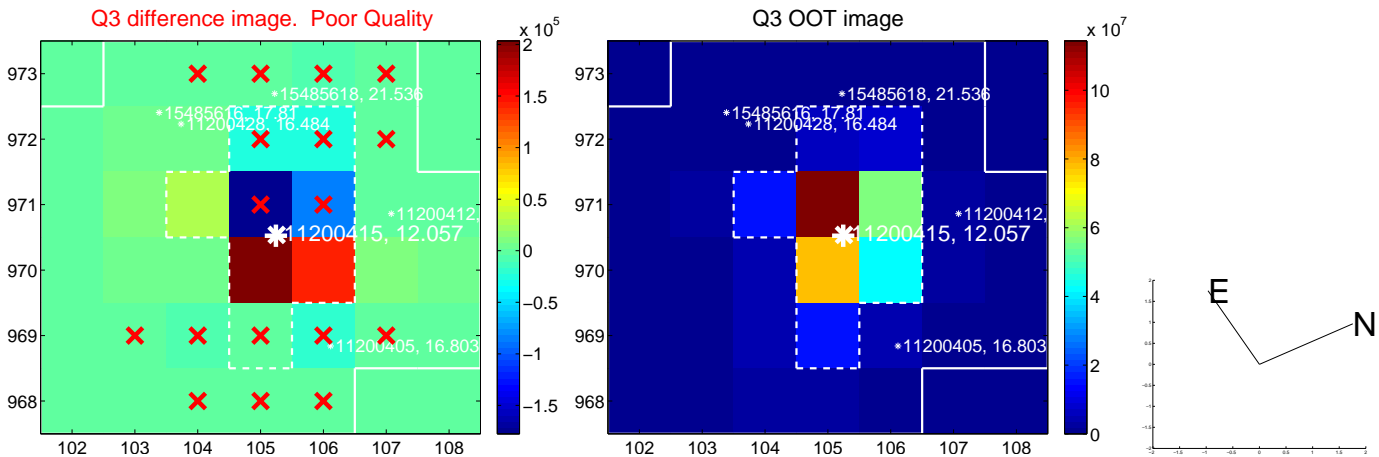
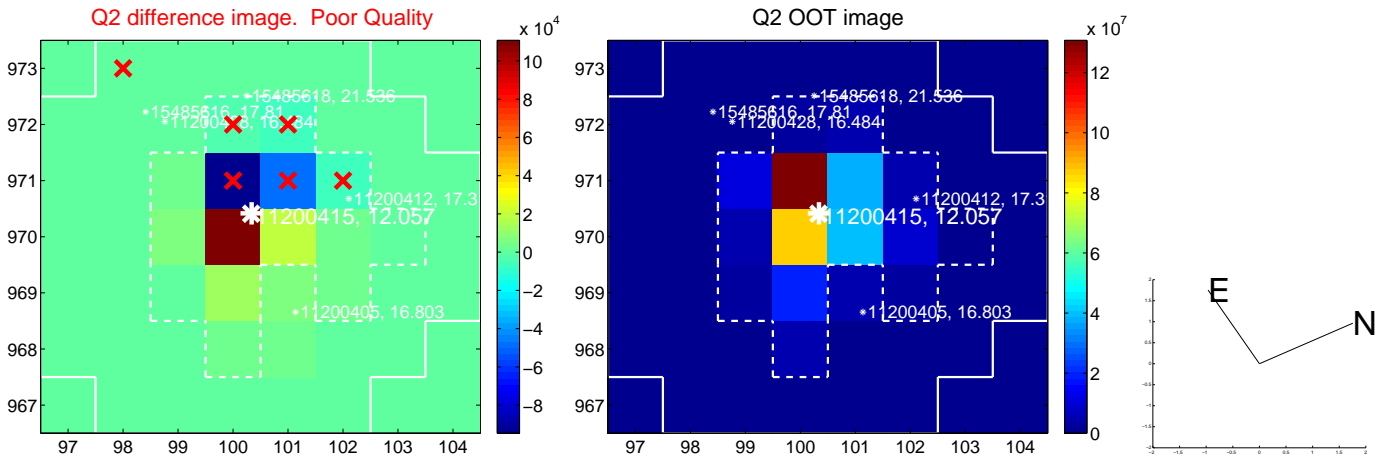
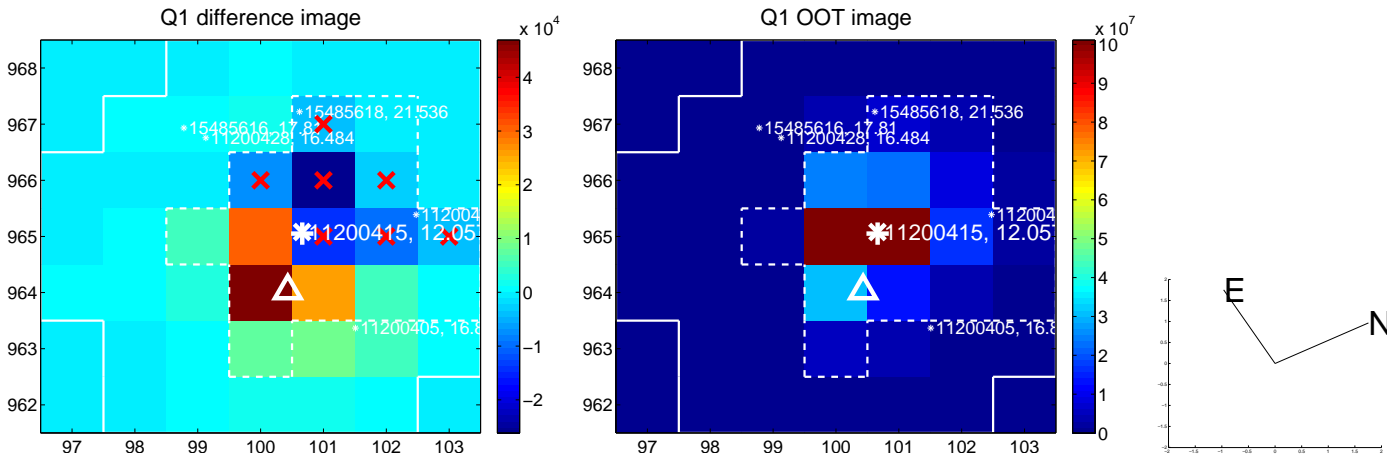
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