

KIC 005302643

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})
005302643-01	OBS	2746.01	69.200353	145.952248	2229.3	5.386	23.5	24.9	1.27	7044	10.87	27.70
005302643-02	OBS	No	0.557876	131.730042	60.7	4.250	9.2	9.5	1.27	7044	1.06	17138.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005302643-01	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—CENT_UNRESOLVED_OFFSET
005302643-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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 005302643-01

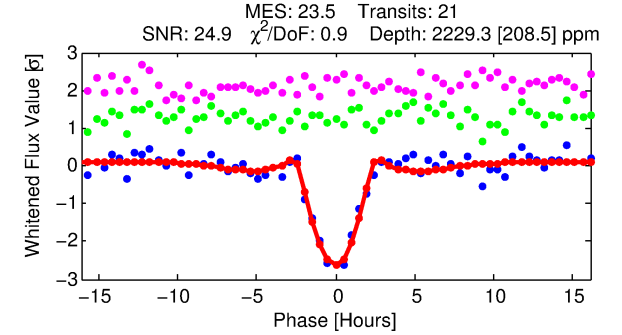
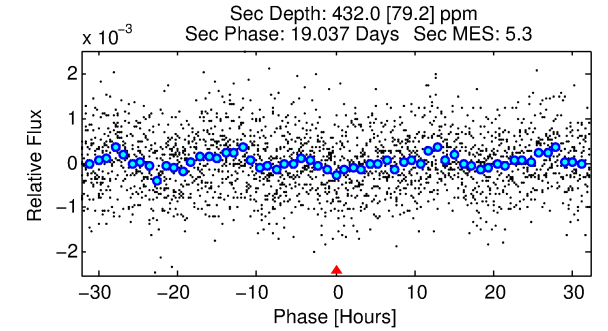
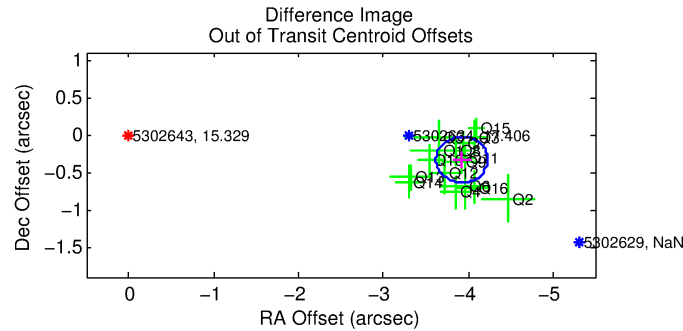
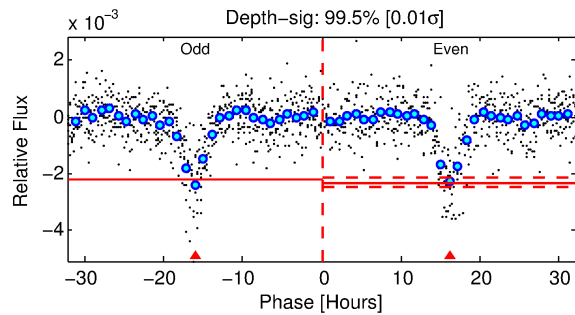
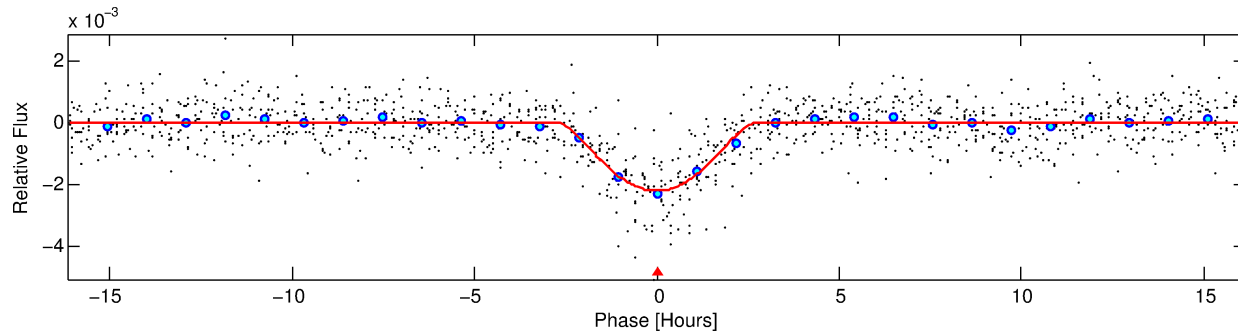
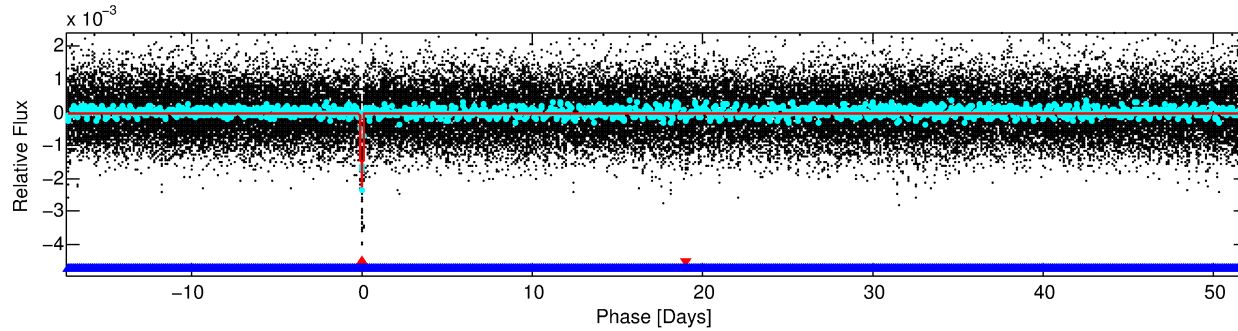
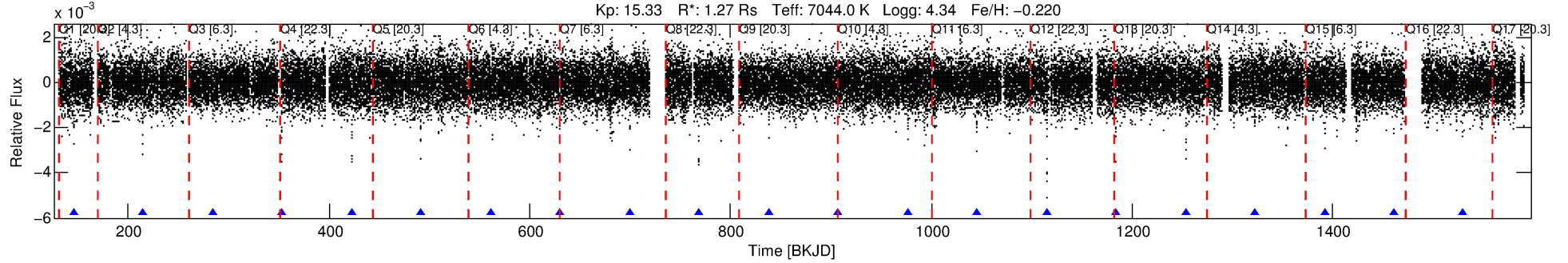
No Significant Match Found

DV One-Page Summary

KIC: 5302643 Candidate: 1 of 2 Period: 69.200 d

KOI: K02746.01 Corr: 0.983

Kp: 15.33 R*: 1.27 Rs Teff: 7044.0 K Logg: 4.34 Fe/H: -0.220



DV Fit Results:

Period = 69.20035 [0.00041] d
Epoch = 145.9522 [0.0049] BKJD
Rp/R* = 0.0786 [0.0935]
a/R* = 39.82 [10.60]
b = 1.00 [0.14]
Seff = 27.70 [10.66]
Teq = 585 [56] K
Rp = 10.87 [13.31] Re
a = 0.3575 [0.0846] AU
Ag = 257.00 [619.31] [0.41σ]
Teff = 3621 [2167] K [1.40σ]

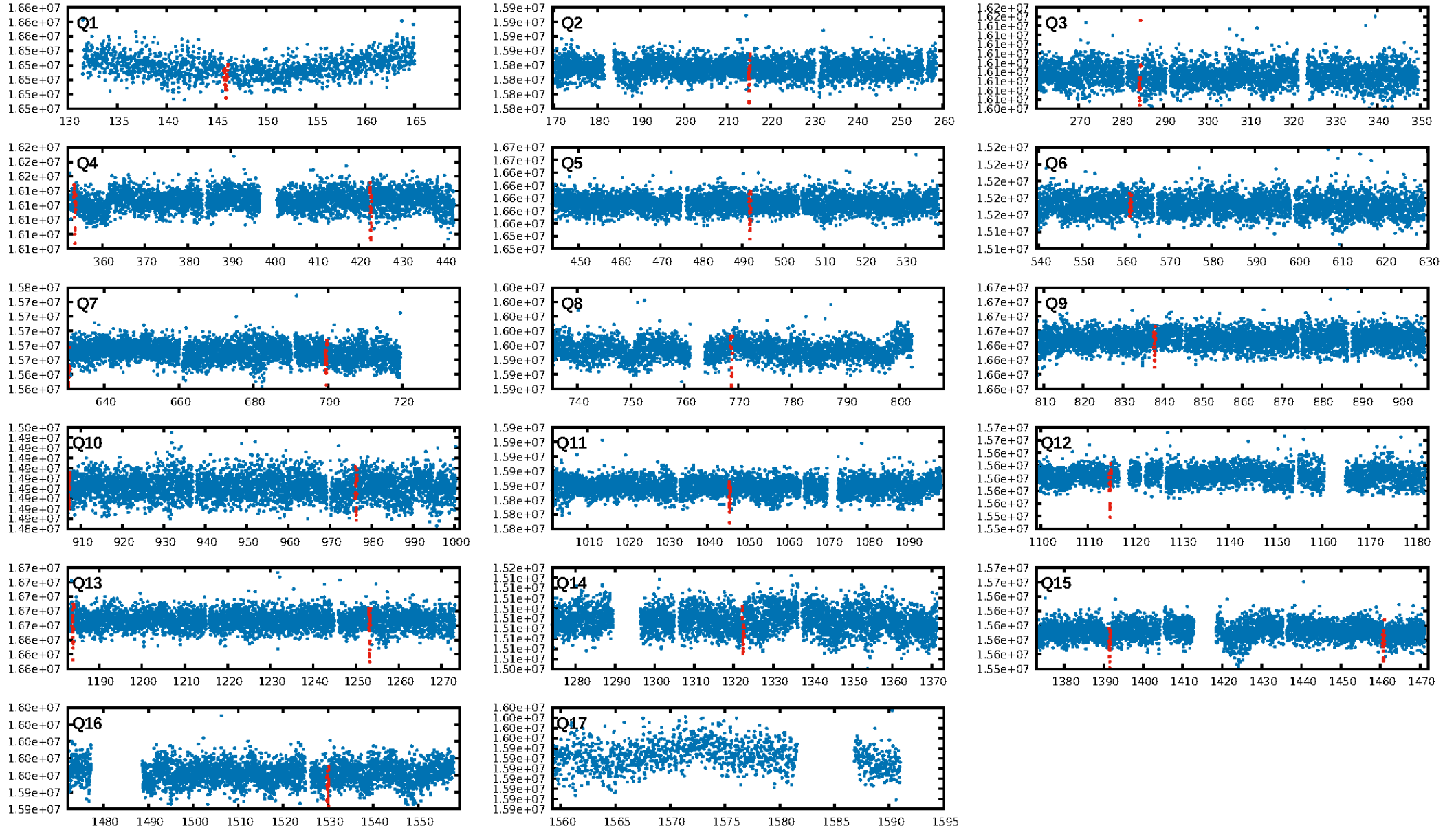
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [240.11σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.26e-126
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: 0.8177
Centroid-sig: 0.0%
Centroid-so: 4.628 arcsec [12.28σ]
OotOffset-rm: 3.940 arcsec [38.80σ]
KicOffset-rm: 3.975 arcsec [40.50σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 0.00 [0/16]

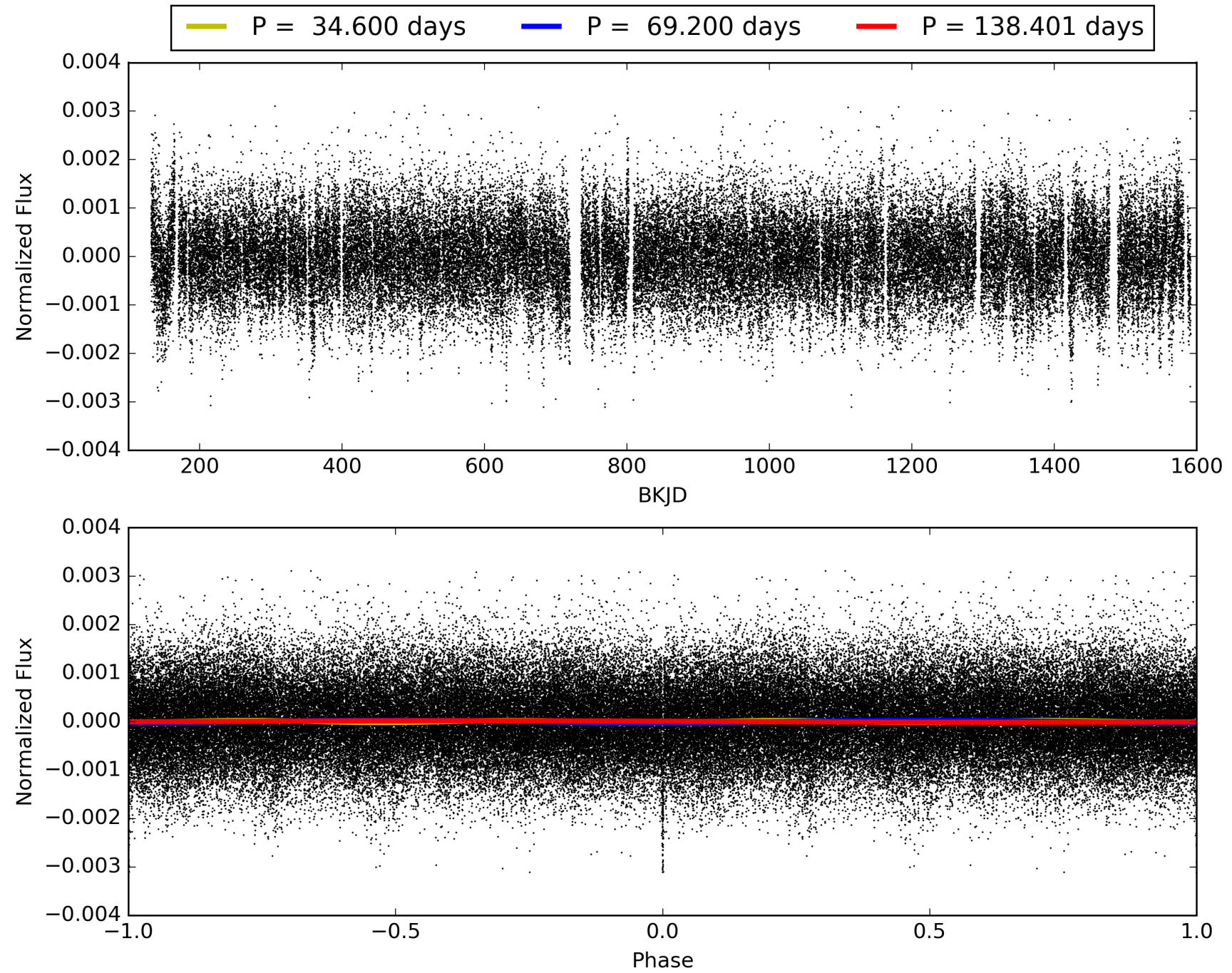
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:01:49 Z

