

KIC 010670119

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})
010670119-01	OBS	2179.01	14.871525	137.694598	972.6	2.525	24.3	26.4	0.52	3825	1.77	5.52
010670119-02	OBS	2179.02	2.732751	132.745909	617.6	1.053	21.7	28.0	0.52	3825	1.33	52.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010670119-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010670119-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

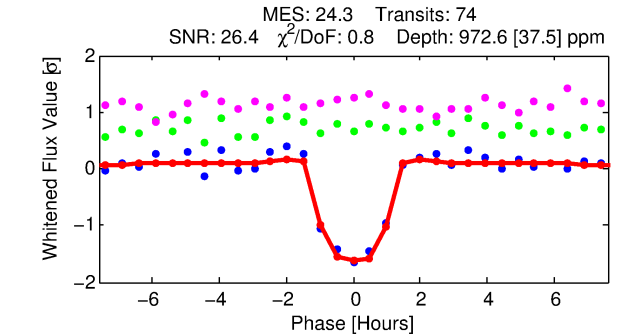
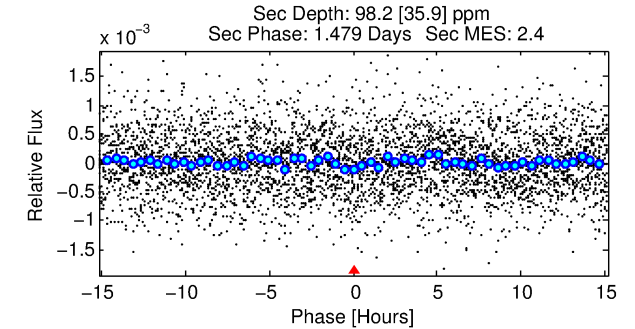
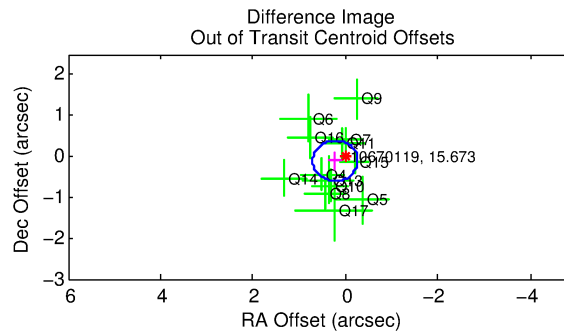
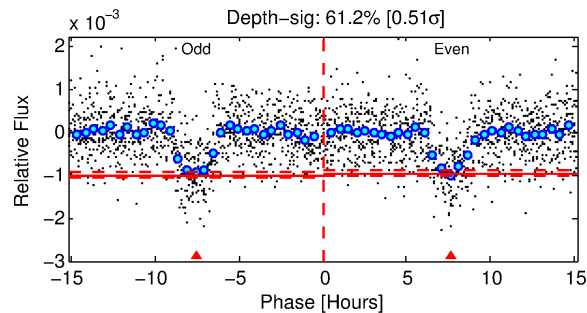
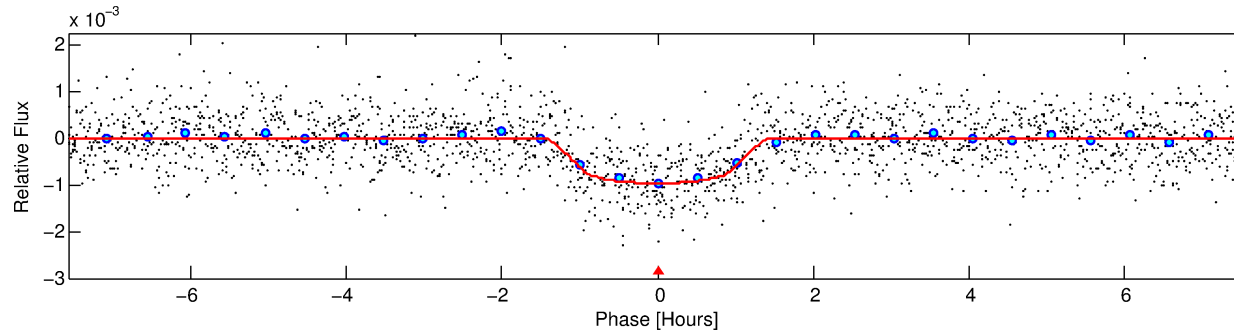
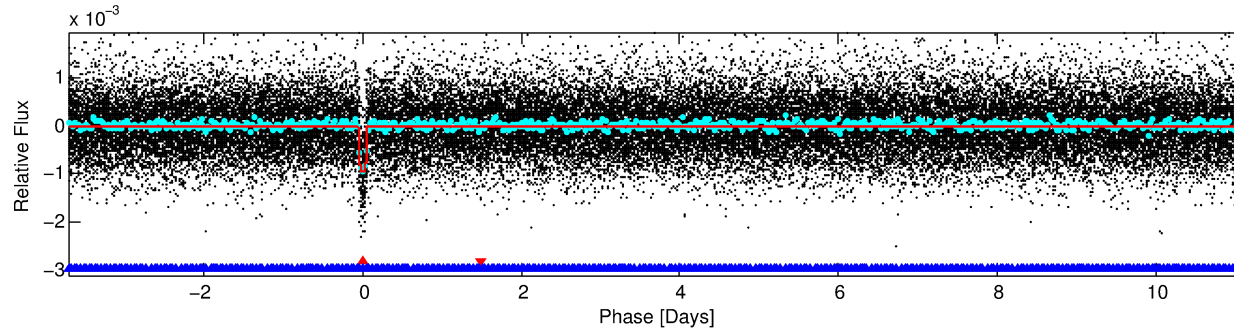
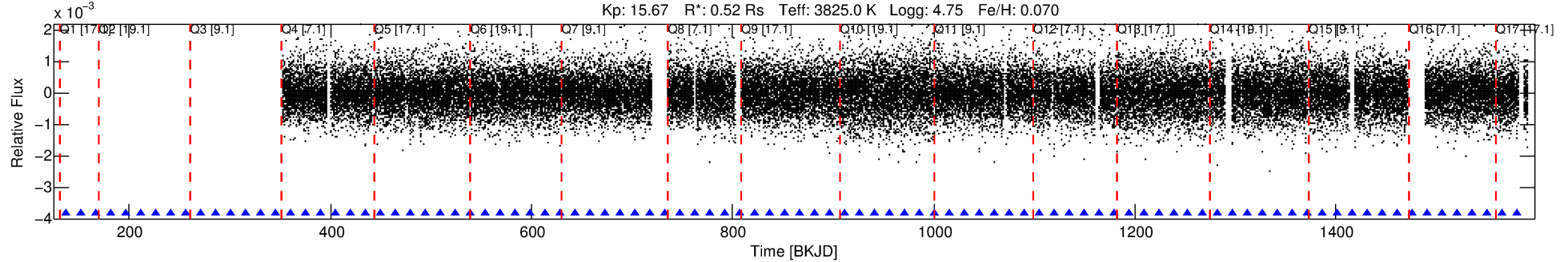
Ephemeris Match Information For 010670119-01

No Significant Match Found

DV One-Page Summary

KIC: 10670119 Candidate: 1 of 2 Period: 14.872 d
KOI: K02179.01 Name: Kepler-369c Corr: 0.989