.653 ± 1.035	4.50	-4.619 ± 1.076	-0.564 ± 1.004
PRF-fit source offset from KIC position	4.811 ± 1.181	4.07	-4.743 ± 1.291	-0.804 ± 1.274
photometric centroid source offset	0.66 ± 0.58	1.13	-0.42 ± 0.76	-0.51 ± 0.42

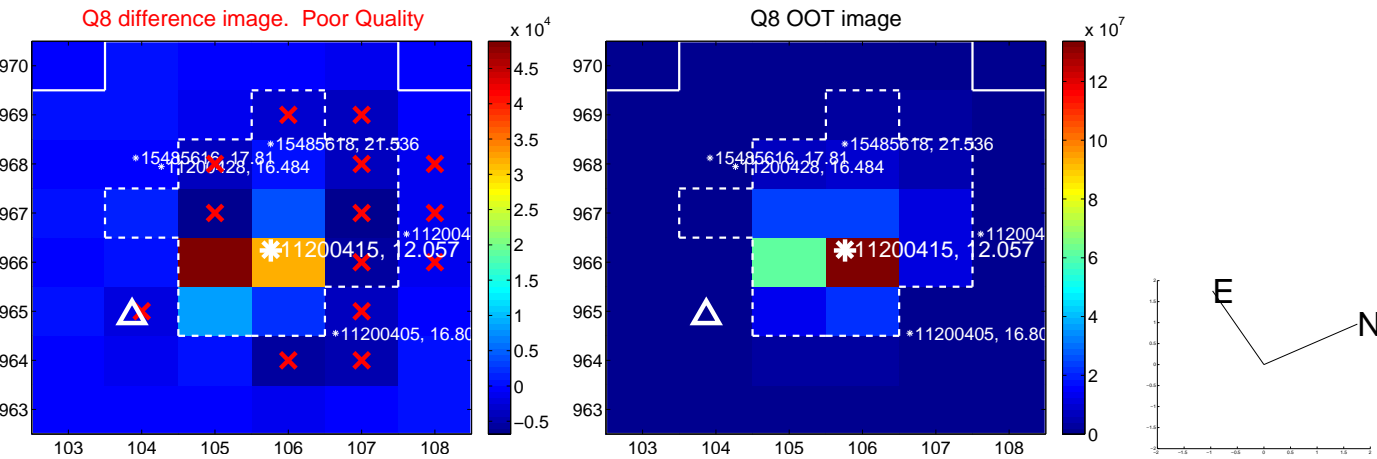