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

TCE 005302643-01, PDC Light Curves

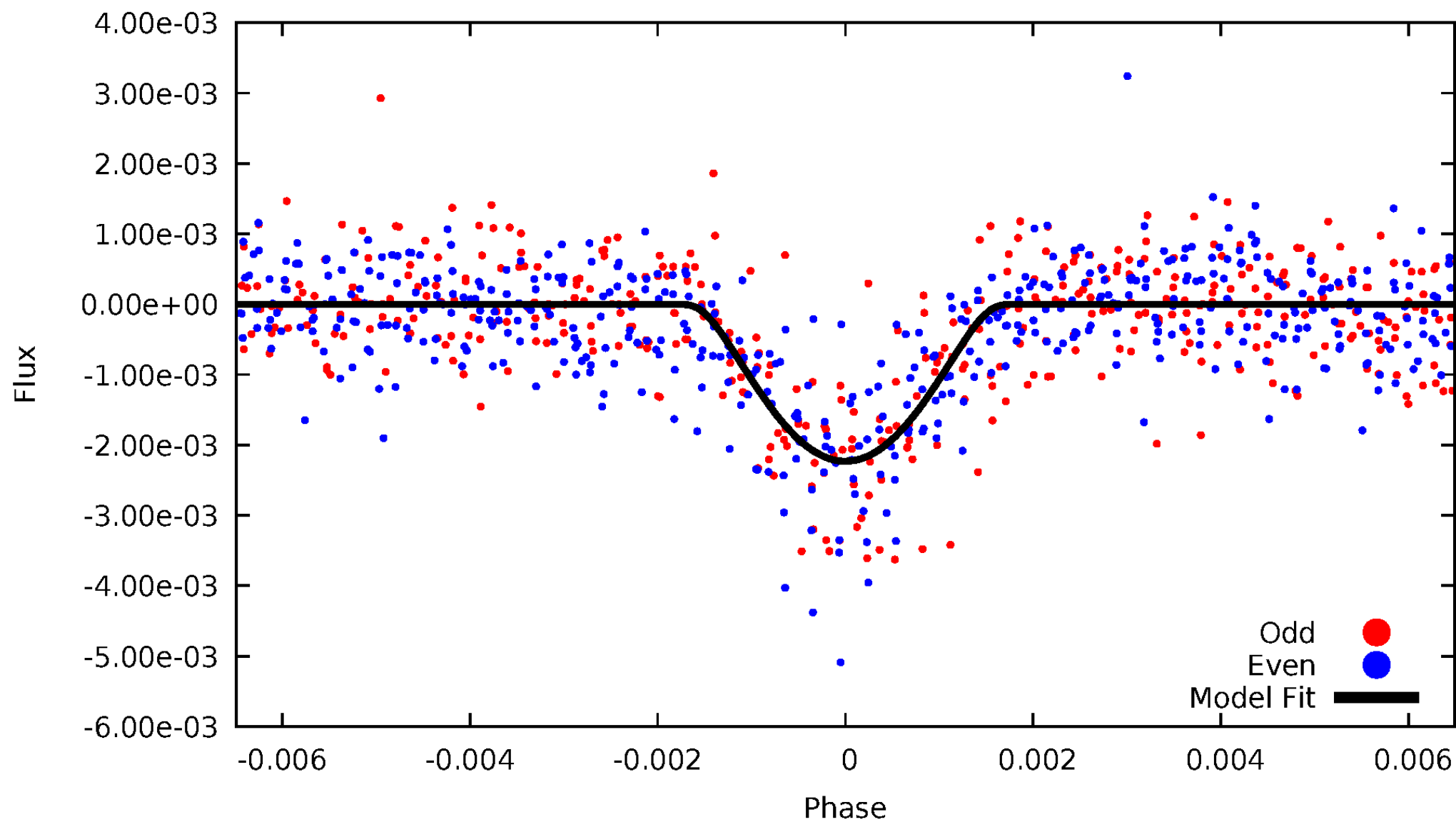


TCE 005302643-01



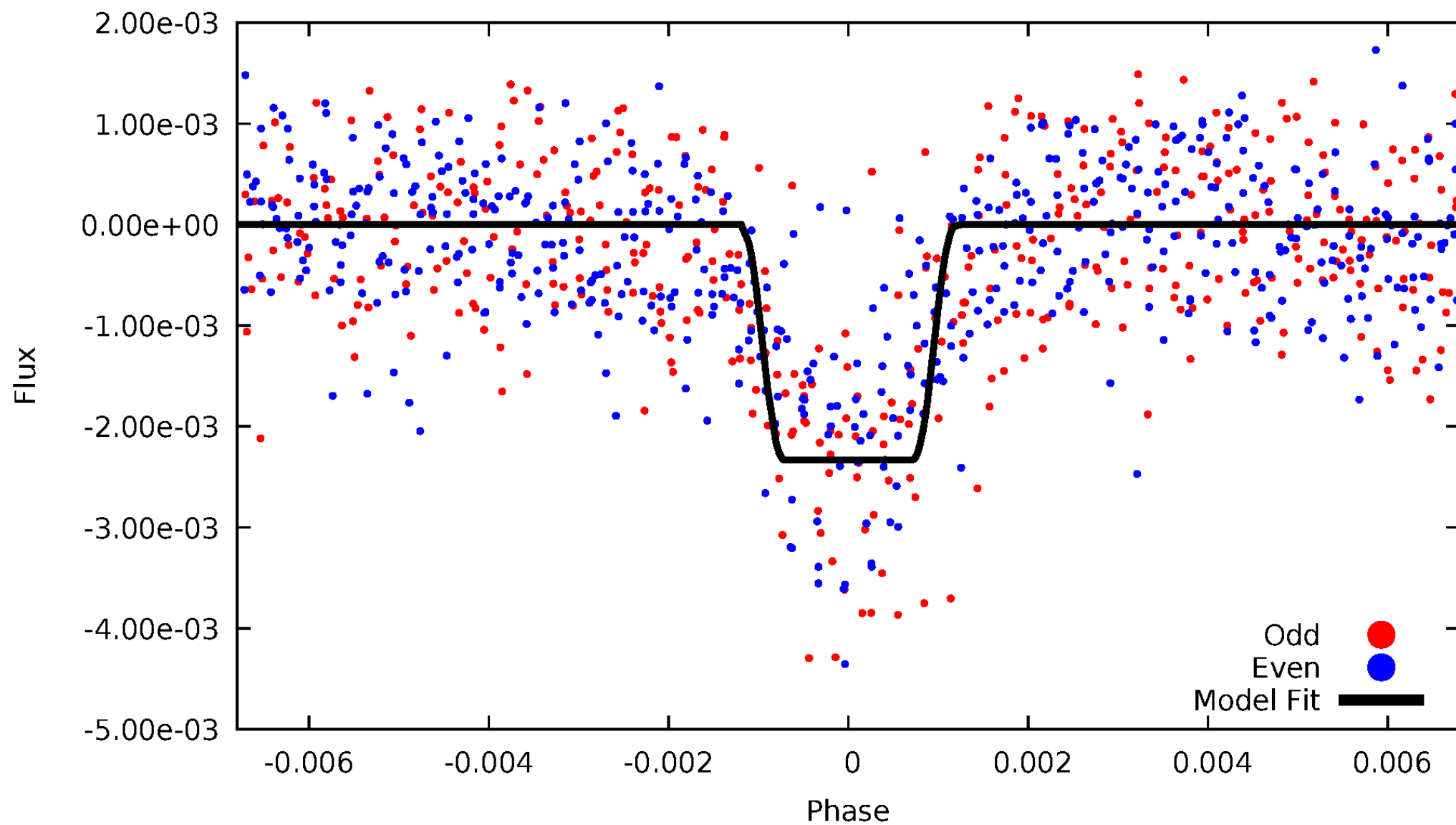
DV Odd/Even

TCE 005302643-01



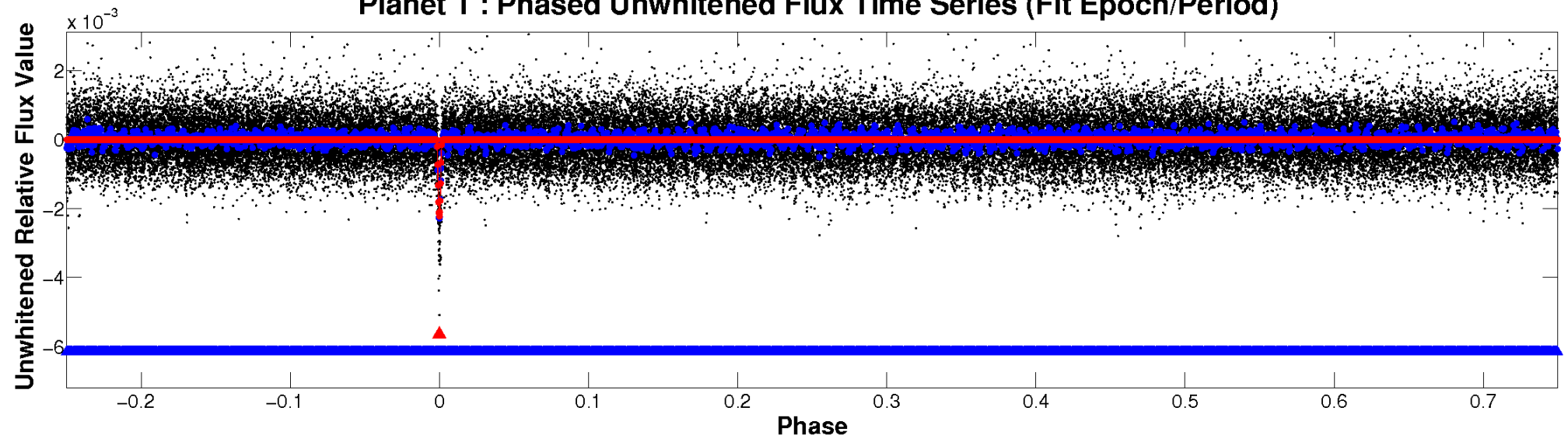
ALT Odd/Even

TCE 005302643-01

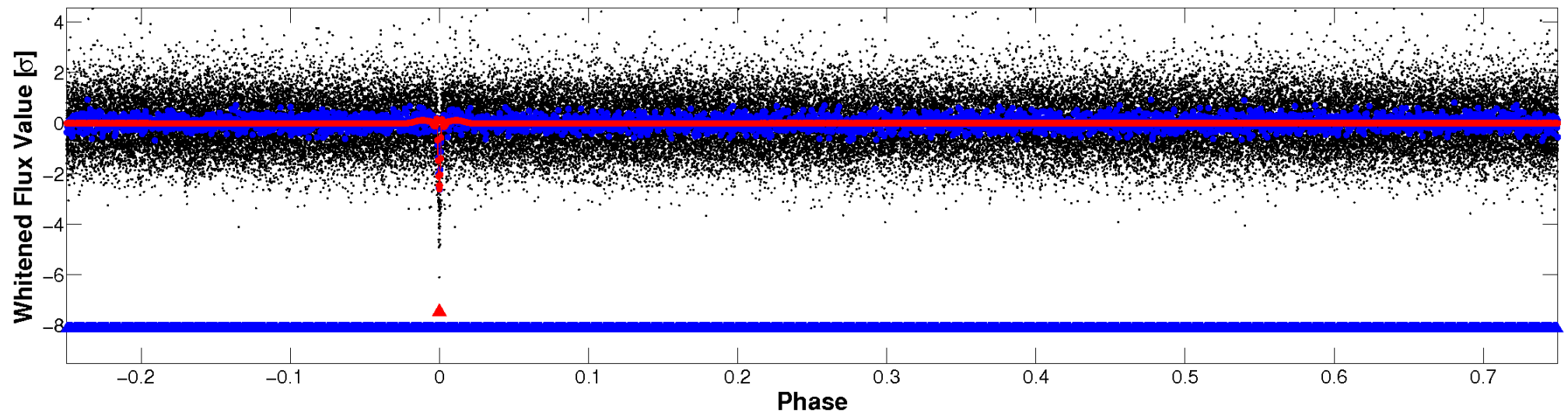


Non-Whitened Vs. Whitened Light Curve

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

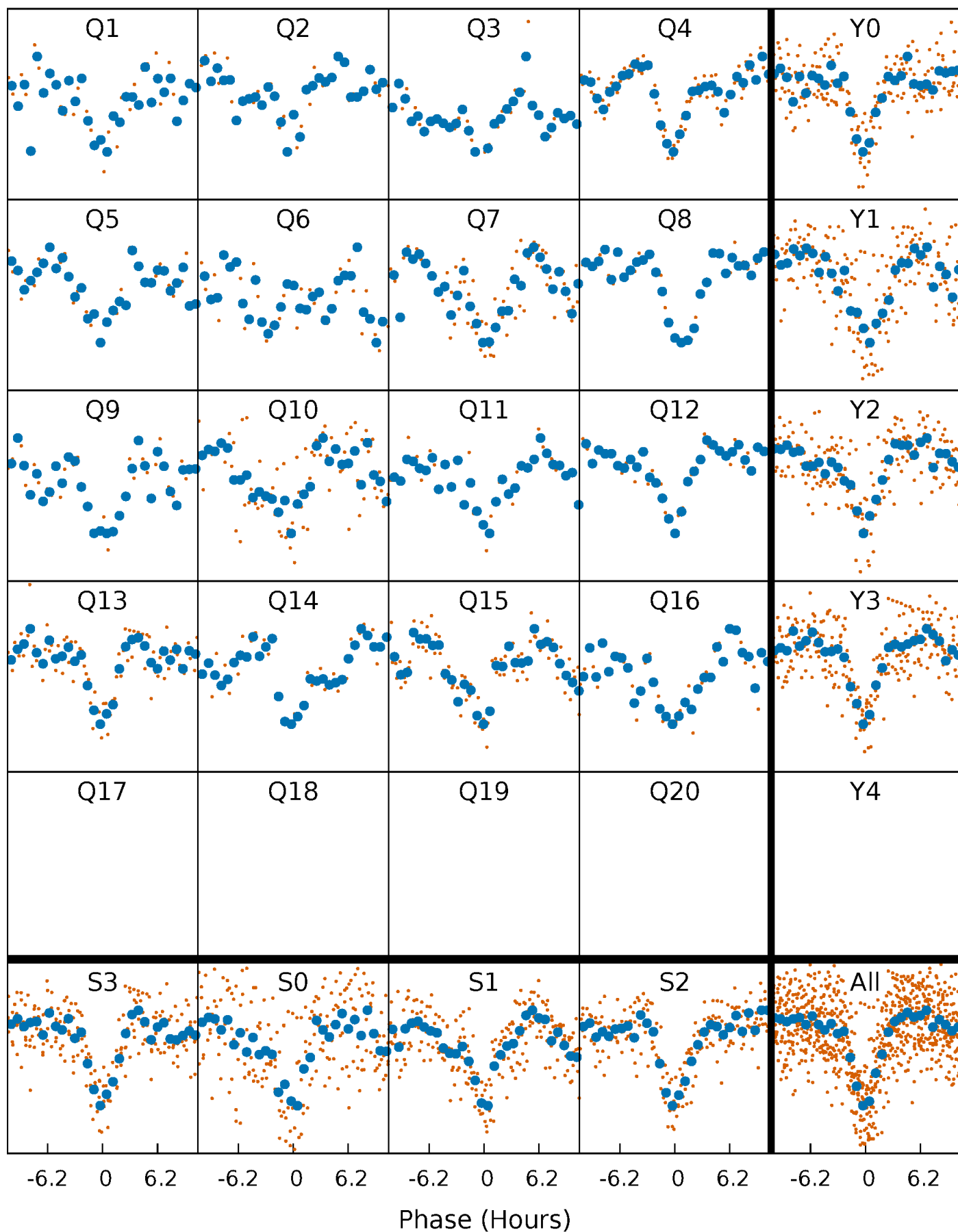


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



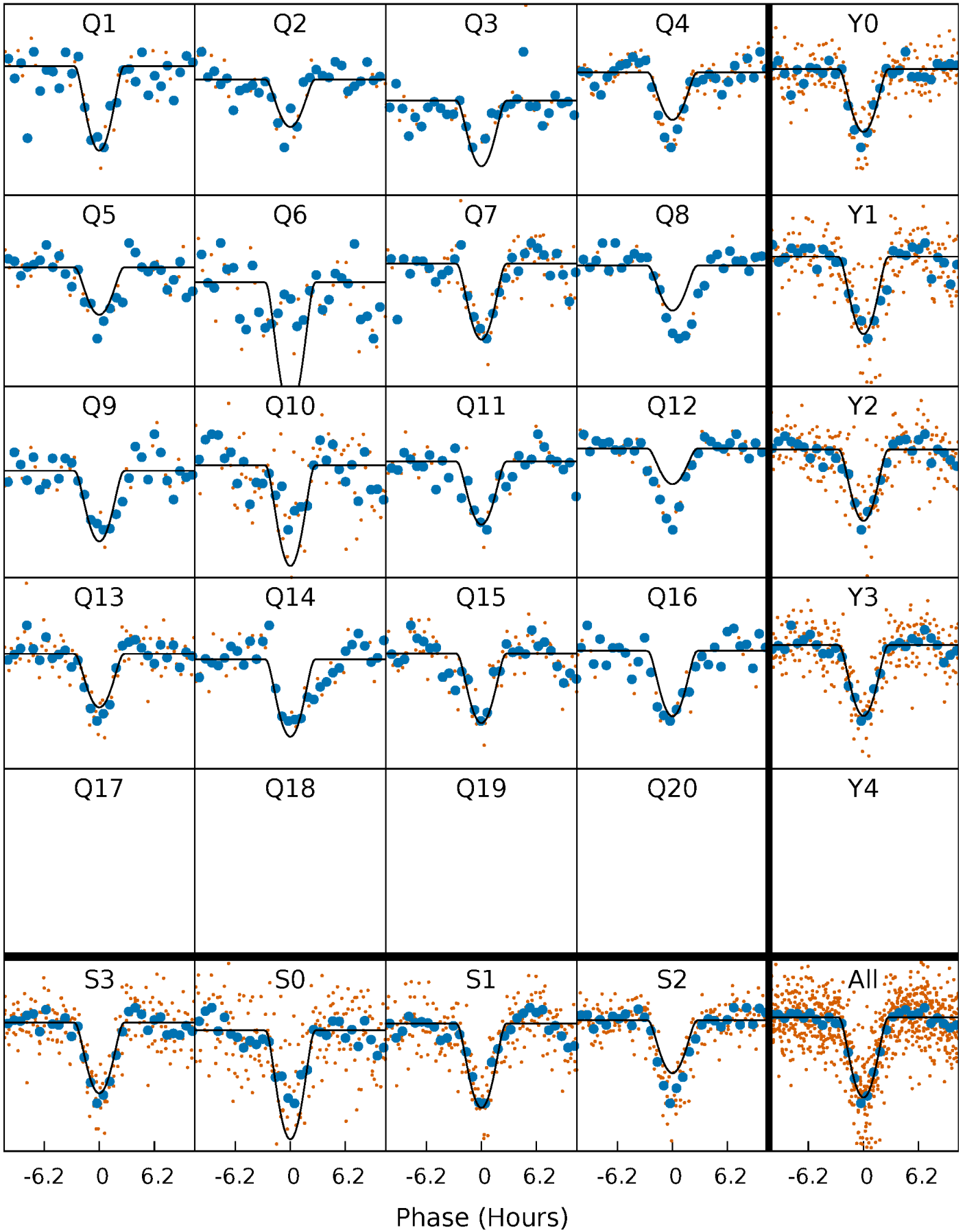
PDC Quarter-Phased Transit Curves

TCE 005302643-01 P= 69.200353 Days $T_0=145.952248$ (BKJD)



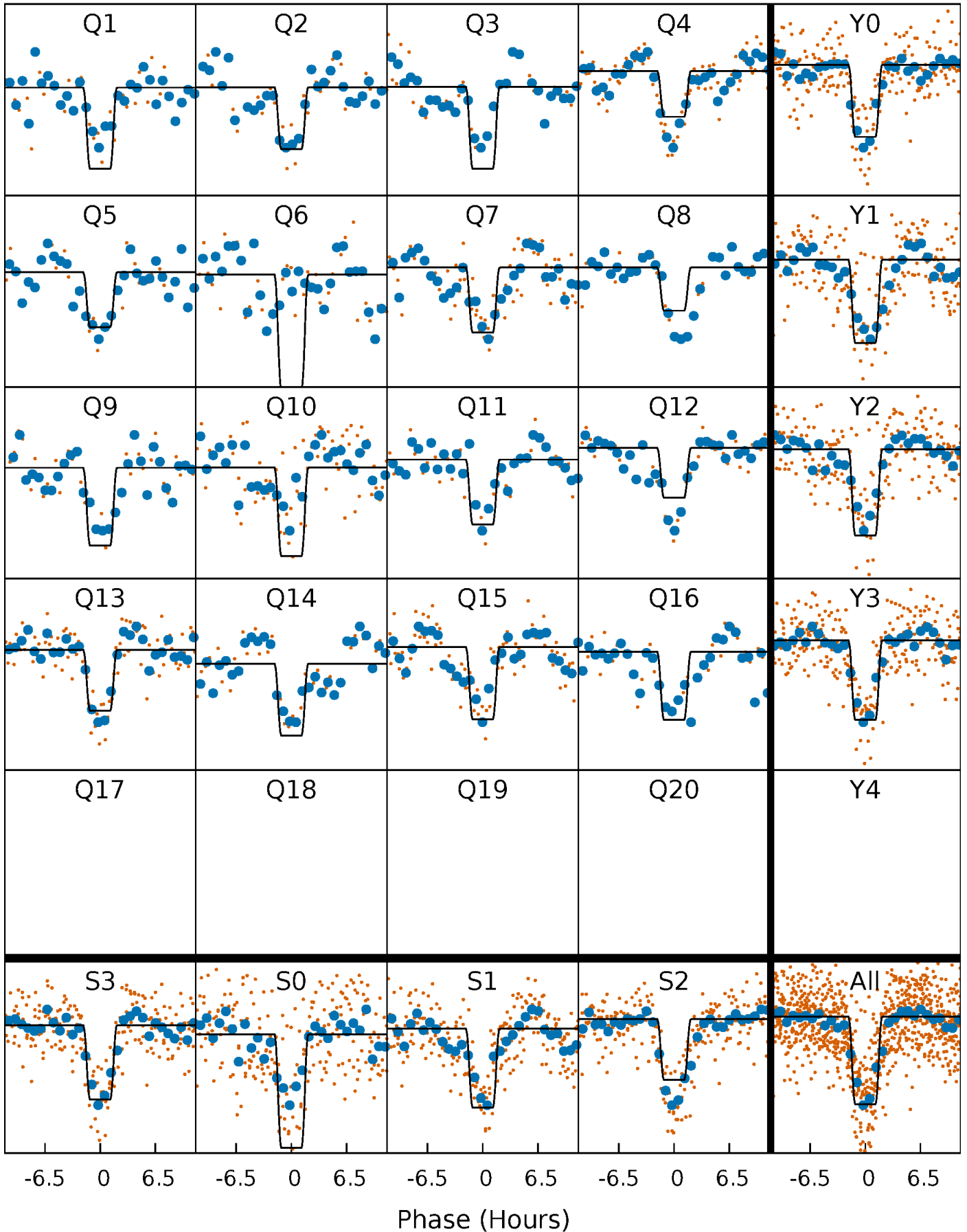
DV Quarter-Phased Transit Curves

TCE 005302643-01 P= 69.200353 Days $T_0=145.952248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

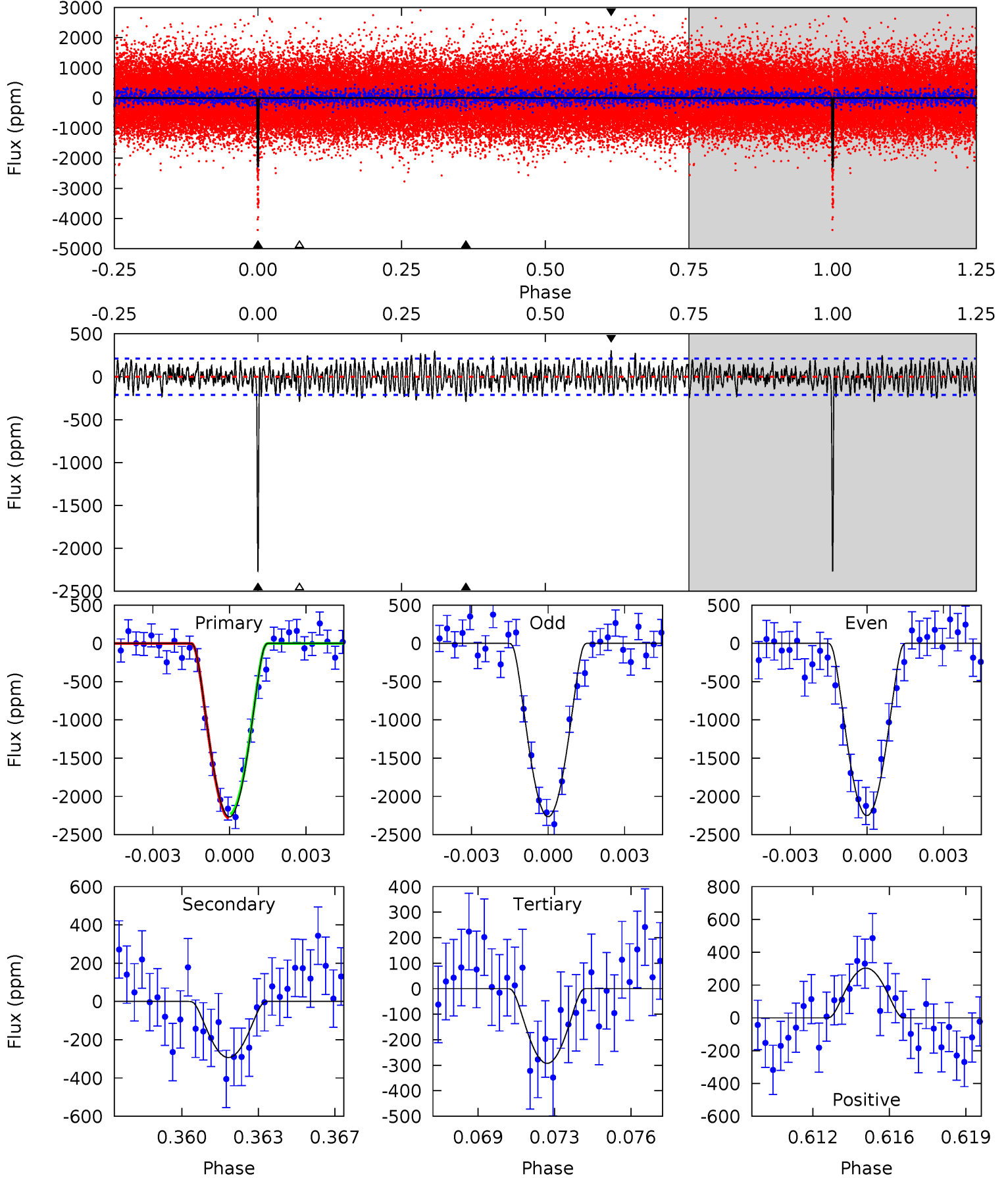
TCE 005302643-01 P= 69.200450 Days $T_0=145.949835$ (BKJD)



