

KIC 005471675

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})
005471675-01	OBS	4000.01	0.962825	132.205640	46.5	3.239	17.5	17.6	3.44	6552	2.75	37731.08
005471675-02	OBS	No	260.949457	208.798172	339.6	17.155	8.4	7.7	3.44	6552	6.99	21.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471675-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—CENT_FEW_DIFFS

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.

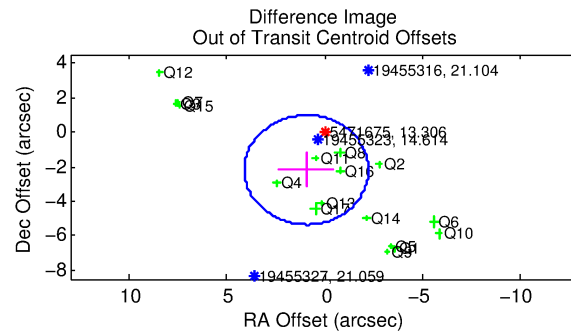
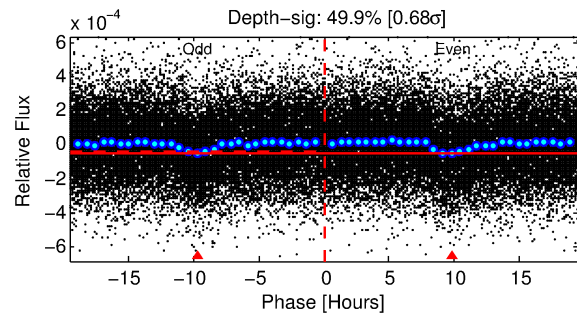
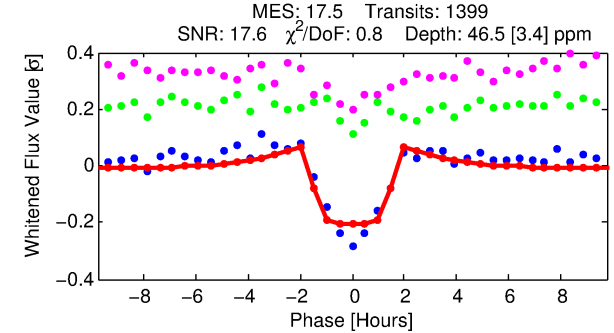
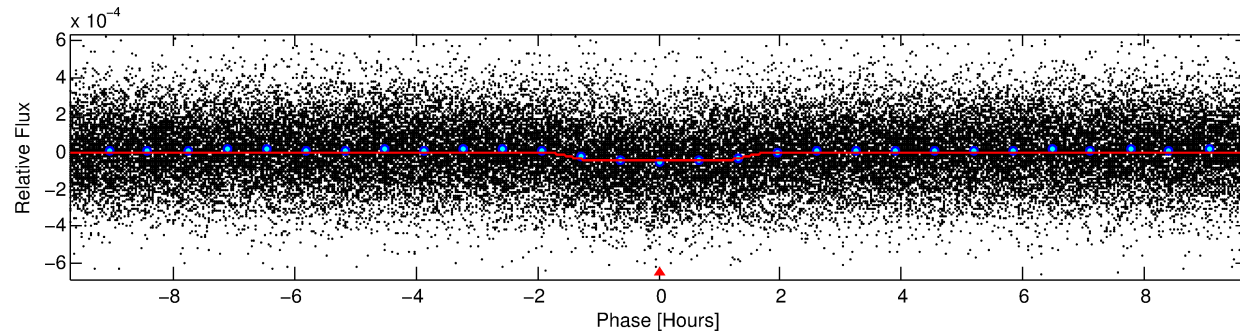
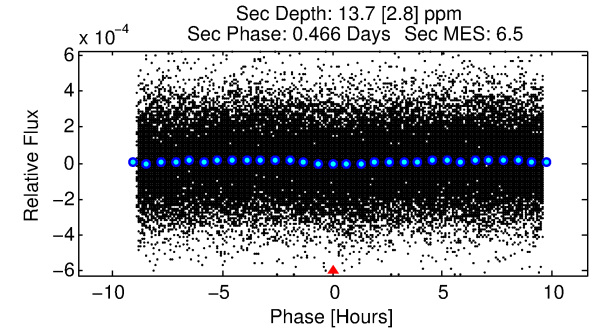
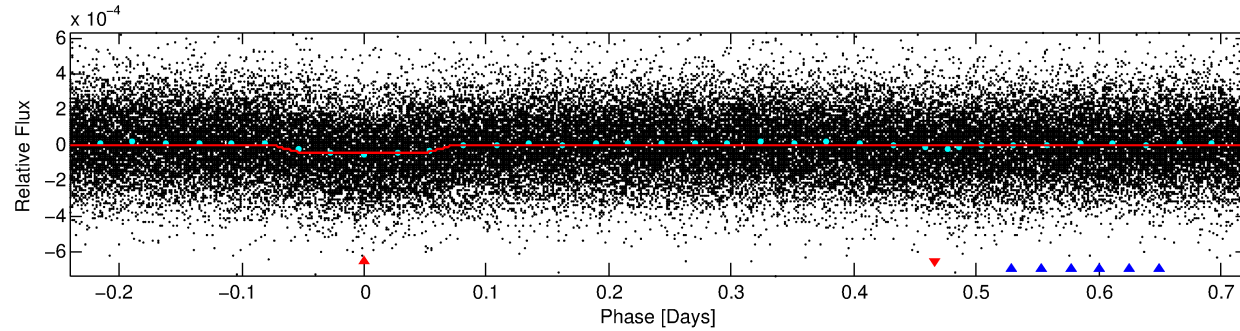
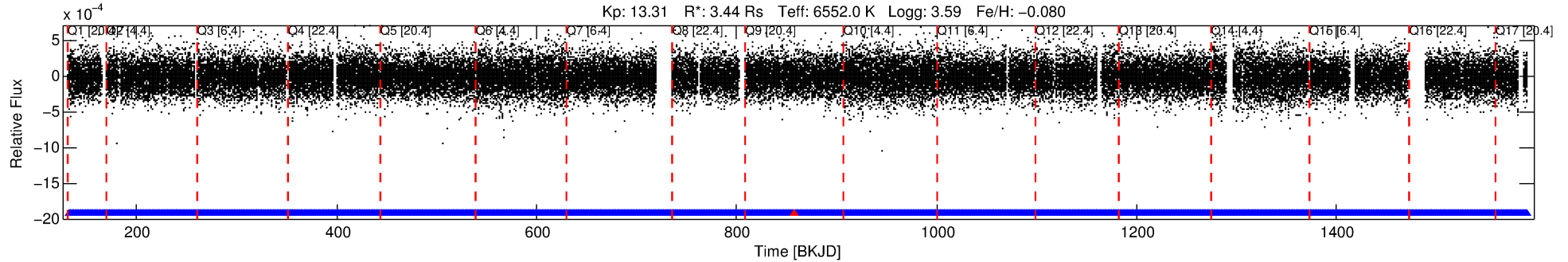
Ephemeris Match Information For 005471675-01

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
005471675-01	5471675	005471619-pri	5471619	1:1	53.5	1	13	12.37	13.31	9554.30	Direct-PRF	0	1.05	0.55

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: 5471675 Candidate: 1 of 2 Period: 0.963 d
KOI: K04000.01 Corr: 0.971



DV Fit Results:

Period = 0.96282 [0.00001] d
Epoch = 132.2056 [0.0017] BKJD
Rp/R* = 0.0073 [0.0016]
a/R* = 1.38 [0.84]
b = 0.90 [0.26]
Seff = 37731.08 [22485.85]
Teq = 3554 [529] K
Rp = 2.75 [1.23] Re
a = 0.0228 [0.0084] AU
Ag = 0.52 [0.39] [-1.24σ]
Teffp = 4658 [579] K [1.41σ]

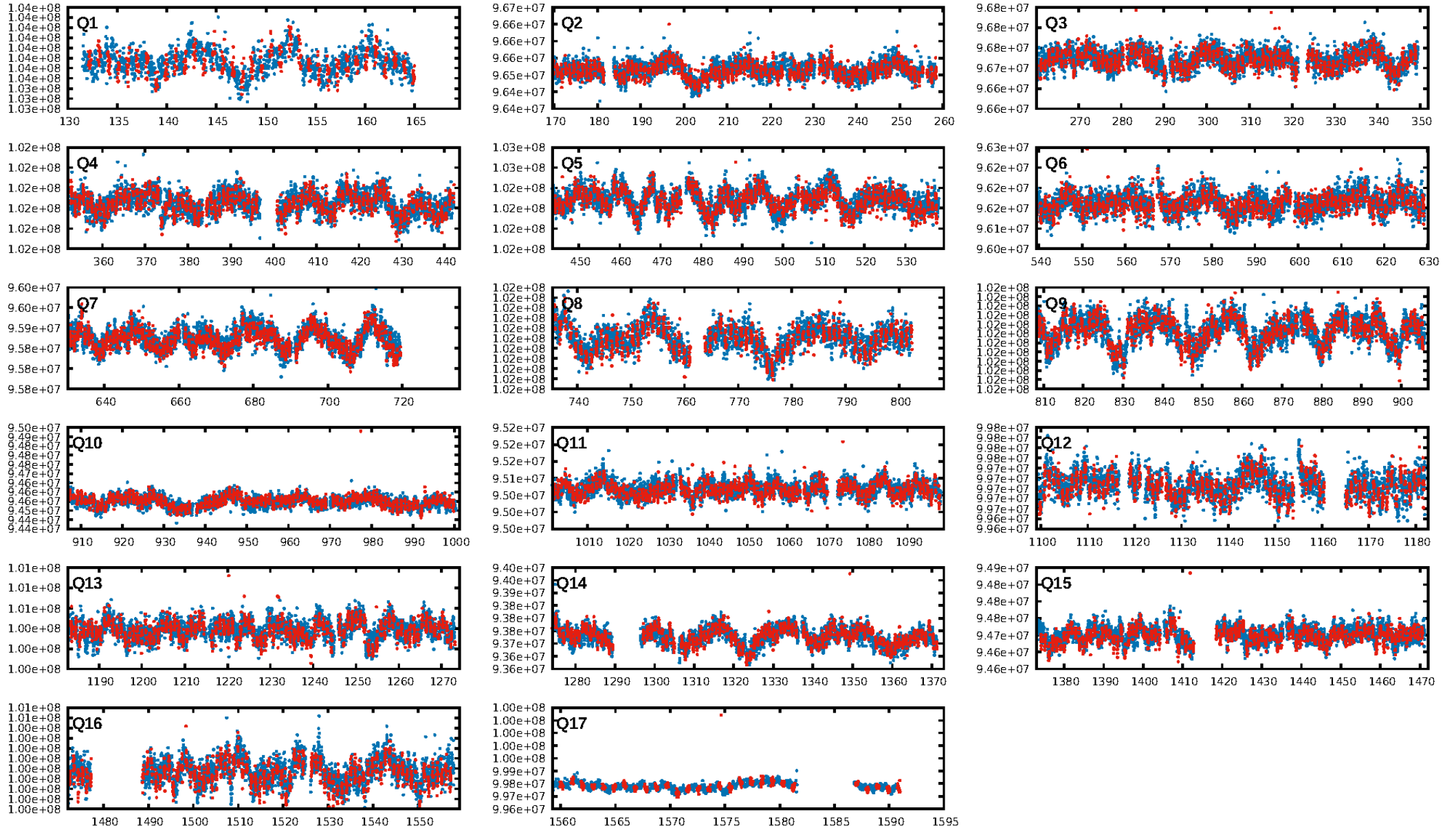
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [357.40σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.99e-54
RollingBand-fgt: 1.00 [1335/1336]
GhostDiagnostic-chr: 0.00857
Centroid-sig: 0.0%
Centroid-so: 4.675 arcsec [9.58σ]
OotOffset-rm: 2.382 arcsec [2.26σ]
KicOffset-rm: 2.410 arcsec [2.26σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

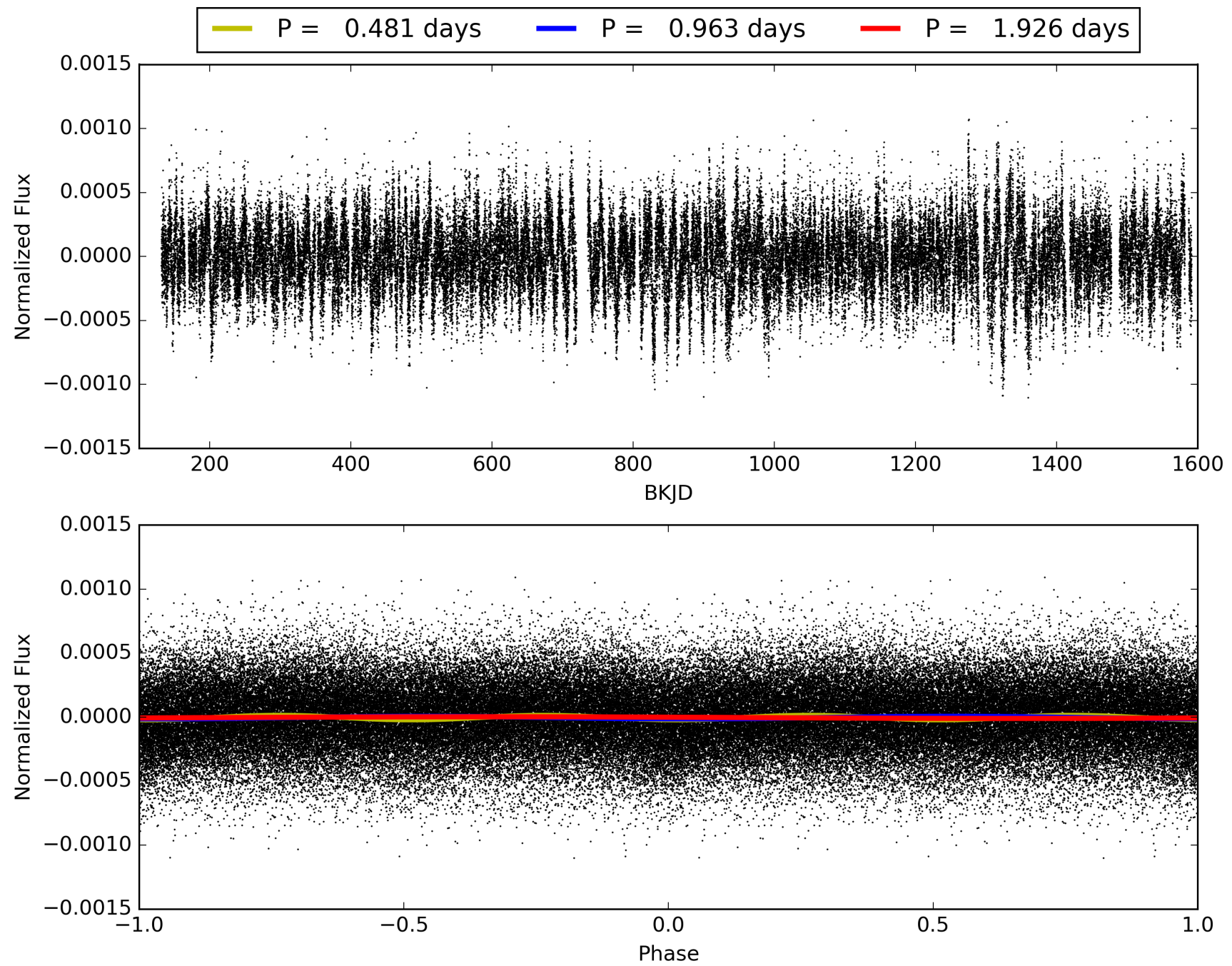
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:49:56 Z