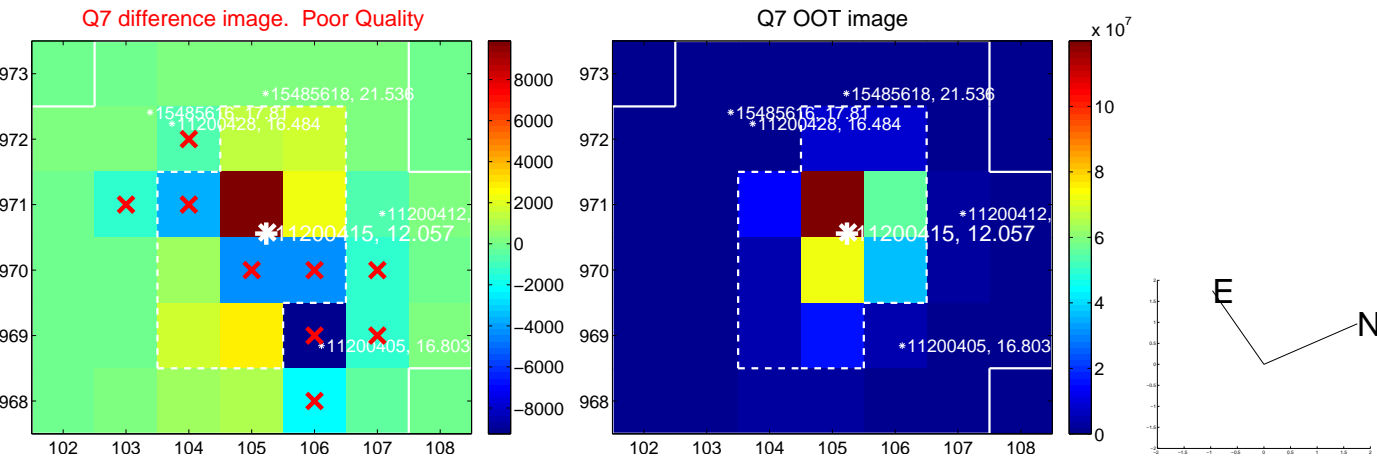
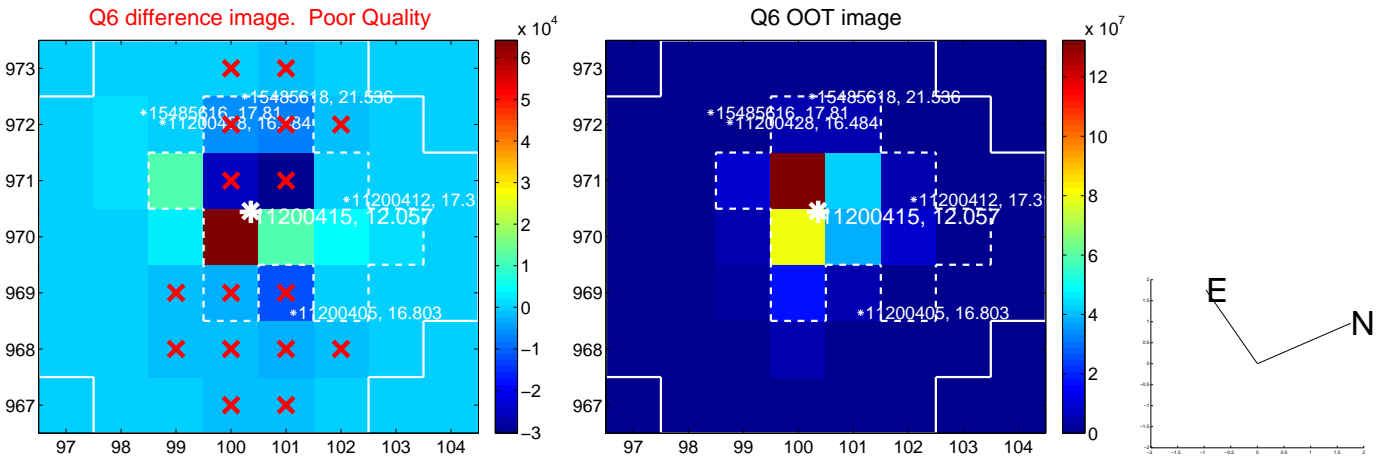
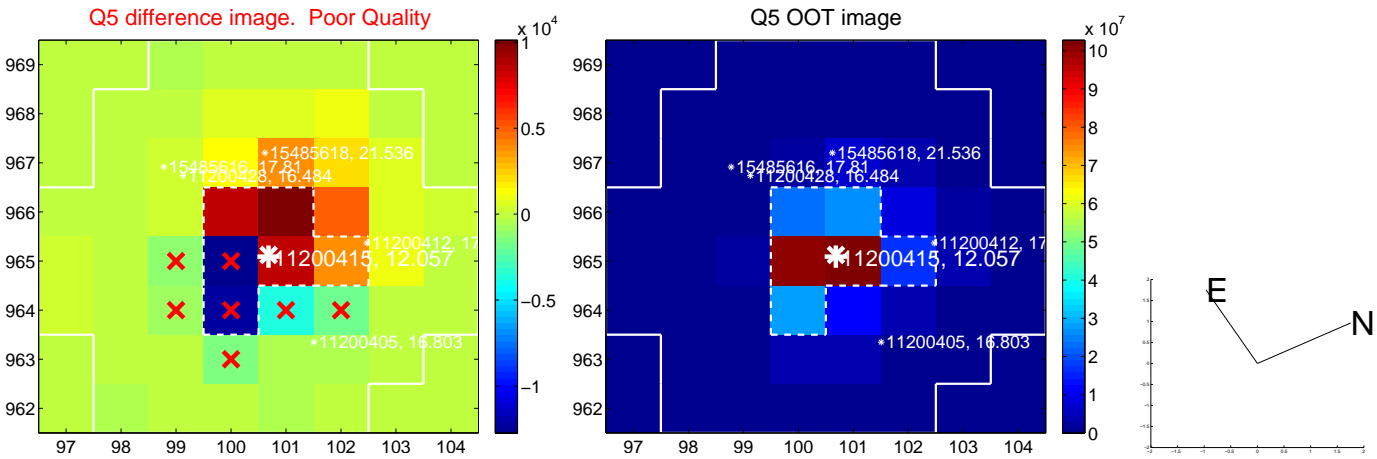


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