DV Model-Shift Uniqueness Test

005302643-01, P = 69.200353 Days, E = 76.751895 Days

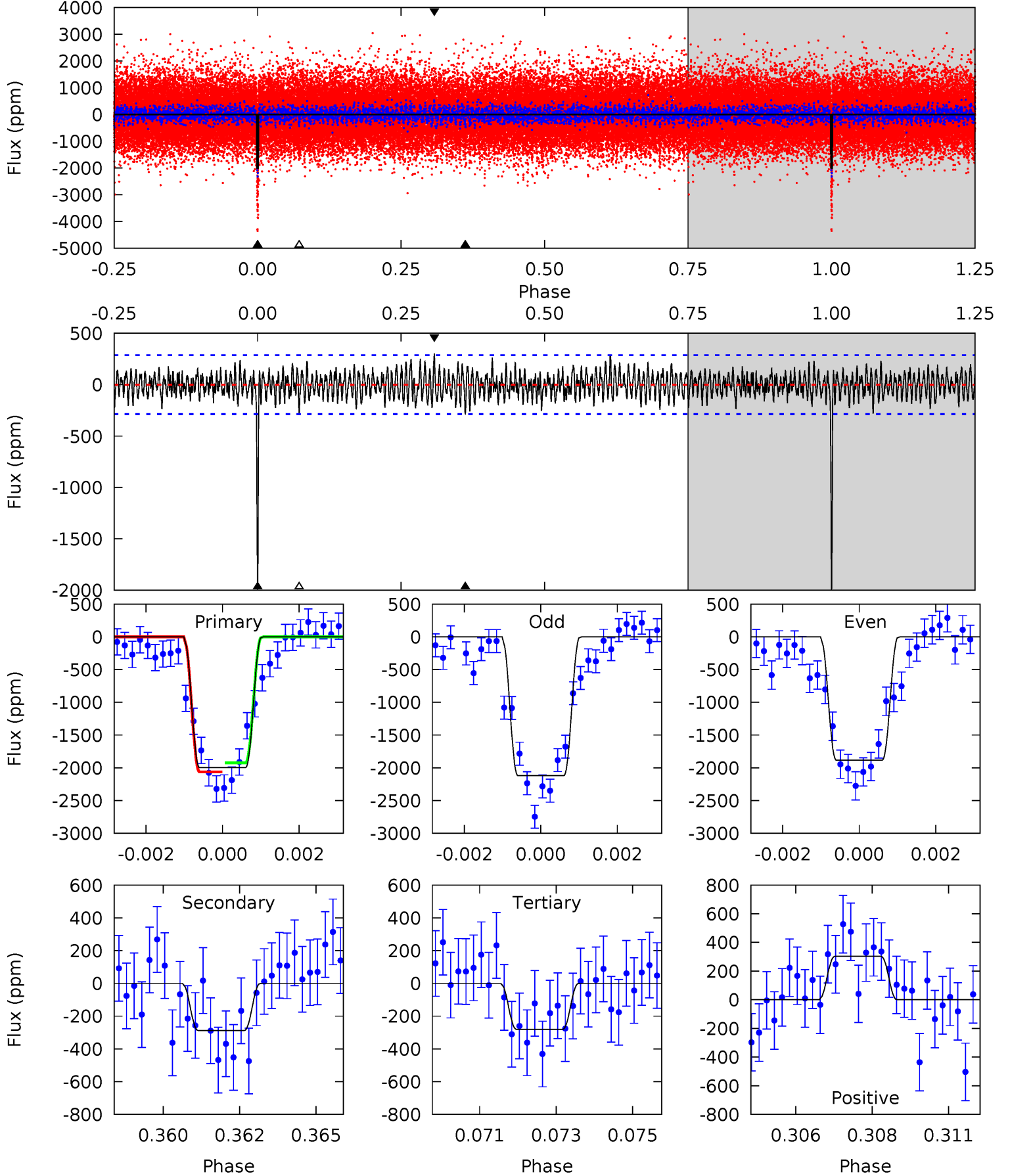
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.1	7.24	7.23	7.49	5.23	2.92	2.53	48.8	48.6	0.01	-0.25	0.17	1.05	0.12	0.64



Alt Model-Shift Uniqueness Test

005302643-01, P = 69.200450 Days, E = 76.749385 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	5.31	5.18	5.59	5.30	3.04	1.82	31.6	31.2	0.13	-0.28	2.18	1.08	0.13	1.26



Stellar Parameters For KIC 005302643

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7044^{+219}_{-329}	$4.337^{+0.060}_{-0.180}$	$-0.220^{+0.300}_{-0.350}$	$1.267^{+0.365}_{-0.156}$	$1.291^{+0.187}_{-0.187}$	$0.894^{+0.278}_{-0.415}$
	+3%/-5%	+1%/-4%	+136%/-159%	+29%/-12%	+14%/-14%	+31%/-46%
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 005302643-01 / KOI 2746.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-293 ± 40	$15.28^{+12.35}_{-10.09}$	831^{+57}_{-46}	3348^{+1531}_{-531}	88^{+646}_{-62}
Alt.	-288 ± 54	$12.58^{+11.57}_{-8.56}$	831^{+57}_{-48}	3556^{+1889}_{-637}	128^{+1063}_{-95}

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 $A_{obs} \gg 1.0$

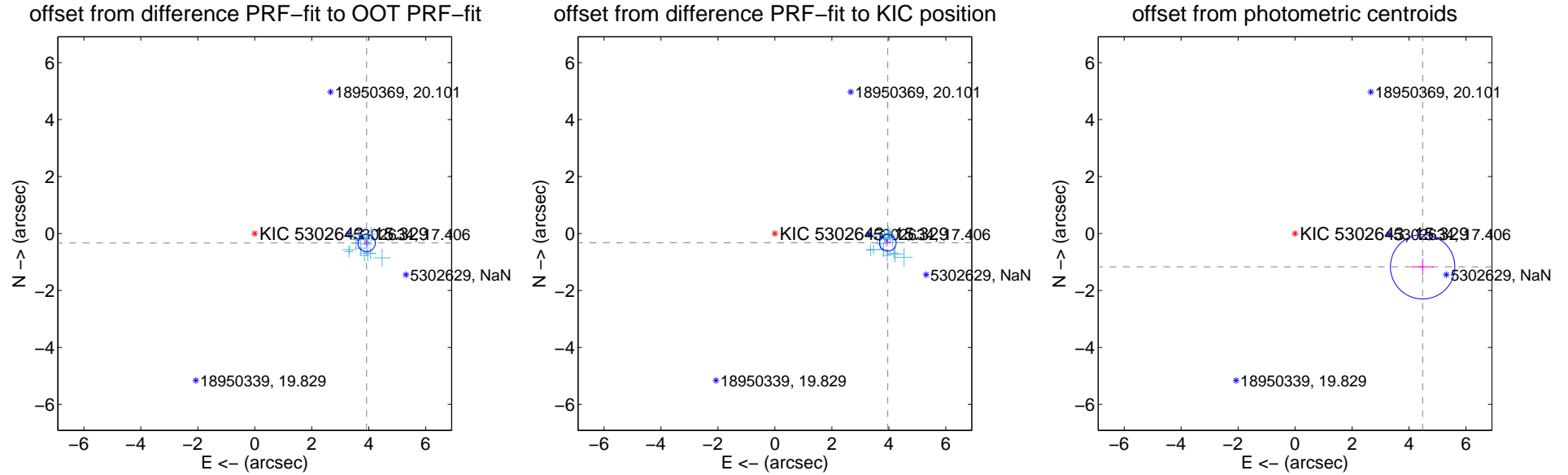
DV Centroid Data

Supplemental centroid analysis for 005302643-01. Kepler magnitude: 15.33. Transit SNR 24.95

There are 16 quarters with good PRF difference image offsets

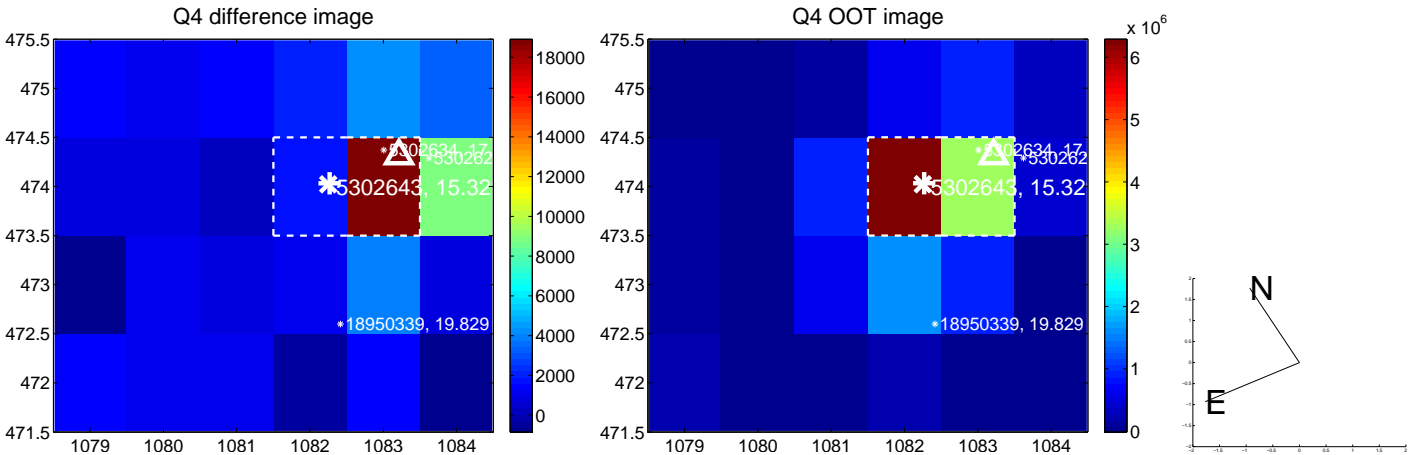
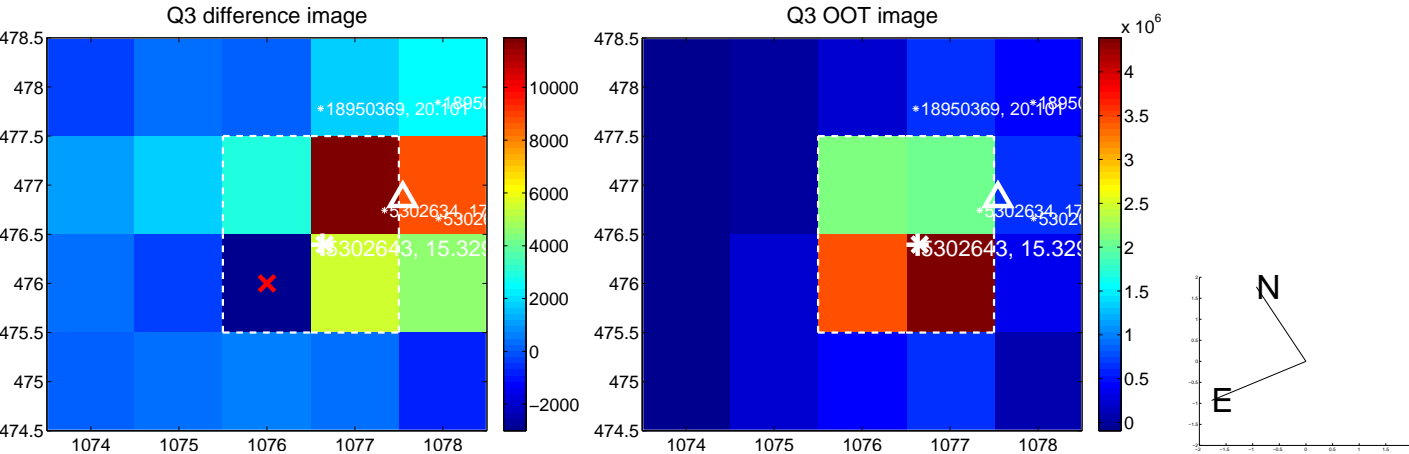
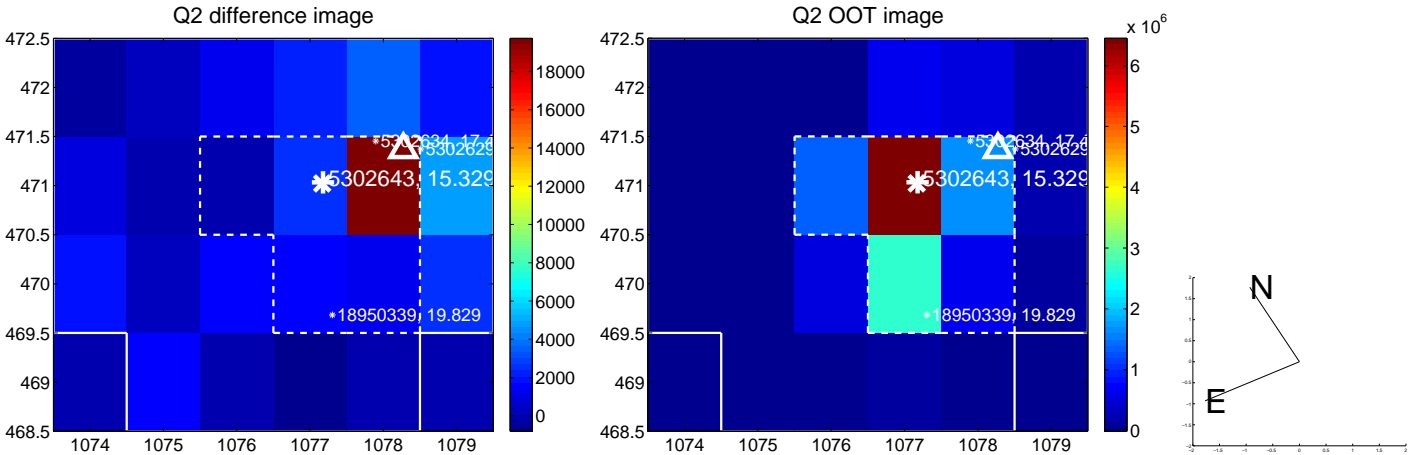
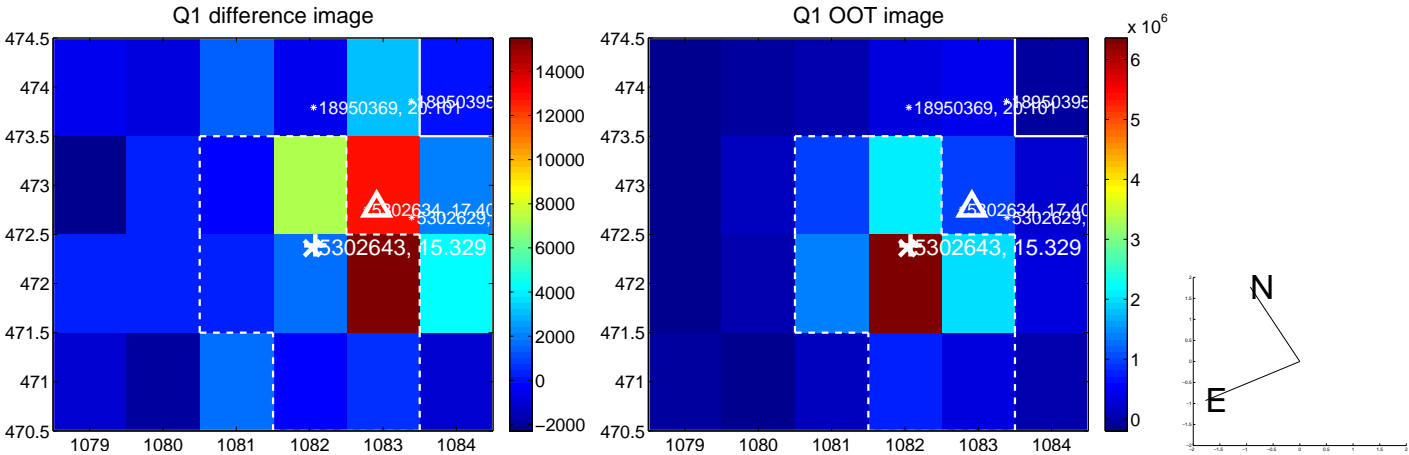
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.940 ± 0.102	38.80	-3.926 ± 0.101	-0.333 ± 0.097
PRF-fit source offset from KIC position	3.975 ± 0.098	40.50	-3.961 ± 0.097	-0.324 ± 0.097
photometric centroid source offset	4.63 ± 0.38	12.28	-4.48 ± 0.38	-1.17 ± 0.29

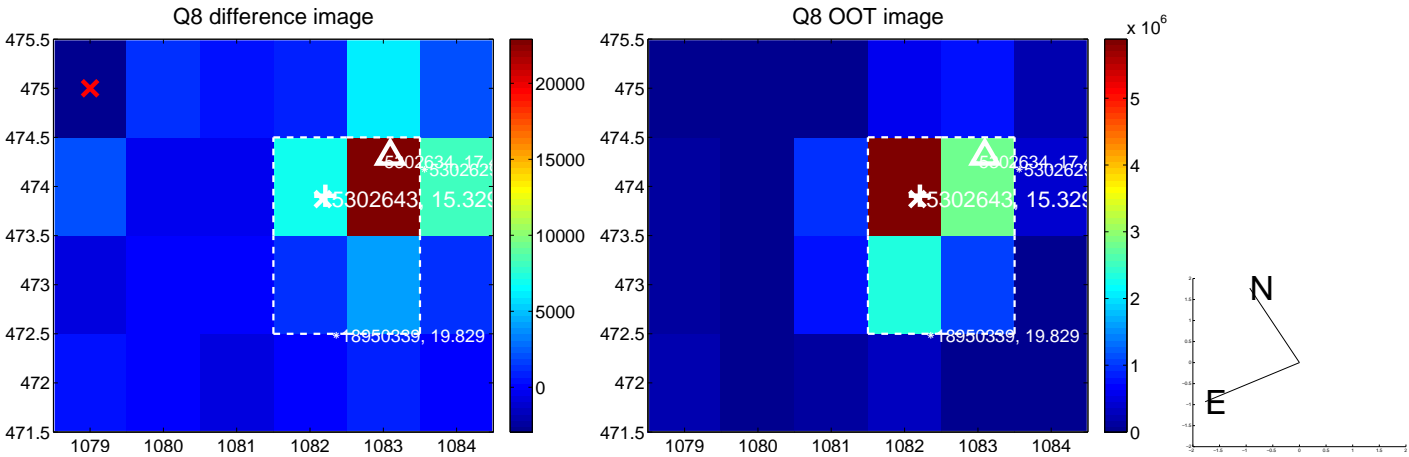
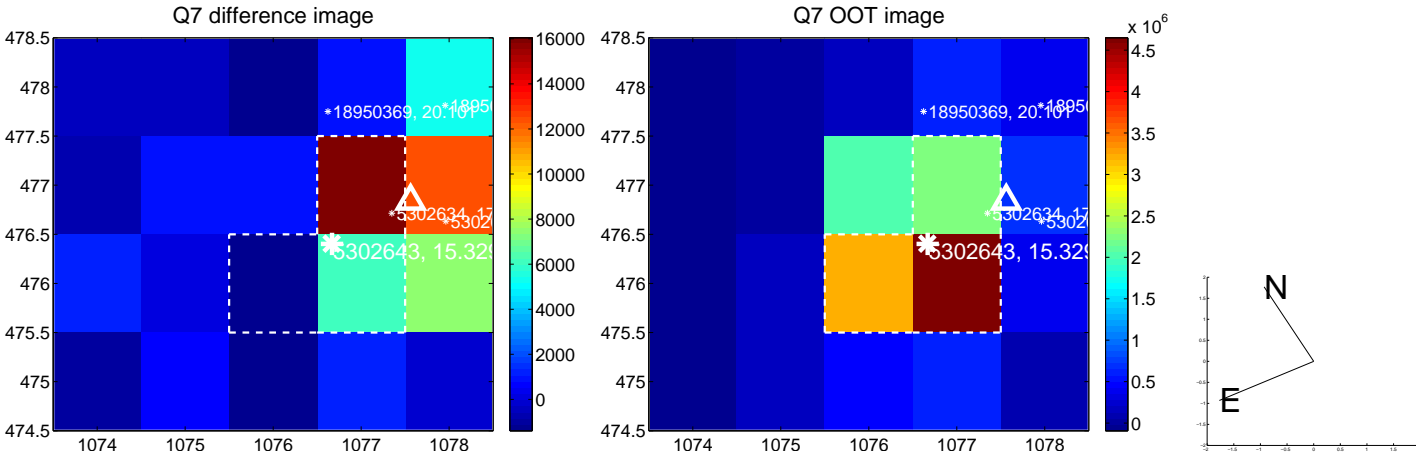
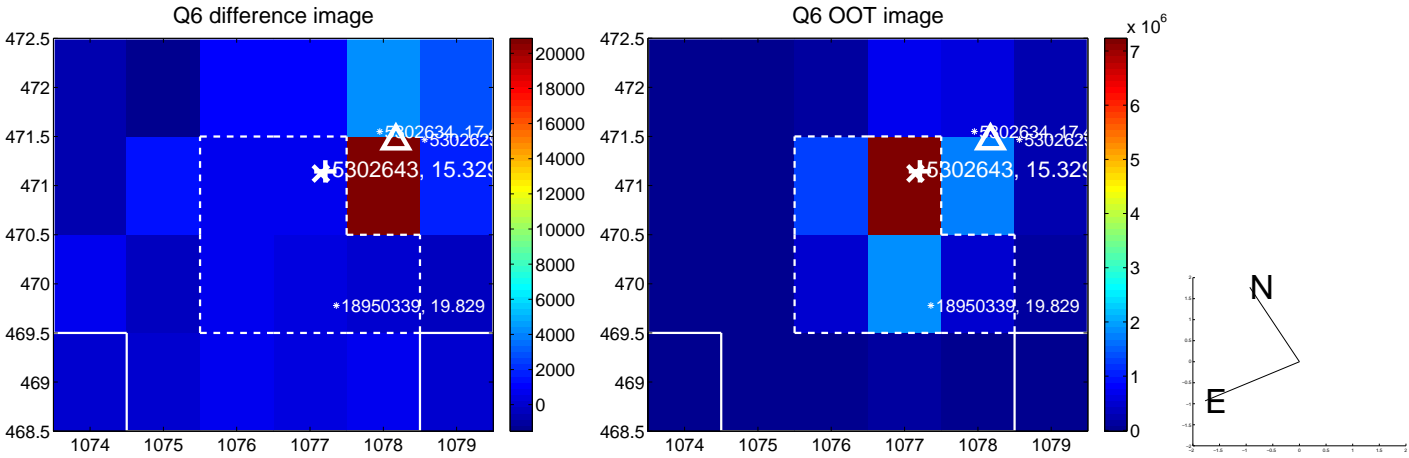
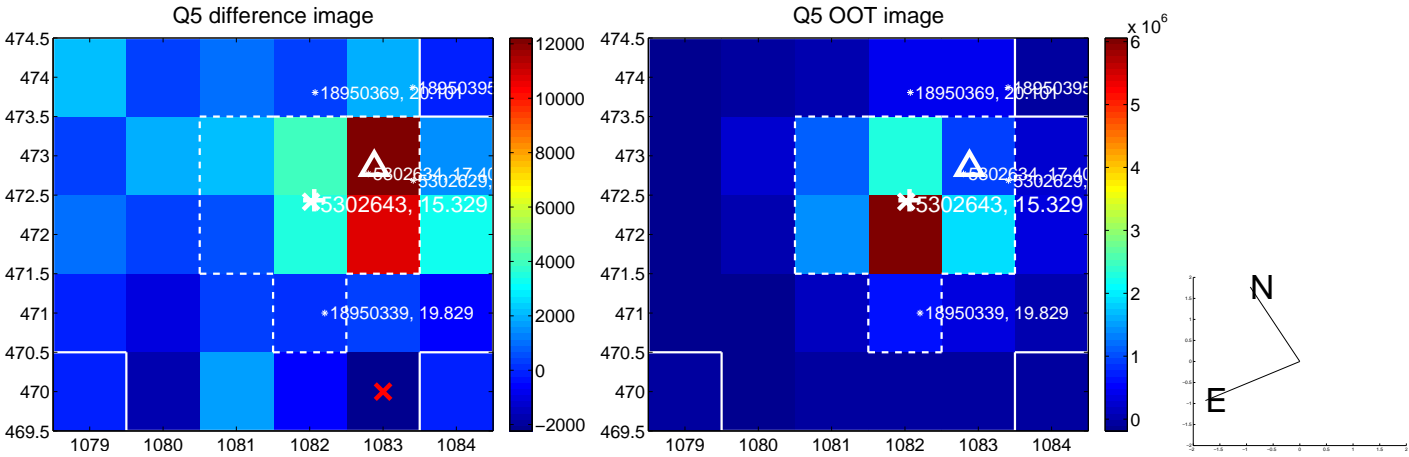