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

TCE 005471675-01, PDC Light Curves

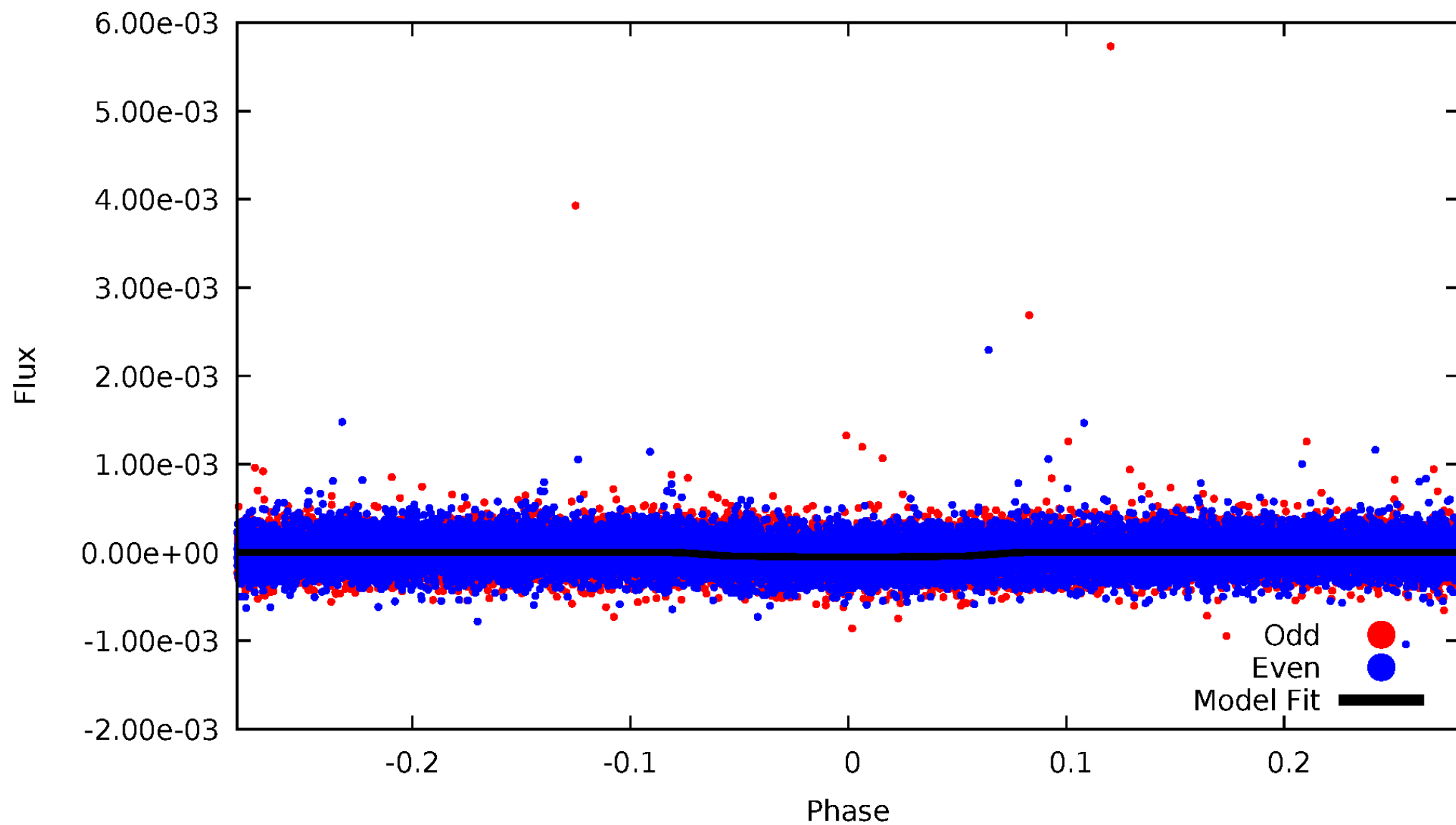


TCE 005471675-01



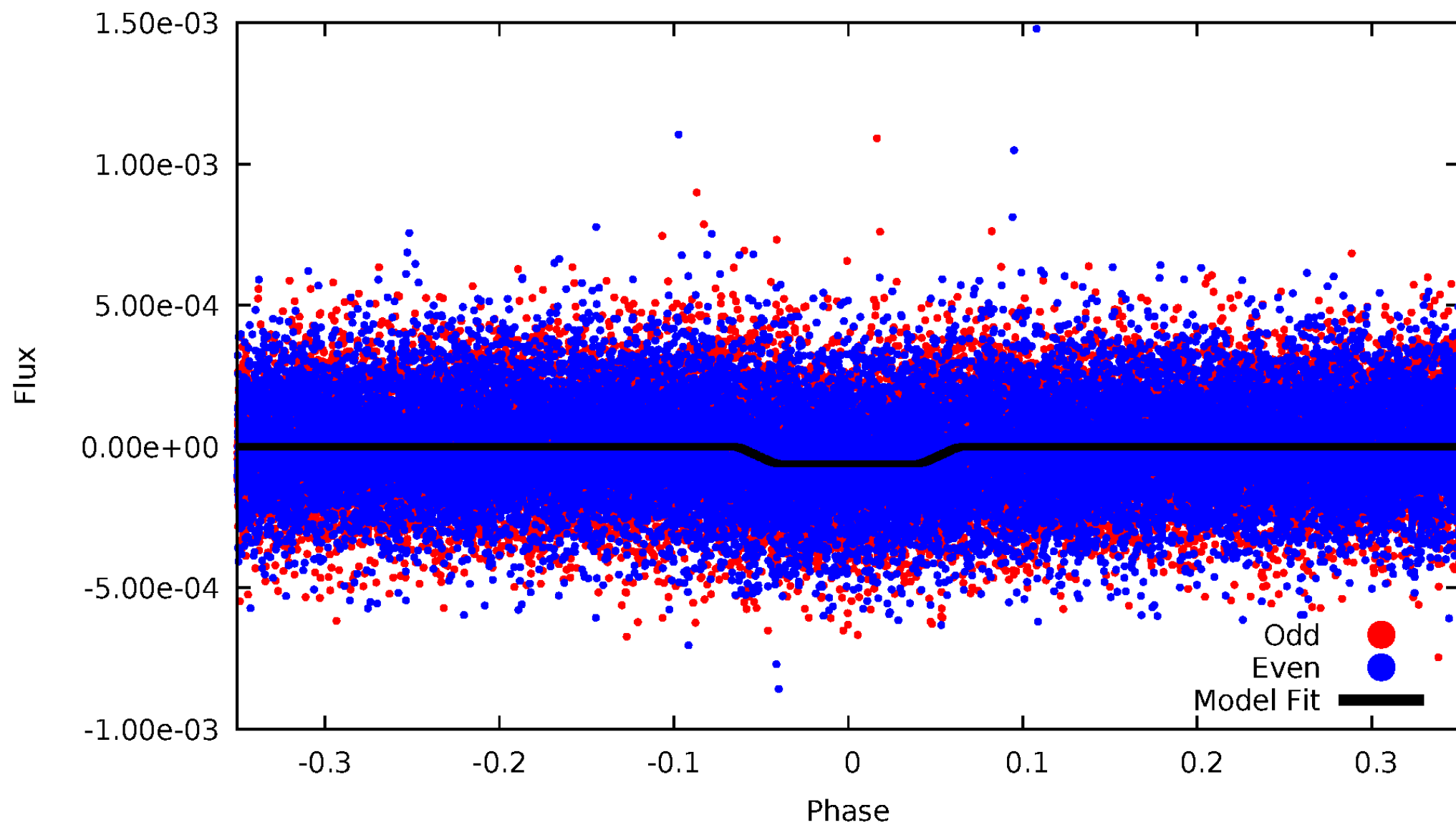
DV Odd/Even

TCE 005471675-01



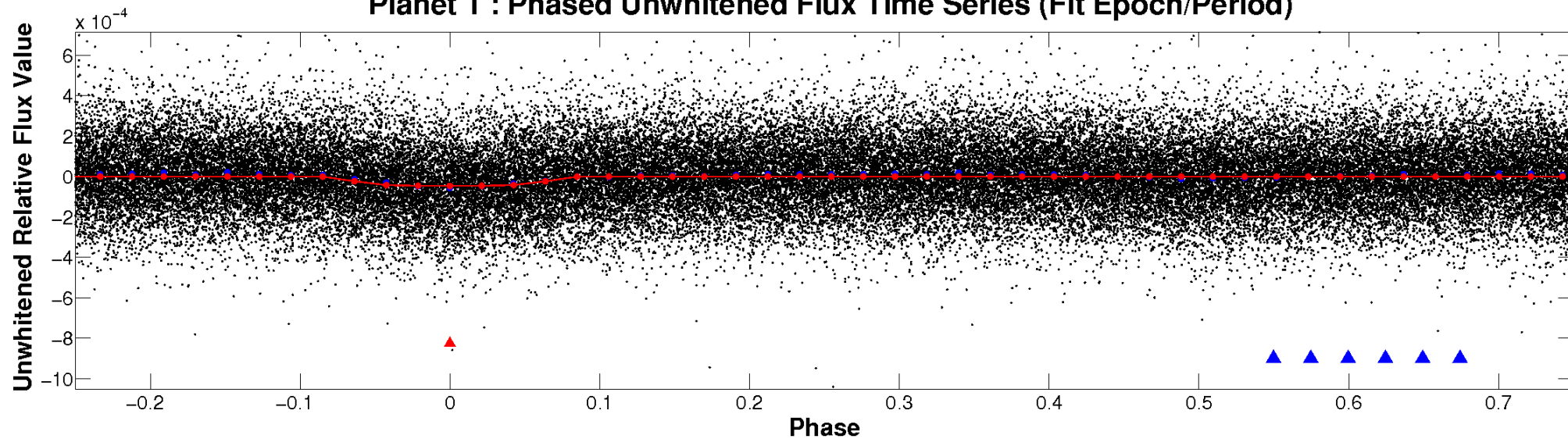
ALT Odd/Even

TCE 005471675-01

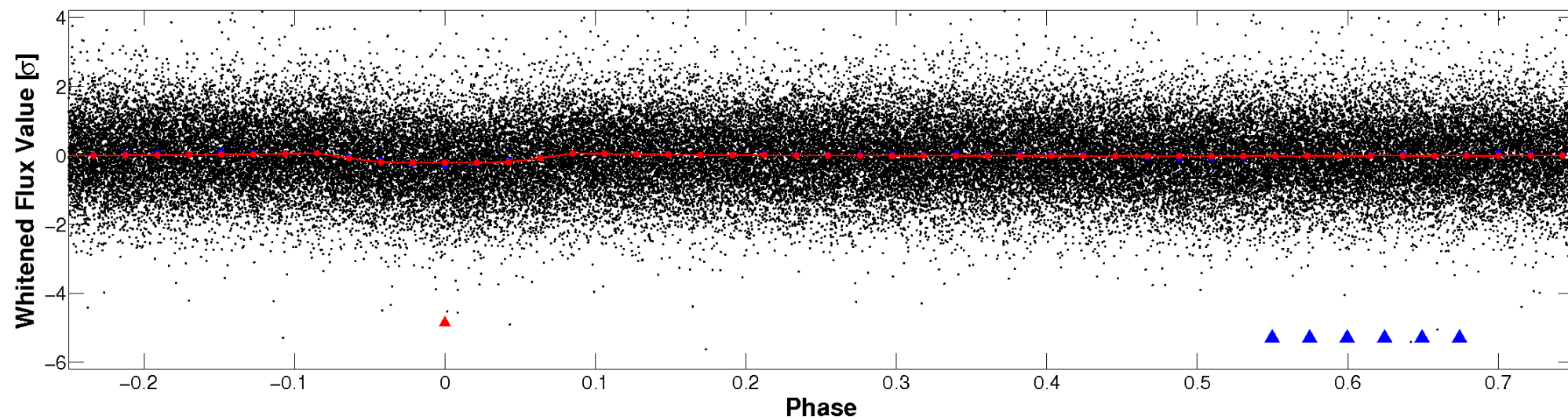


Non-Whitened Vs. Whitened Light Curve

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

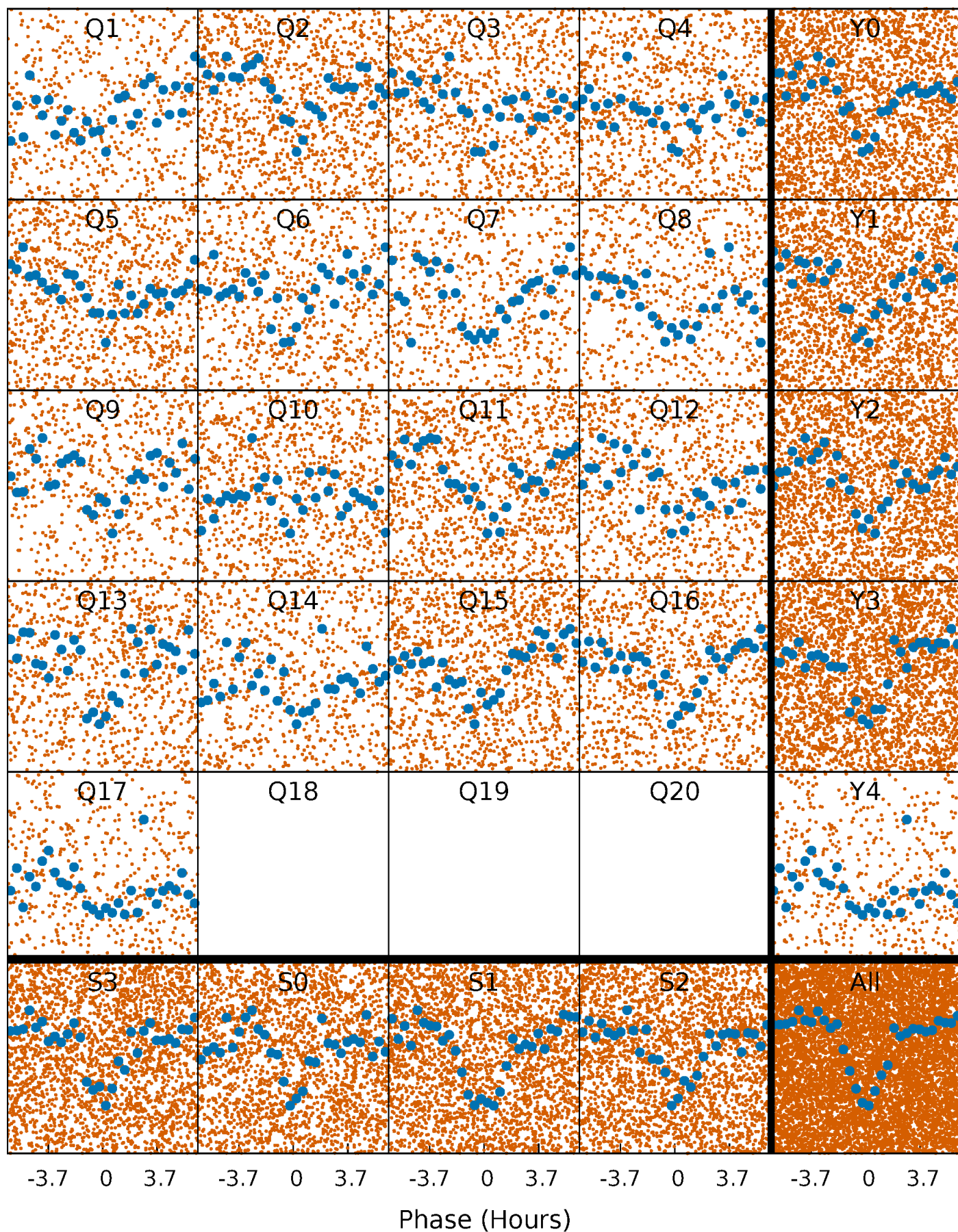


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



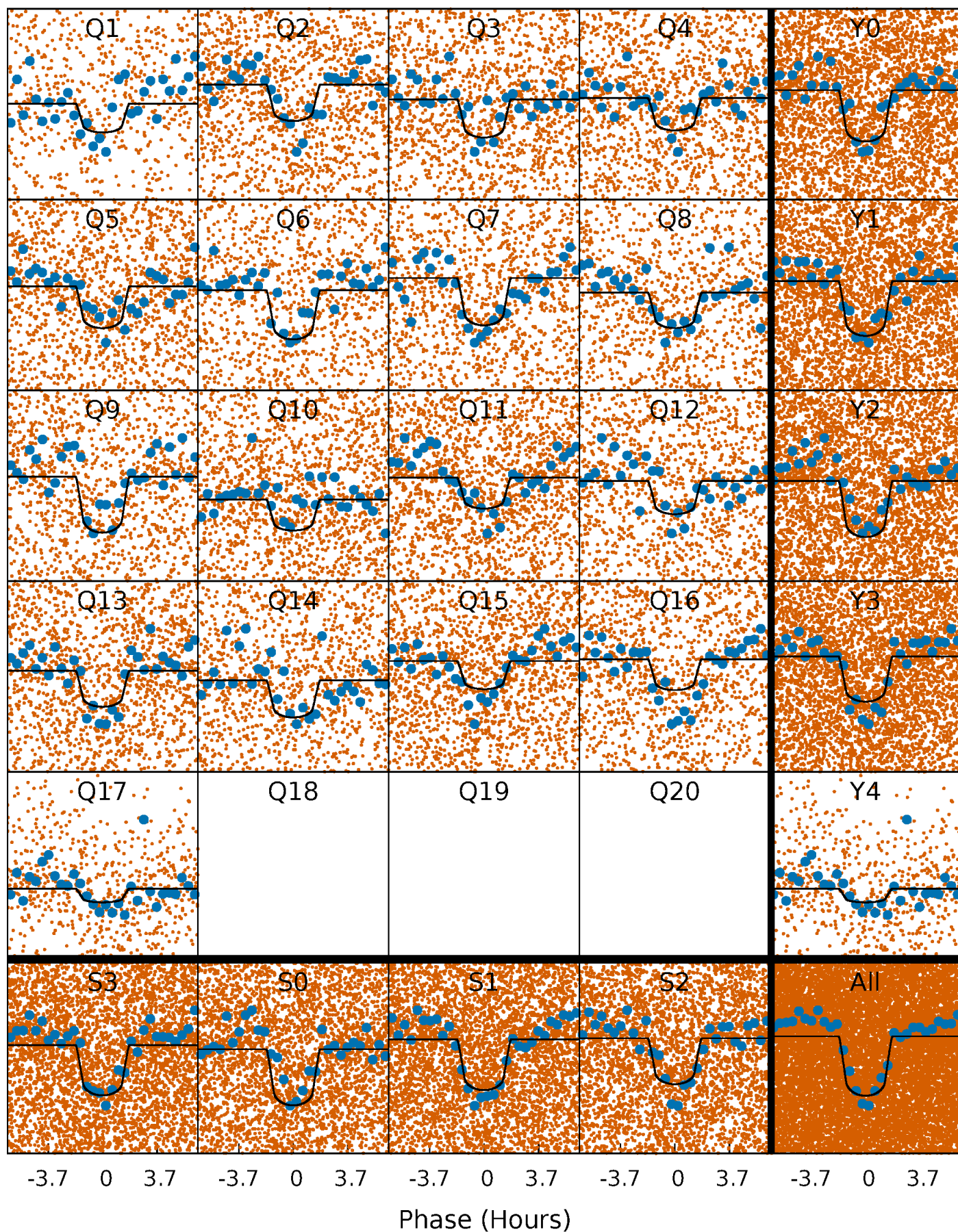
PDC Quarter-Phased Transit Curves

TCE 005471675-01 P= 0.962825 Days $T_0=132.205640$ (BKJD)



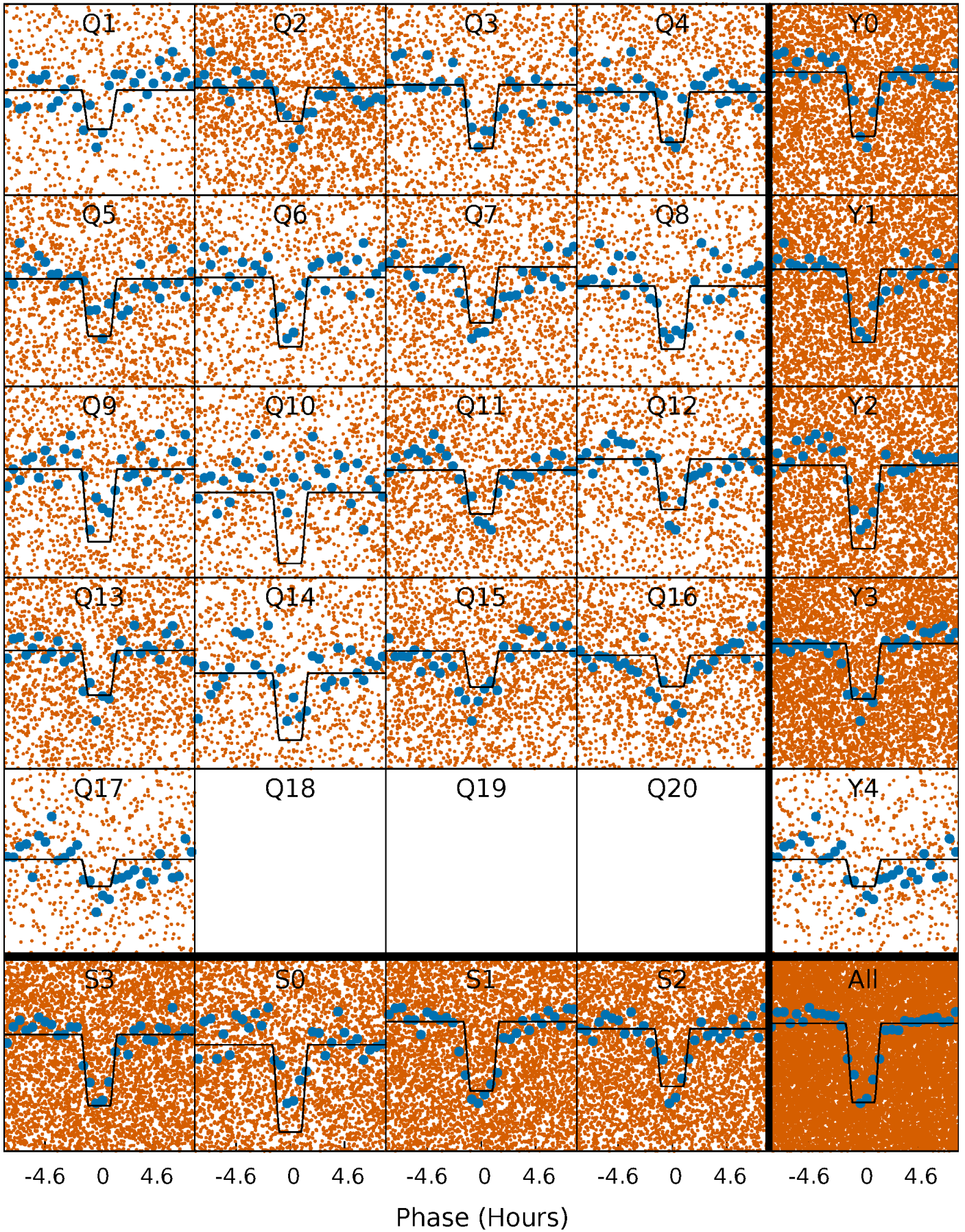
DV Quarter-Phased Transit Curves

TCE 005471675-01 P= 0.962825 Days $T_0=132.205640$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

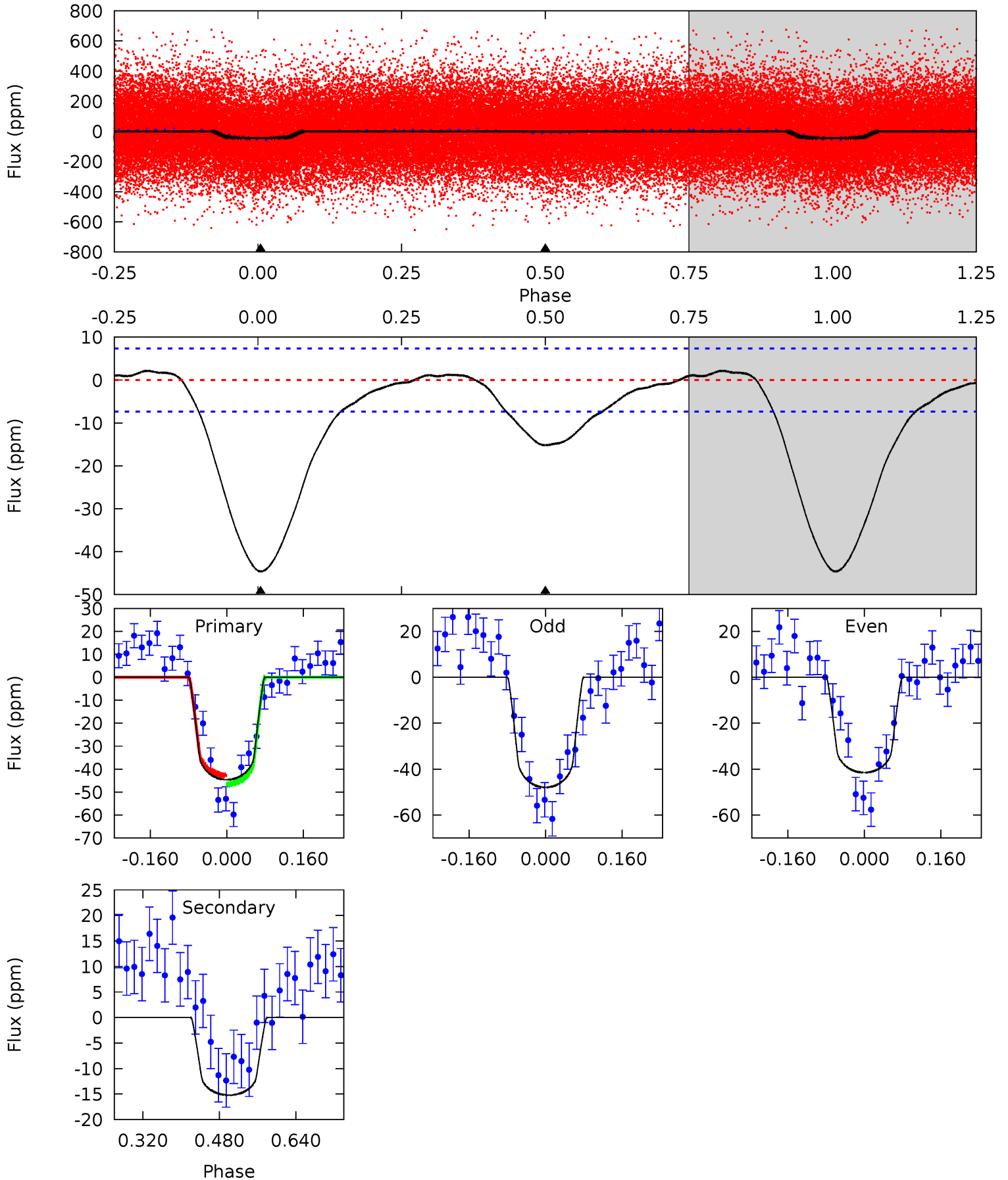
TCE 005471675-01 P= 0.962836 Days $T_0=132.200669$ (BKJD)