Kp: 15.67 R*: 0.52 Rs Teff: 3825.0 K Logg: 4.75 Fe/H: 0.070



DV Fit Results:

Period = 14.87152 [0.00005] d
Epoch = 137.6946 [0.0027] BKJD
Rp/R* = 0.0310 [0.0128]
a/R* = 32.31 [54.30]
b = 0.74 [1.04]
Seff = 5.52 [0.67]
Teq = 391 [12] K
Rp = 1.77 [0.75] Re
a = 0.0977 [0.0058] AU
Ag = 164.51 [149.85] [1.09σ]
Teffp = 2164 [493] K [3.60σ]

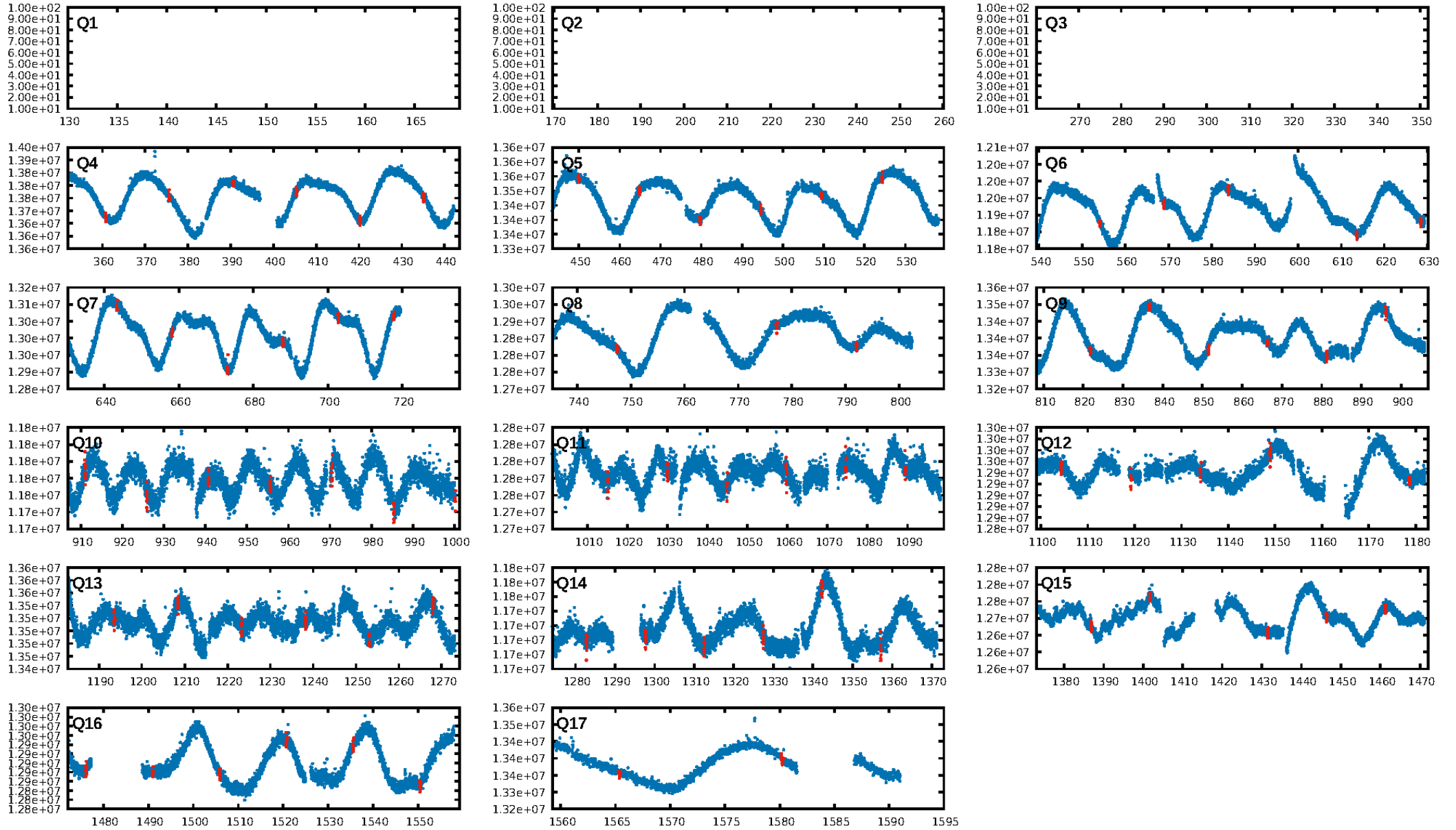
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [106.47σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.22e-127
RollingBand-fgt: 1.00 [72/72]
GhostDiagnostic-chr: 5.208
Centroid-sig: 16.4%
Centroid-so: 0.459 arcsec [1.13σ]
OotOffset-rm: 0.249 arcsec [1.52σ]
KicOffset-rm: 0.477 arcsec [2.55σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

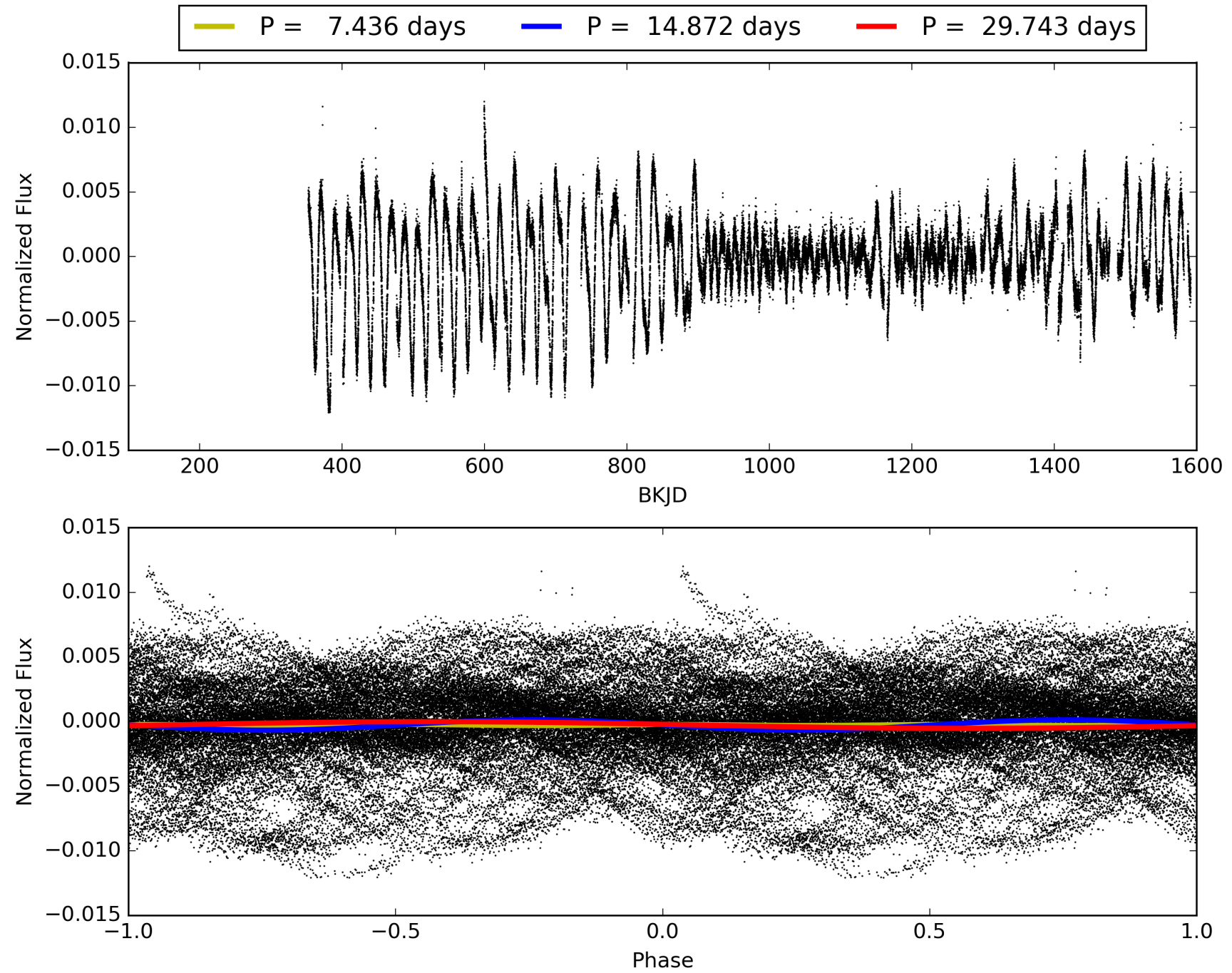
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:02:14 Z