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

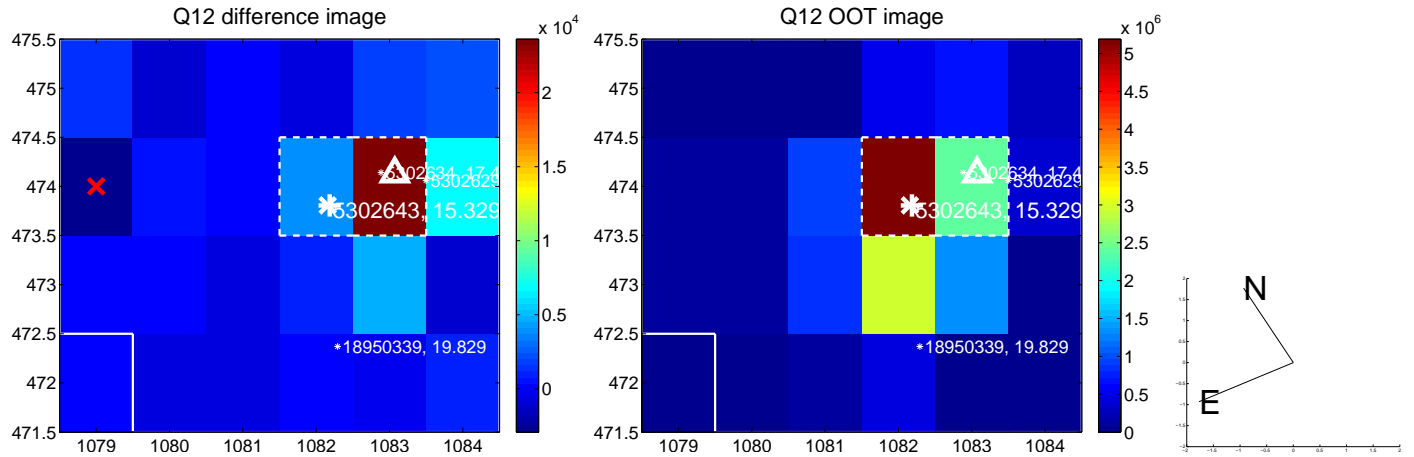
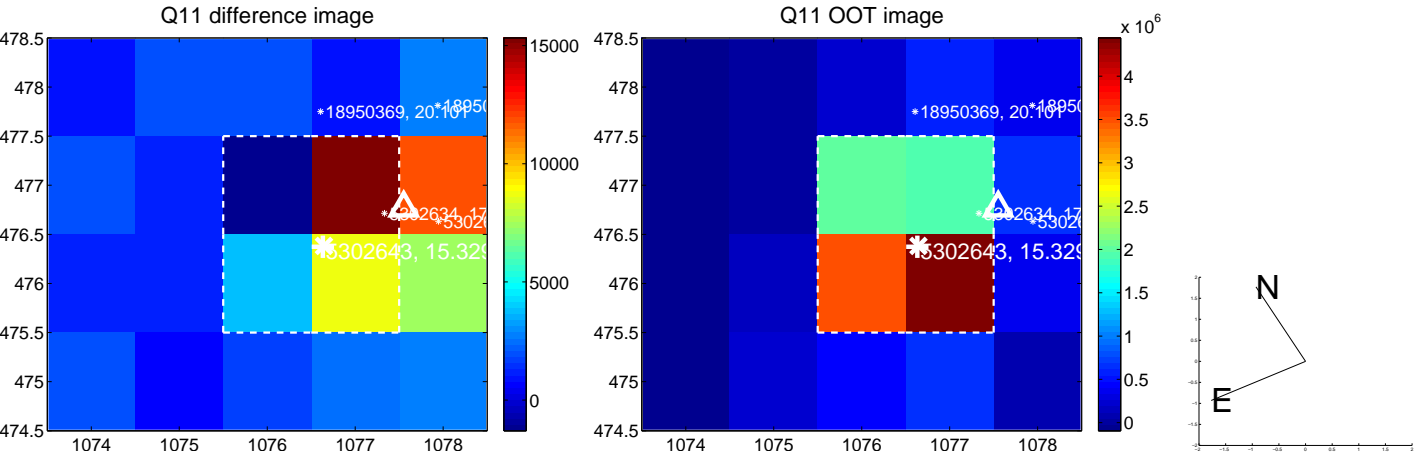
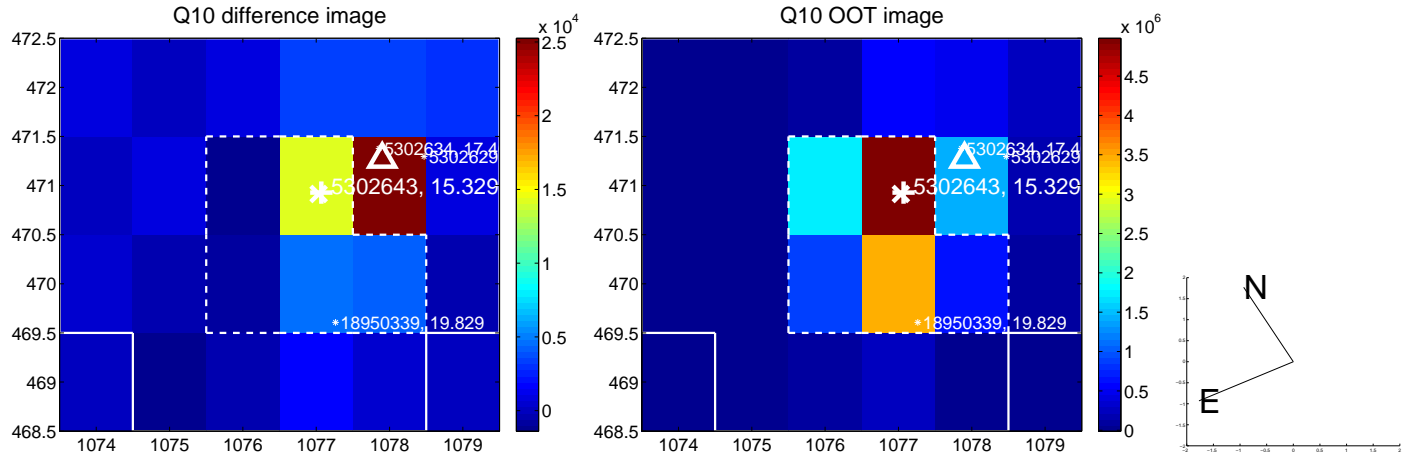
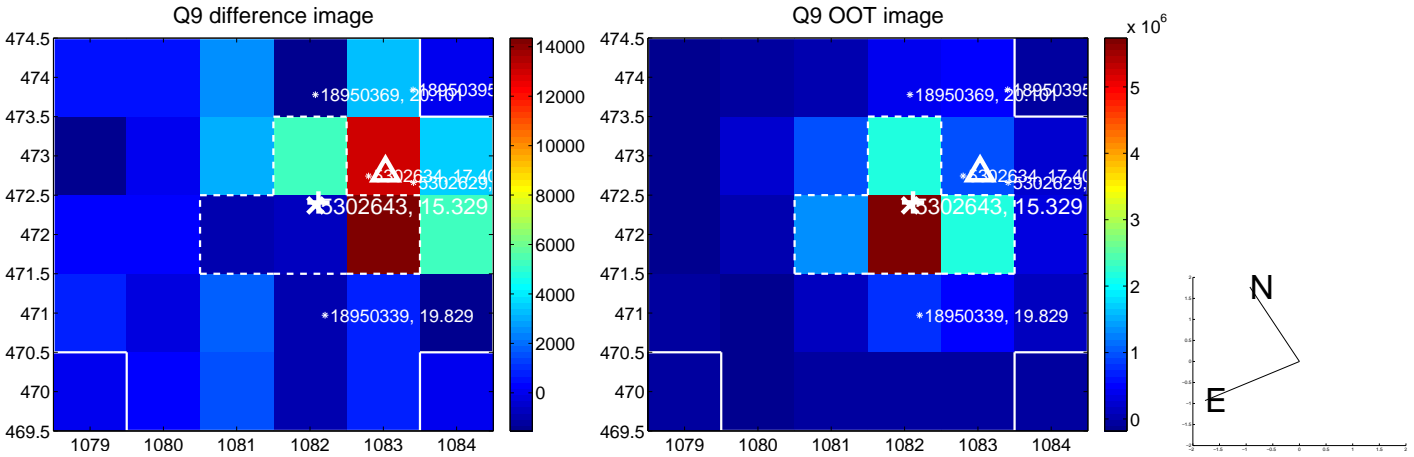
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



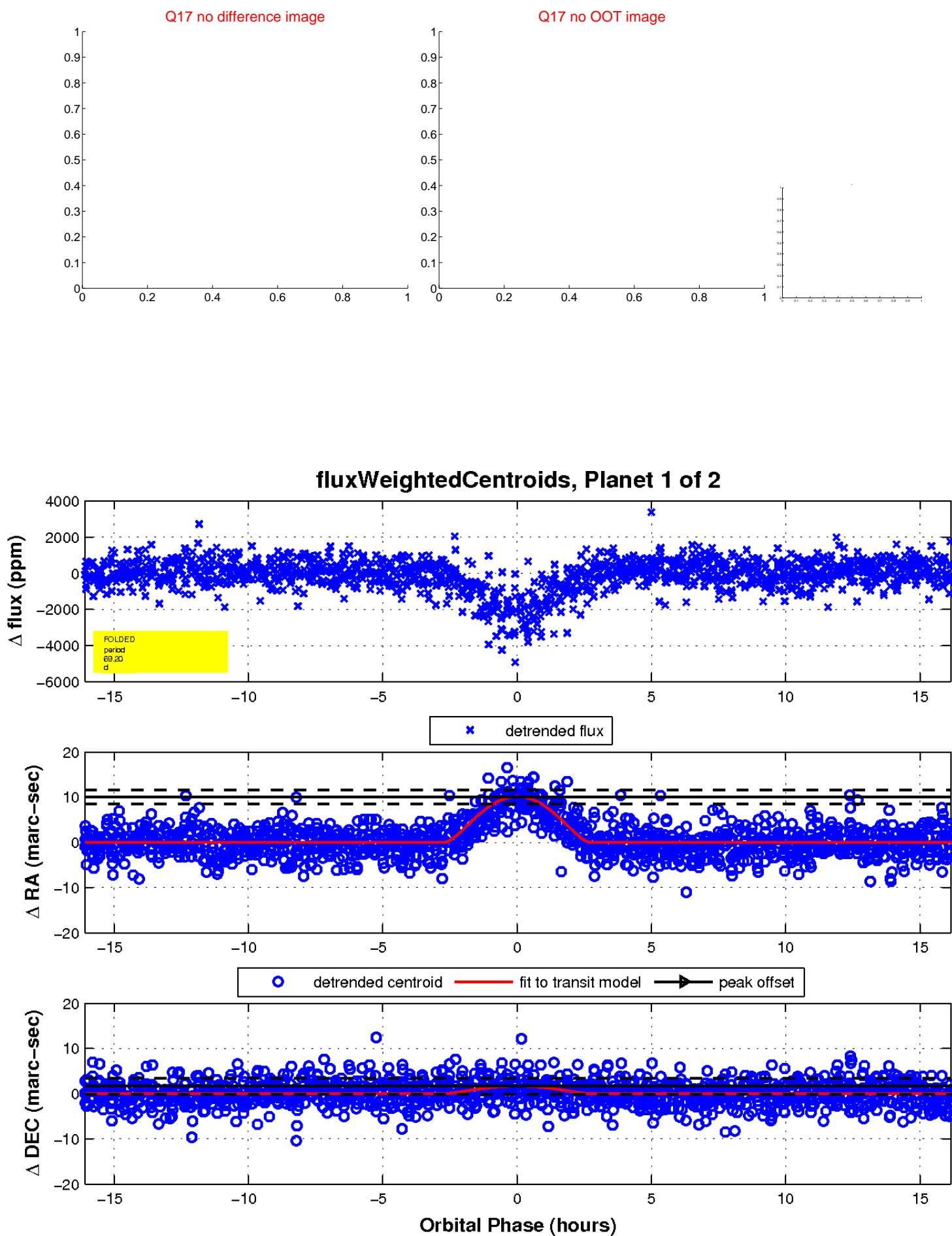
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

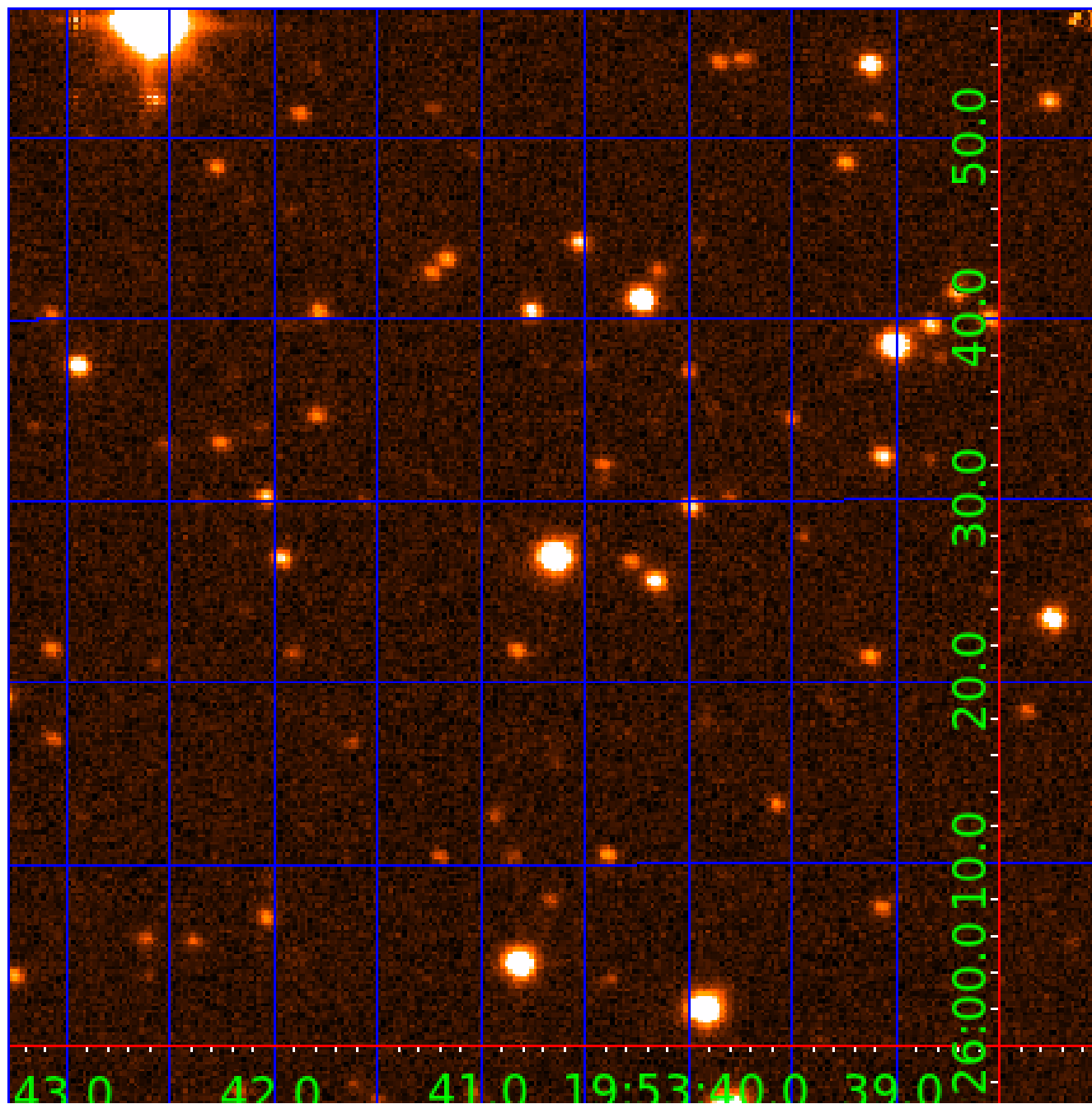


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005302643

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})
005302643-01	OBS	2746.01	69.200353	145.952248	2229.3	5.386	23.5	24.9	1.27	7044	10.87	27.70
005302643-02	OBS	No	0.557876	131.730042	60.7	4.250	9.2	9.5	1.27	7044	1.06	17138.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005302643-01	OBS	FP	0.00	0	1	1	0	DEEP_V_SHAPED—CENT_UNRESOLVED_OFFSET
005302643-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT

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.