DV Model-Shift Uniqueness Test

005471675-01, P = 0.962825 Days, E = 131.242815 Days

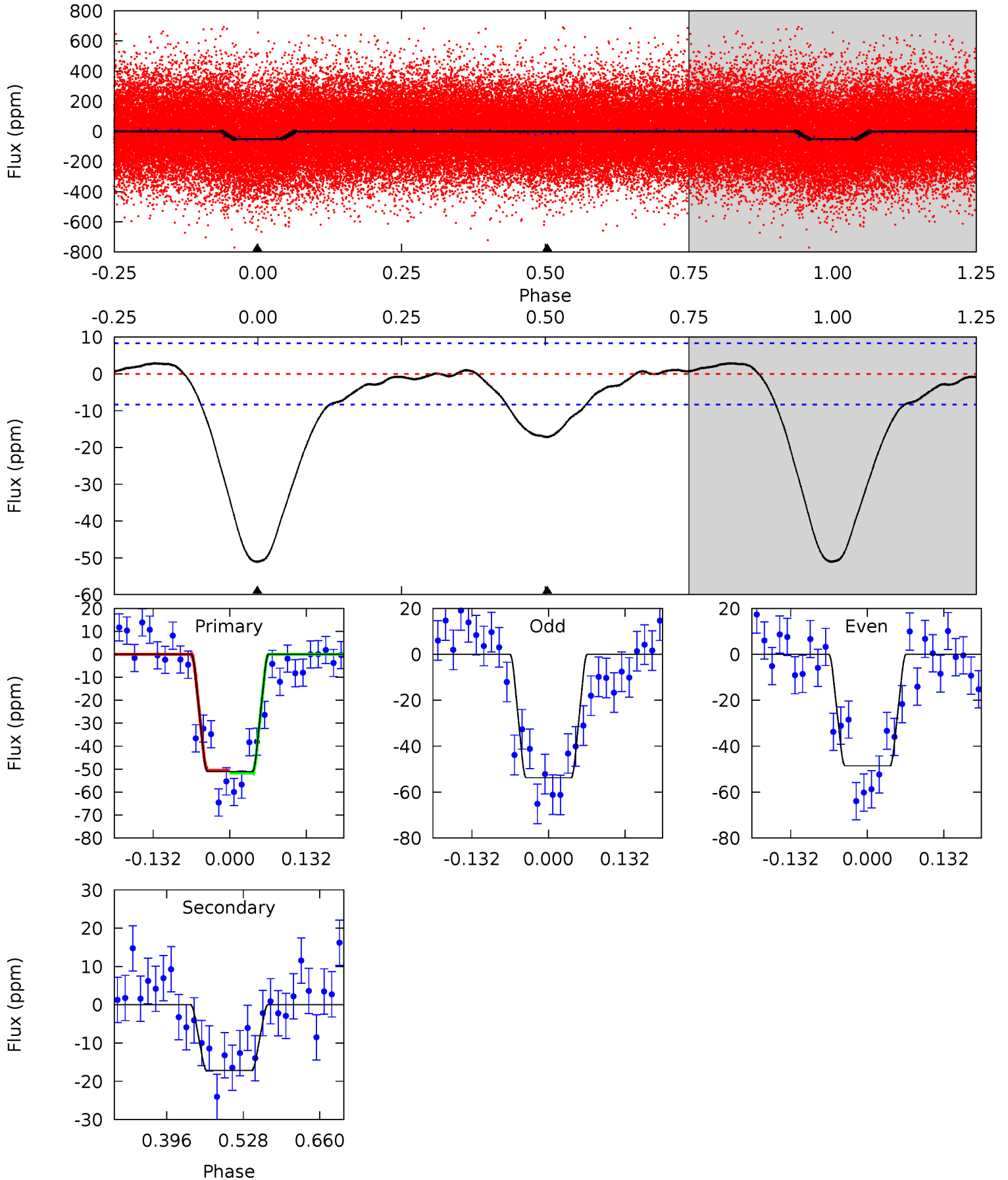
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.1	9.24	0	0	4.47	1.41	1.08	27.1	27.1	9.24	9.24	1.97	0.93	0.05	1.16



Alt Model-Shift Uniqueness Test

005471675-01, P = 0.962836 Days, E = 131.237833 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.6	9.28	0	0	4.51	1.51	1.34	27.6	27.6	9.28	9.28	1.41	0.99	0.05	0.37



Stellar Parameters For KIC 005471675

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6552^{+198}_{-198}	$3.594^{+0.340}_{-0.060}$	$-0.080^{+0.300}_{-0.250}$	$3.440^{+0.337}_{-1.347}$	$1.694^{+0.202}_{-0.347}$	$0.059^{+0.153}_{-0.012}$
	+3%/-3%	+9%/-2%	+375%/-312%	+10%/-39%	+12%/-20%	+262%/-20%
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 005471675-01 / KOI 4000.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-15 ± 2	$2.58^{+0.74}_{-0.68}$	4865^{+257}_{-445}	4317^{+784}_{-797}	$0.652^{+0.563}_{-0.250}$
Alt.	-17 ± 2	$2.70^{+0.78}_{-0.75}$	4852^{+255}_{-424}	4342^{+742}_{-793}	$0.668^{+0.590}_{-0.260}$

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

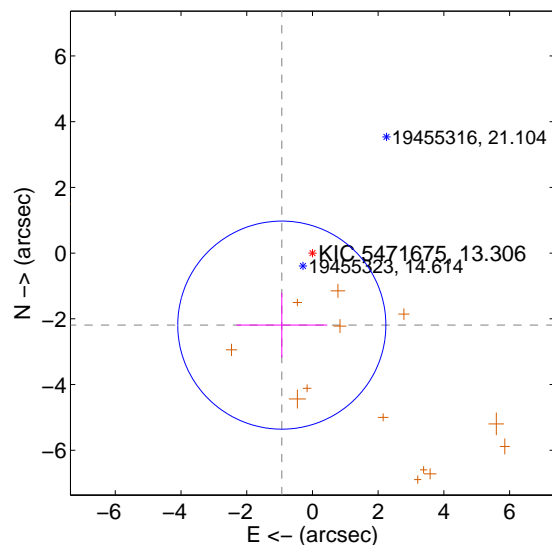
Supplemental centroid analysis for 005471675-01. Kepler magnitude: 13.31. Transit SNR 17.64

There are 0 quarters with good PRF difference image offsets

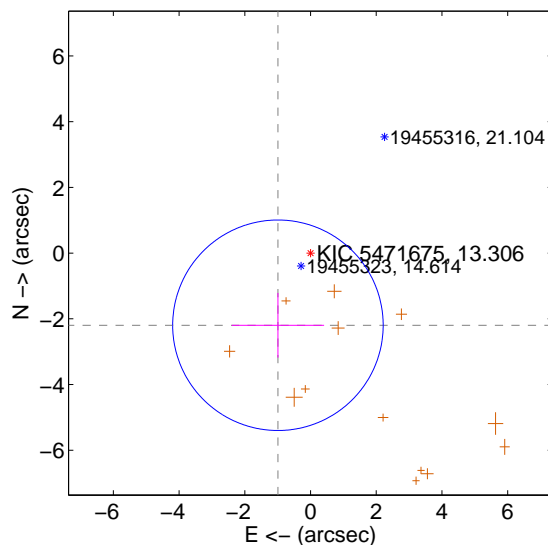
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.382 ± 1.056	2.26	0.932 ± 1.379	-2.192 ± 0.986
PRF-fit source offset from KIC position	2.410 ± 1.068	2.26	0.992 ± 1.404	-2.196 ± 0.985
photometric centroid source offset	4.68 ± 0.49	9.58	3.65 ± 0.47	-2.92 ± 0.51

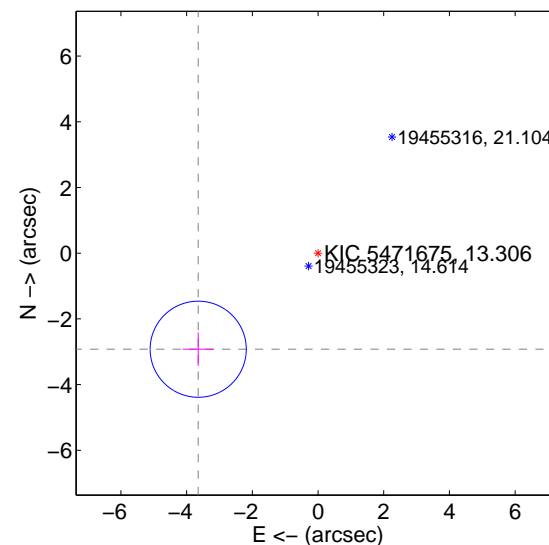
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

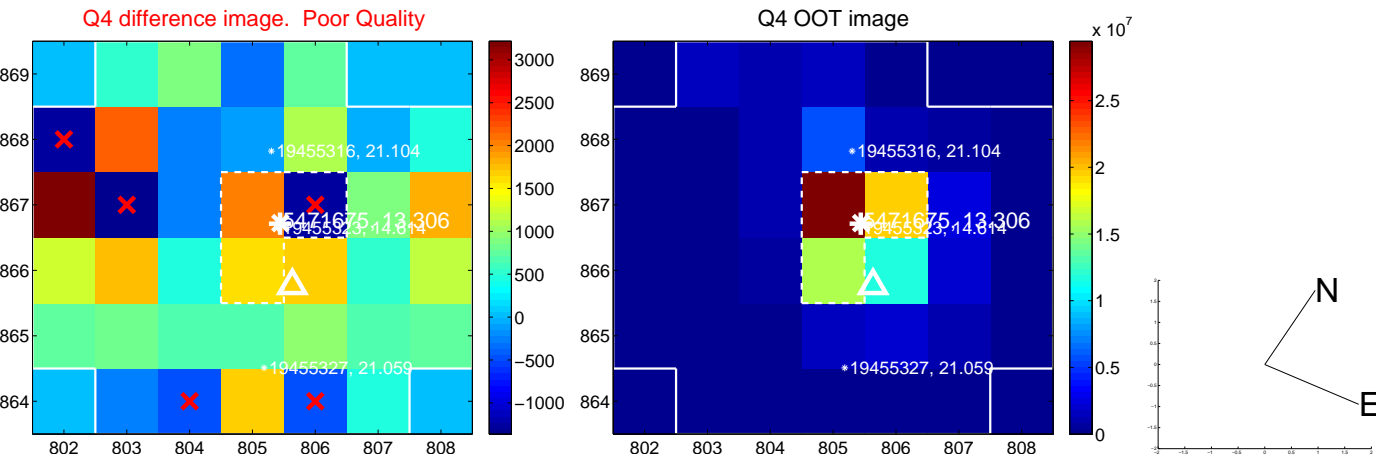
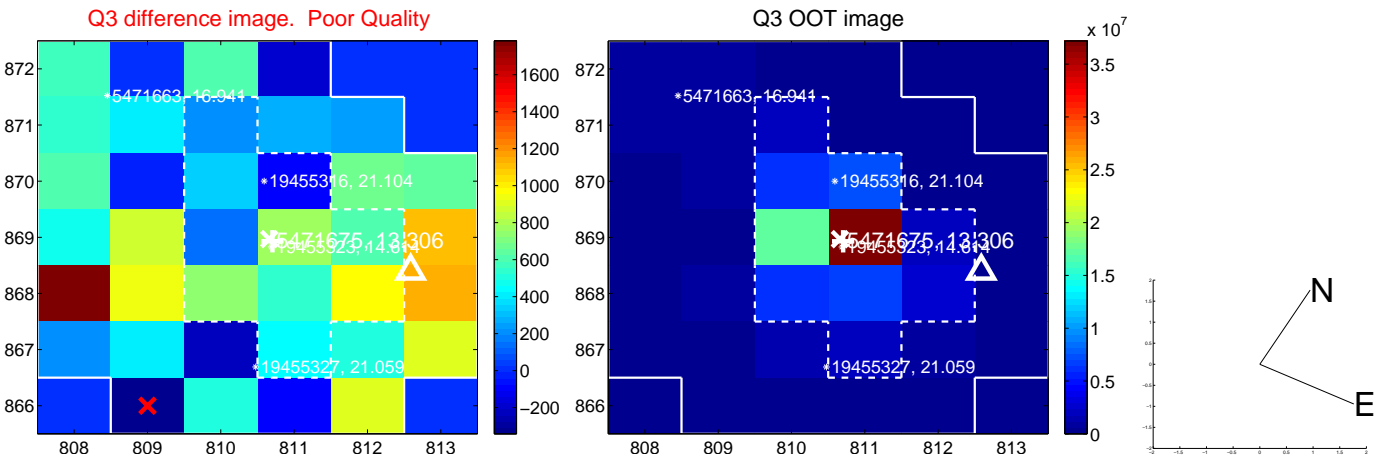
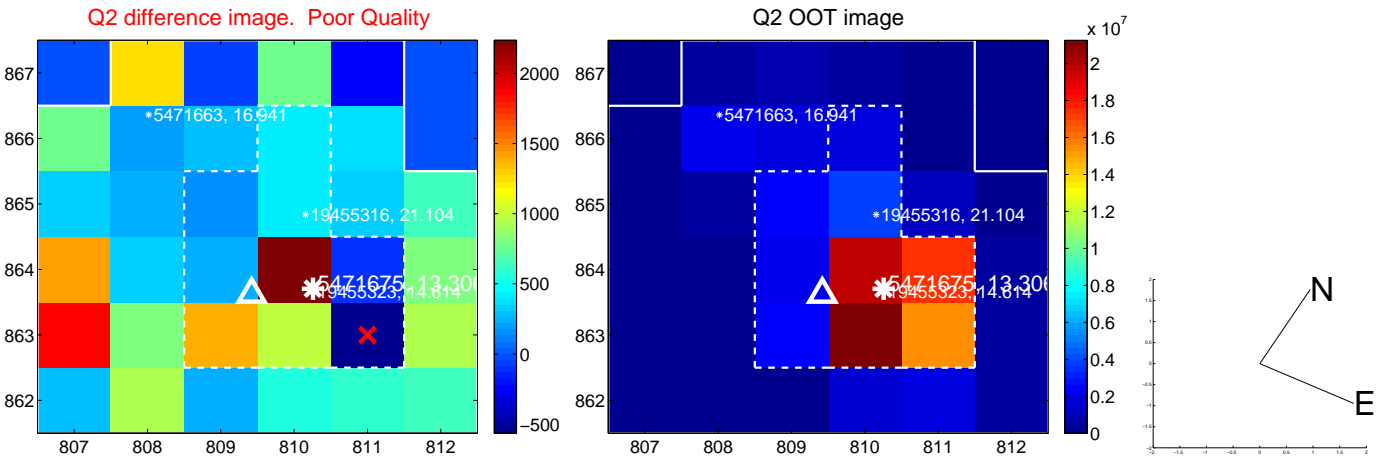
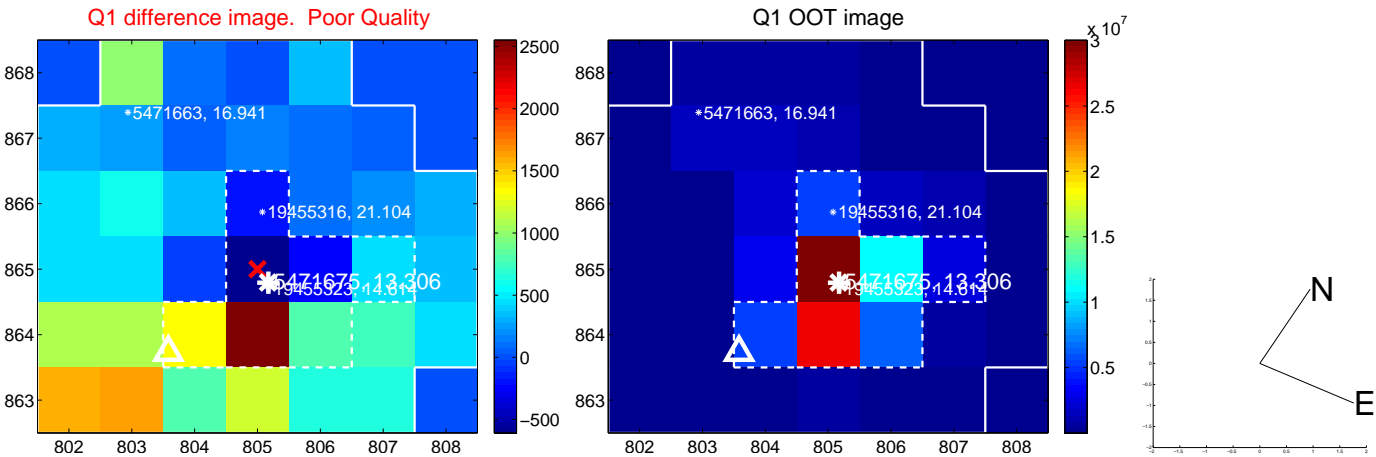