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

TCE 010670119-01, PDC Light Curves

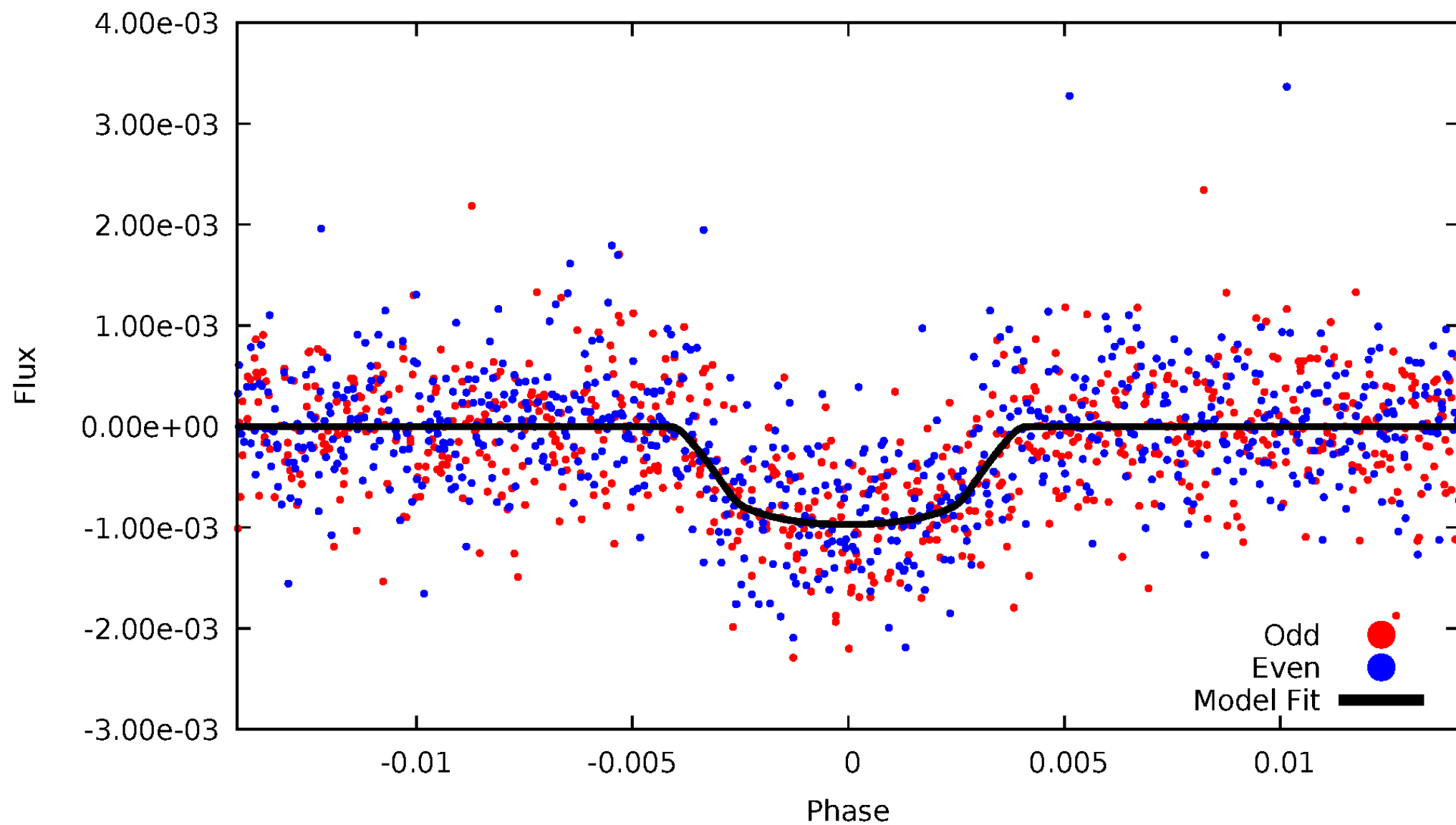


TCE 010670119-01