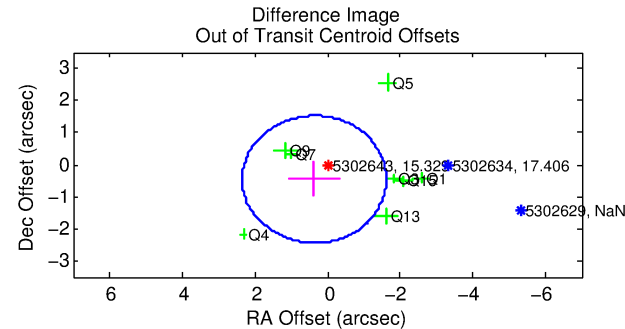
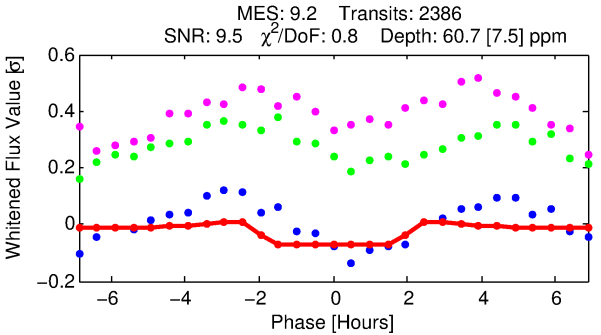
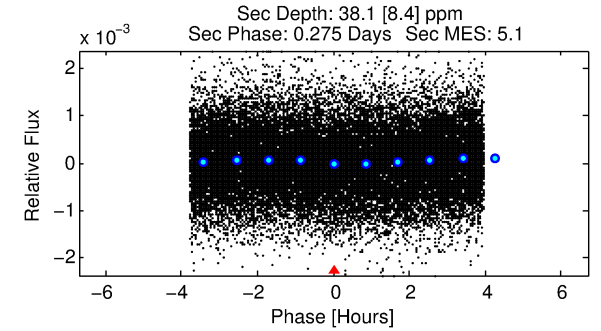
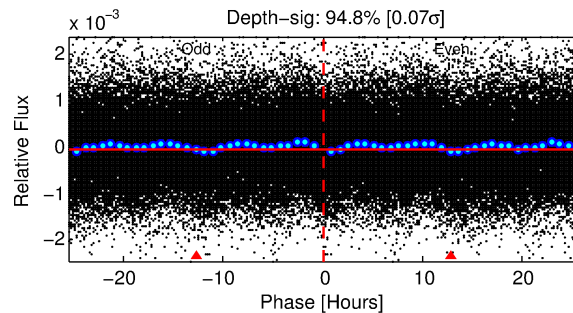
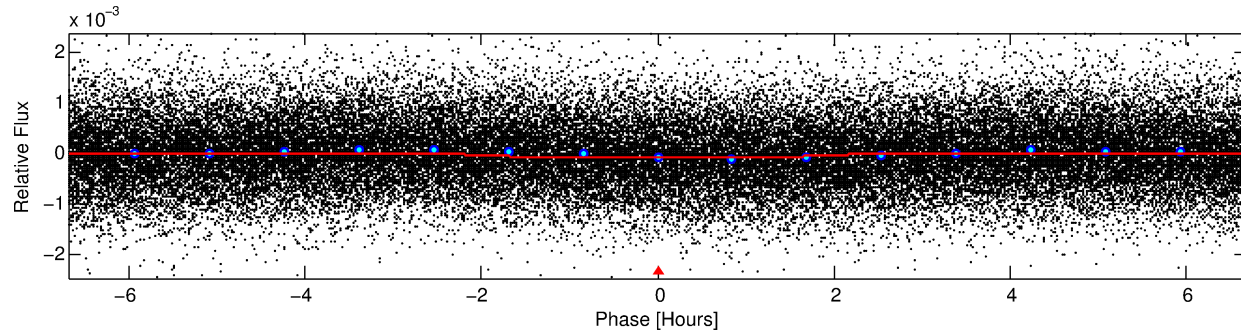
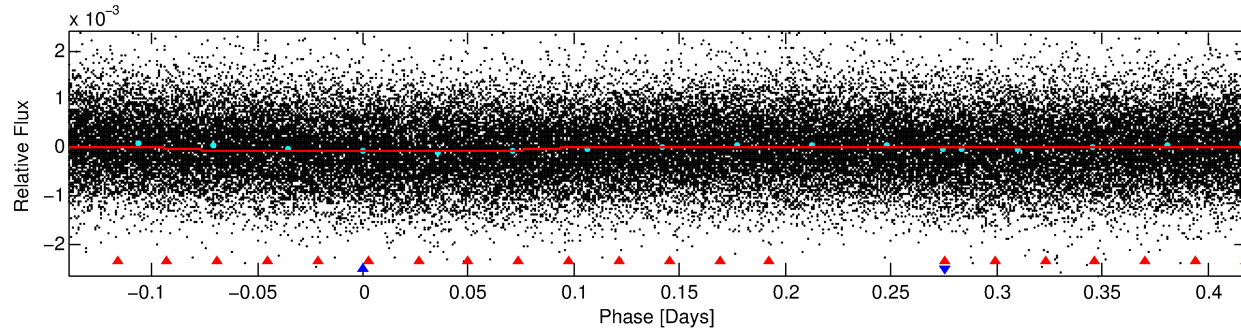
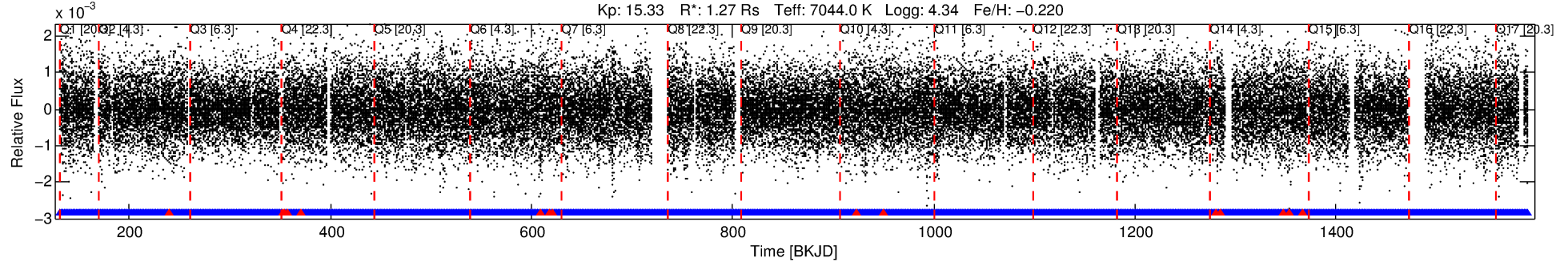
Ephemeris Match Information For 005302643-02

No Significant Match Found

DV One-Page Summary

KIC: 5302643 Candidate: 2 of 2 Period: 0.558 d
KOI: K02746 Corr: No Ephemeris Match

Kp: 15.33 R*: 1.27 Rs Teff: 7044.0 K Logg: 4.34 Fe/H: -0.220



DV Fit Results:

Period = 0.55788 [0.00001] d
Epoch = 131.7300 [0.0039] BKJD
Rp/R* = 0.0077 [0.0071]
a/R* = 1.11 [1.16]
b = 0.70 [4.07]
Seff = 17138.50 [6596.34]
Teq = 2918 [281] K
Rp = 1.06 [1.03] Re
a = 0.0144 [0.0034] AU
Ag = 3.87 [7.34] [0.39σ]
Teffp = 6327 [2966] K [1.14σ]

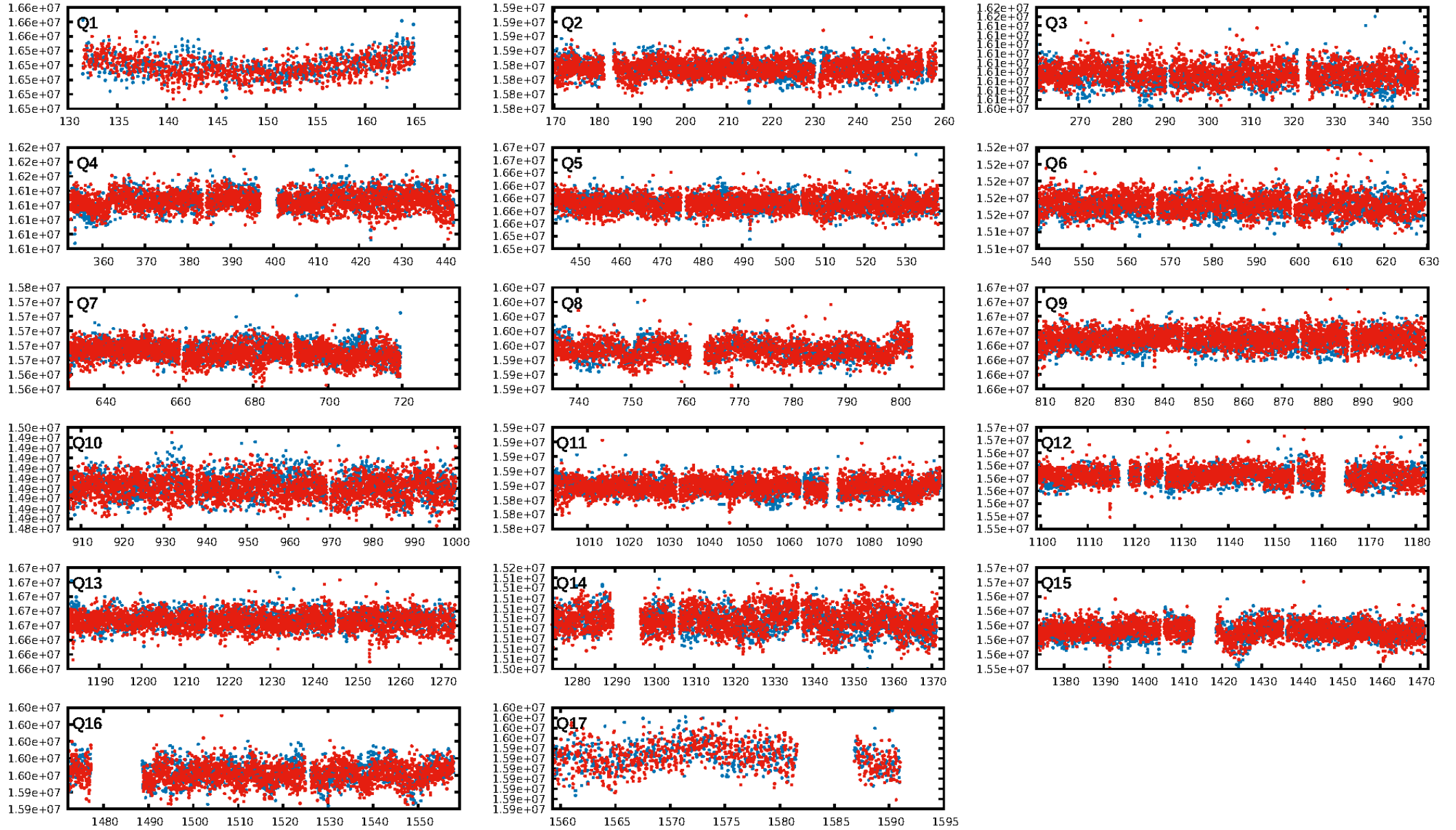
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [240.11σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.07e-19
RollingBand-fgt: 0.99 [2262/2278]
GhostDiagnostic-chr: 1.095
Centroid-sig: 0.3%
Centroid-so: 2.178 arcsec [2.45σ]
OotOffset-rm: 0.585 arcsec [0.89σ]
KicOffset-rm: 0.527 arcsec [0.82σ]
OotOffset-st: 0/3/1/4 [8]
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DiffImageOverlap-fno: 1.00 [17/17]

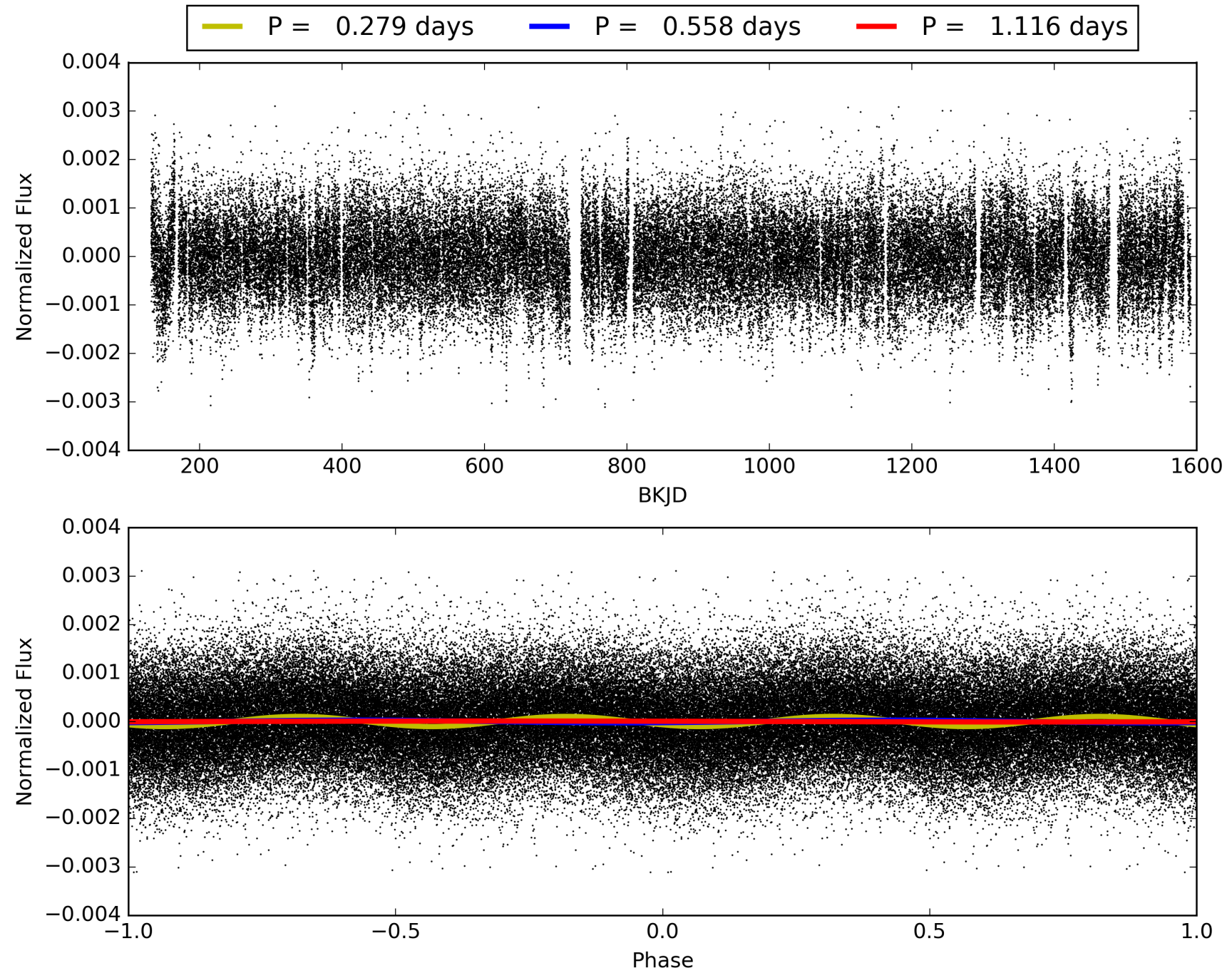
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:02:00 Z