offset from photometric centroids

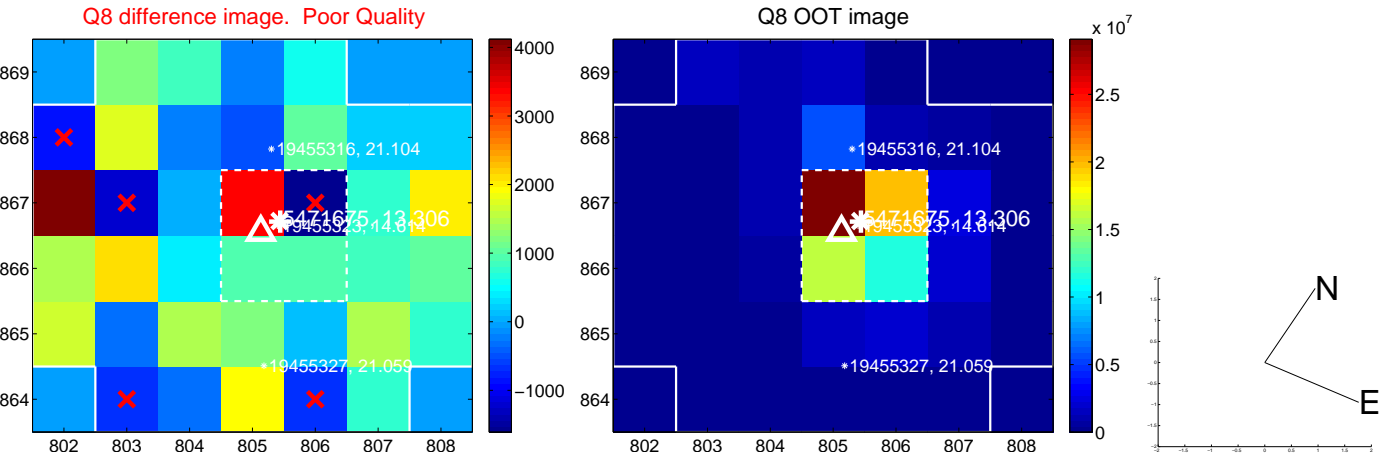
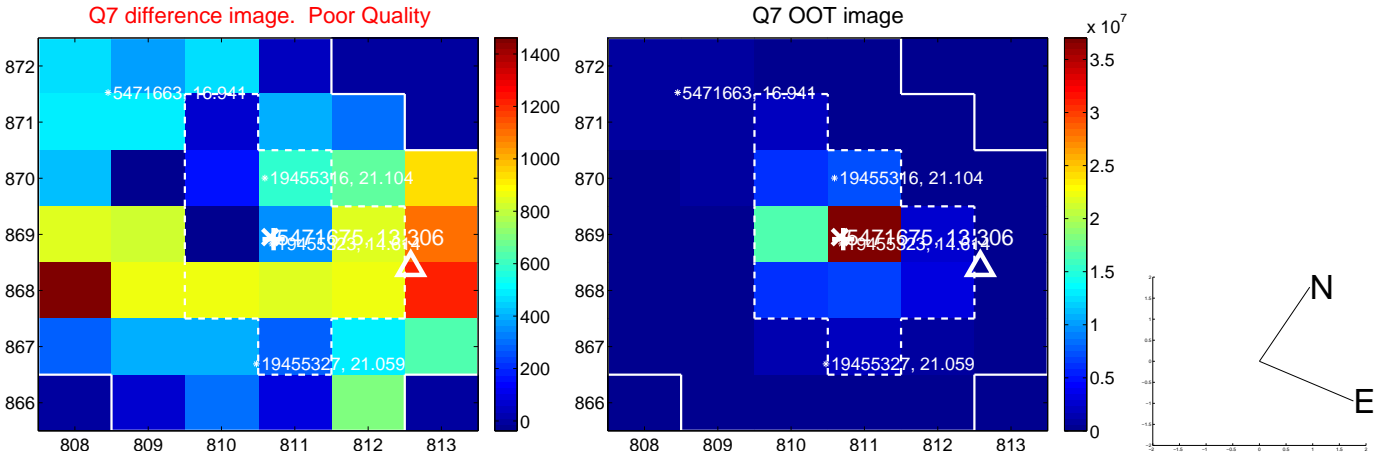
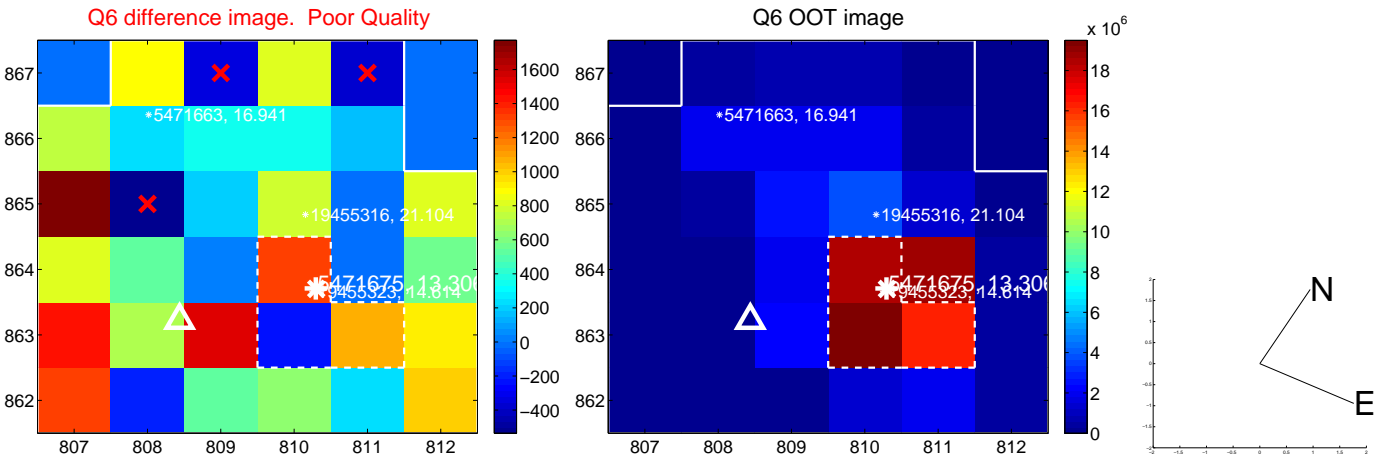
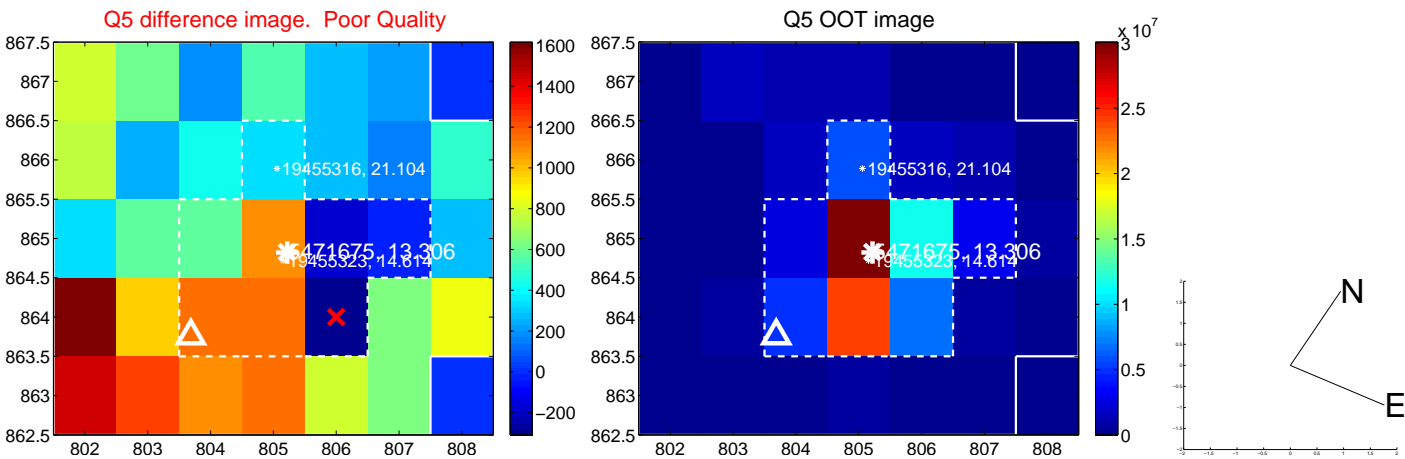


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

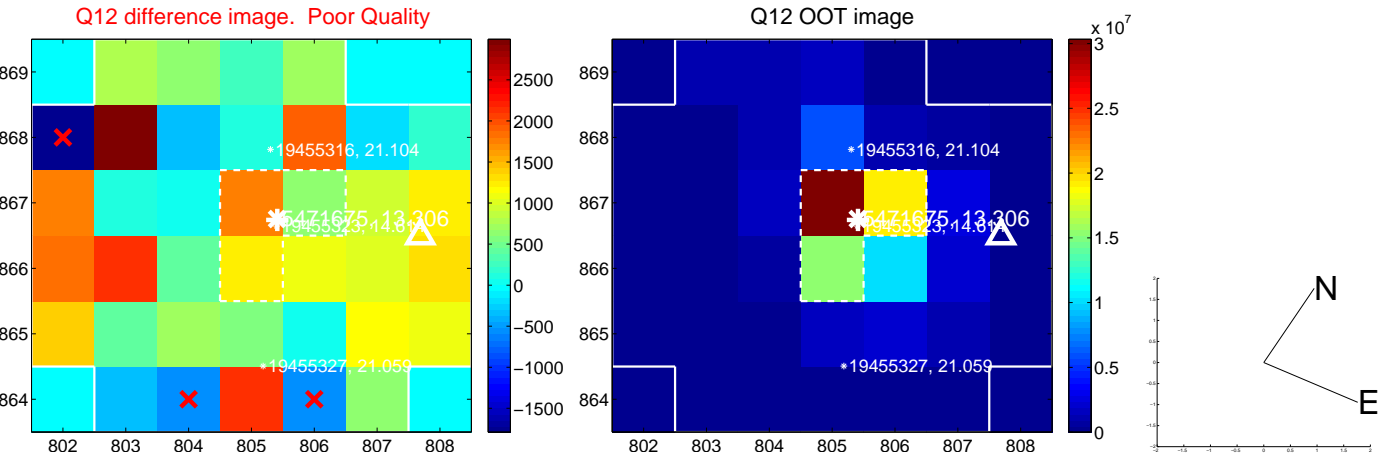
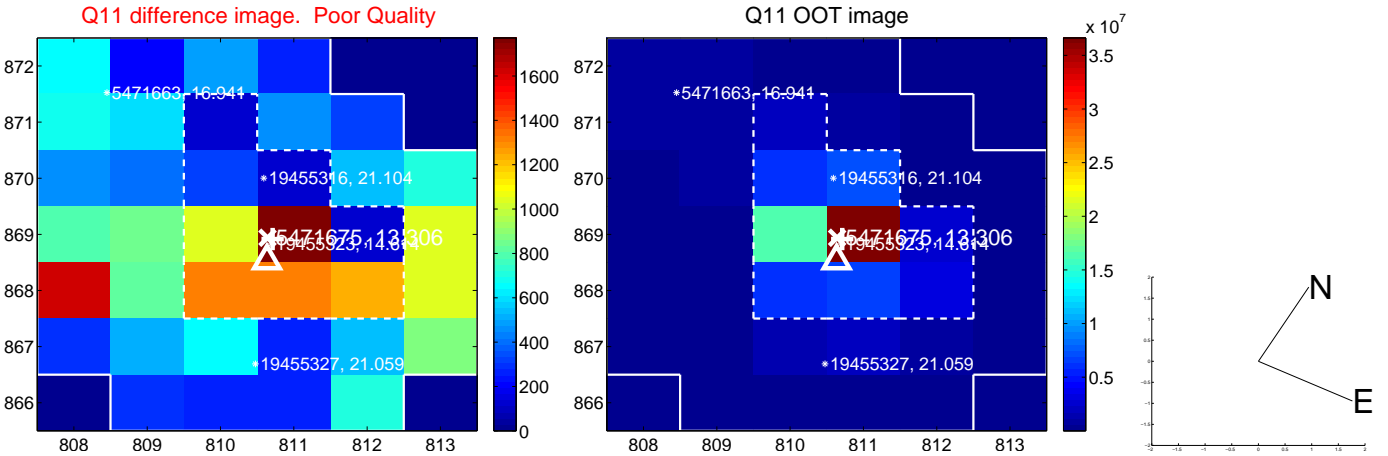
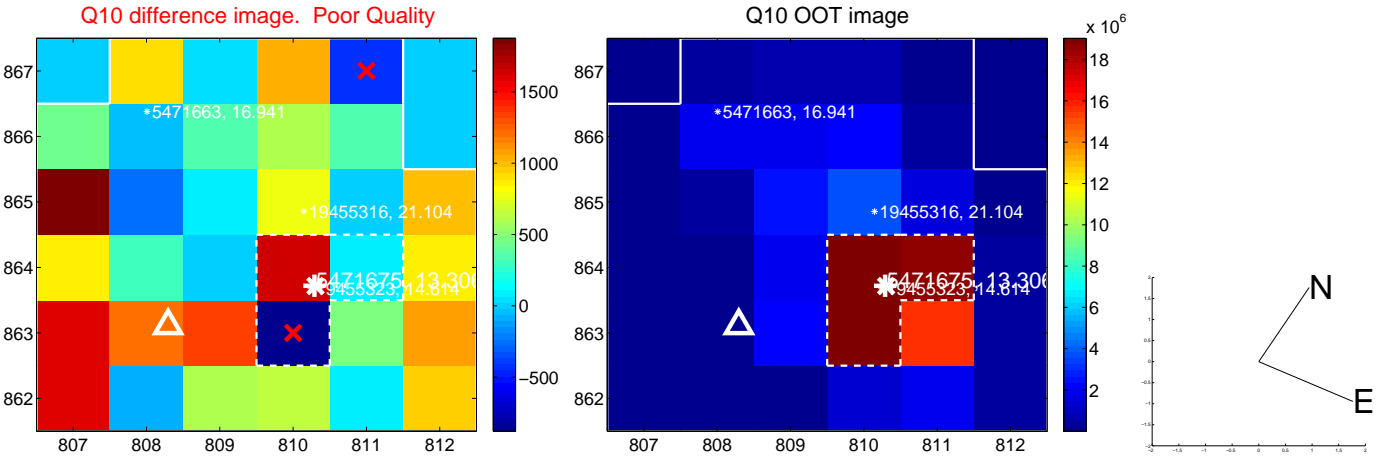
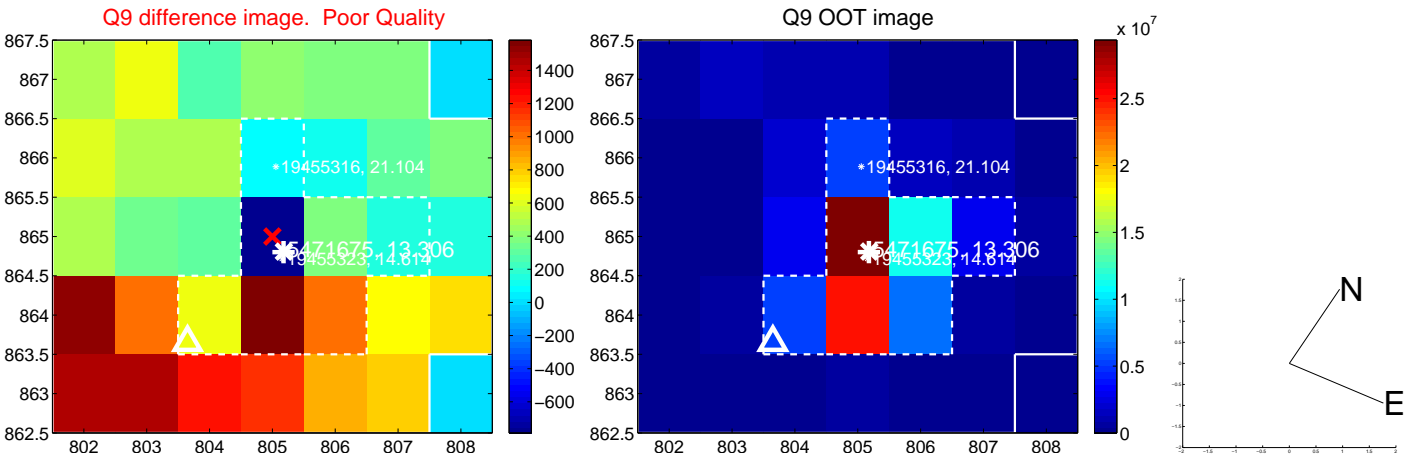
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



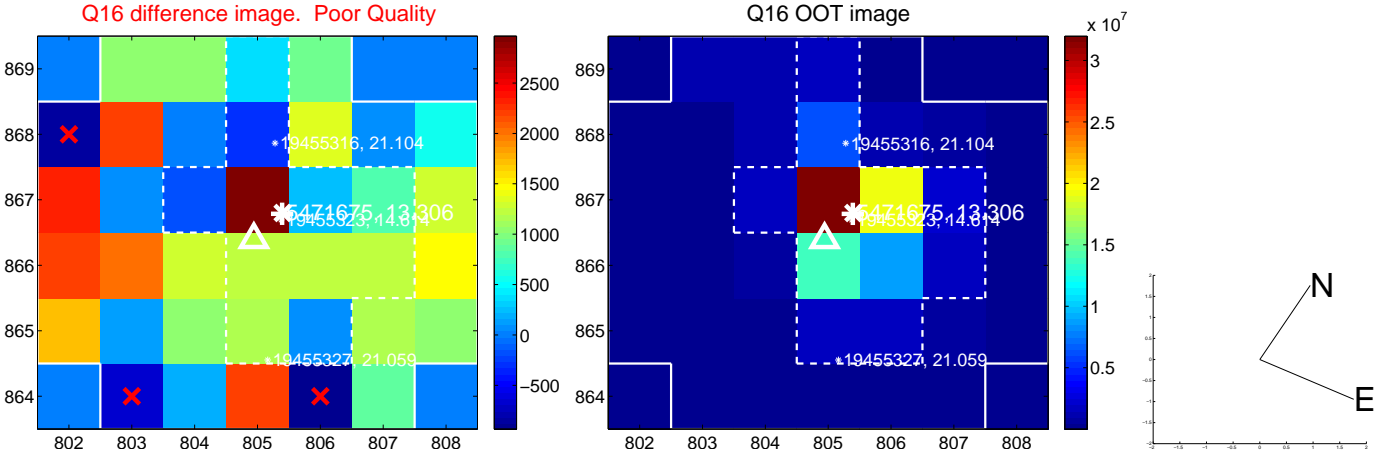
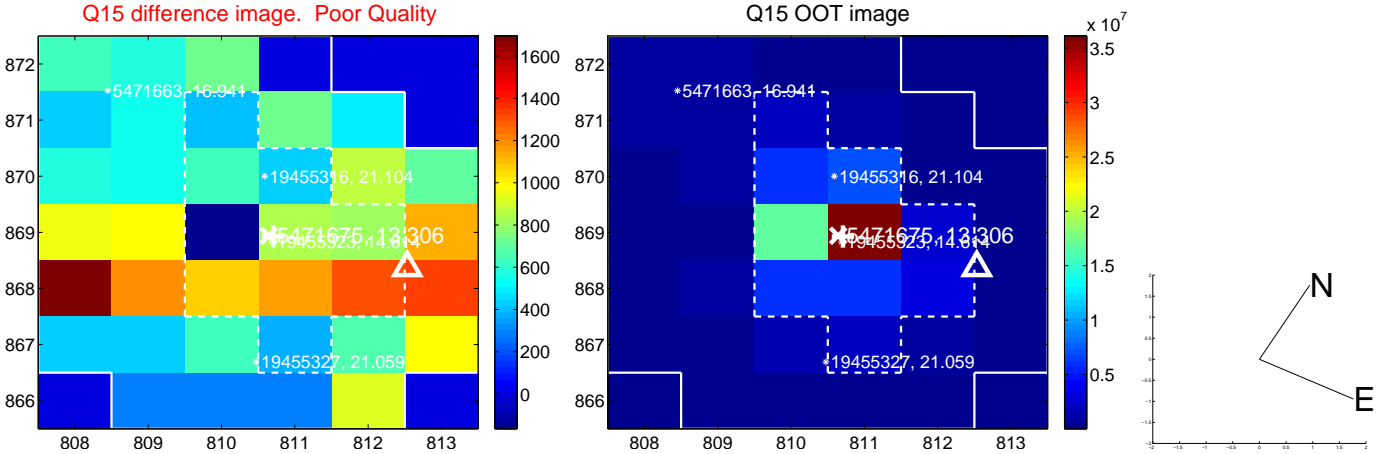
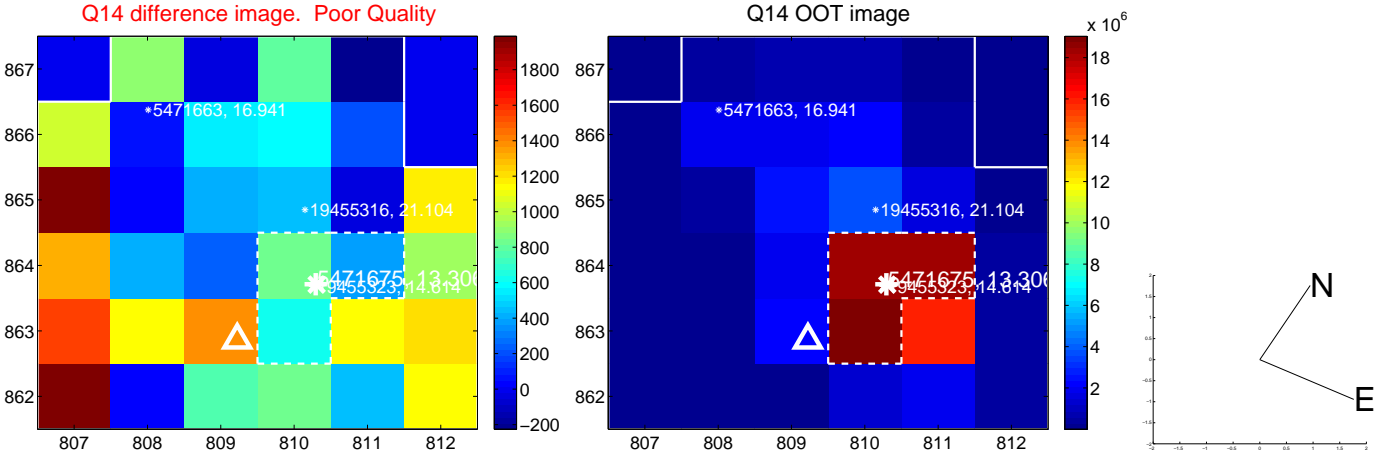
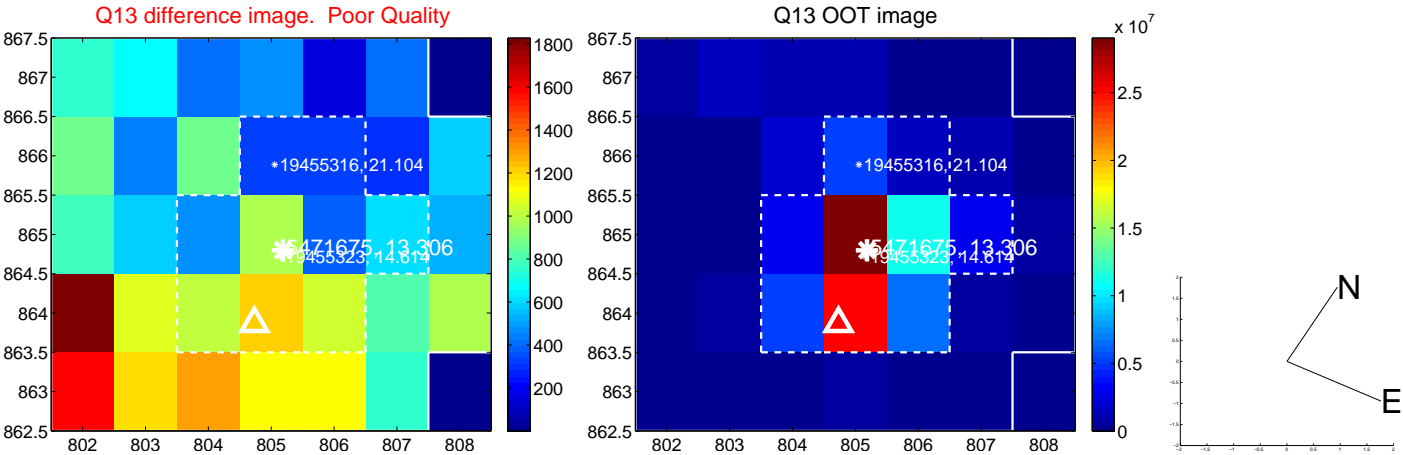
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