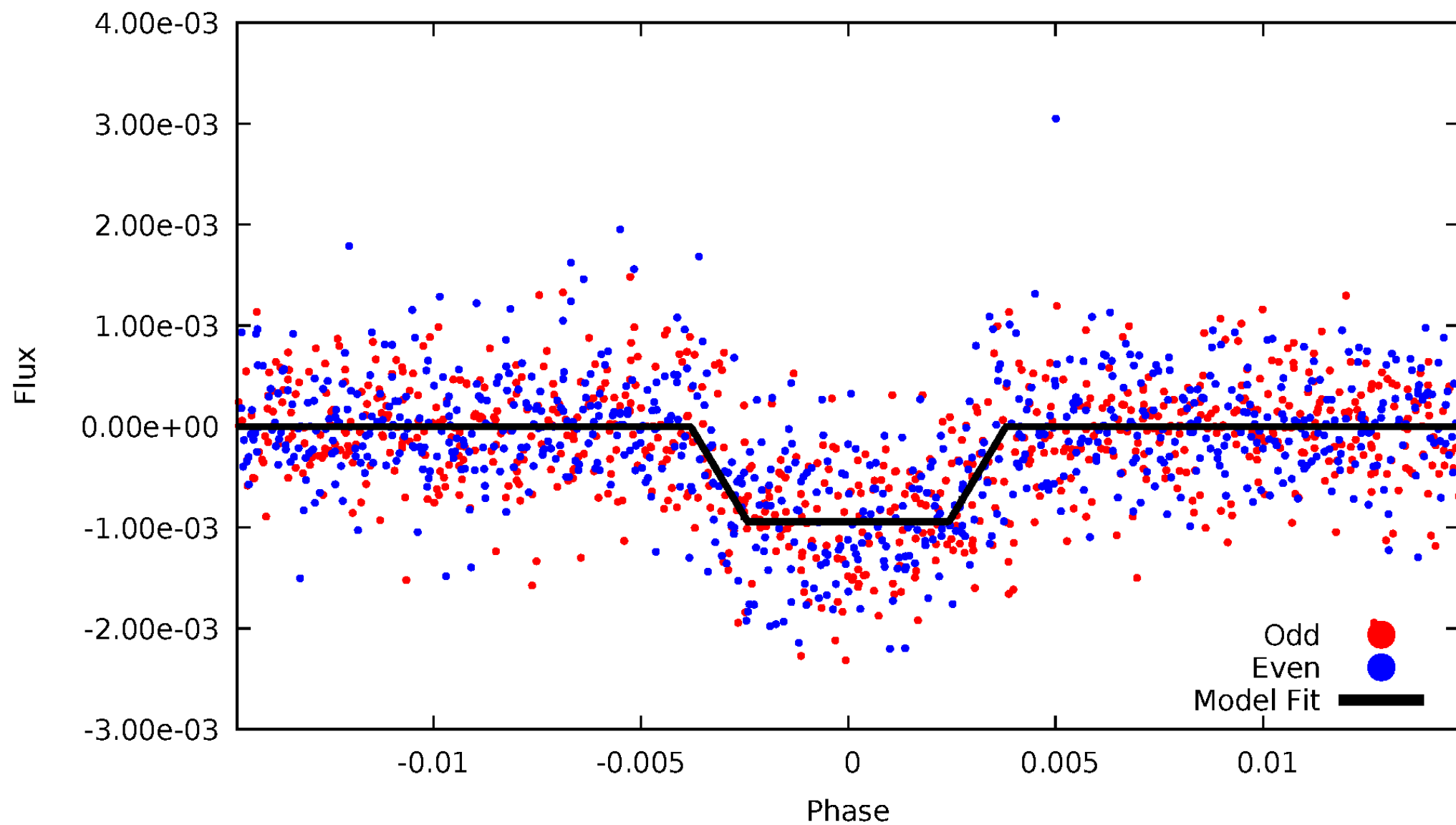
DV Odd/Even

TCE 010670119-01

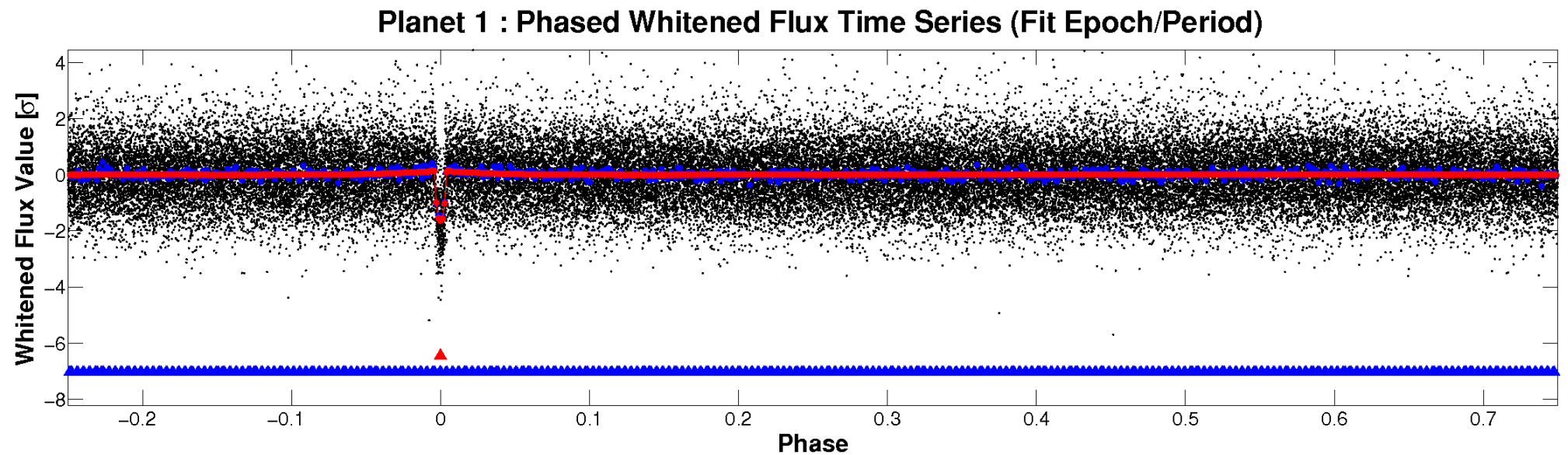
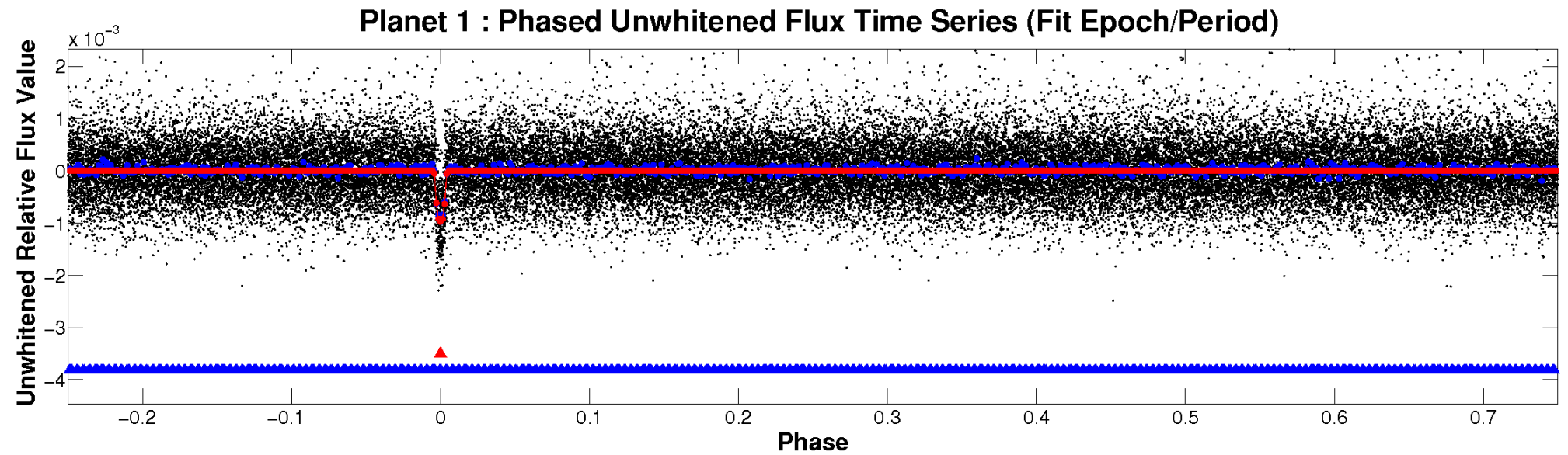