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

TCE 005302643-02, PDC Light Curves

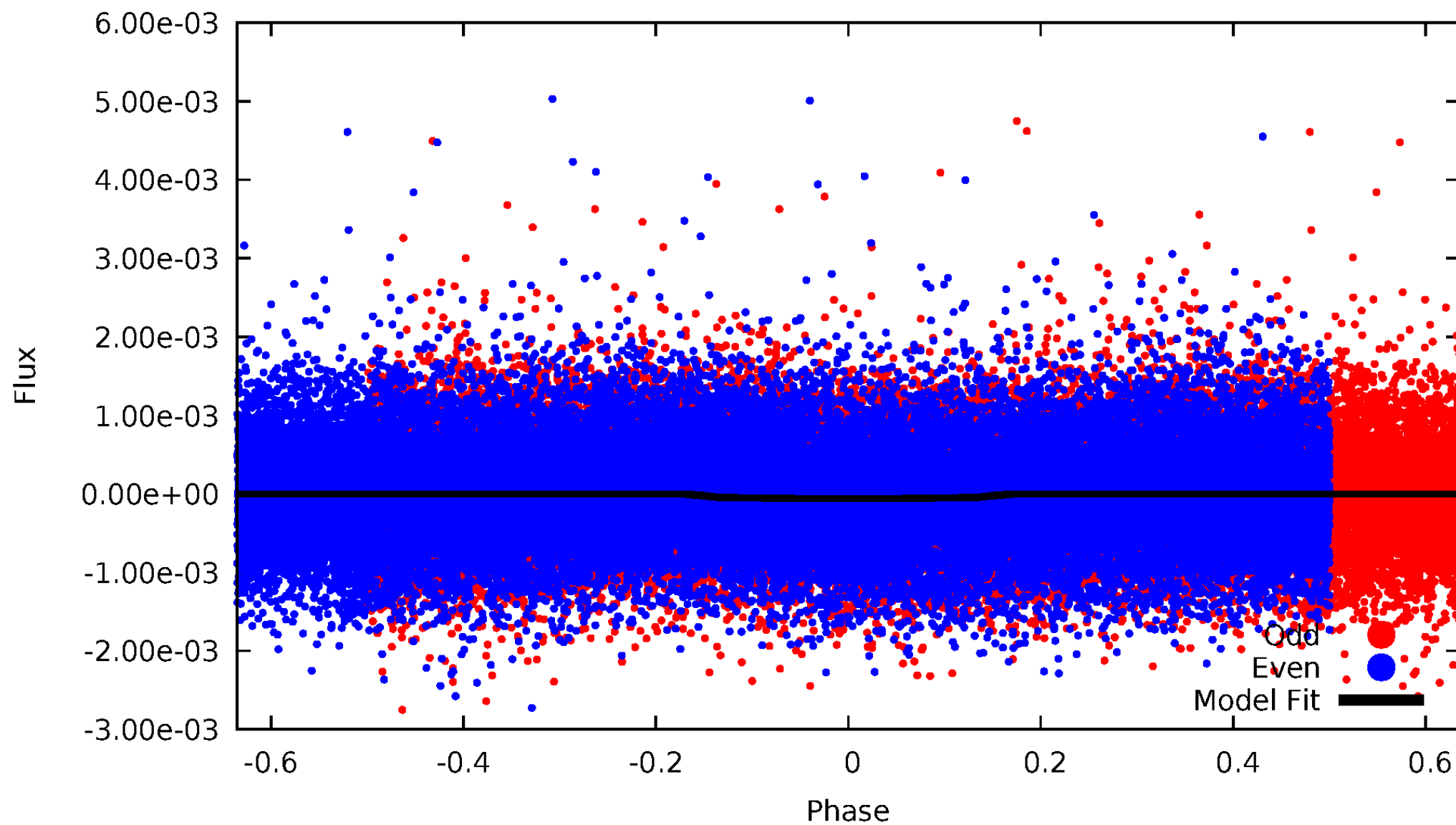


TCE 005302643-02



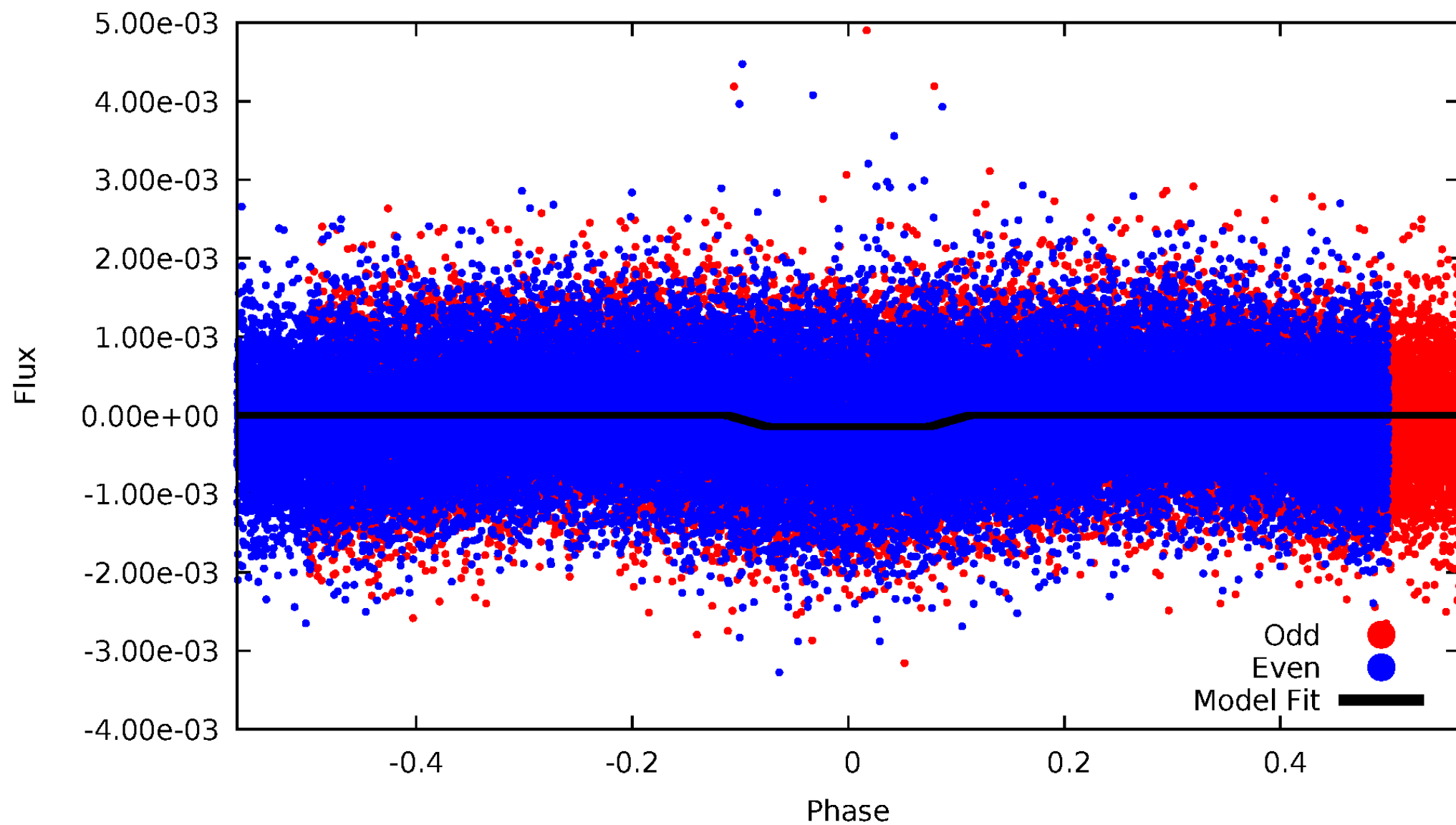
DV Odd/Even

TCE 005302643-02



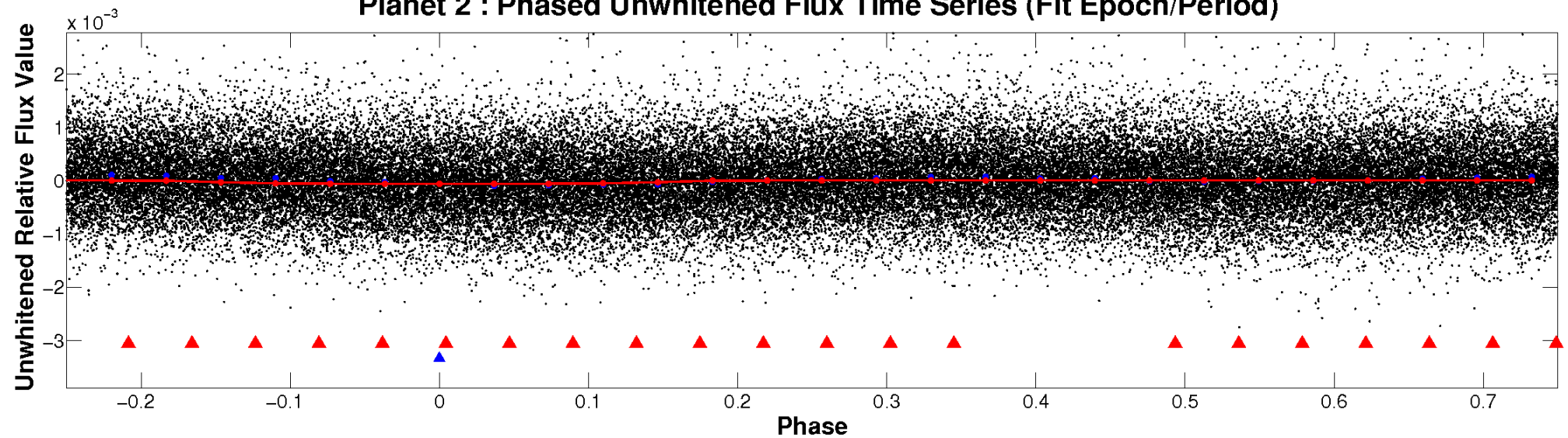
ALT Odd/Even

TCE 005302643-02

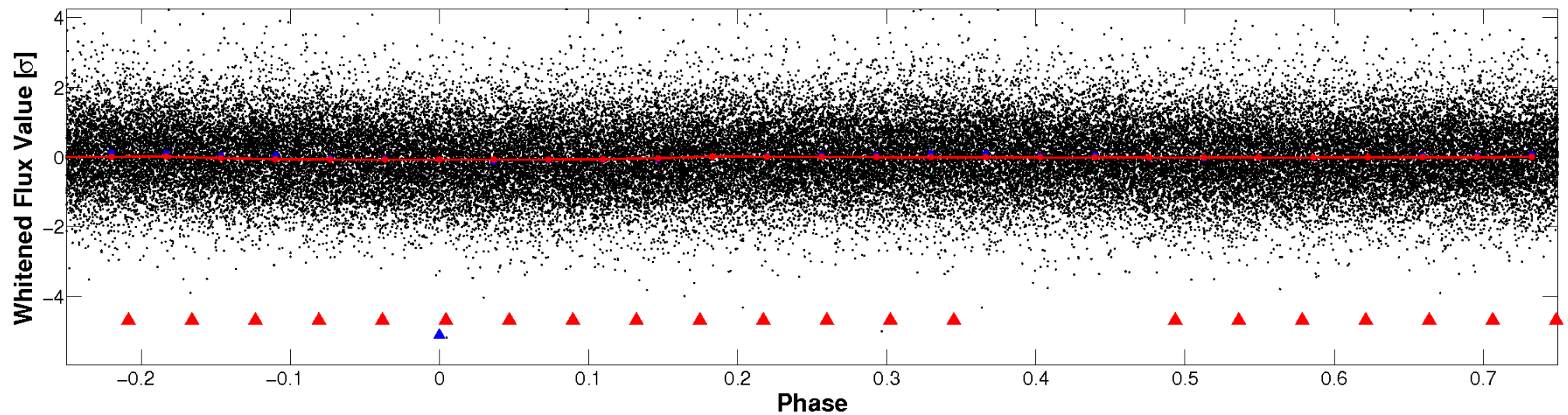


Non-Whitened Vs. Whitened Light Curve

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

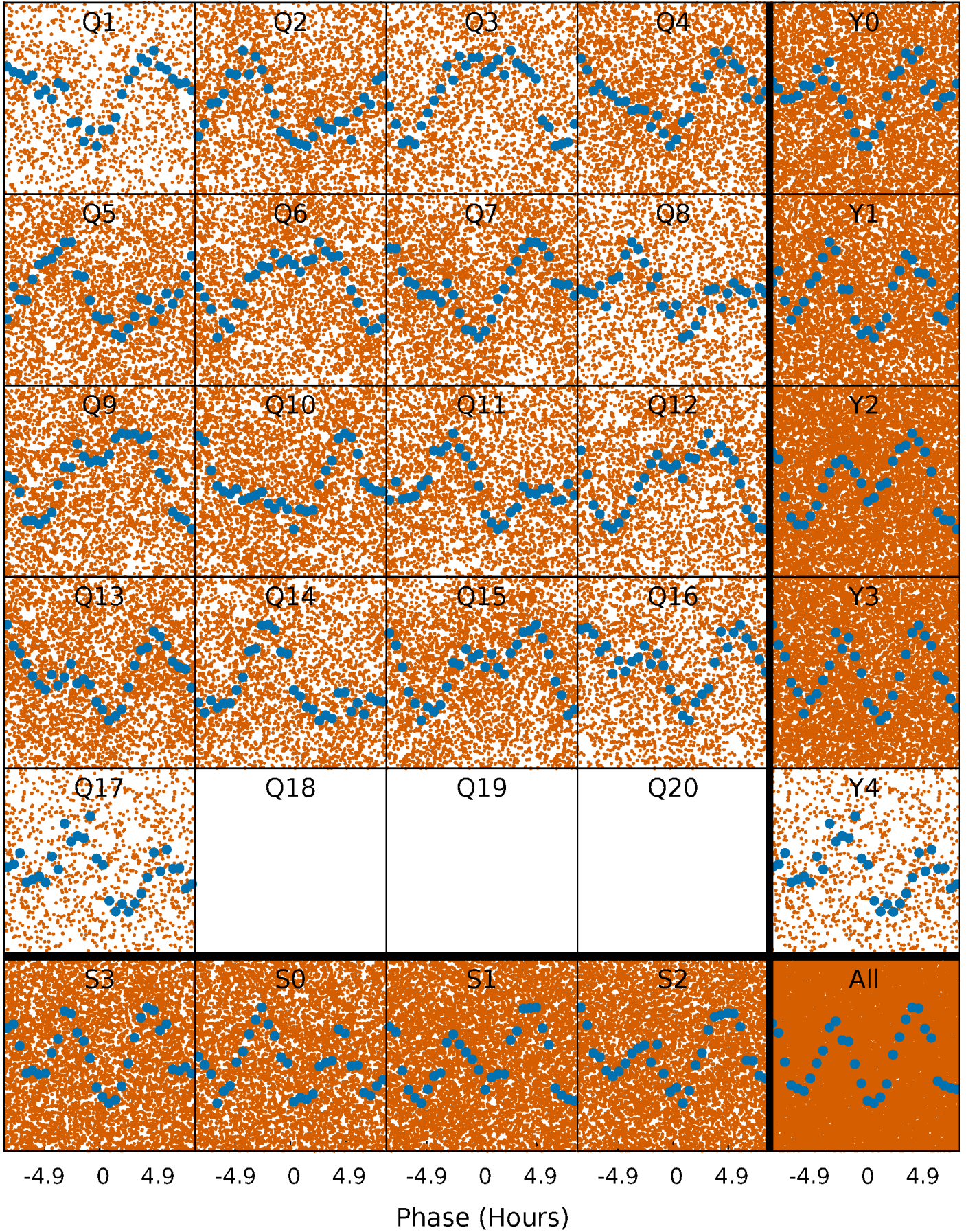


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



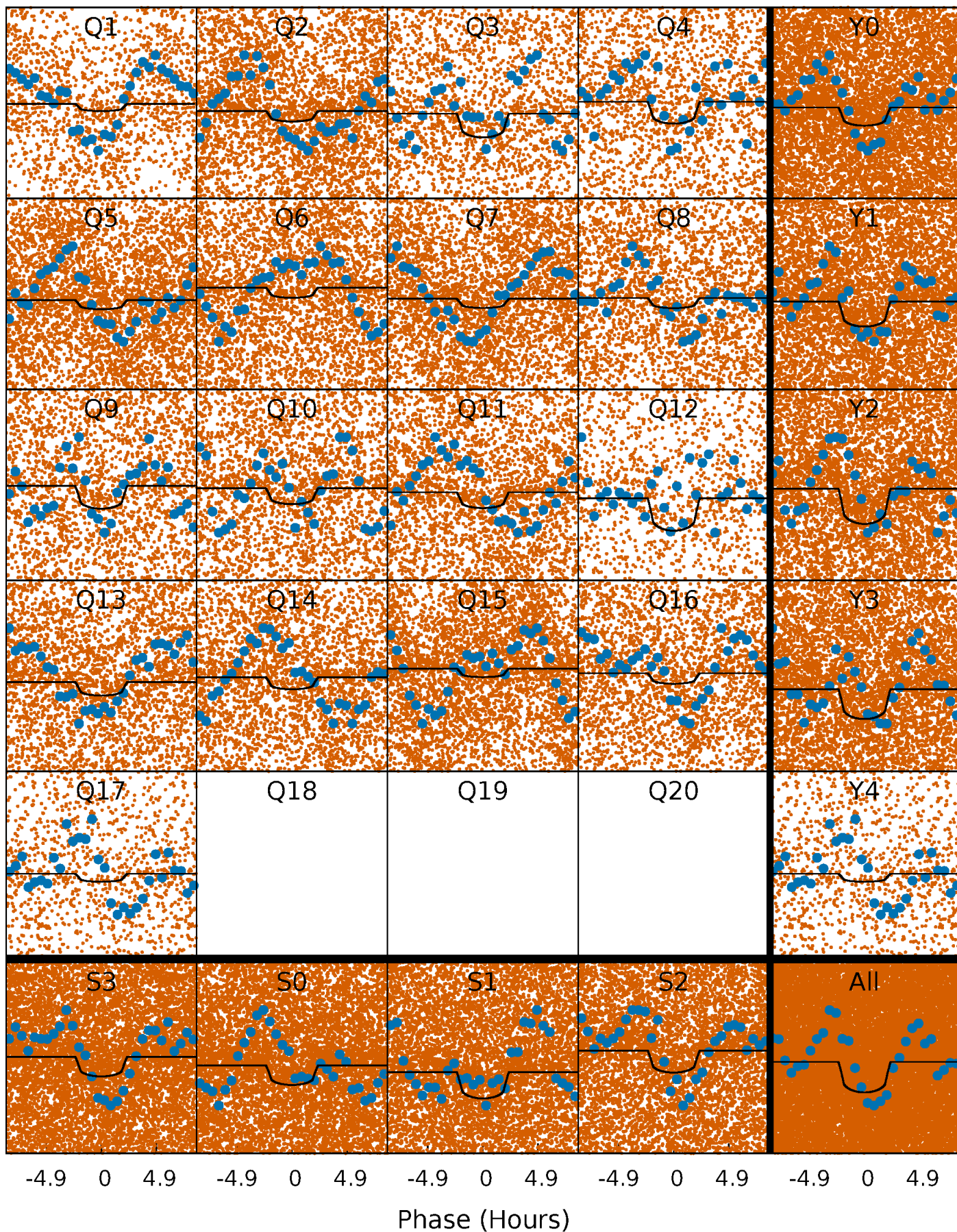
PDC Quarter-Phased Transit Curves

TCE 005302643-02 P= 0.557876 Days $T_0=131.730042$ (BKJD)



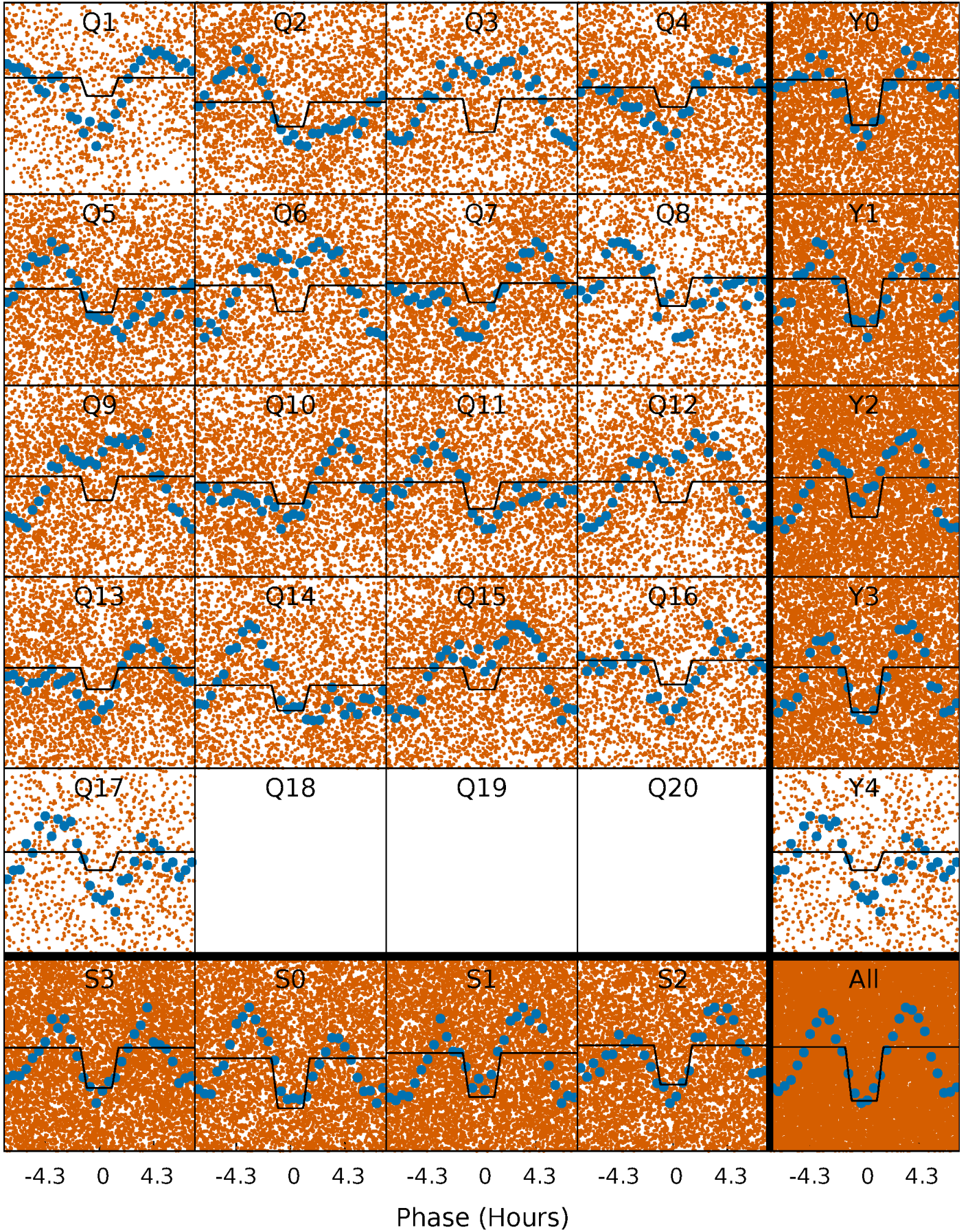
DV Quarter-Phased Transit Curves

TCE 005302643-02 P= 0.557876 Days $T_0=131.730042$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

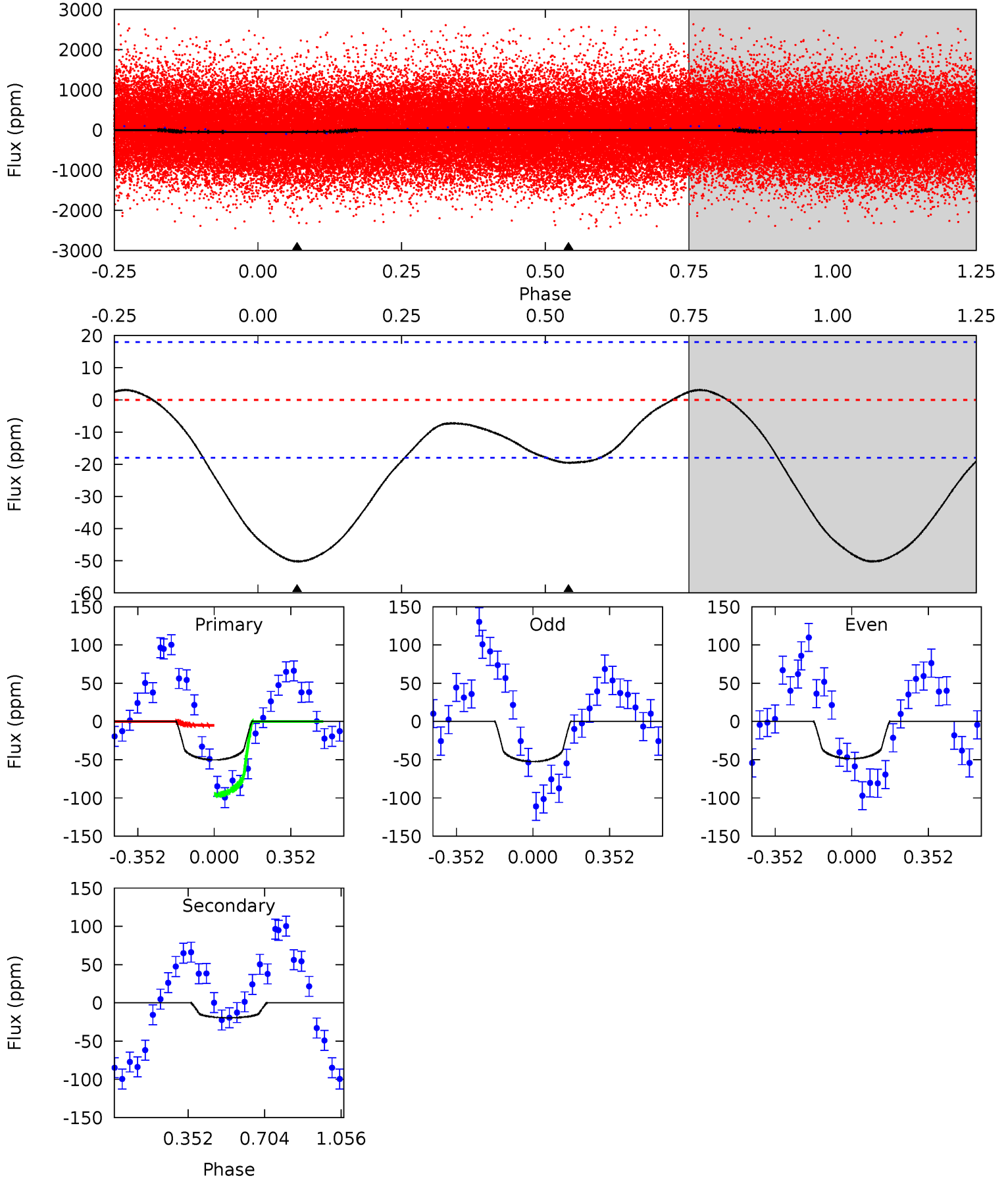
TCE 005302643-02 P= 0.557903 Days $T_0=131.726134$ (BKJD)



DV Model-Shift Uniqueness Test

005302643-02, P = 0.557876 Days, E = 131.172166 Days

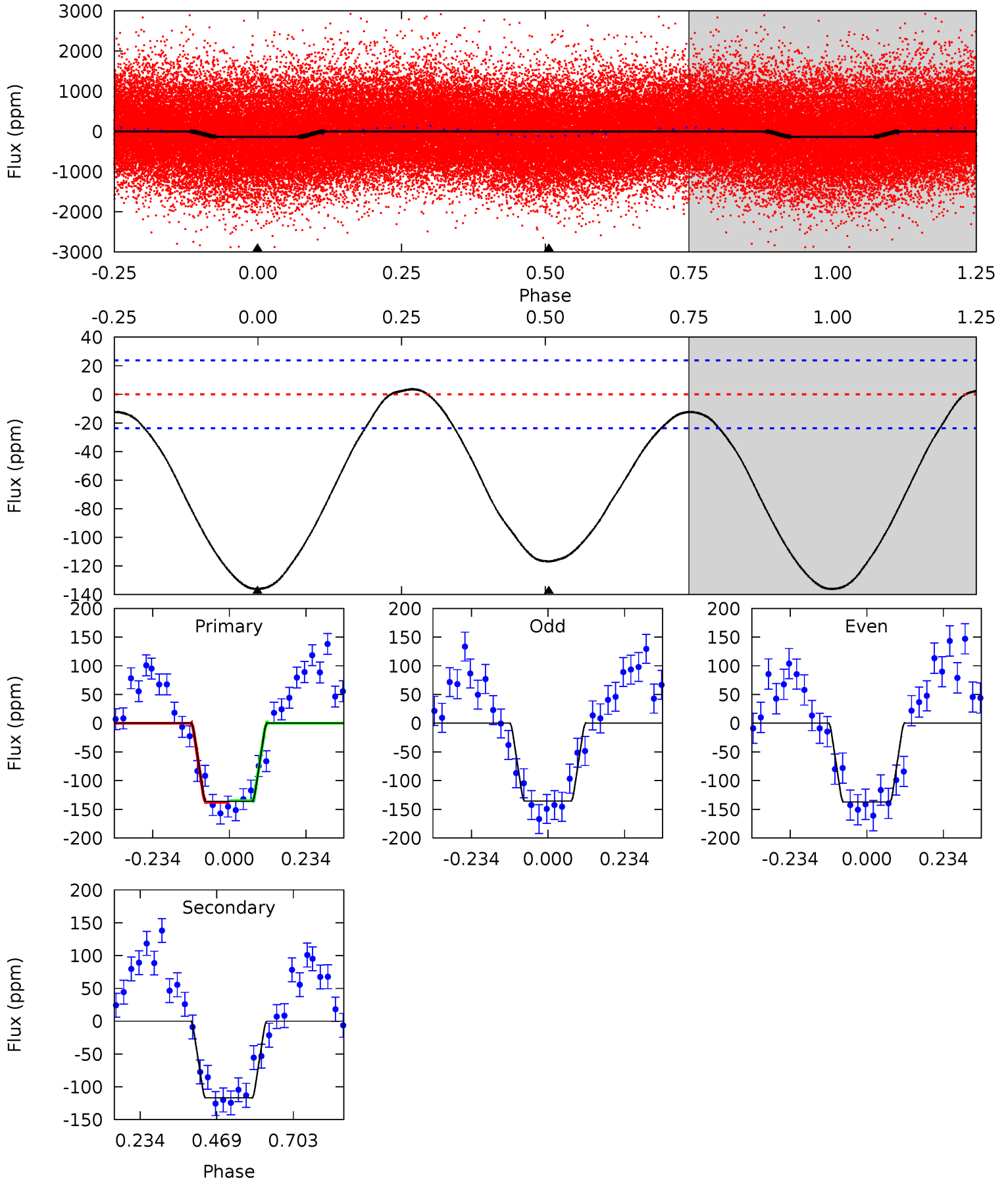
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	4.66	0	0	4.29	0.93	1.12	12.0	12.0	4.66	4.66	0.46	0.88	0.06	10.9