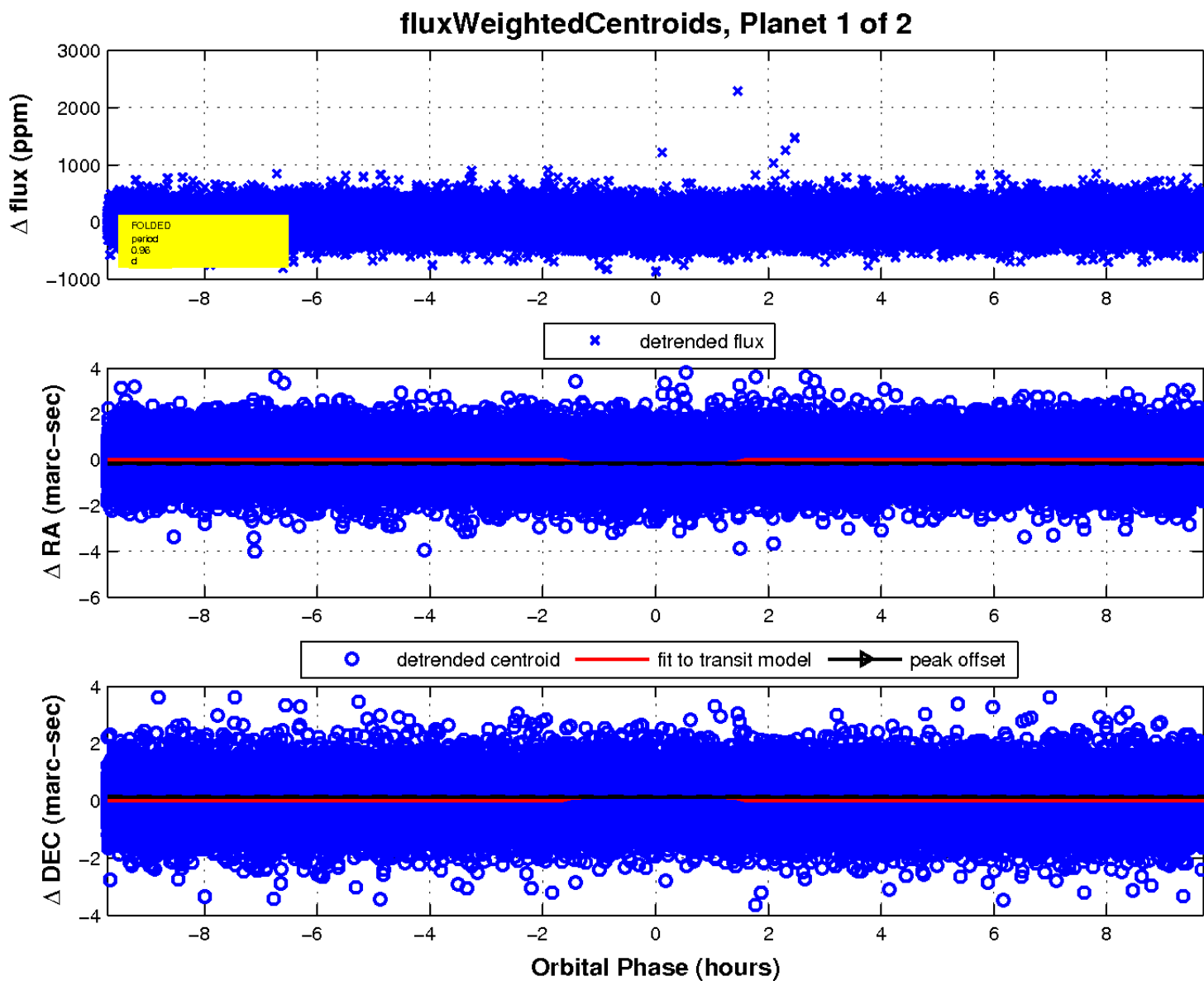
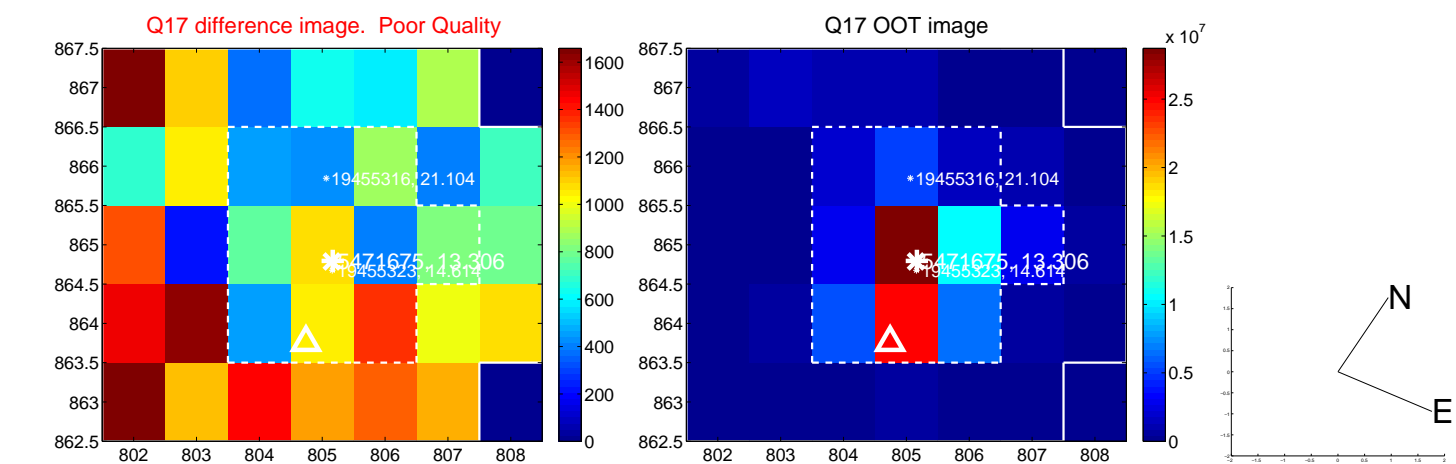
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



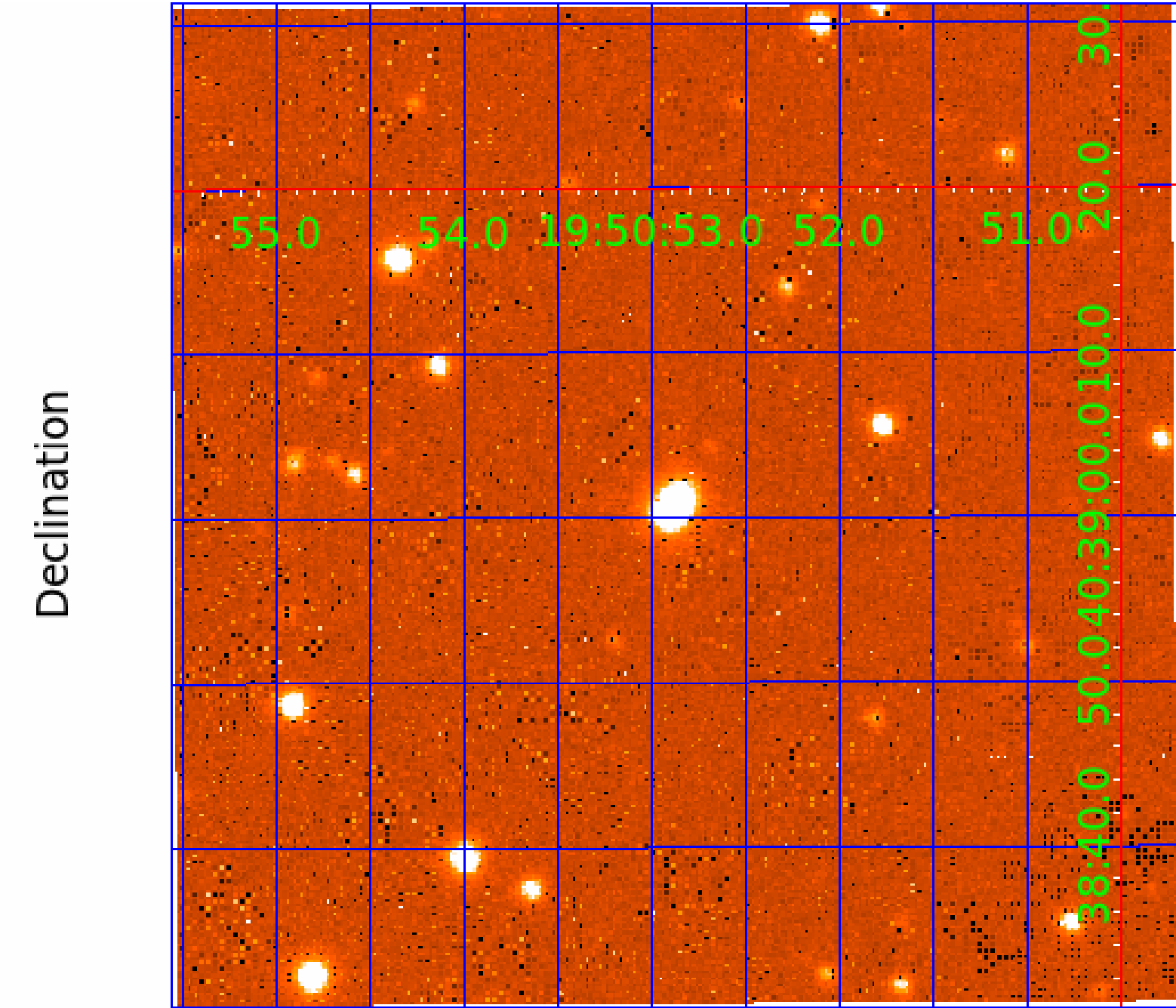
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 005471675

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
005471675-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—CENT_FEW_DIFFS

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

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

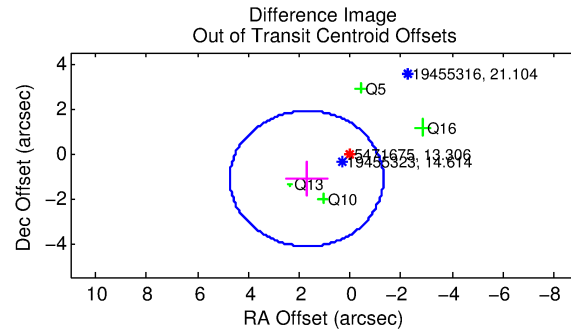
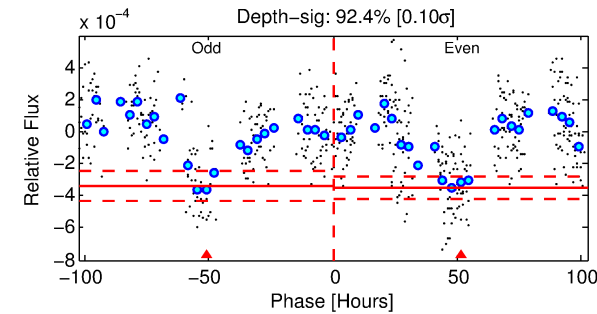
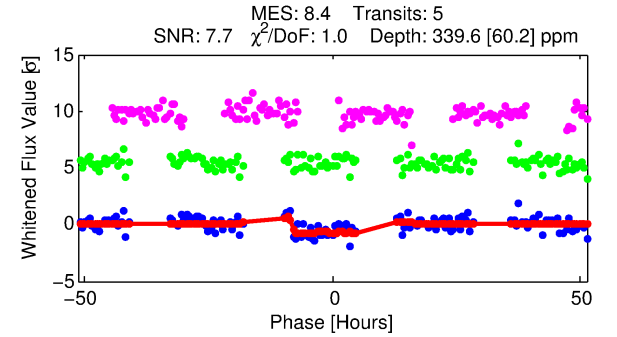
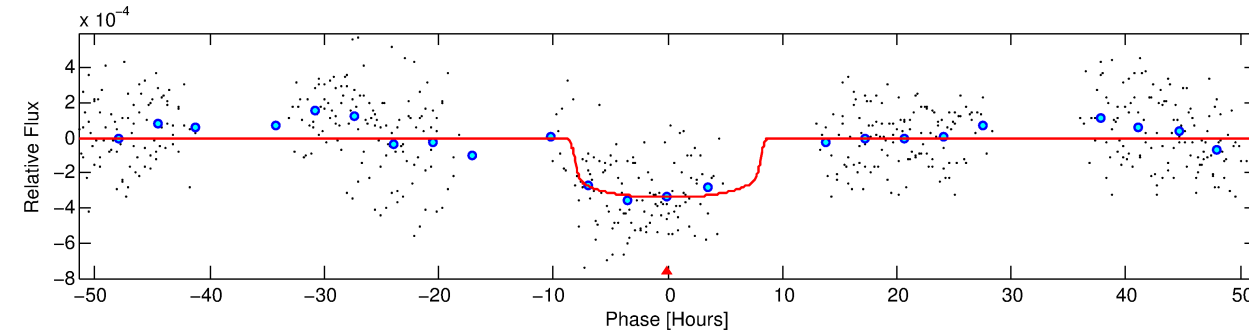
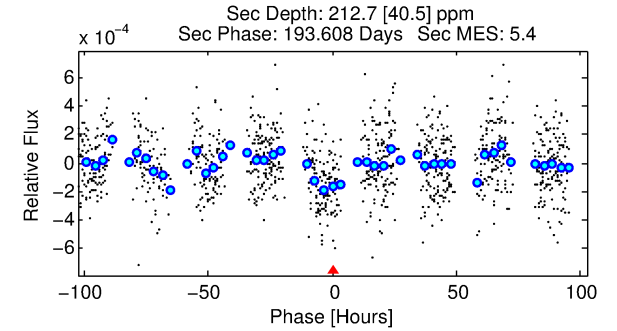
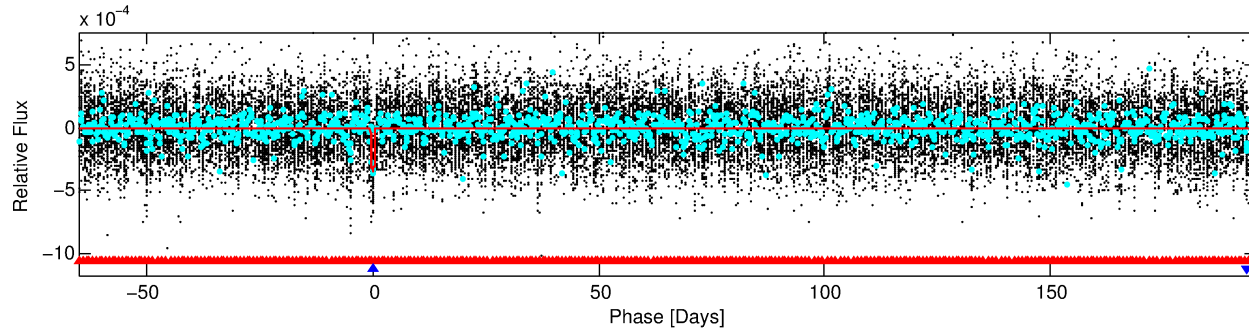
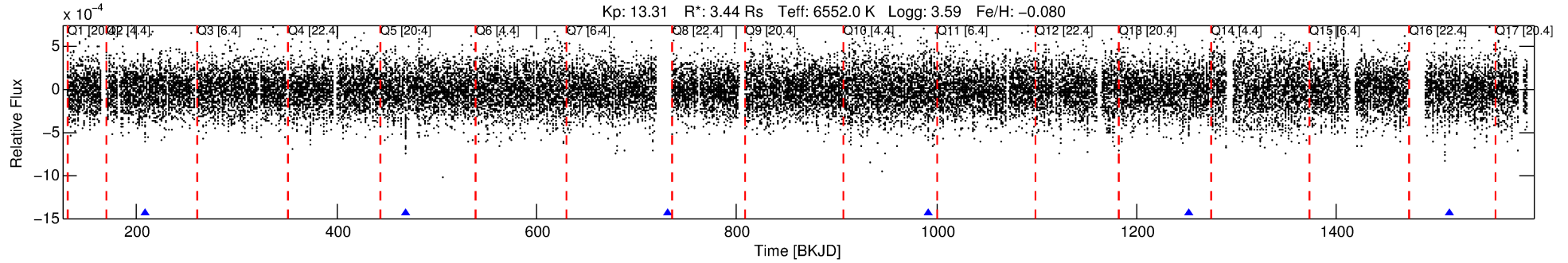
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005471675-02

No Significant Match Found

DV One-Page Summary

KIC: 5471675 Candidate: 2 of 2 Period: 260.949 d
KOI: K04000 Corr: No Ephemeris Match



DV Fit Results:

Period = 260.94946 [0.00957] d
Epoch = 208.7982 [0.1005] BKJD
Rp/R* = 0.0186 [0.0038]
a/R* = 73.95 [79.09]
b = 0.80 [0.57]
Seff = 21.51 [12.82]
Teff = 549 [82] K
Rp = 6.99 [3.08] Re
a = 0.9530 [0.3518] AU
Ag = 2176.57 [1599.69] [1.36σ]
Teffp = 5799 [671] K [7.77σ]

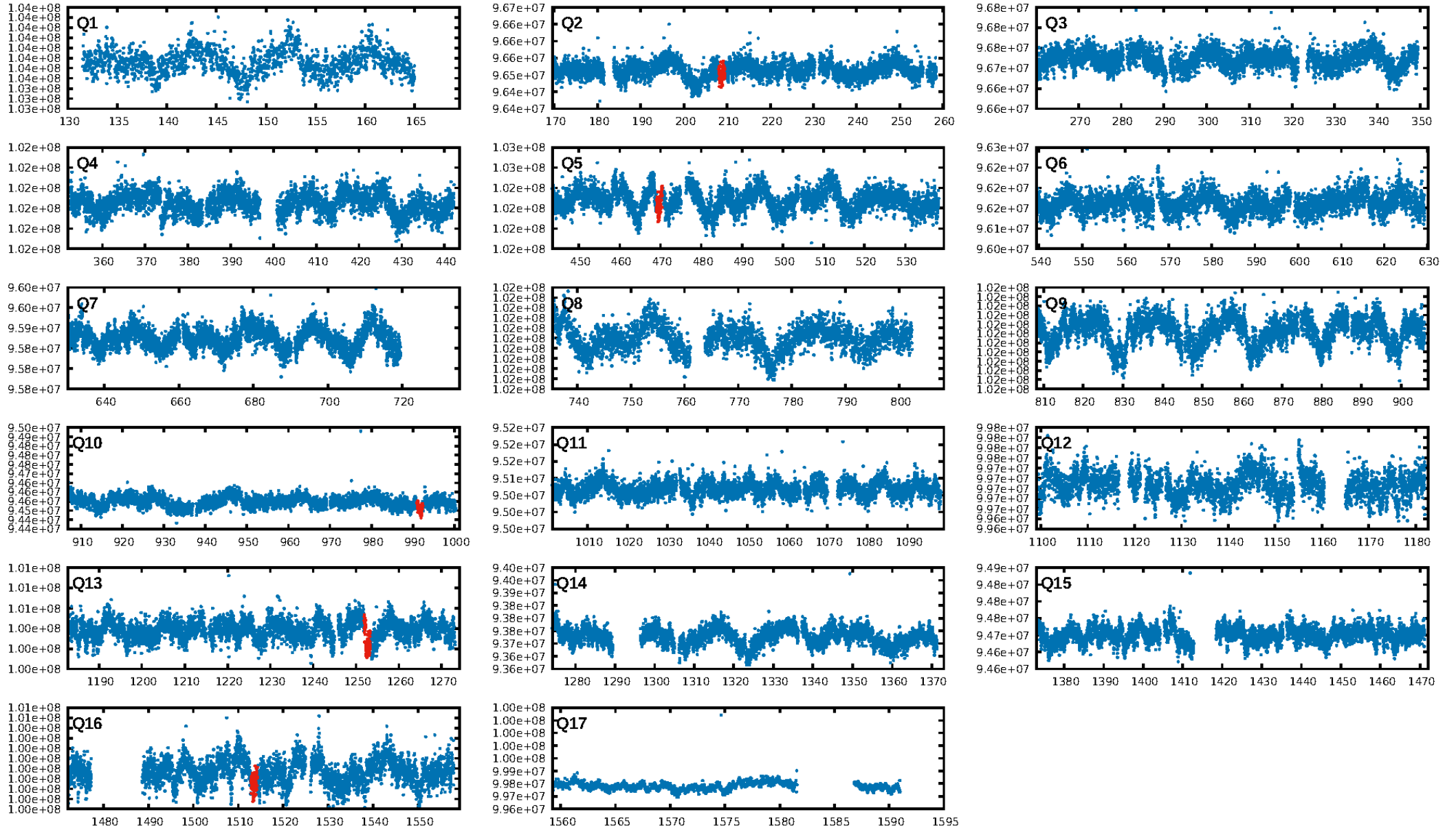
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [357.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 27.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.89e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 2.172
Centroid-sig: 7.6%
Centroid-so: 1.057 arcsec [1.43σ]
OotOffset-rm: 2.043 arcsec [2.03σ]
KicOffset-rm: 2.045 arcsec [1.65σ]
OotOffset-st: 1/0/1/2 [4]
KicOffset-st: 1/0/1/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/5]