ALT Odd/Even

TCE 010670119-01

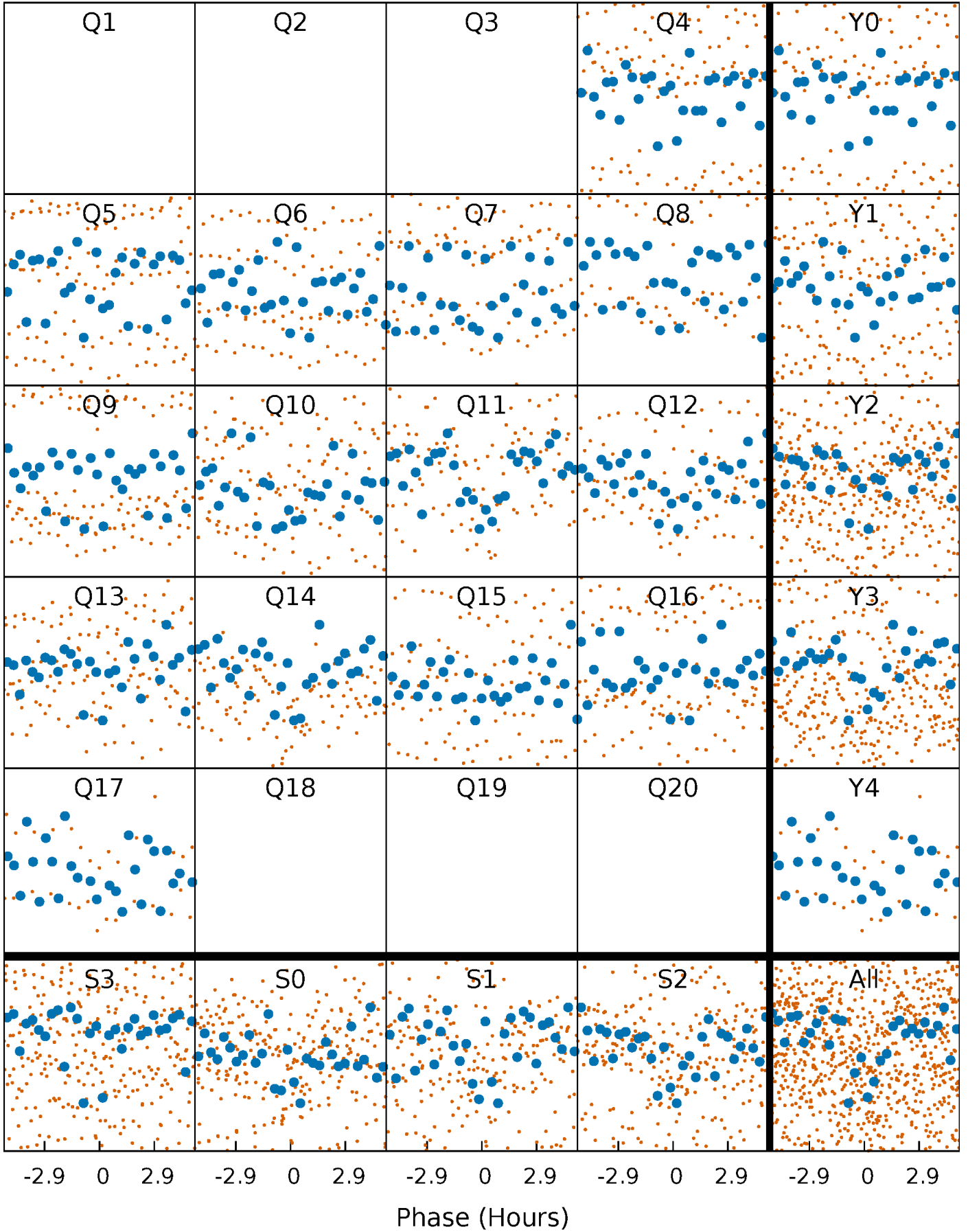


Non-Whitened Vs. Whitened Light Curve



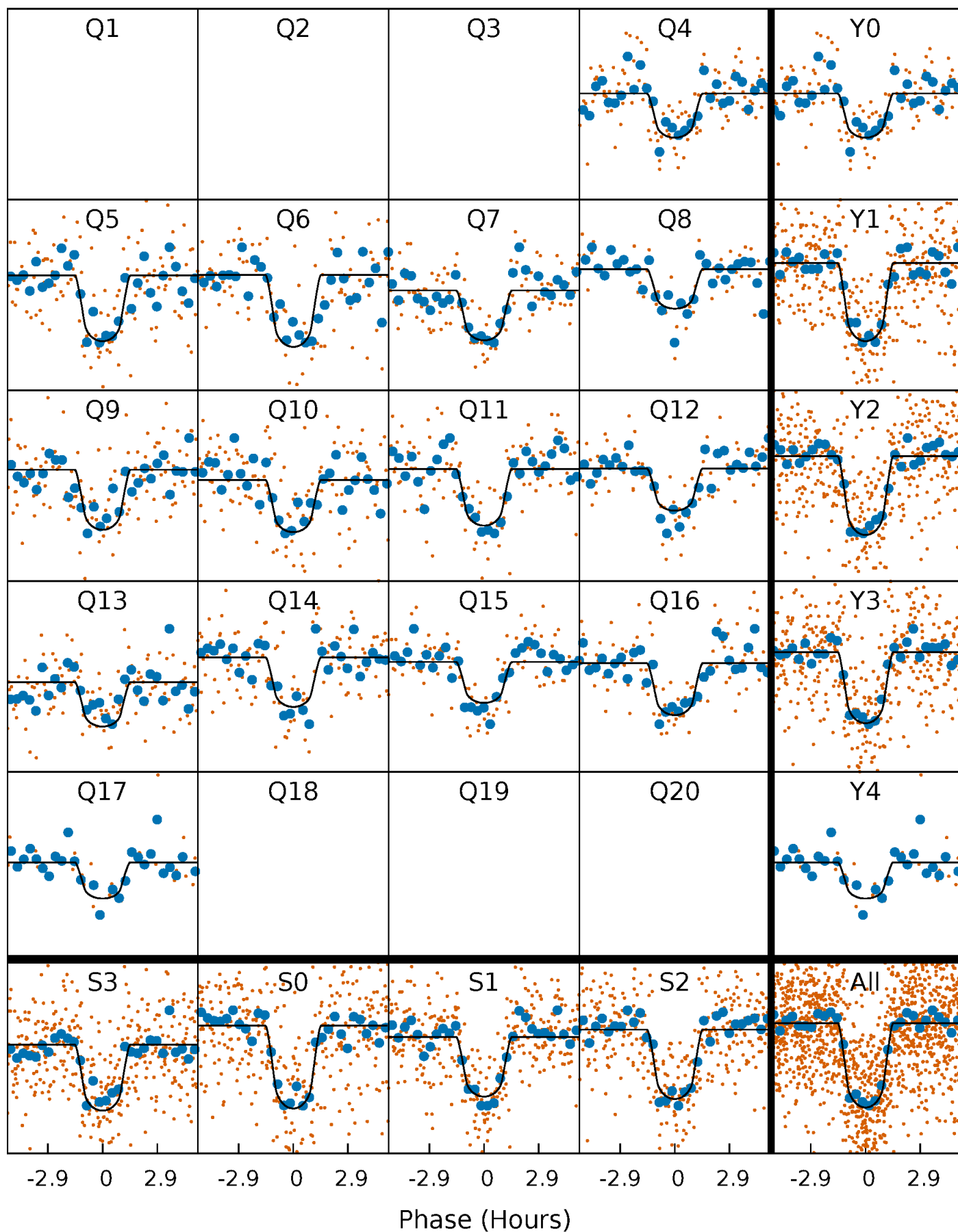
PDC Quarter-Phased Transit Curves

TCE 010670119-01 P= 14.871525 Days $T_0=137.694598$ (BKJD)