Alt Model-Shift Uniqueness Test

005302643-02, P = 0.557903 Days, E = 131.168231 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	21.6	0	0	4.38	1.19	1.39	25.1	25.1	21.6	21.6	0.15	0.90	0.03	0.26



Stellar Parameters For KIC 005302643

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7044^{+219}_{-329}	$4.337^{+0.060}_{-0.180}$	$-0.220^{+0.300}_{-0.350}$	$1.267^{+0.365}_{-0.156}$	$1.291^{+0.187}_{-0.187}$	$0.894^{+0.278}_{-0.415}$
	+3%/-5%	+1%/-4%	+136%/-159%	+29%/-12%	+14%/-14%	+31%/-46%
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 005302643-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20 ± 4	$1.28^{+0.92}_{-0.80}$	4133^{+295}_{-239}	4746^{+3388}_{-1403}	$1.334^{+8.333}_{-0.870}$
Alt.	-117 ± 5	$1.84^{+1.01}_{-0.93}$	4140^{+315}_{-230}	6307^{+3585}_{-1306}	$3.878^{+12.227}_{-2.219}$

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

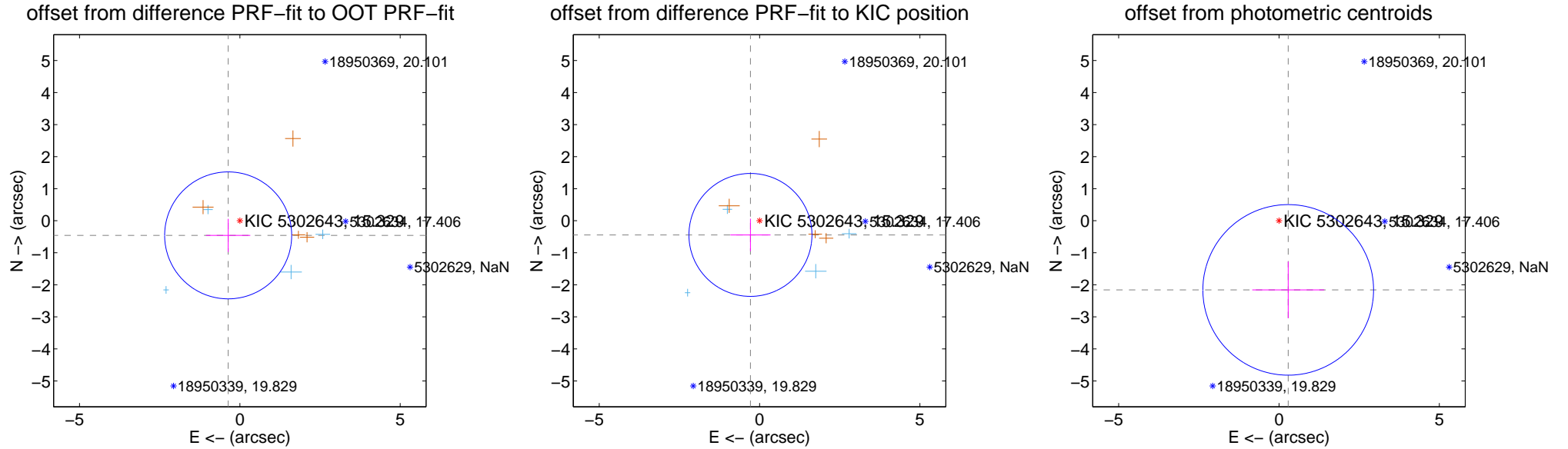
DV Centroid Data

Supplemental centroid analysis for 005302643-02. Kepler magnitude: 15.33. Transit SNR 9.53

There are 4 quarters with good PRF difference image offsets

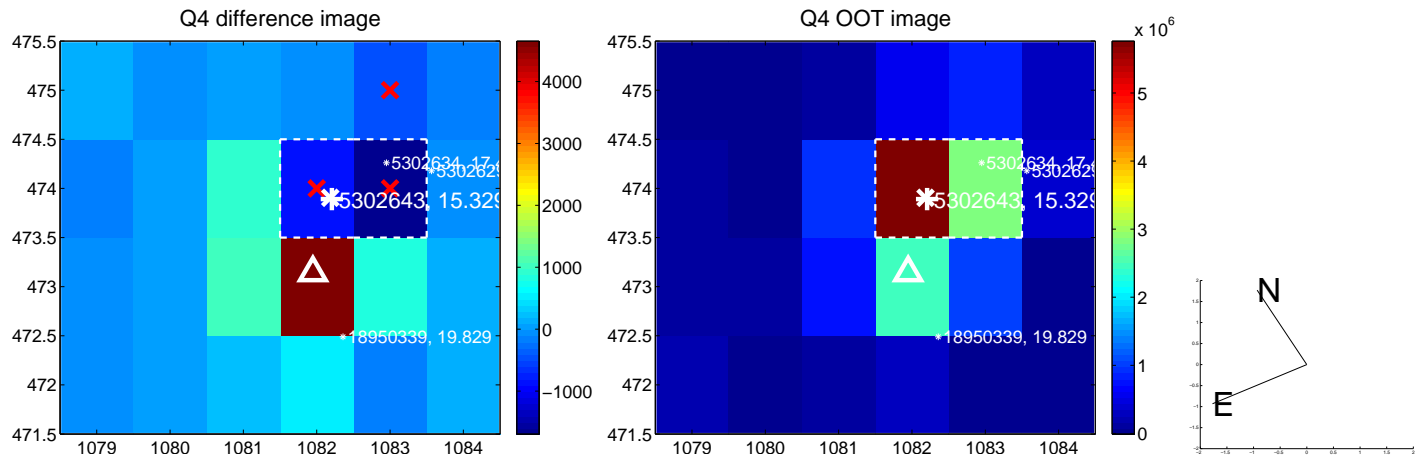
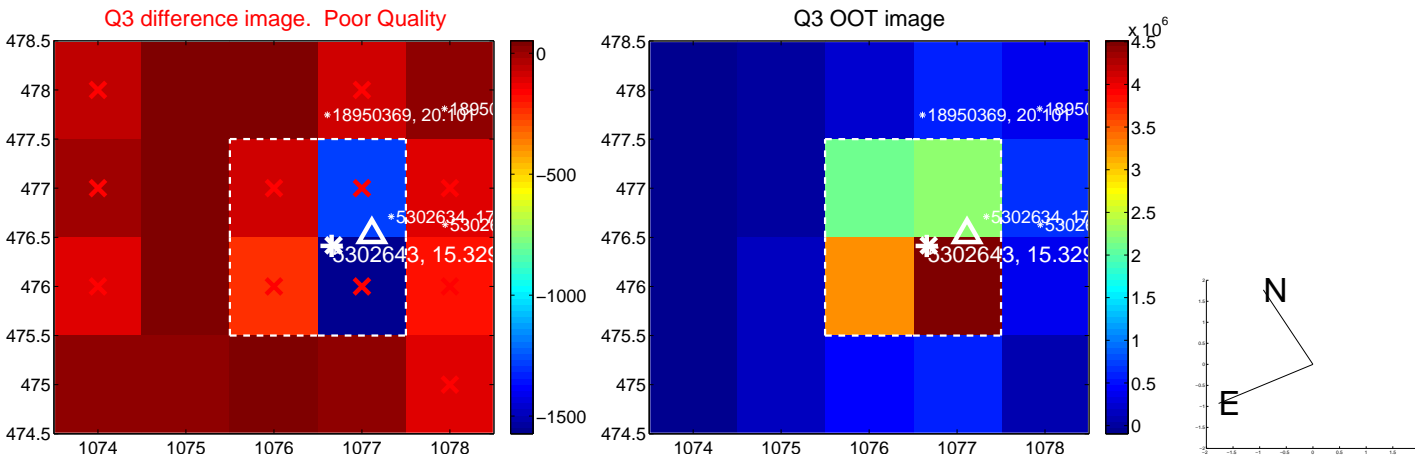
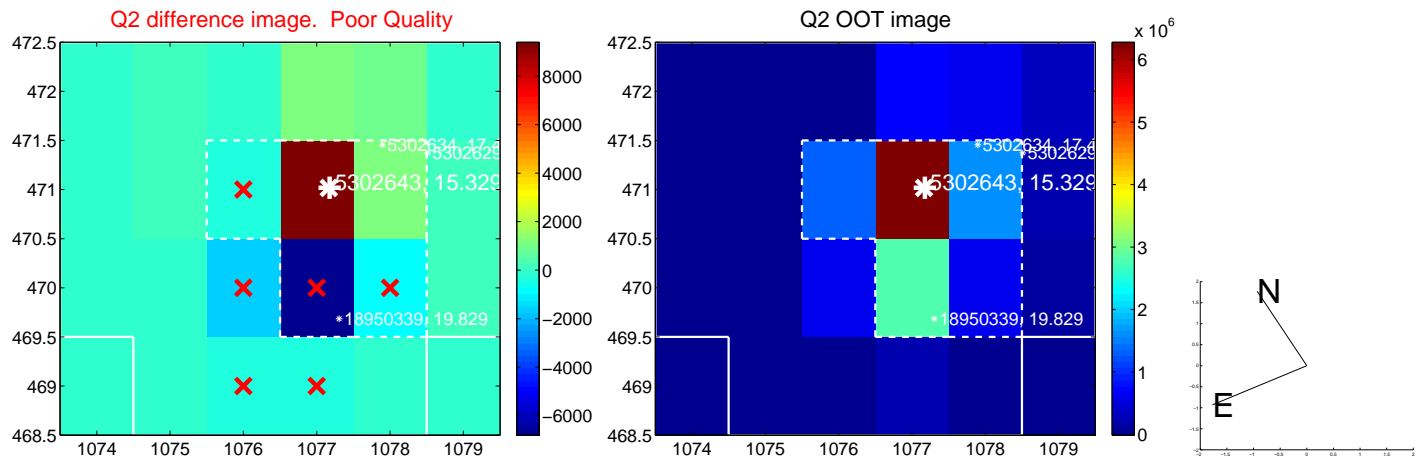
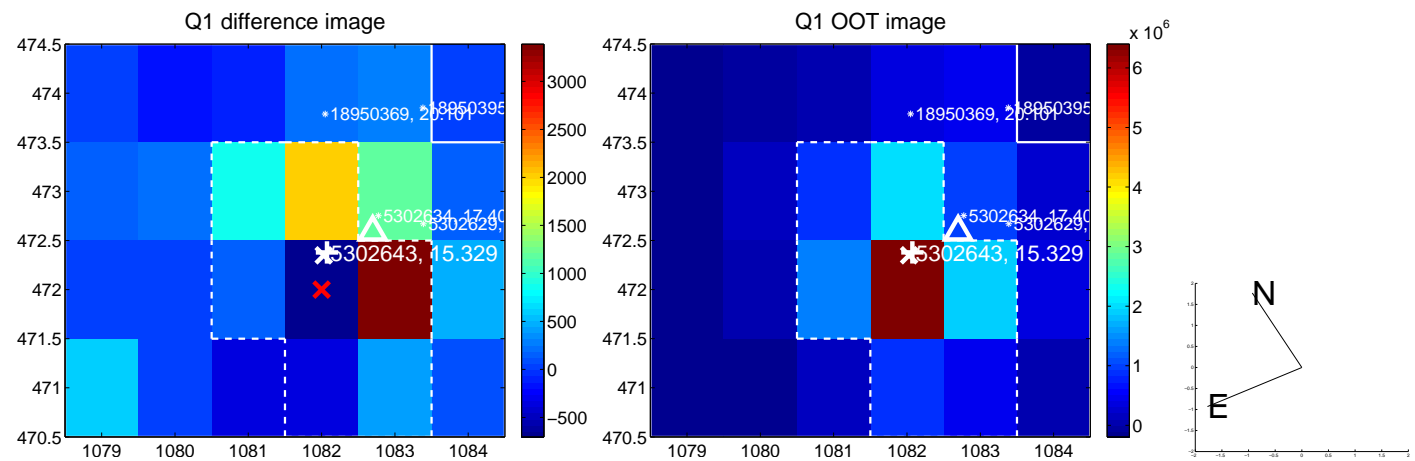
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.585 ± 0.660	0.89	0.365 ± 0.691	-0.457 ± 0.516
PRF-fit source offset from KIC position	0.527 ± 0.639	0.82	0.285 ± 0.627	-0.443 ± 0.507
photometric centroid source offset	2.18 ± 0.89	2.45	-0.29 ± 1.12	-2.16 ± 0.88

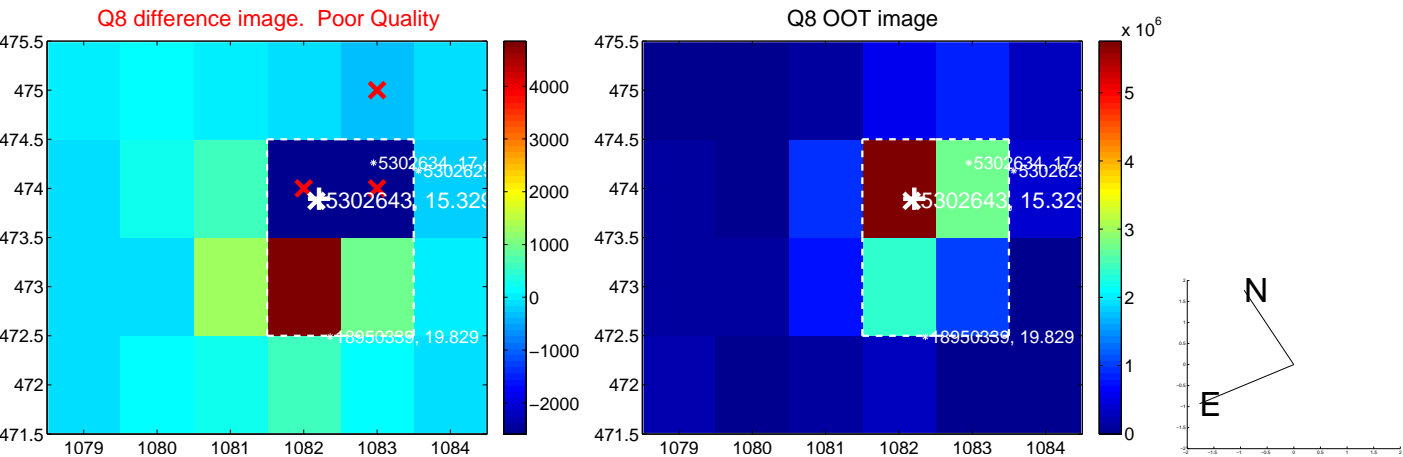
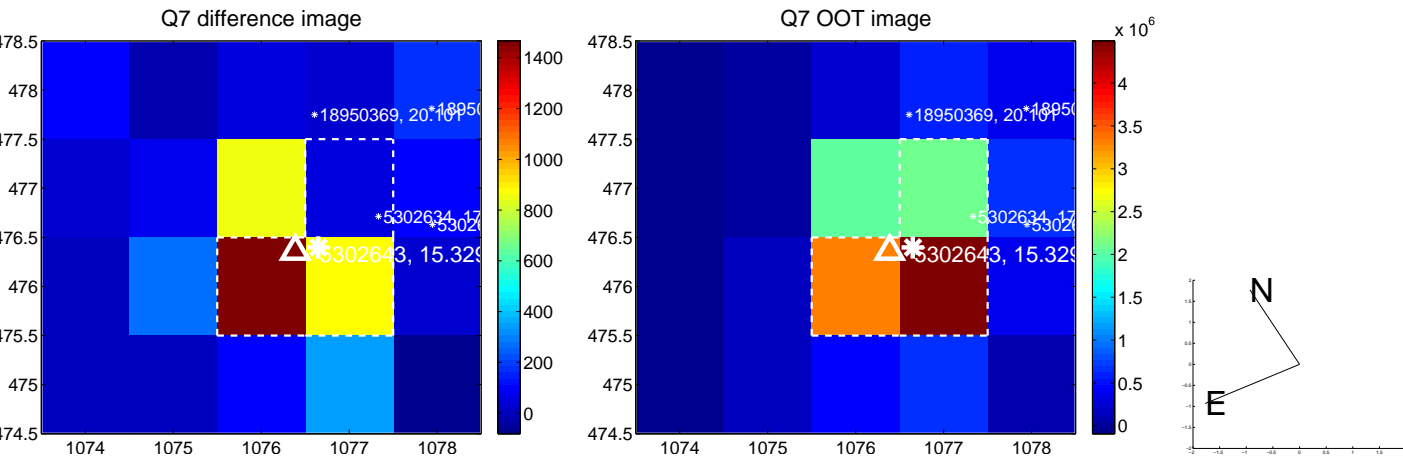
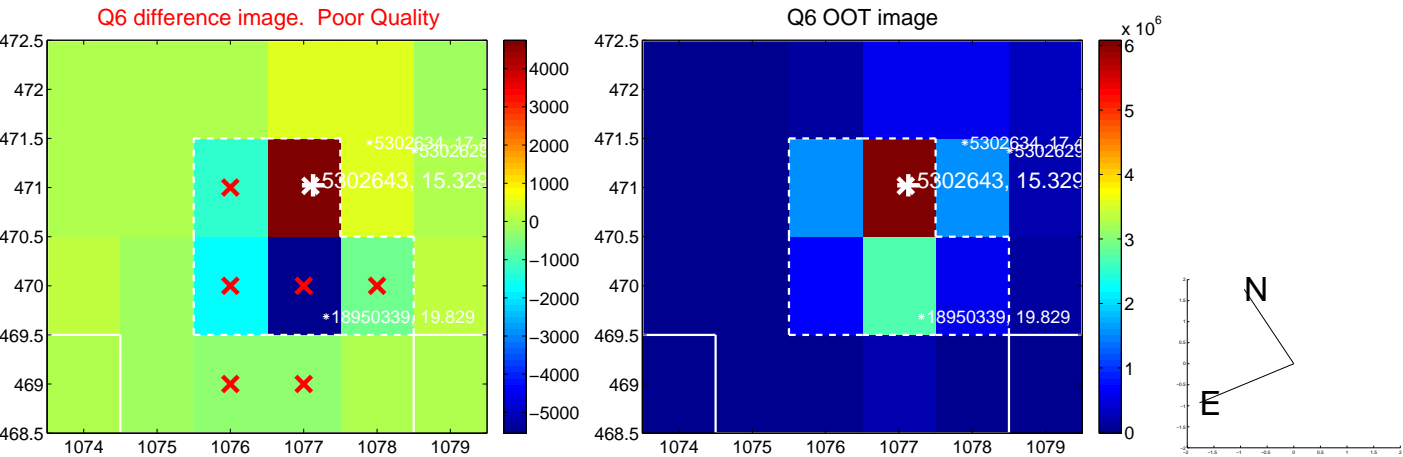
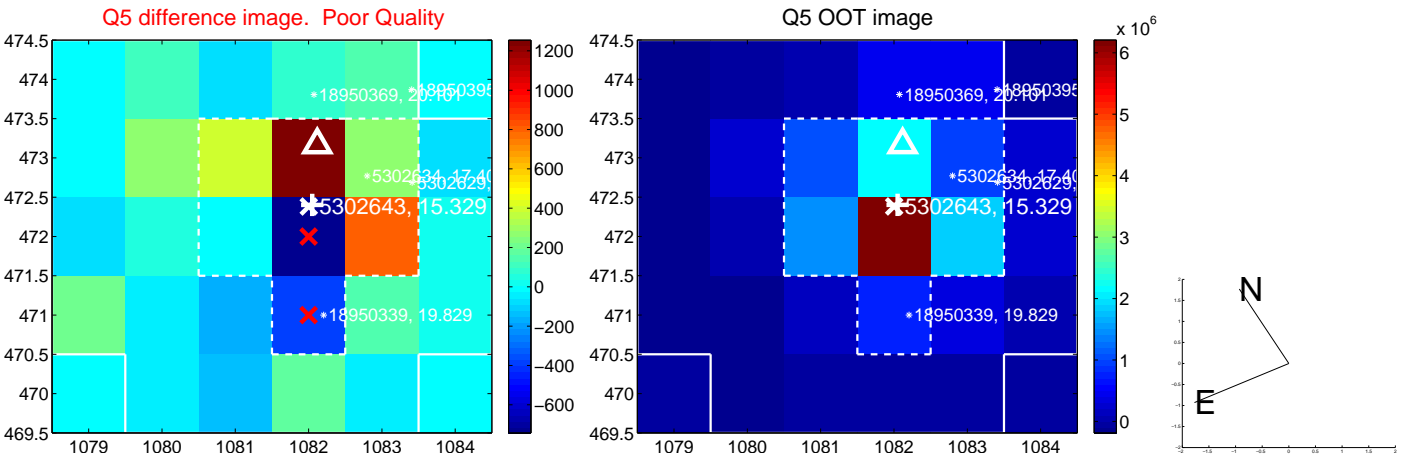