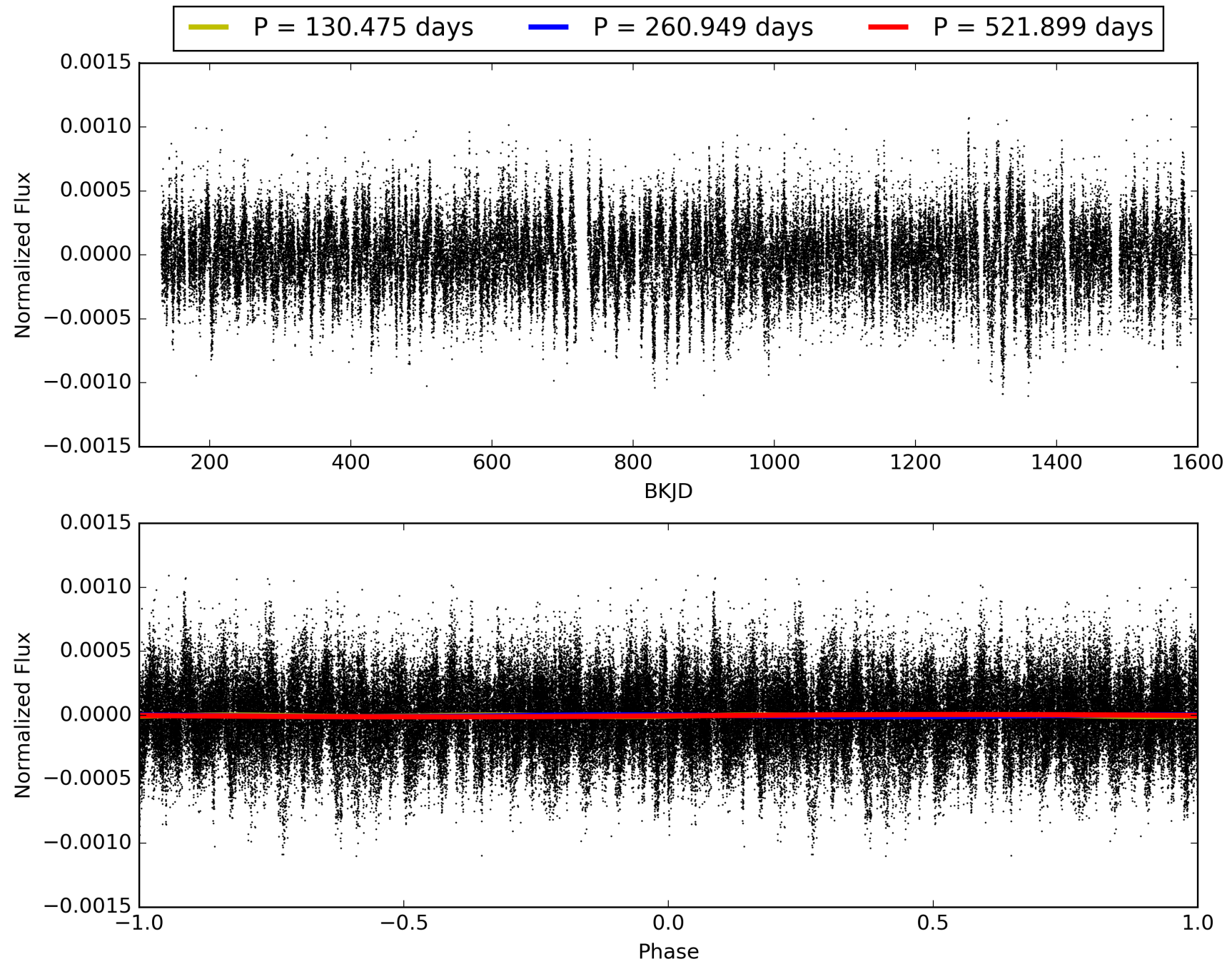
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:50:06 Z