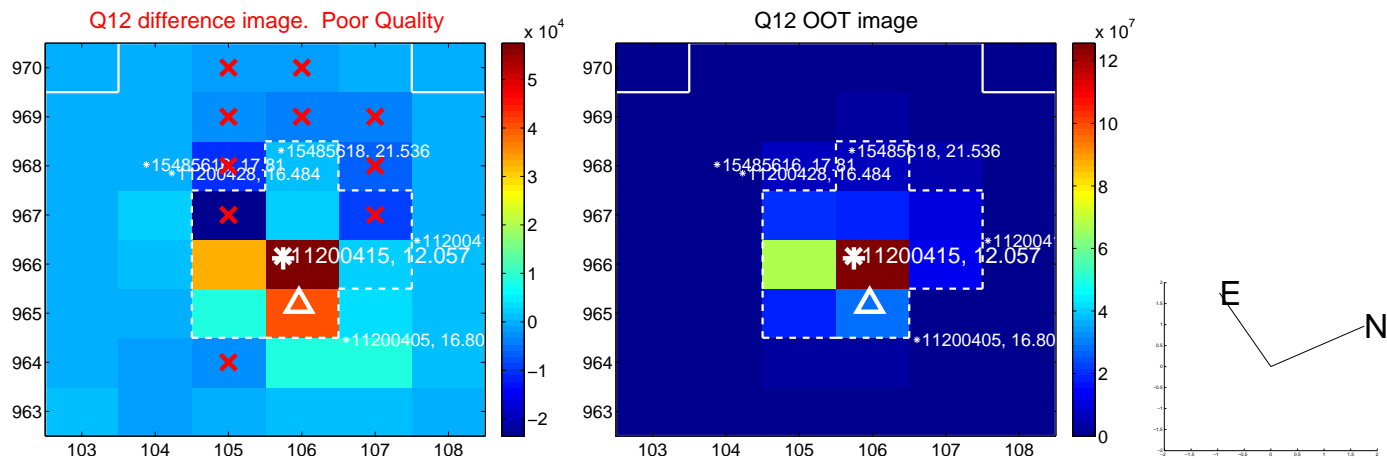
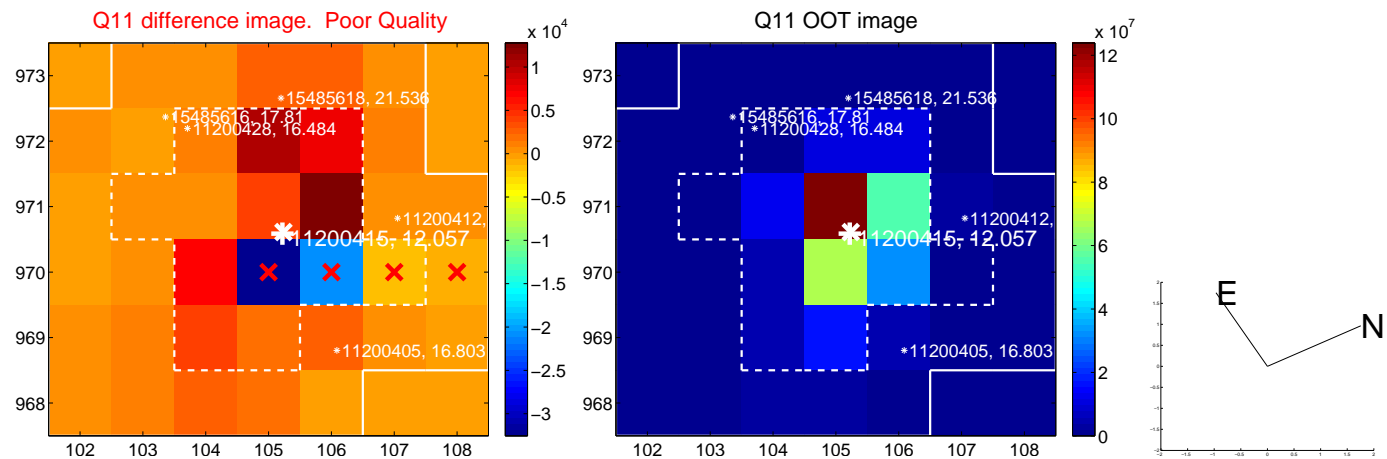
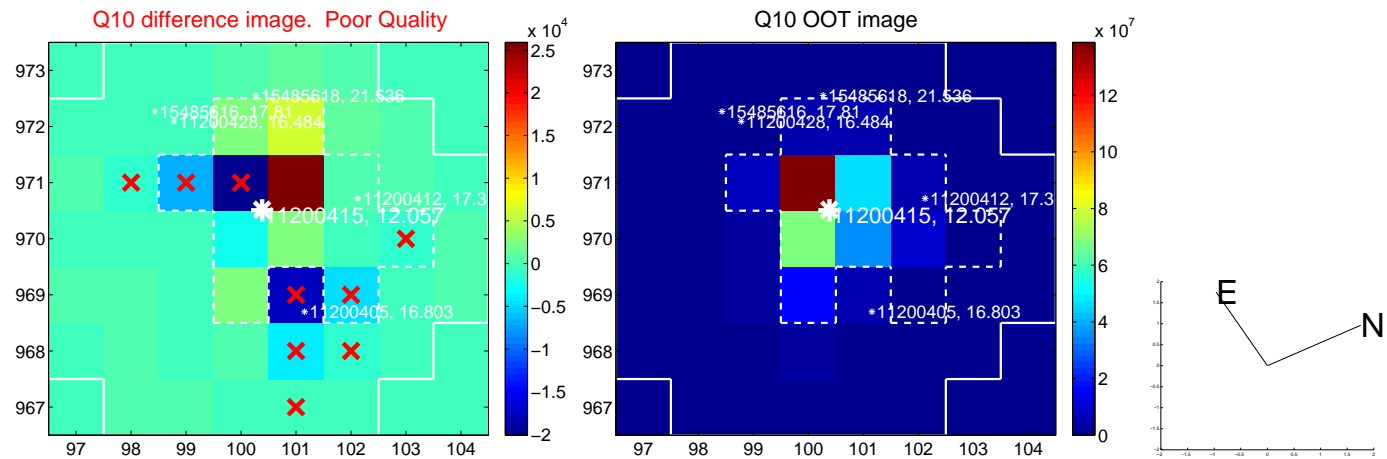