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

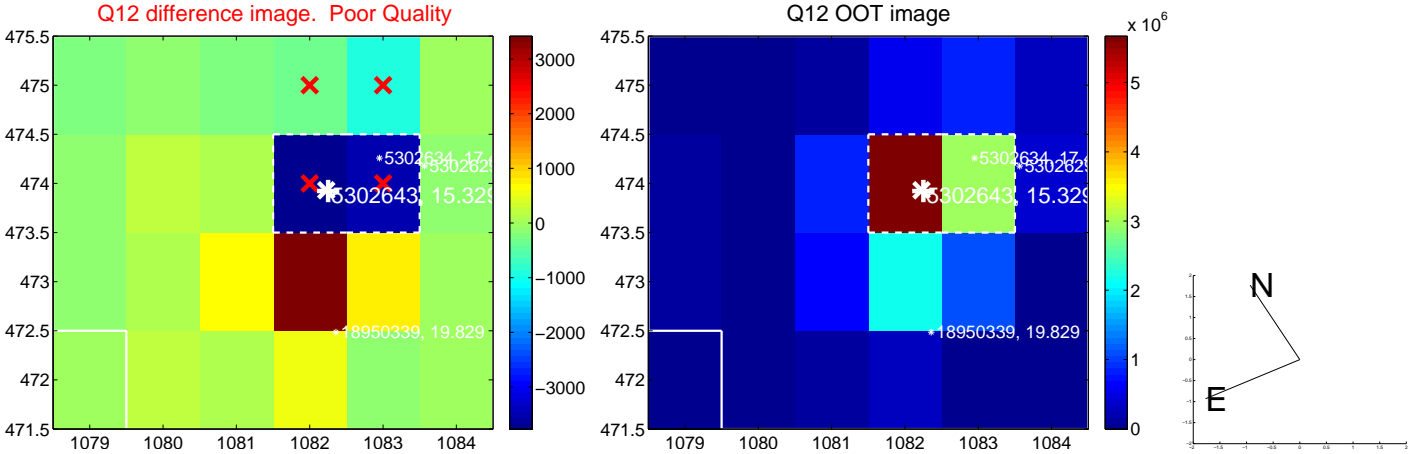
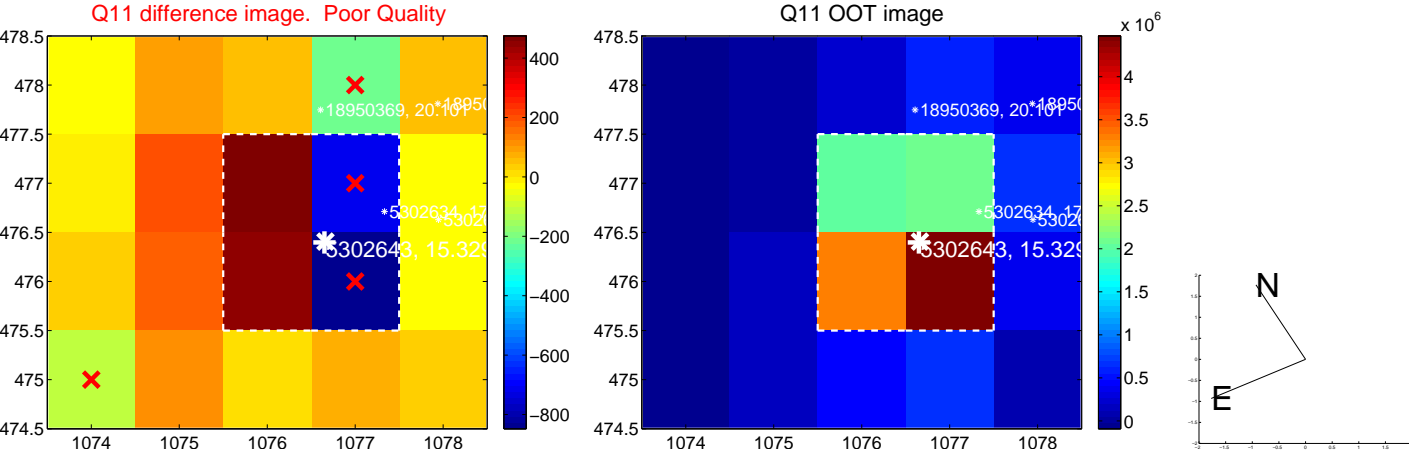
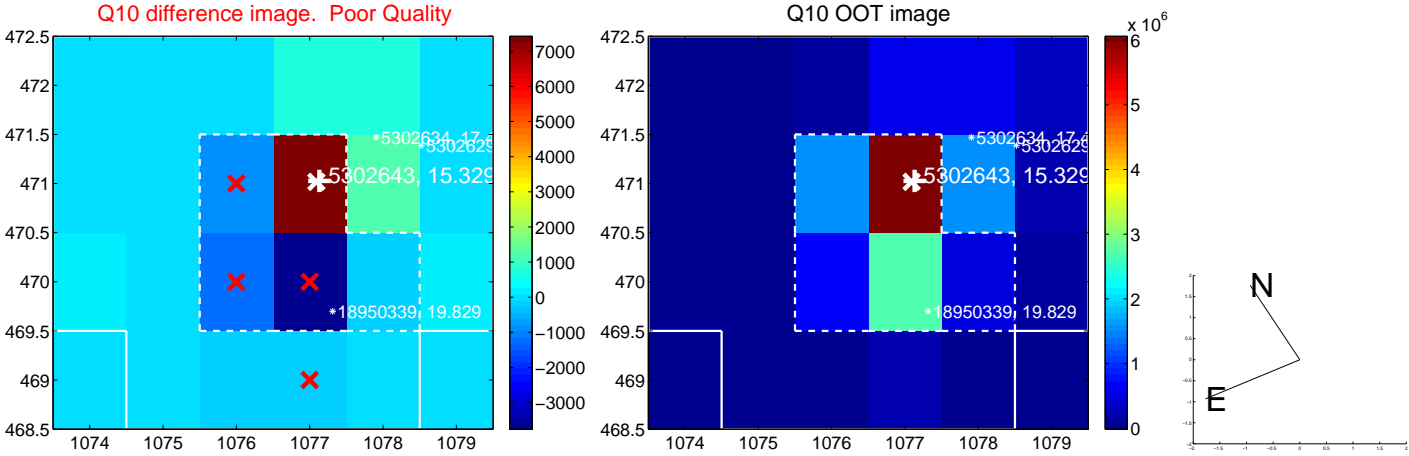
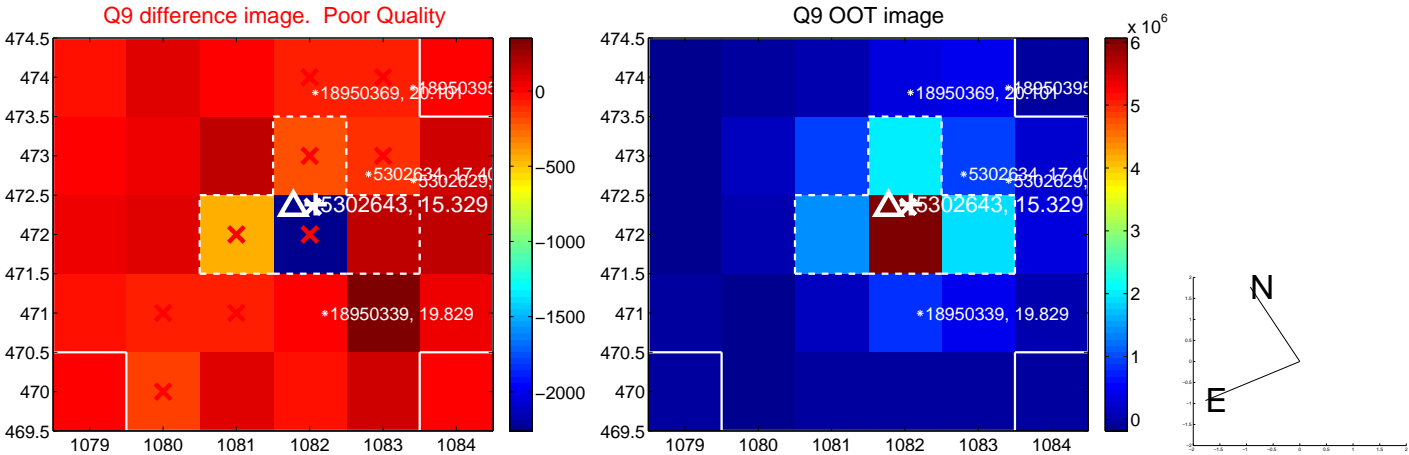
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



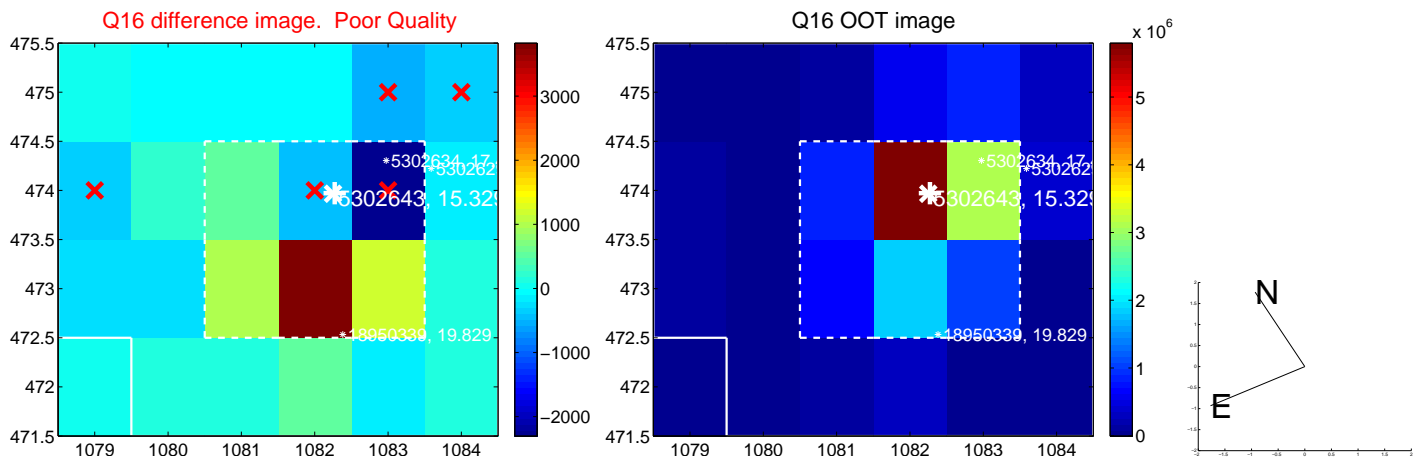
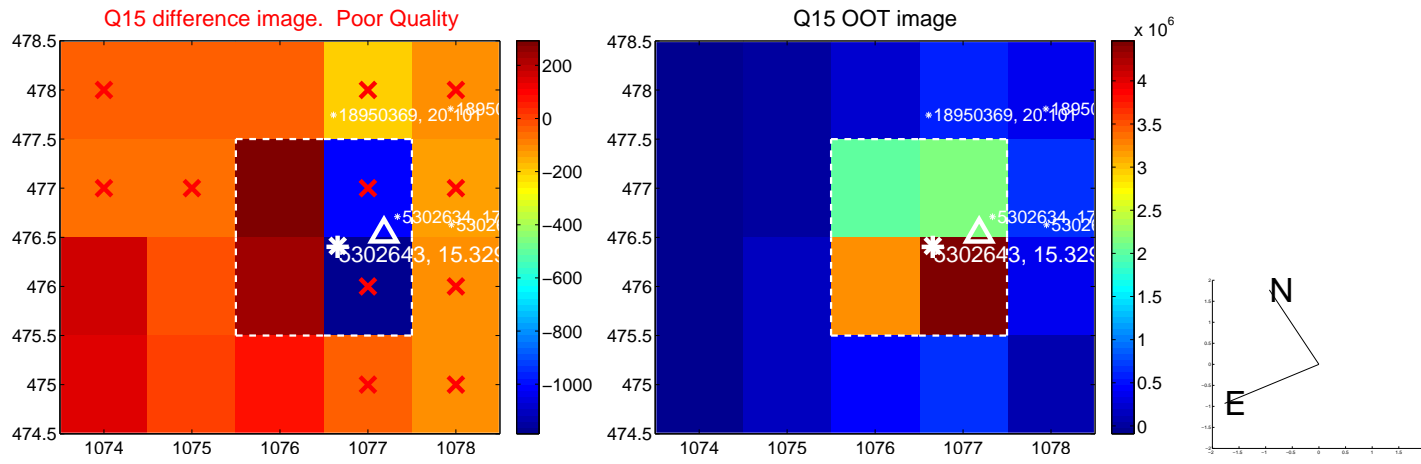
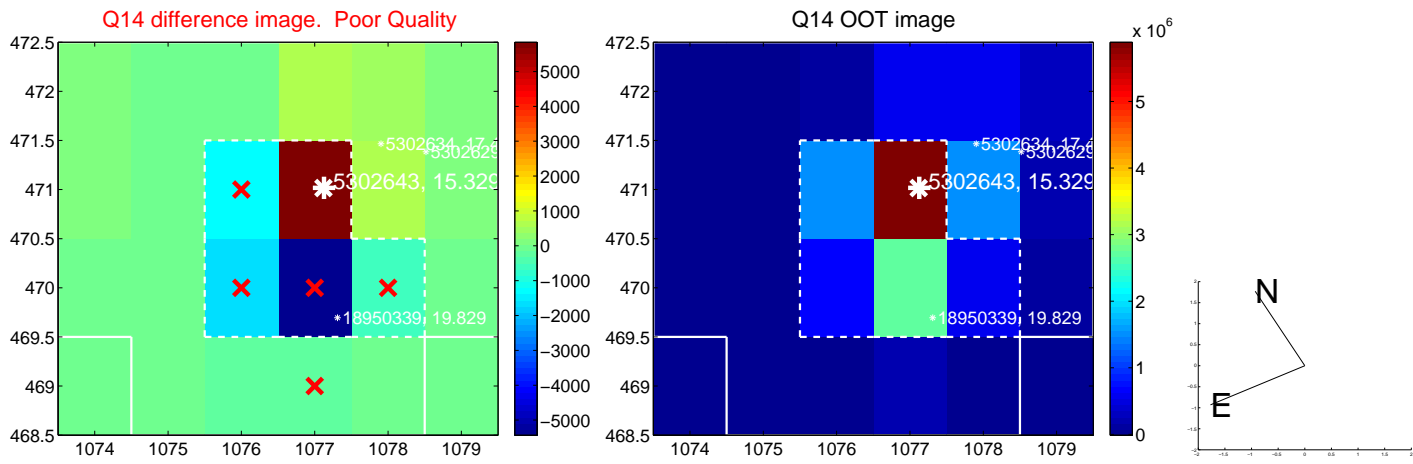
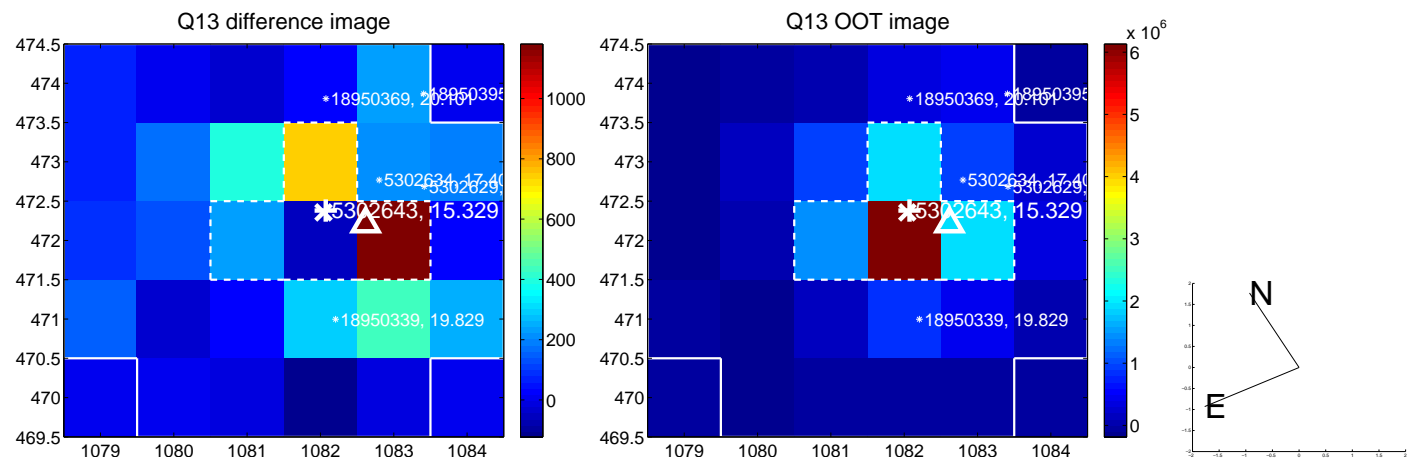
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



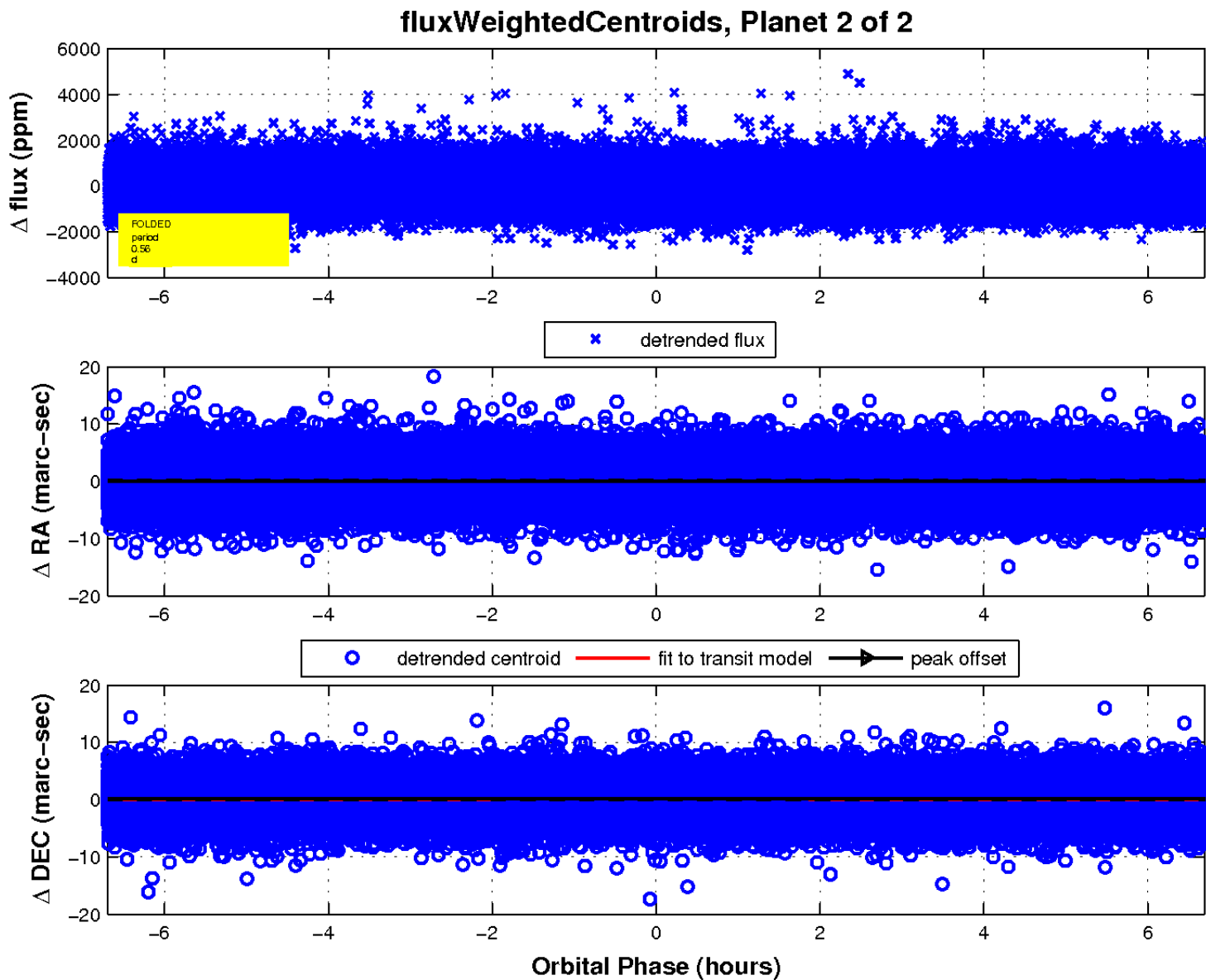
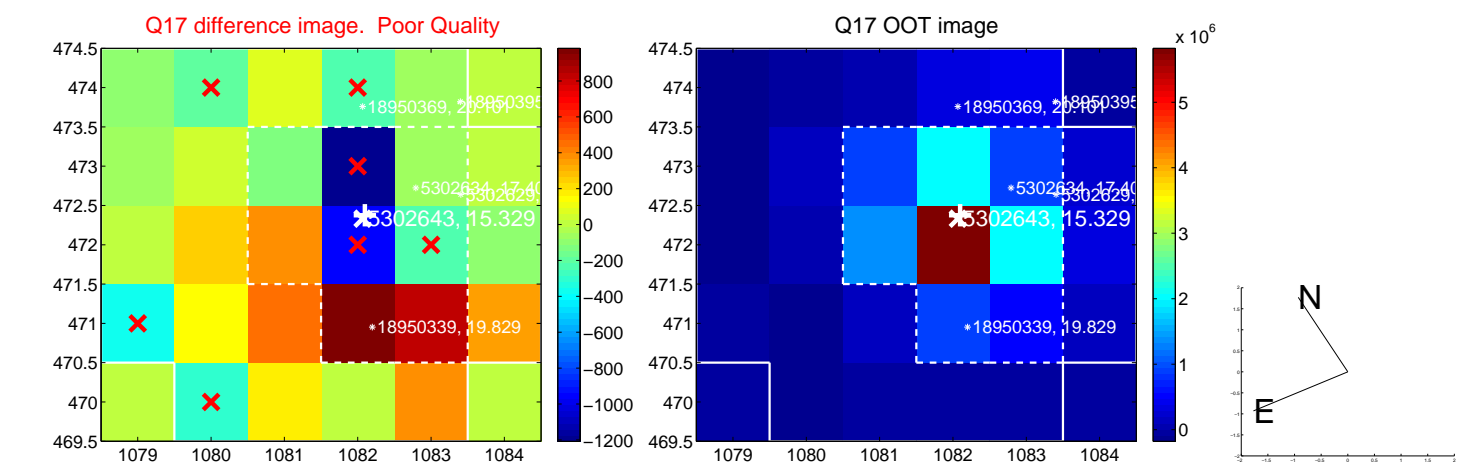
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