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

TCE 005471675-02, PDC Light Curves

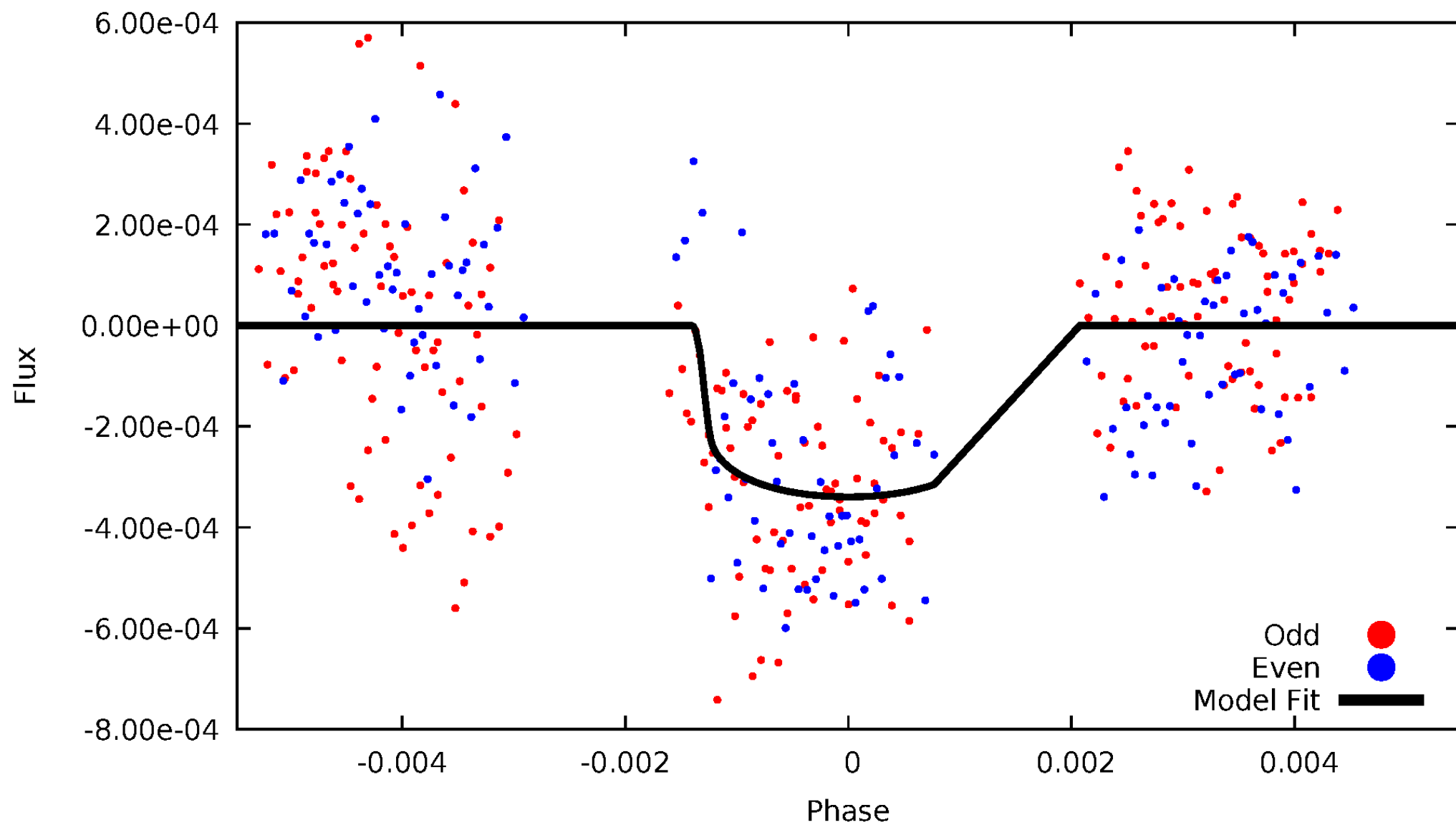


TCE 005471675-02



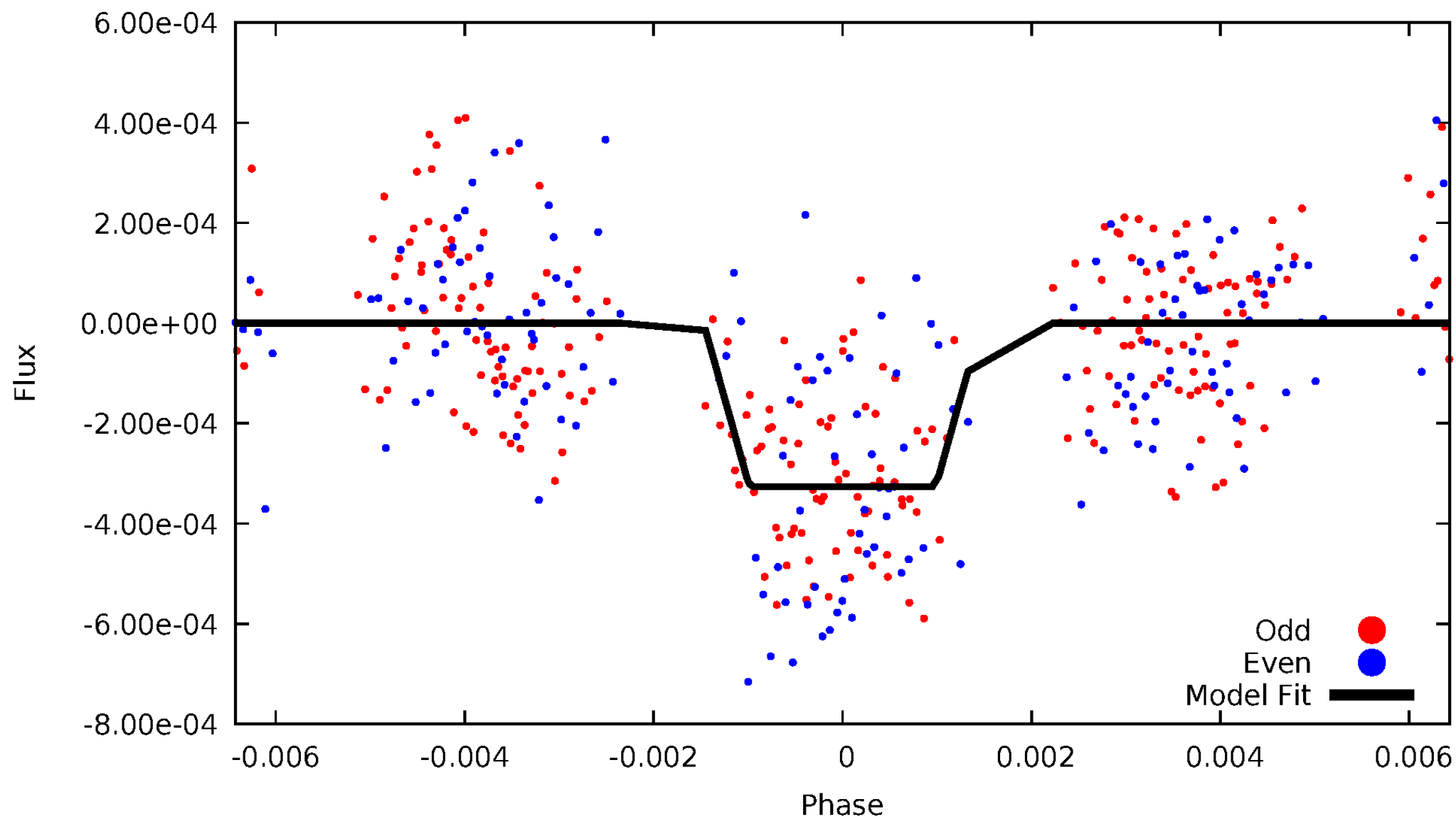
DV Odd/Even

TCE 005471675-02



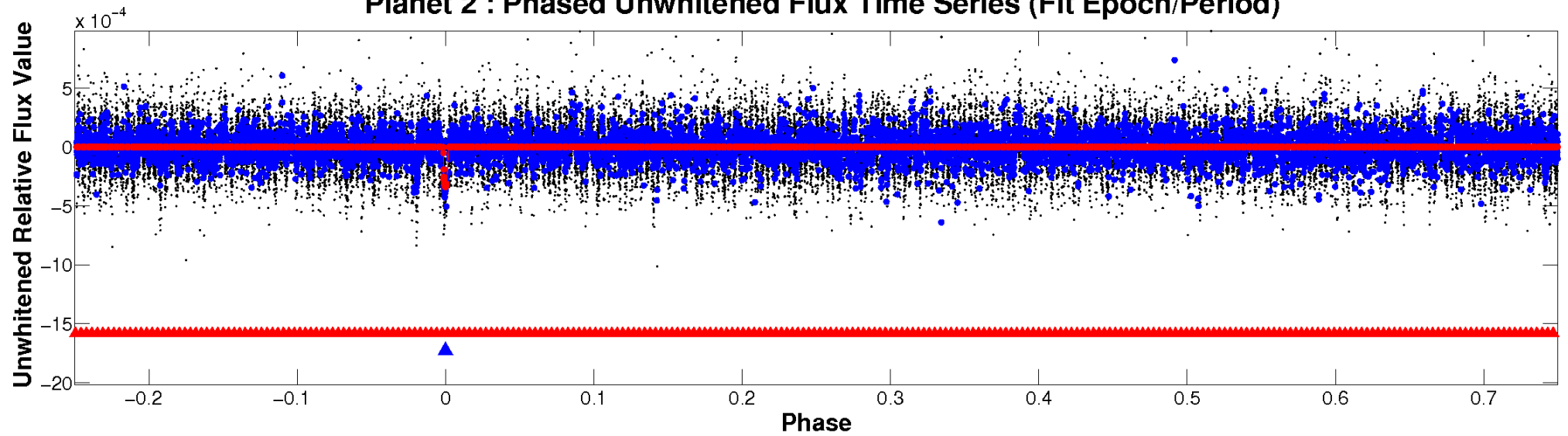
ALT Odd/Even

TCE 005471675-02

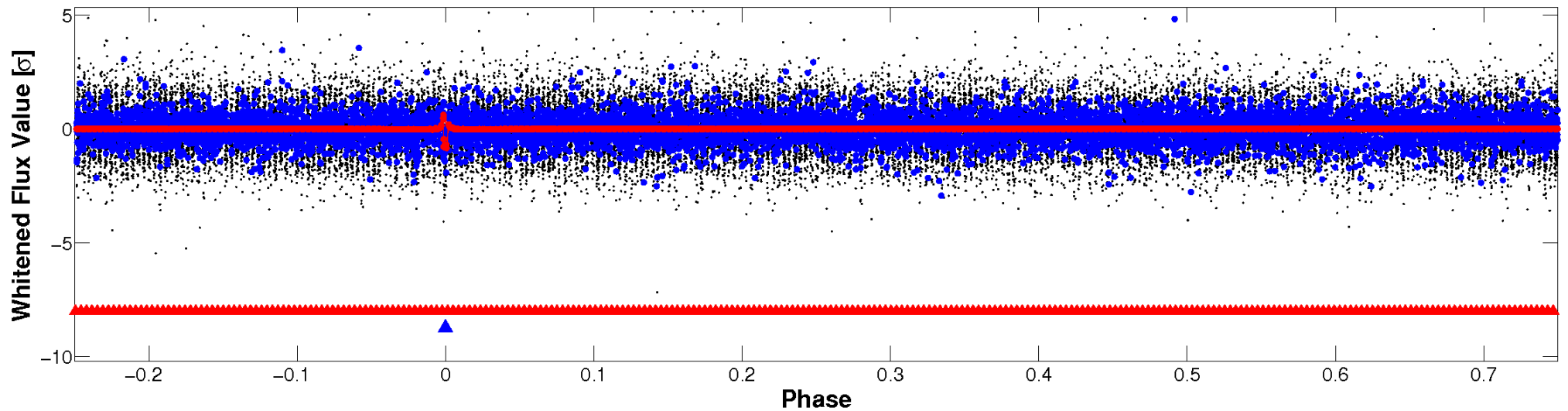


Non-Whitened Vs. Whitened Light Curve

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

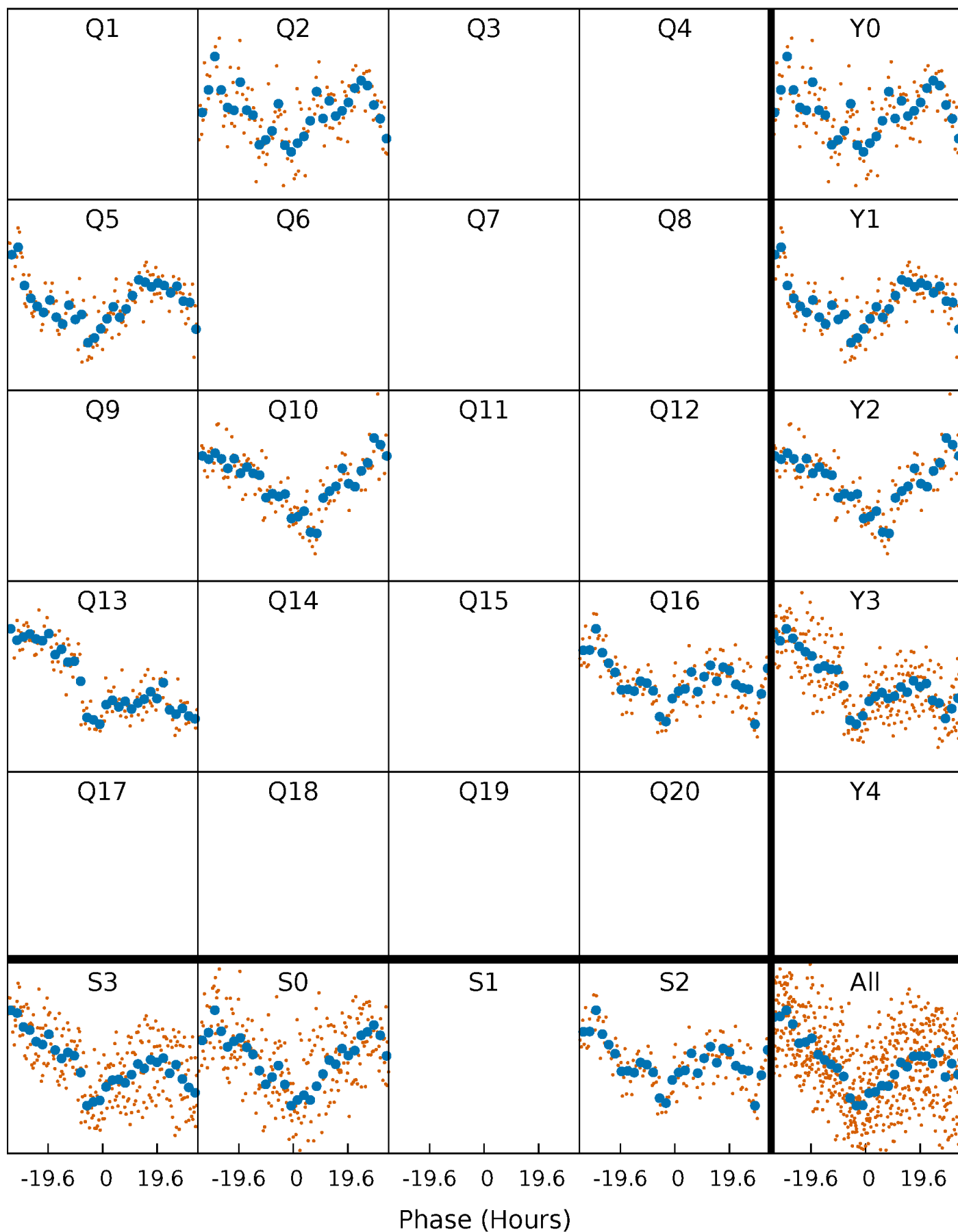


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



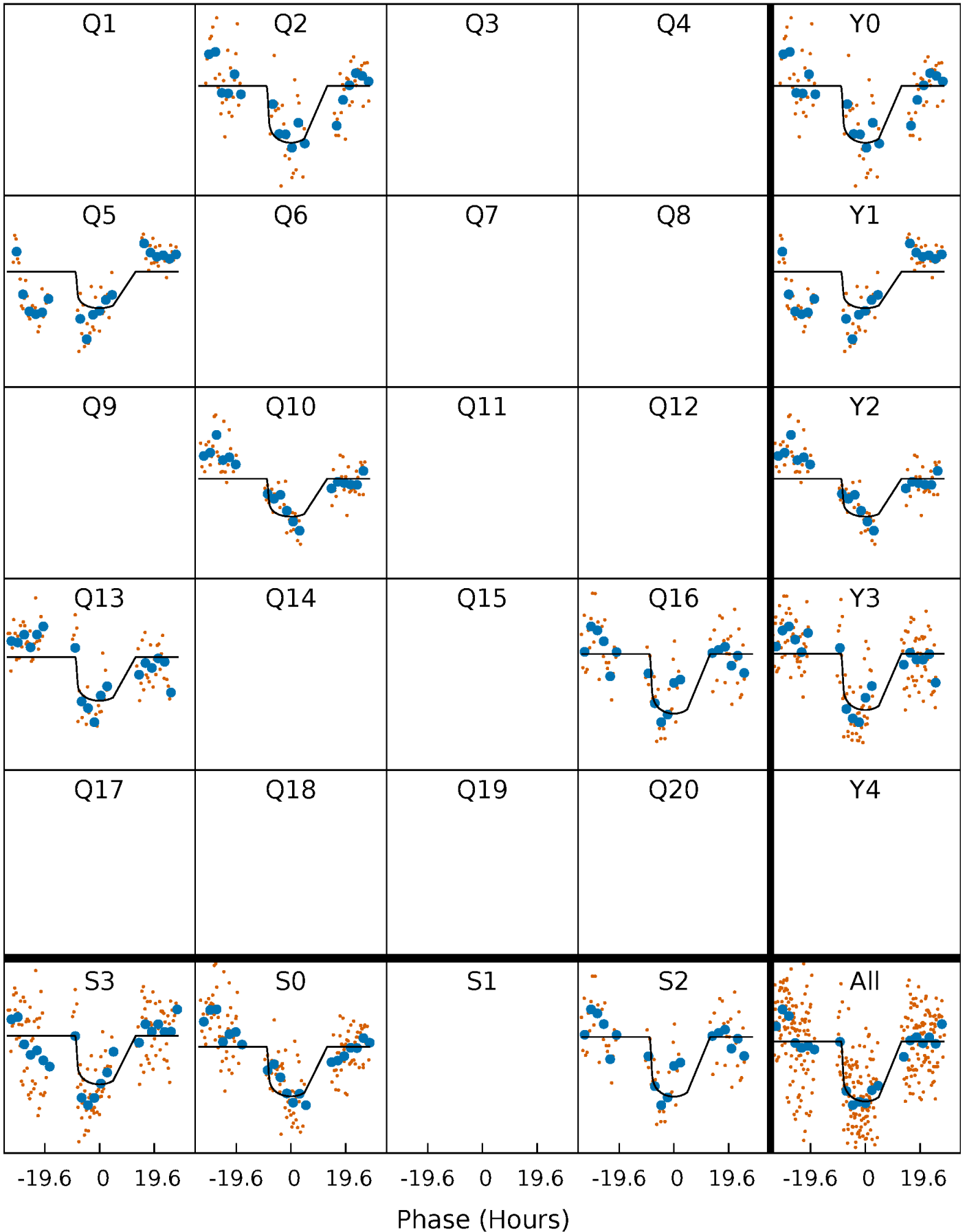
PDC Quarter-Phased Transit Curves

TCE 005471675-02 $P=260.949457$ Days $T_0=208.798172$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 005471675-02 $P=260.949457$ Days $T_0=208.798172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

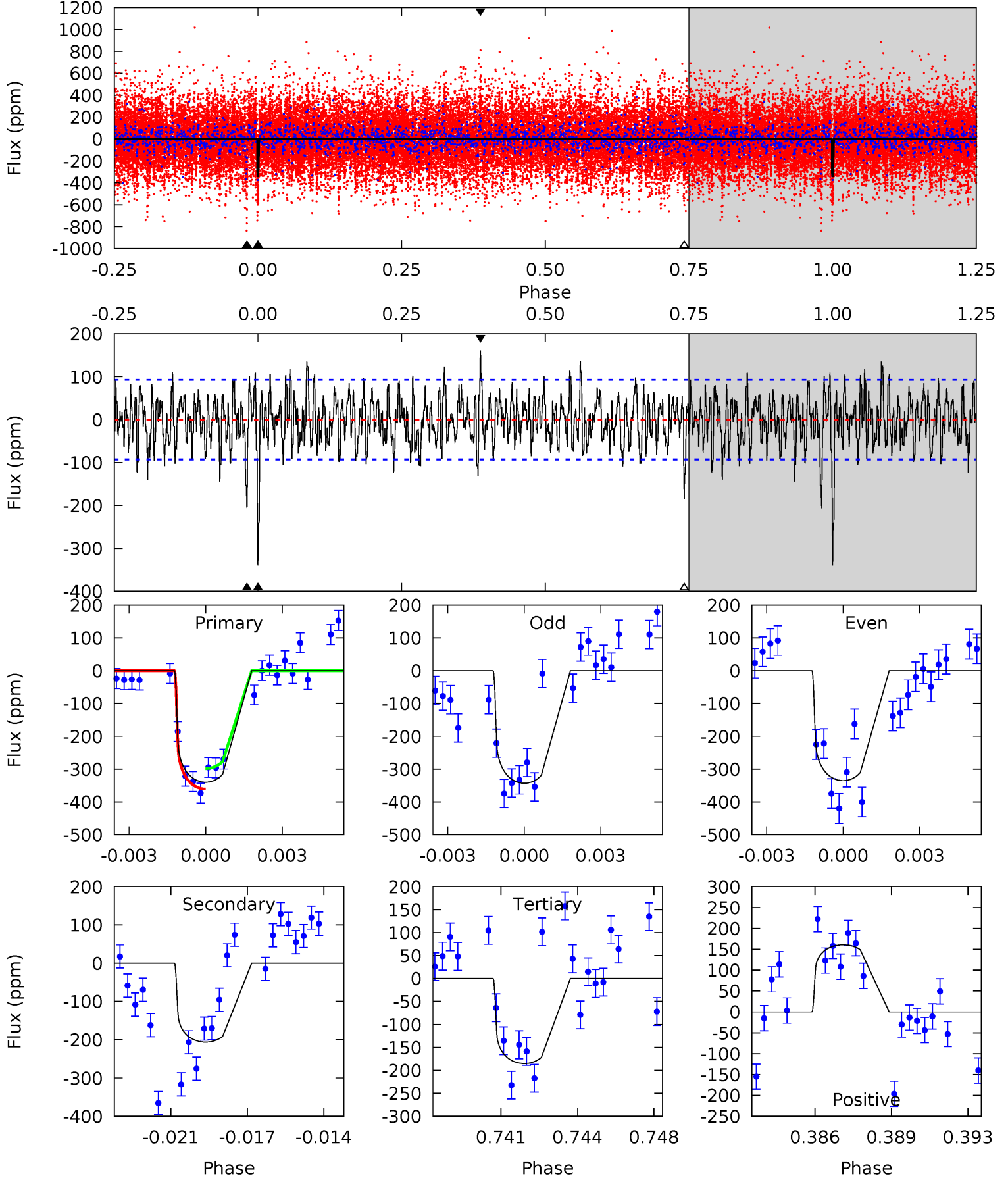
TCE 005471675-02 $P=260.970617$ Days $T_0=208.652269$ (BKJD)



DV Model-Shift Uniqueness Test

005471675-02, P = 260.949457 Days, E = 208.798172 Days

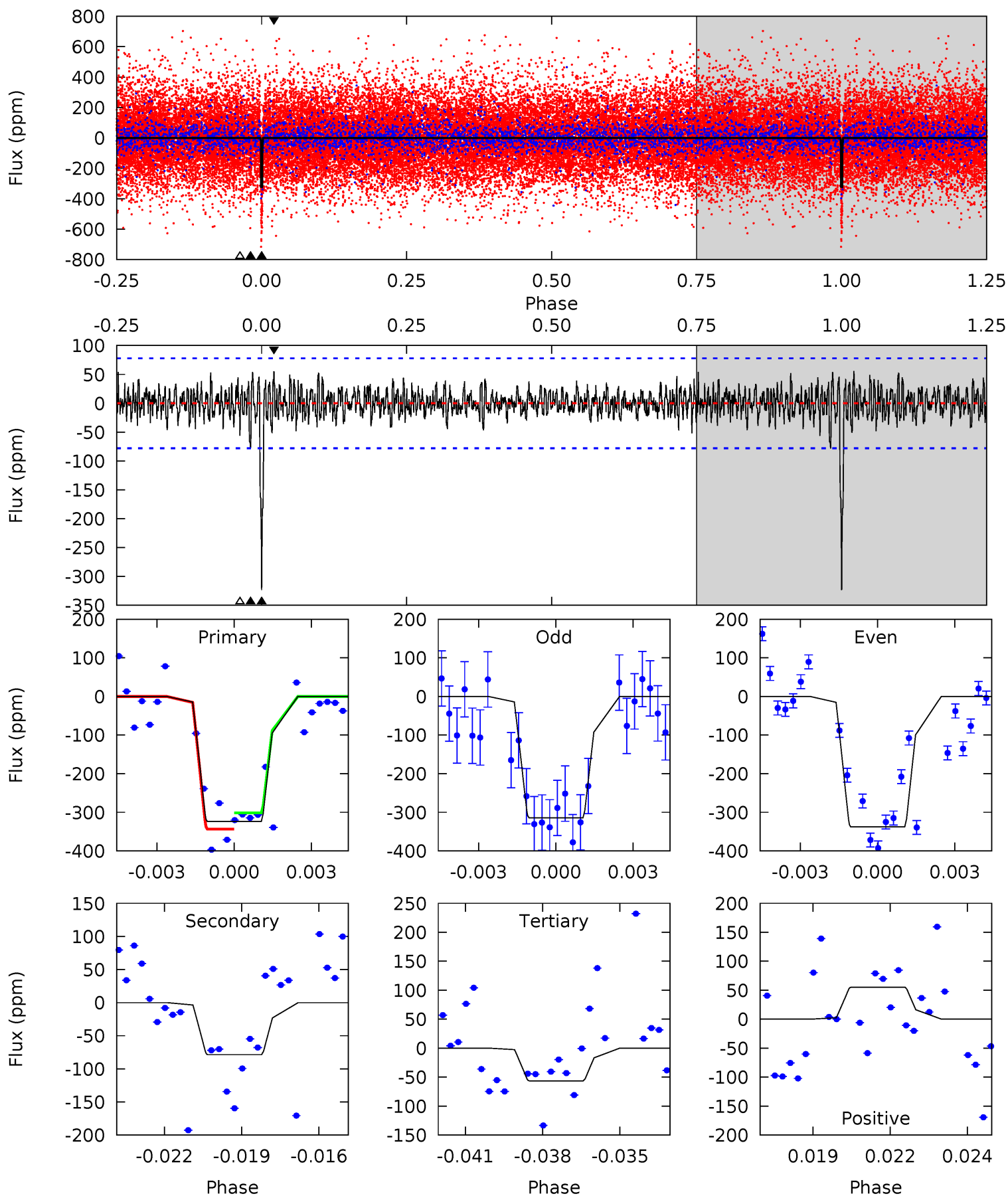
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	11.6	10.4	9.05	5.23	2.92	2.66	8.71	10.1	1.18	2.56	0.22	1.11	0.32	1.61



Alt Model-Shift Uniqueness Test

005471675-02, P = 260.970617 Days, E = 208.652269 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	5.32	3.82	3.73	5.27	3.00	1.20	18.1	18.2	1.50	1.59	0.79	0.99	0.15	1.42



Stellar Parameters For KIC 005471675

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6552^{+198}_{-198}	$3.594^{+0.340}_{-0.060}$	$-0.080^{+0.300}_{-0.250}$	$3.440^{+0.337}_{-1.347}$	$1.694^{+0.202}_{-0.347}$	$0.059^{+0.153}_{-0.012}$
	+3%/-3%	+9%/-2%	+375%/-312%	+10%/-39%	+12%/-20%	+262%/-20%
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 005471675-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-206 ± 18	$6.59^{+1.63}_{-1.69}$	751^{+38}_{-68}	5762^{+643}_{-544}	2393^{+1860}_{-856}
Alt.	-79 ± 15	$6.29^{+1.82}_{-1.66}$	752^{+37}_{-72}	4733^{+550}_{-426}	1003^{+820}_{-409}

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 $A_{obs} \gg 1.0$

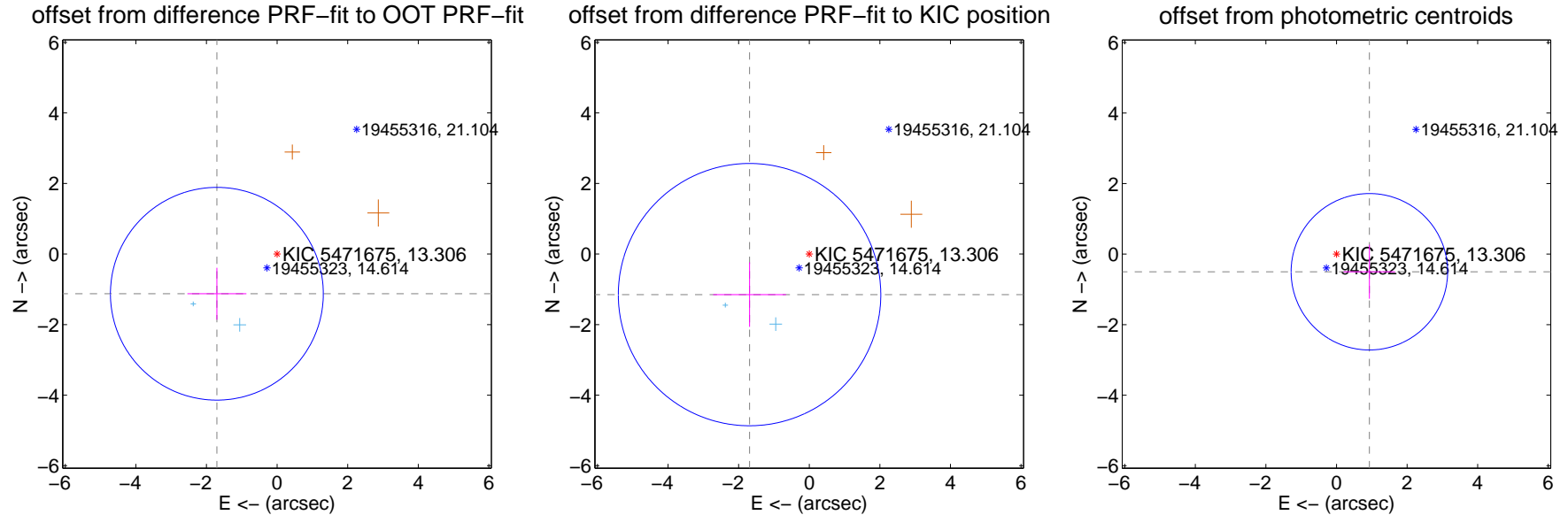
DV Centroid Data

Supplemental centroid analysis for 005471675-02. Kepler magnitude: 13.31. Transit SNR 7.74

There are 2 quarters with good PRF difference image offsets

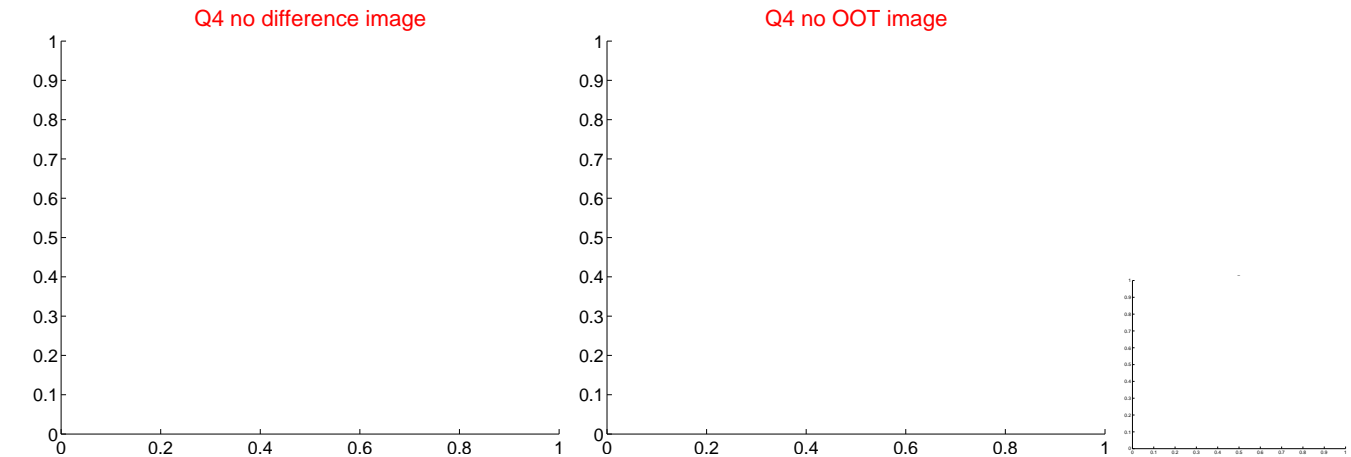
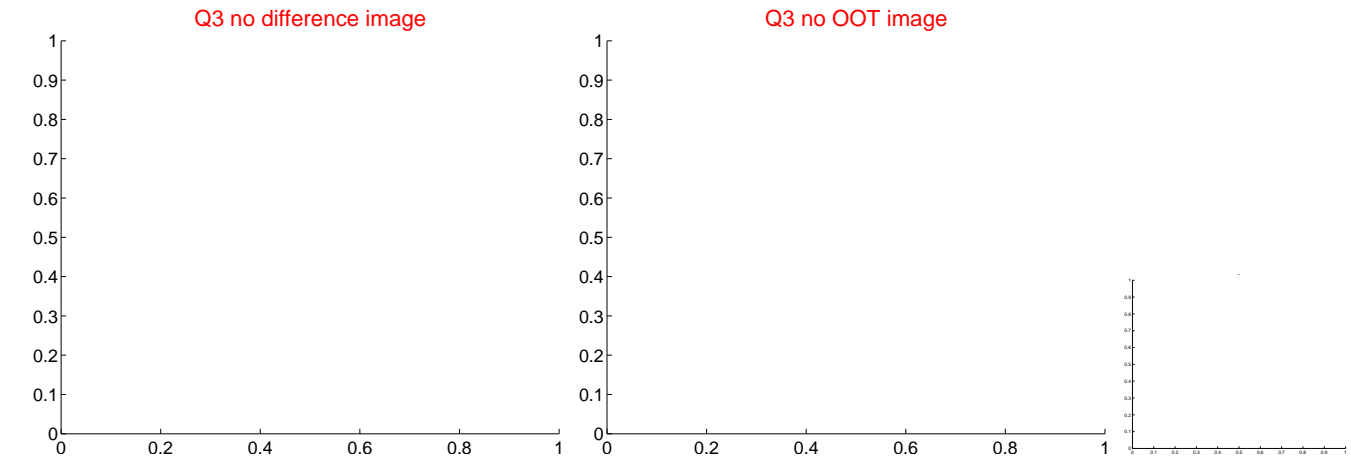
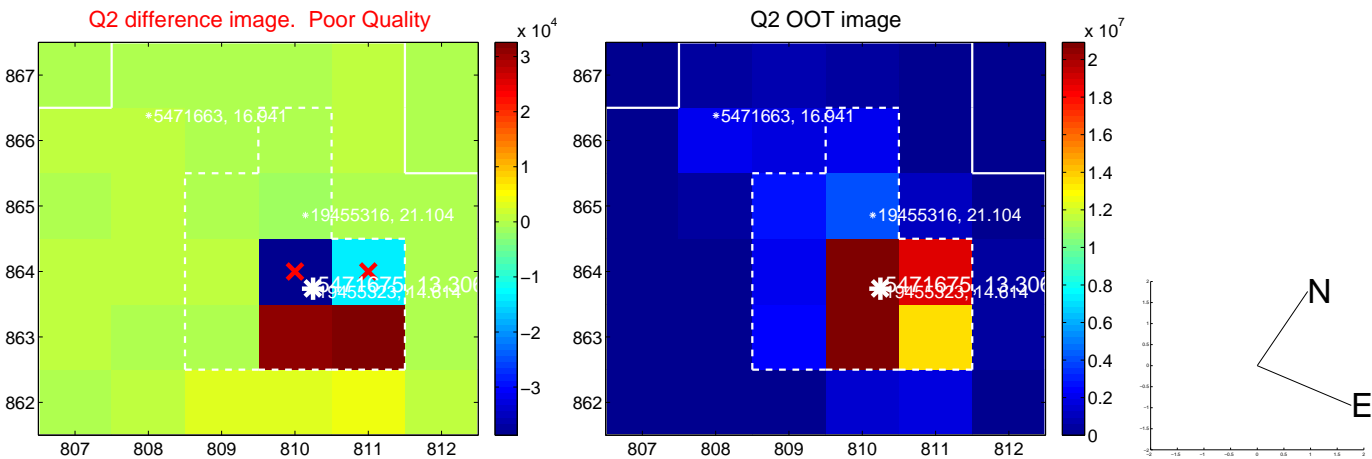
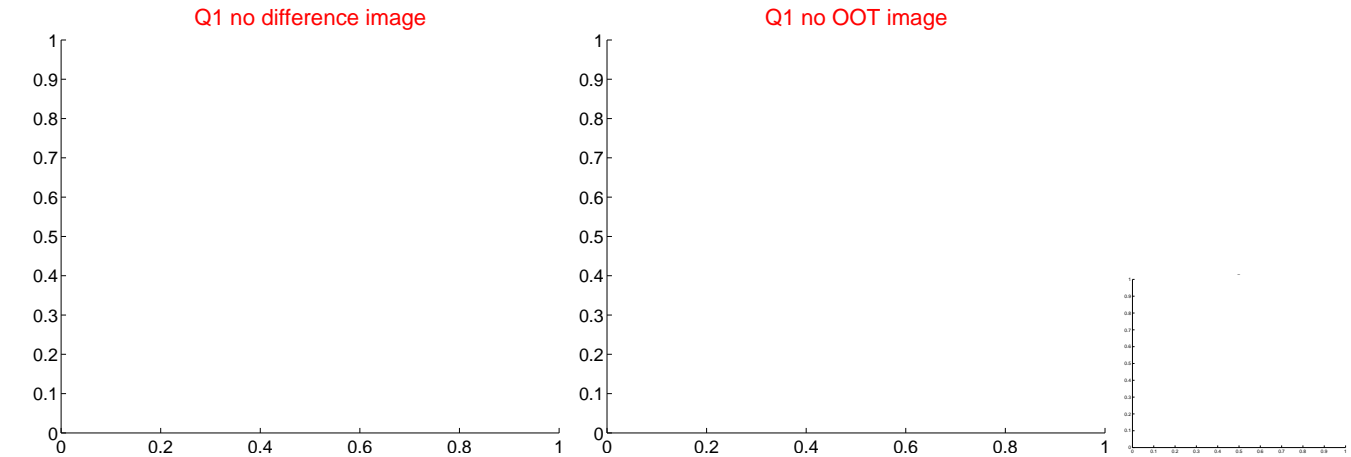
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.043 ± 1.005	2.03	1.705 ± 0.835	-1.125 ± 0.735
PRF-fit source offset from KIC position	2.045 ± 1.239	1.65	1.691 ± 1.031	-1.150 ± 0.914
photometric centroid source offset	1.06 ± 0.74	1.43	-0.93 ± 0.73	-0.50 ± 0.77