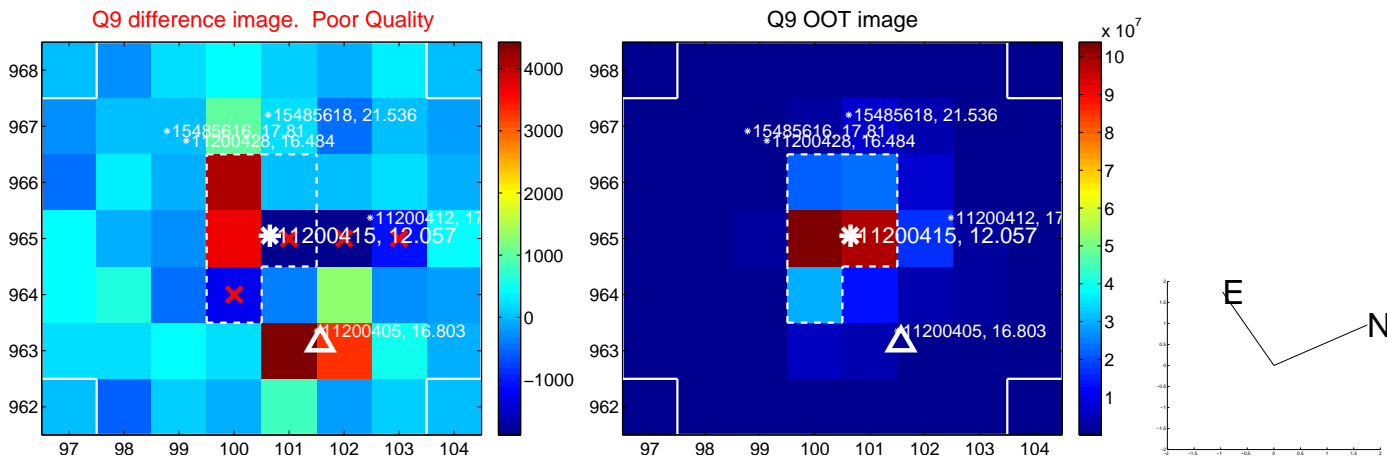
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



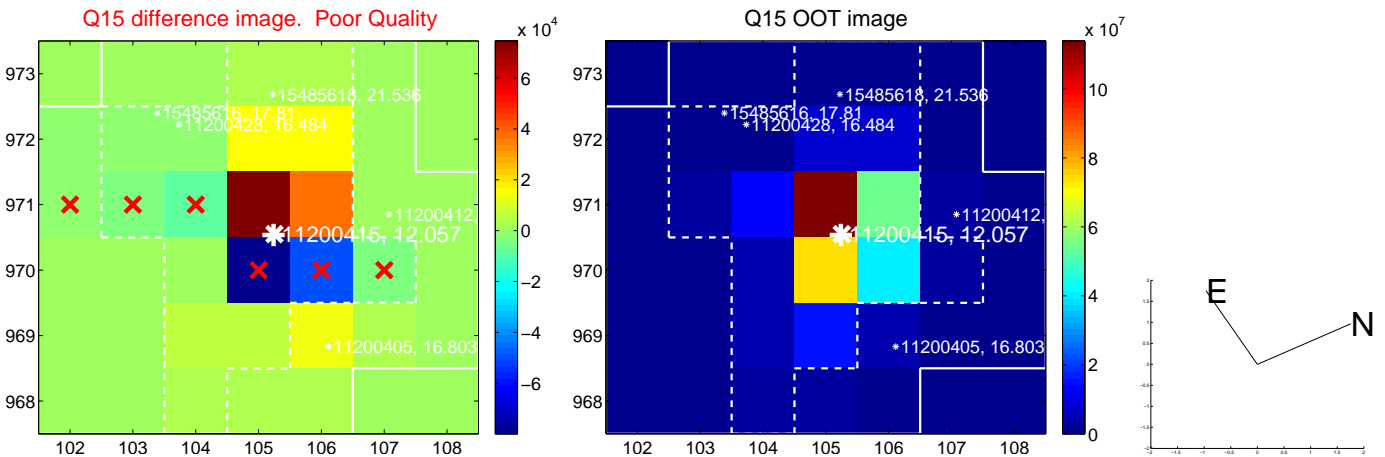
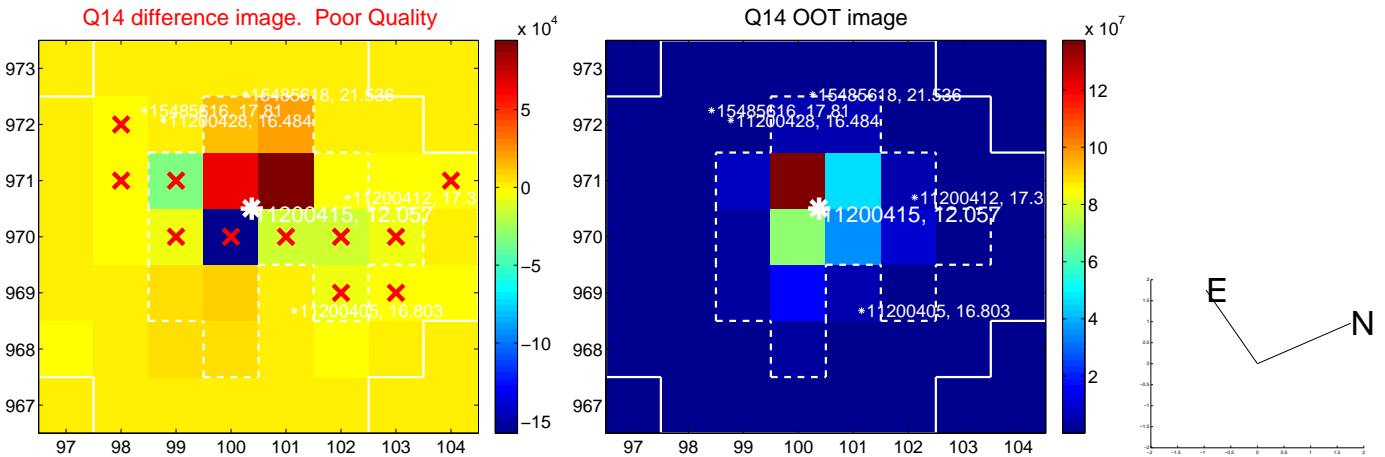