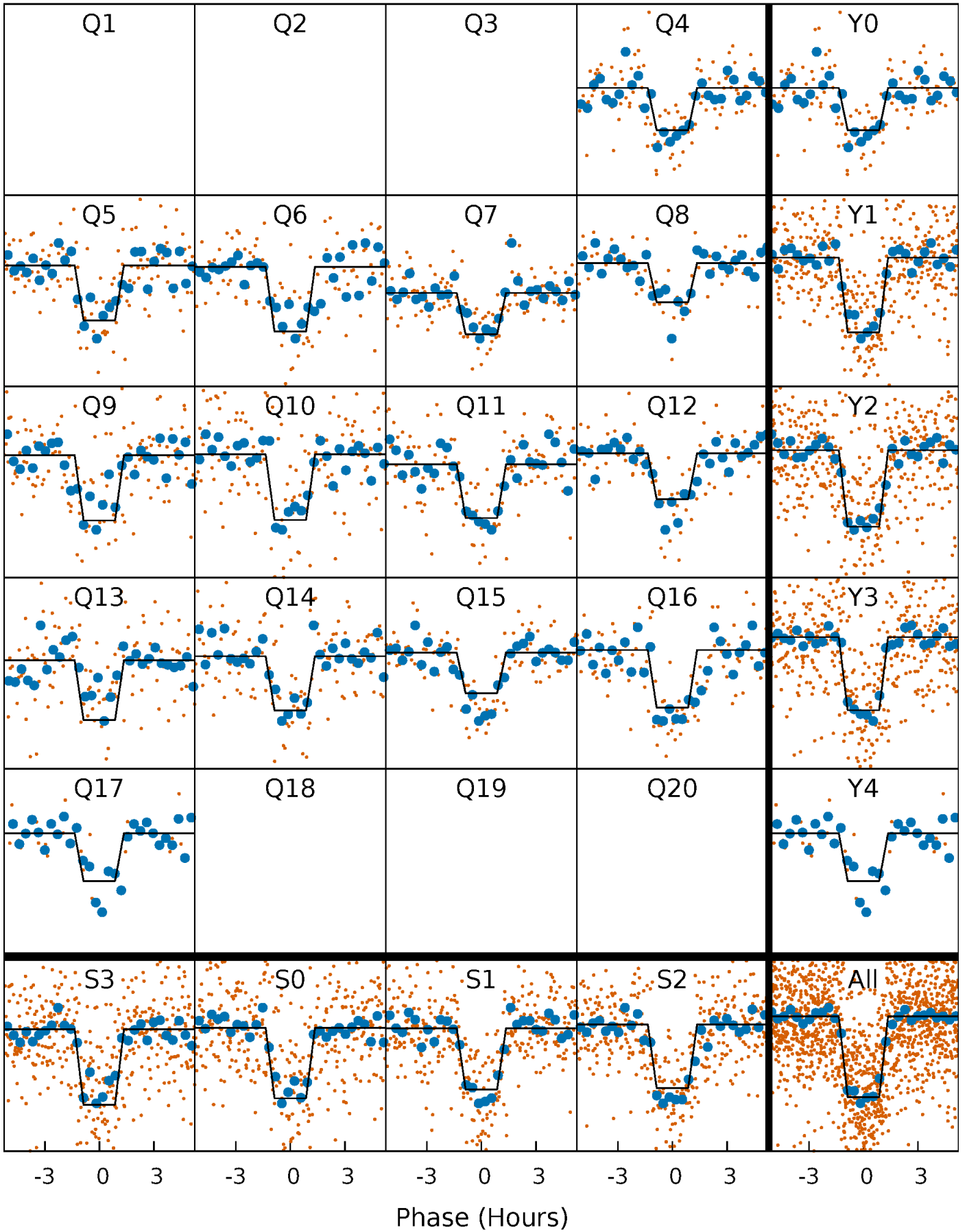
DV Quarter-Phased Transit Curves

TCE 010670119-01 P= 14.871525 Days $T_0=137.694598$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

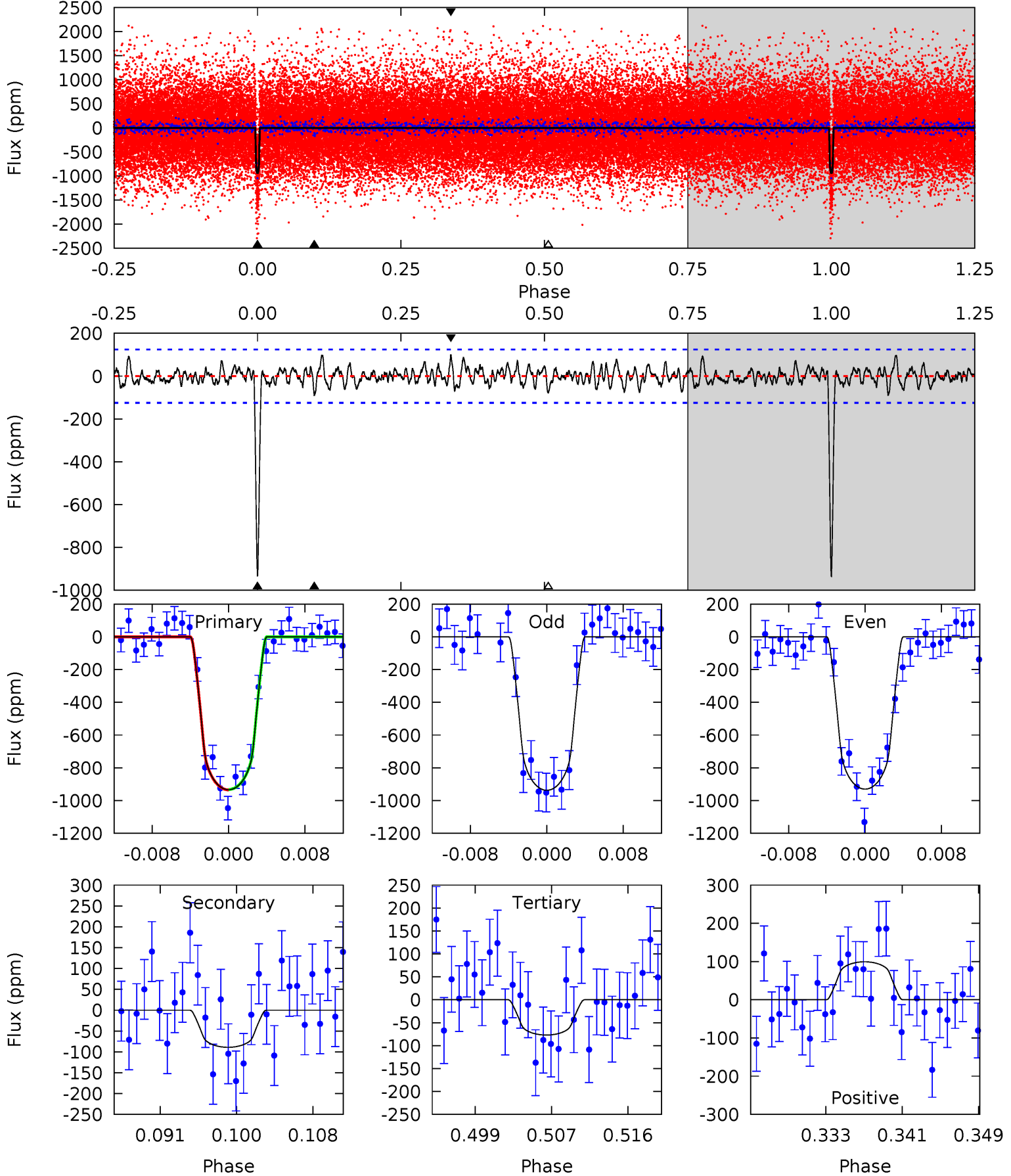
TCE 010670119-01 P= 14.871431 Days $T_0=137.699772$ (BKJD)