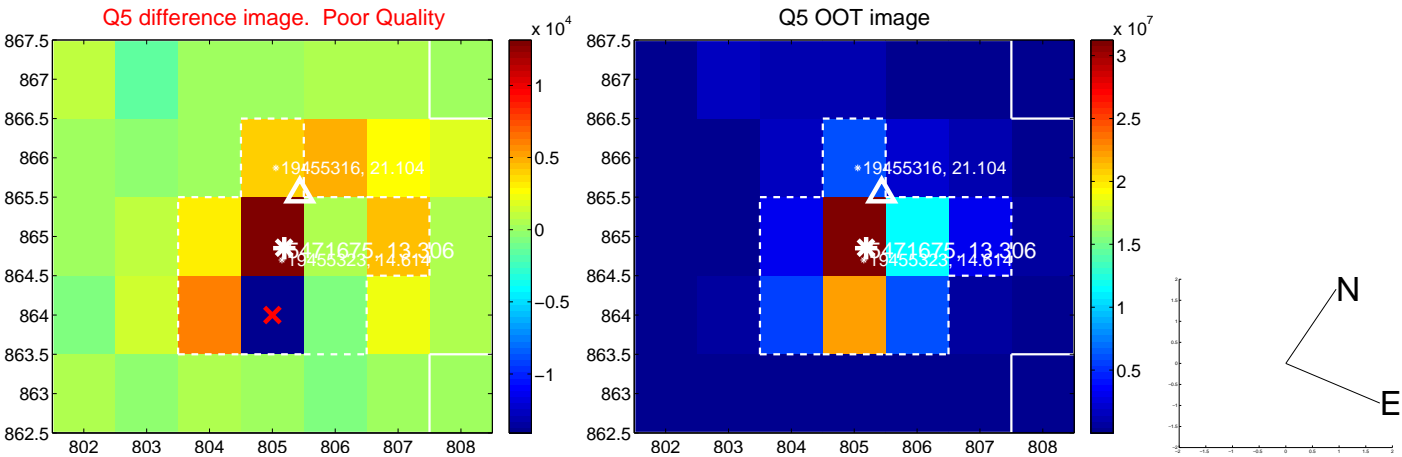


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

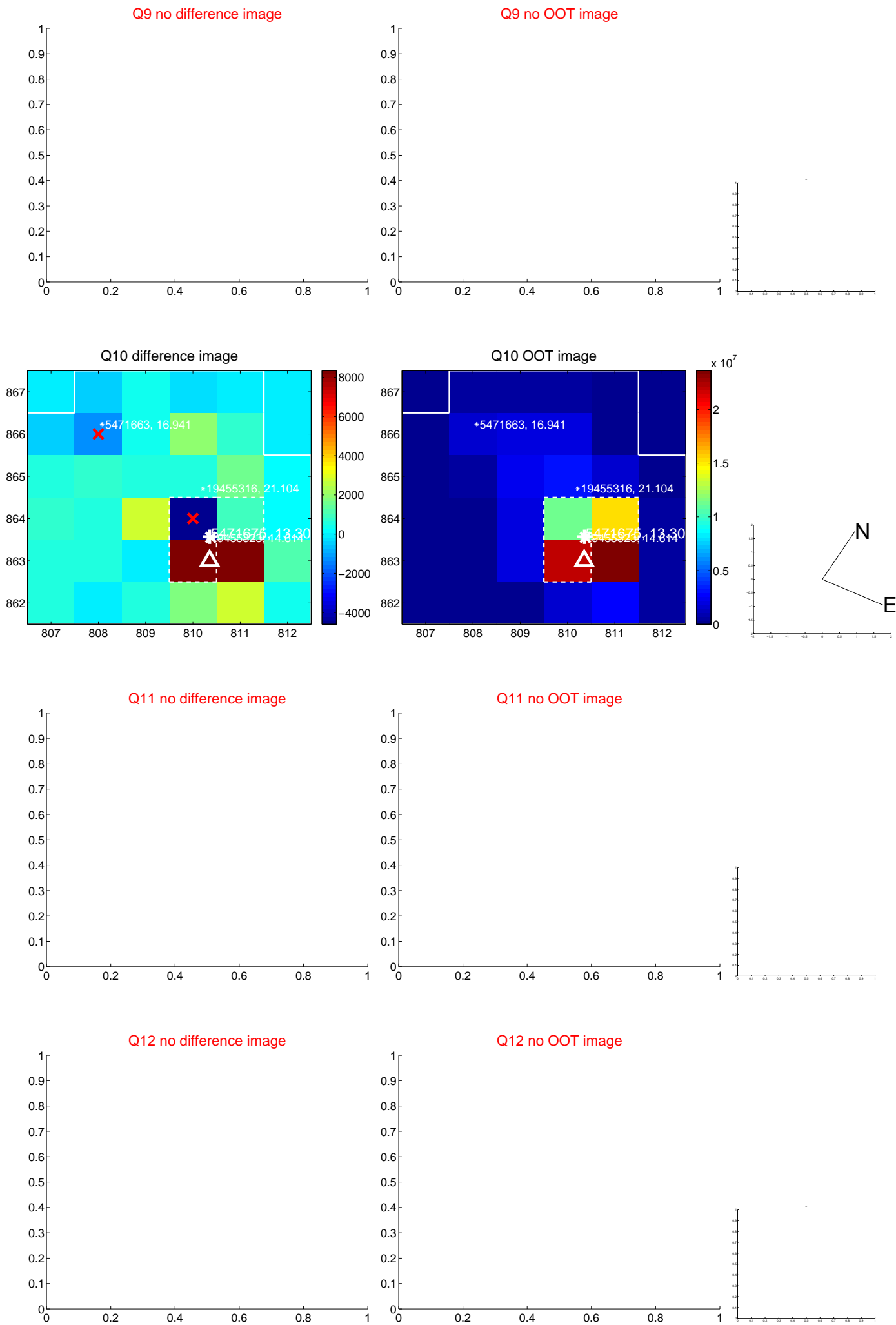
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



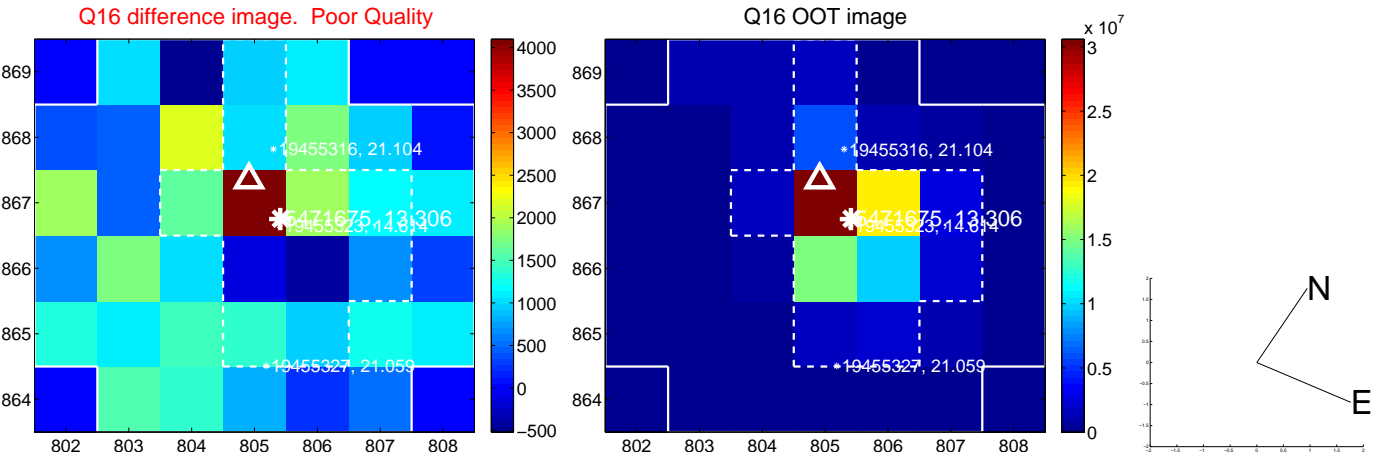
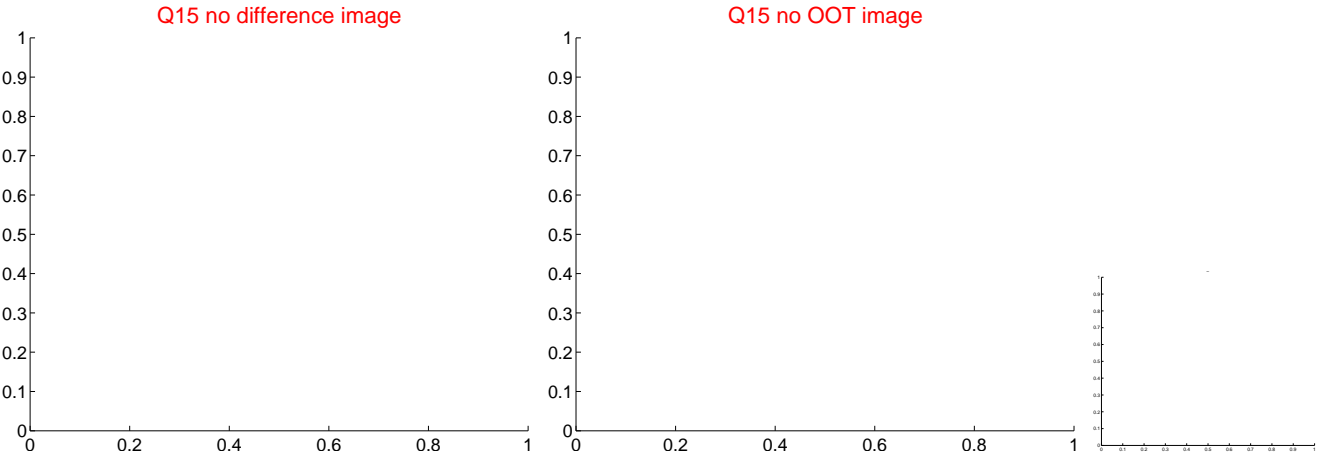
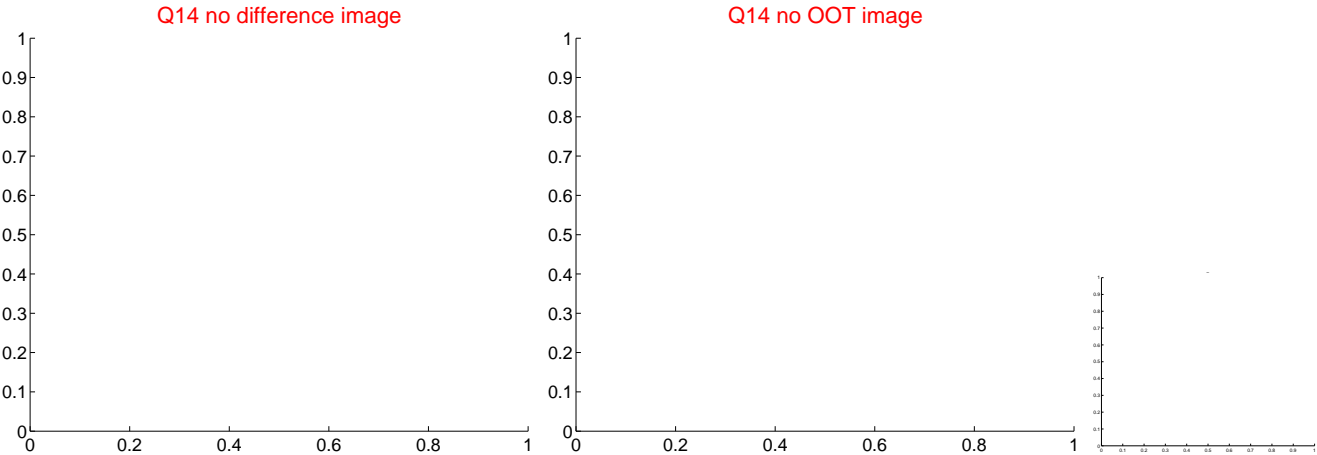
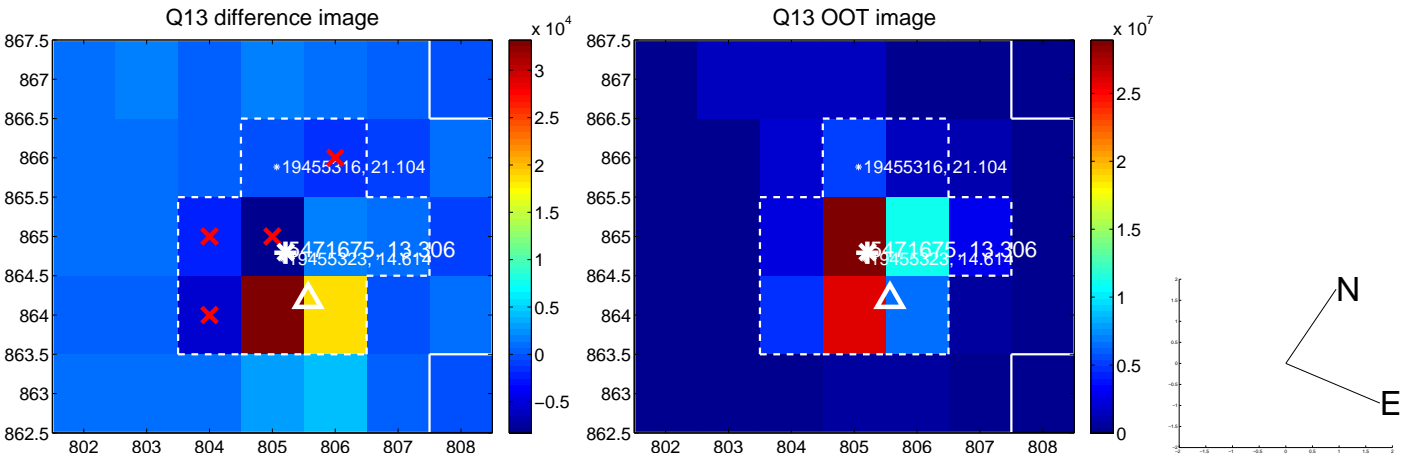
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



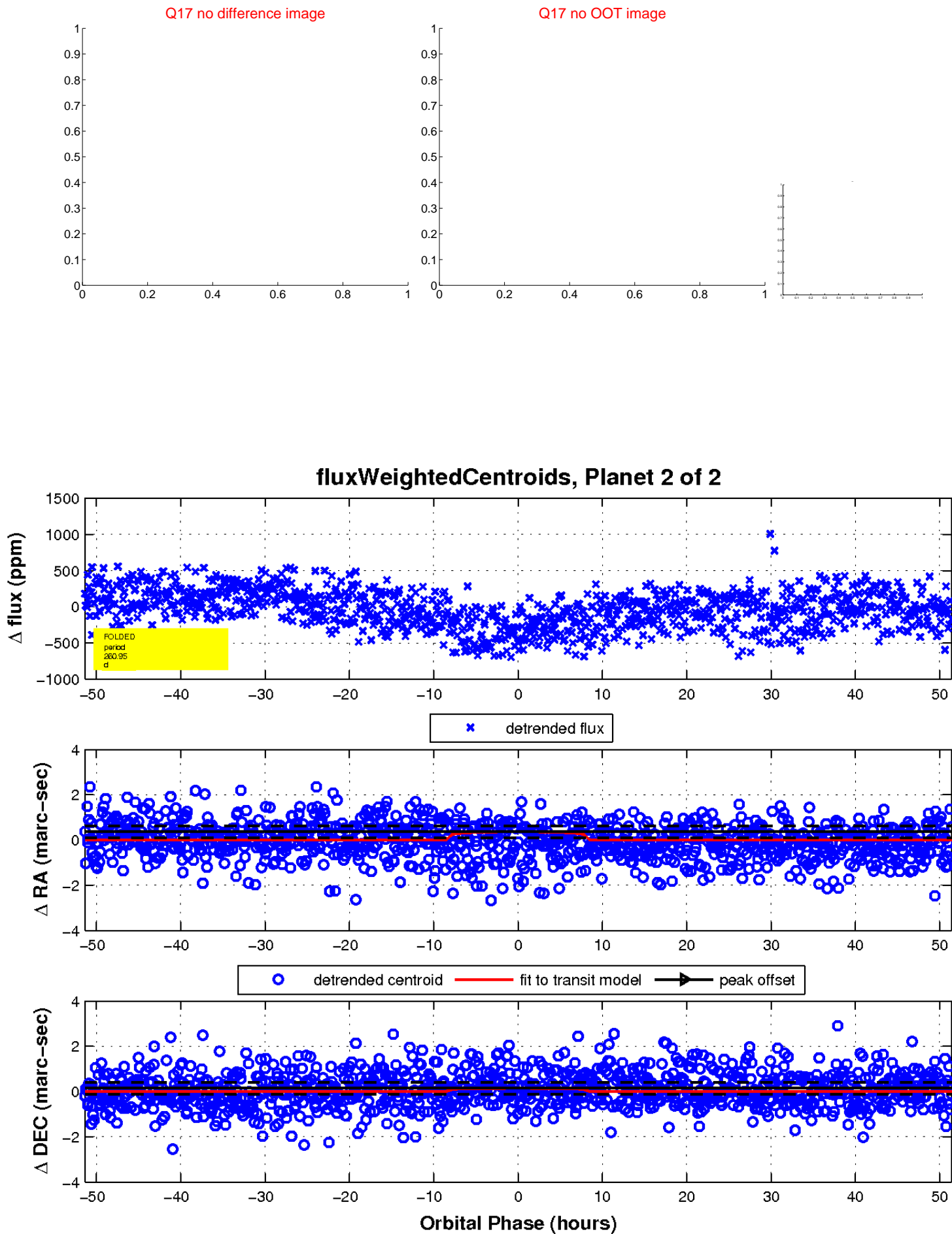
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