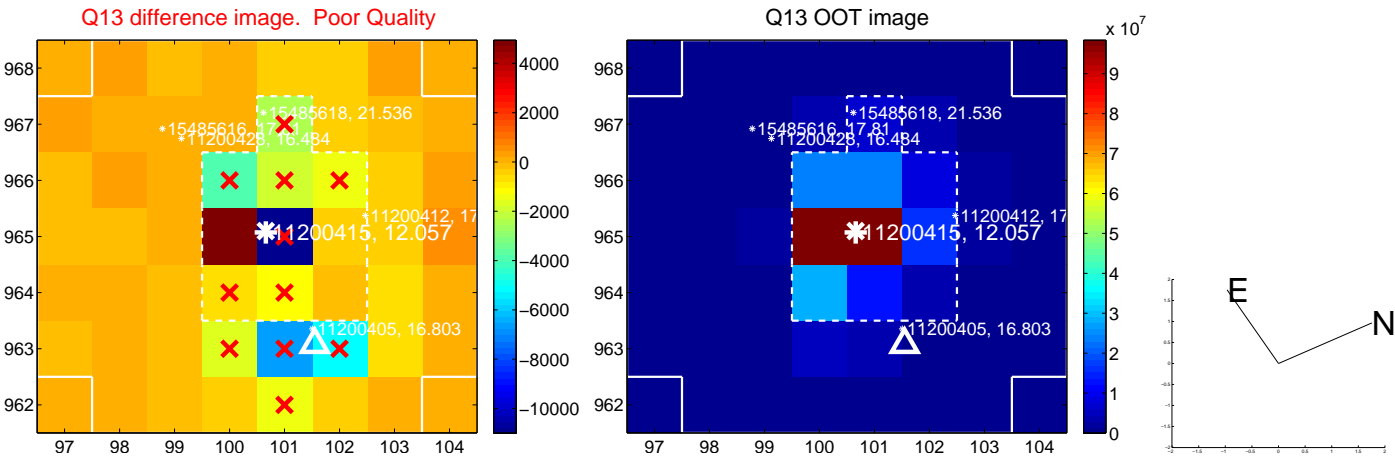
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



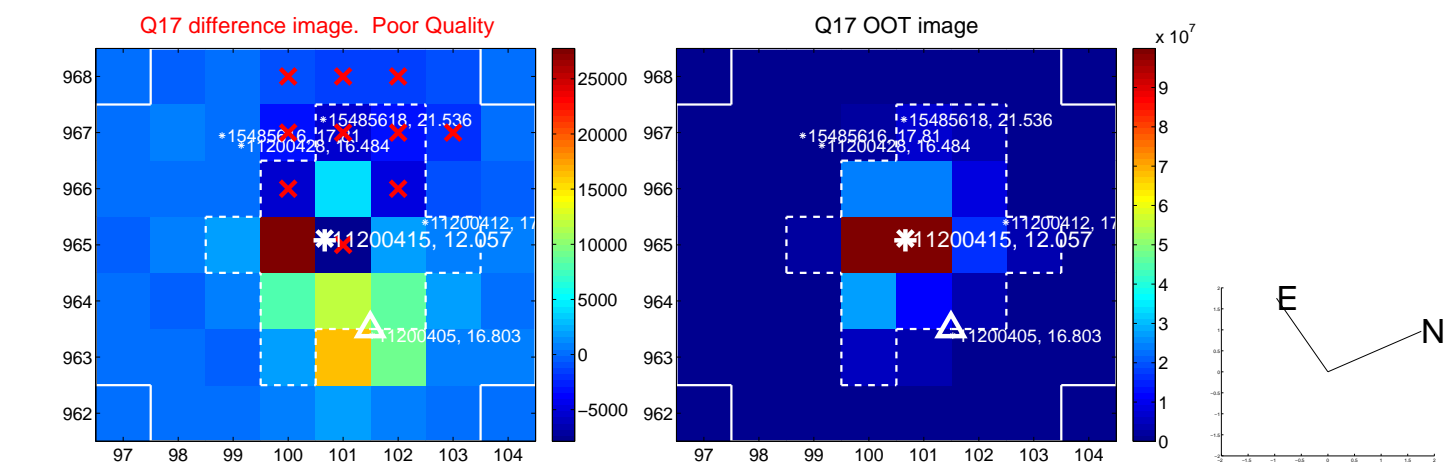