DV Model-Shift Uniqueness Test

010670119-01, P = 14.871525 Days, E = 137.694598 Days

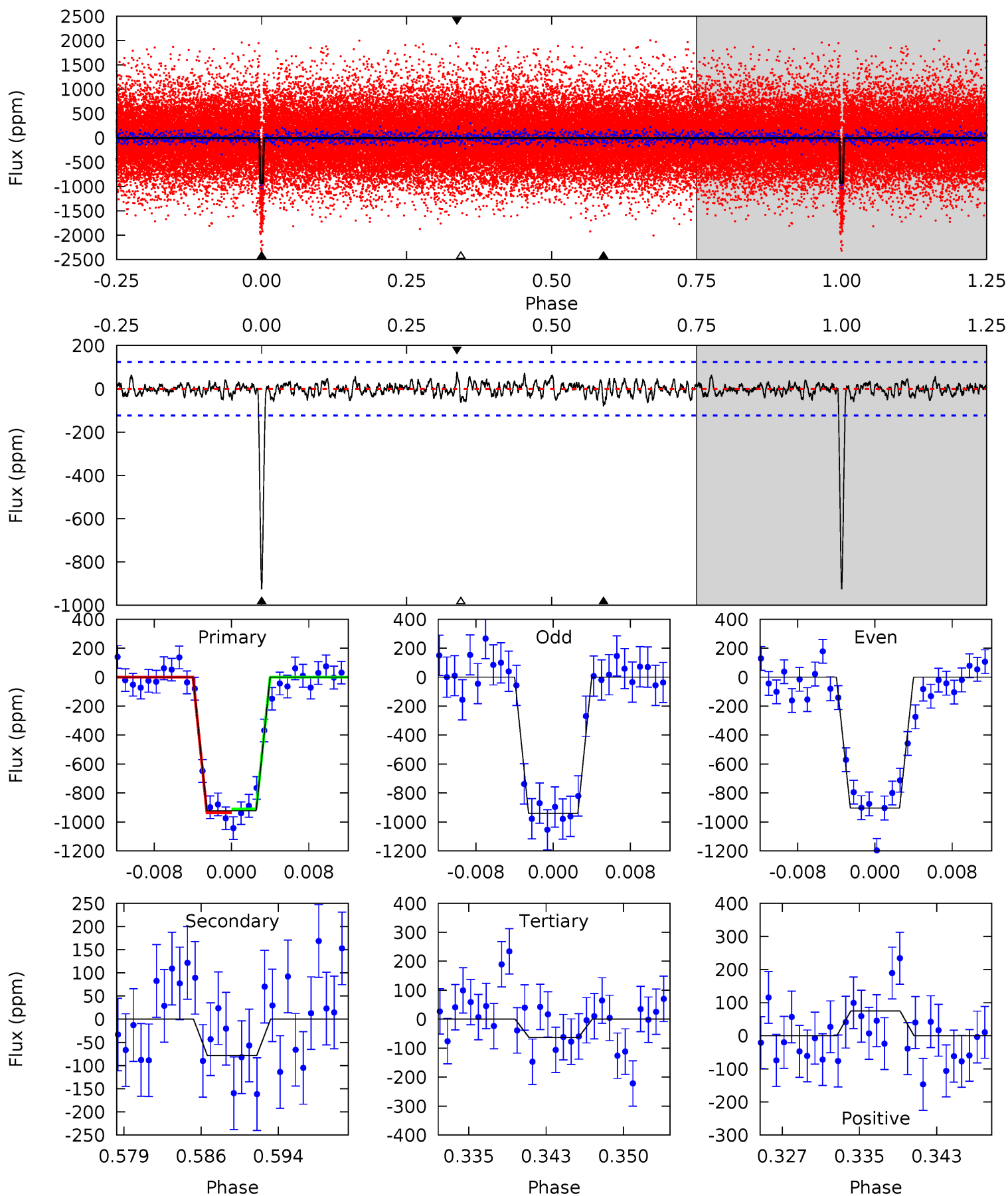
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.9	3.62	3.12	4.04	5.06	2.64	1.26	34.8	33.9	0.49	-0.42	0.15	0.99	0.10	0.05



Alt Model-Shift Uniqueness Test

010670119-01, P = 14.871431 Days, E = 137.699772 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
38.0	3.23	2.60	3.07	5.08	2.67	0.96	35.4	34.9	0.63	0.16	0.76	1.03	0.07	0.51



Stellar Parameters For KIC 010670119

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3825^{+76}_{-84}	$4.749^{+0.028}_{-0.044}$	$0.070^{+0.150}_{-0.150}$	$0.524^{+0.038}_{-0.034}$	$0.561^{+0.032}_{-0.040}$	$5.503^{+0.790}_{-0.832}$
	+2%/-2%	+1%/-1%	+214%/-214%	+7%/-6%	+6%/-7%	+14%/-15%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 010670119-01 / KOI 2179.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-89 ± 25	$1.82^{+0.73}_{-0.73}$	548^{+14}_{-14}	2678^{+400}_{-239}	140^{+257}_{-73}
Alt.	-79 ± 24	$1.79^{+0.71}_{-0.79}$	549^{+14}_{-14}	2651^{+483}_{-257}	131^{+323}_{-74}

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

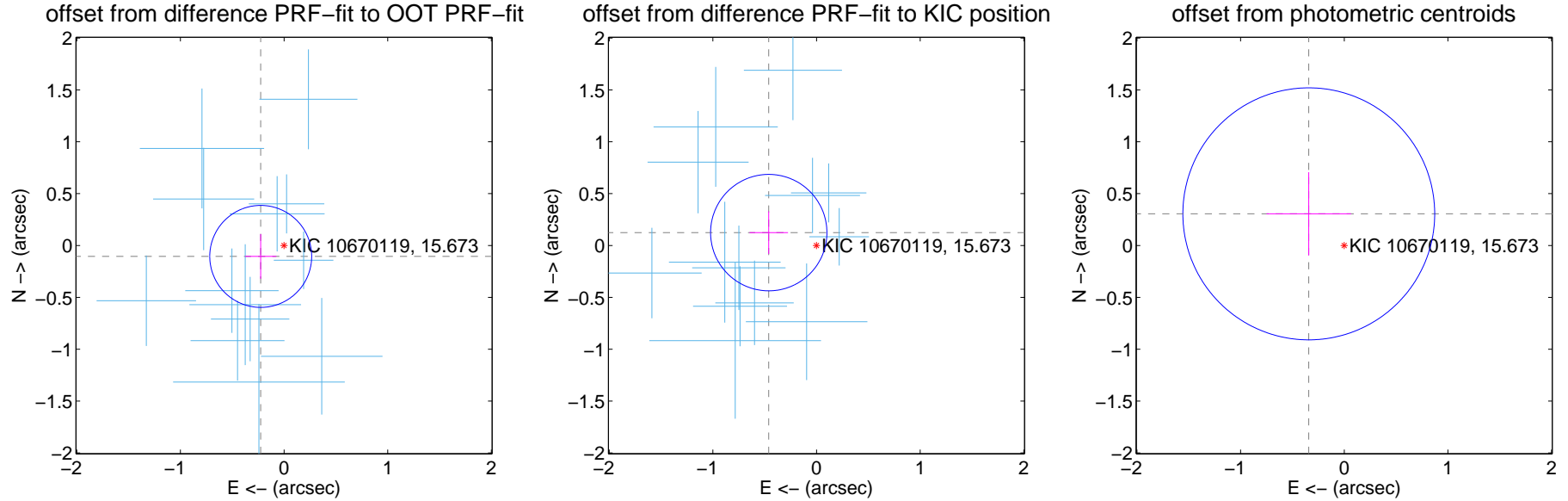
DV Centroid Data

Supplemental centroid analysis for 010670119-01. Kepler magnitude: 15.67. Transit SNR 26.40