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



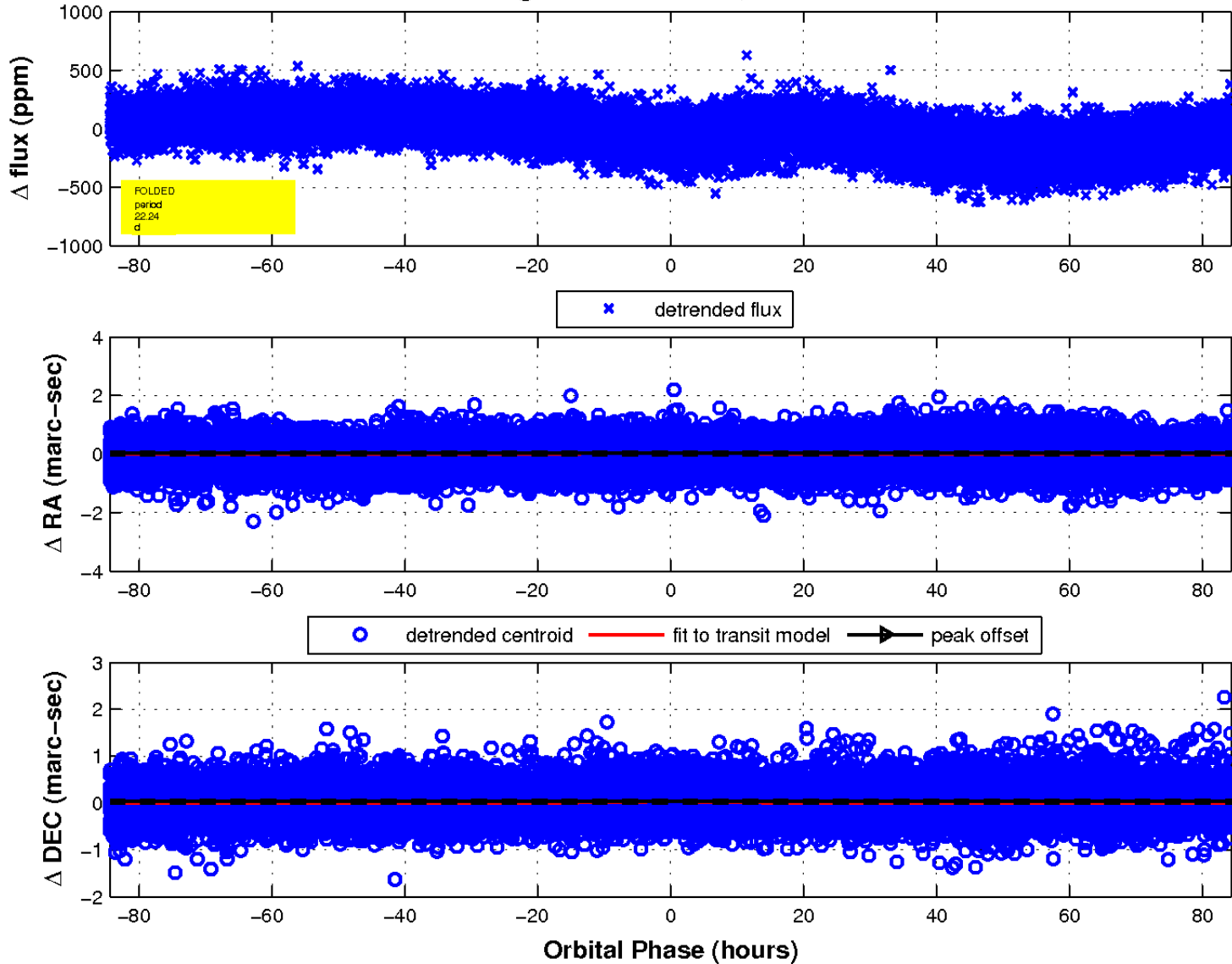
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