There are 13 quarters with good PRF difference image offsets

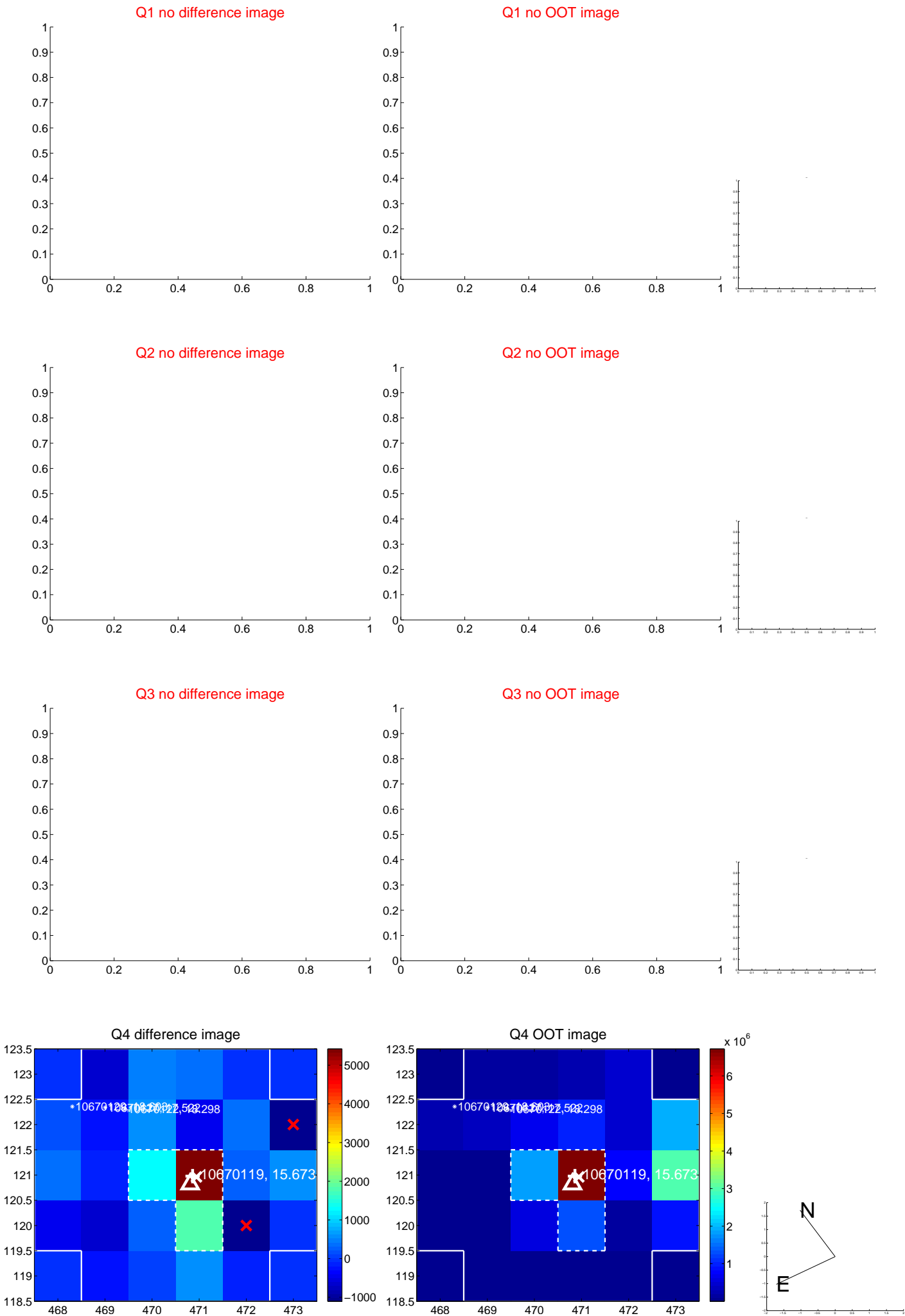
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.249 ± 0.164	1.52	0.225 ± 0.150	-0.105 ± 0.215
PRF-fit source offset from KIC position	0.477 ± 0.187	2.55	0.461 ± 0.186	0.124 ± 0.206
photometric centroid source offset	0.46 ± 0.41	1.13	0.34 ± 0.41	0.31 ± 0.40

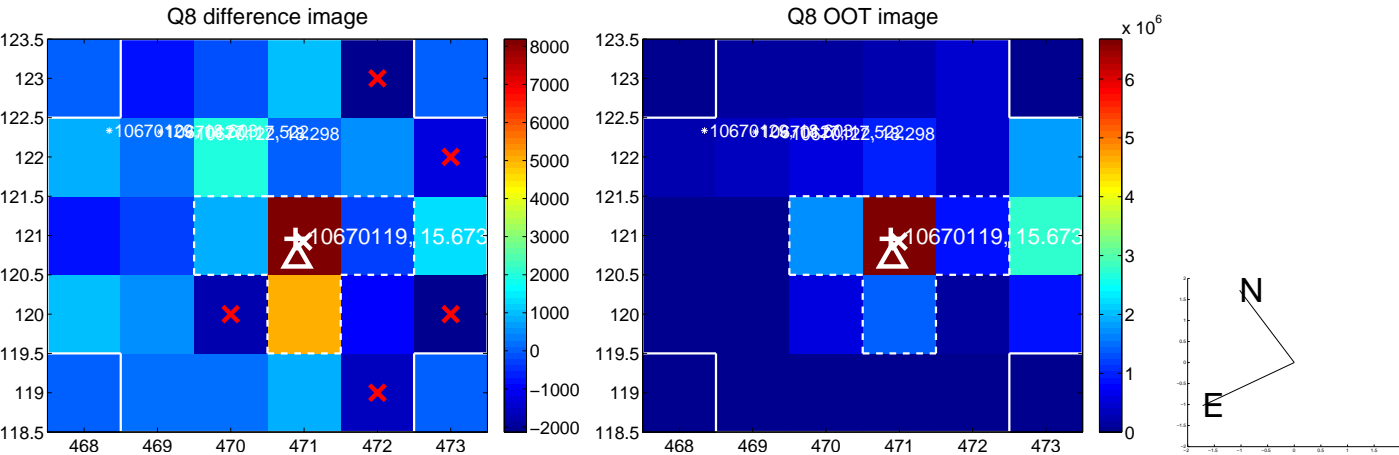
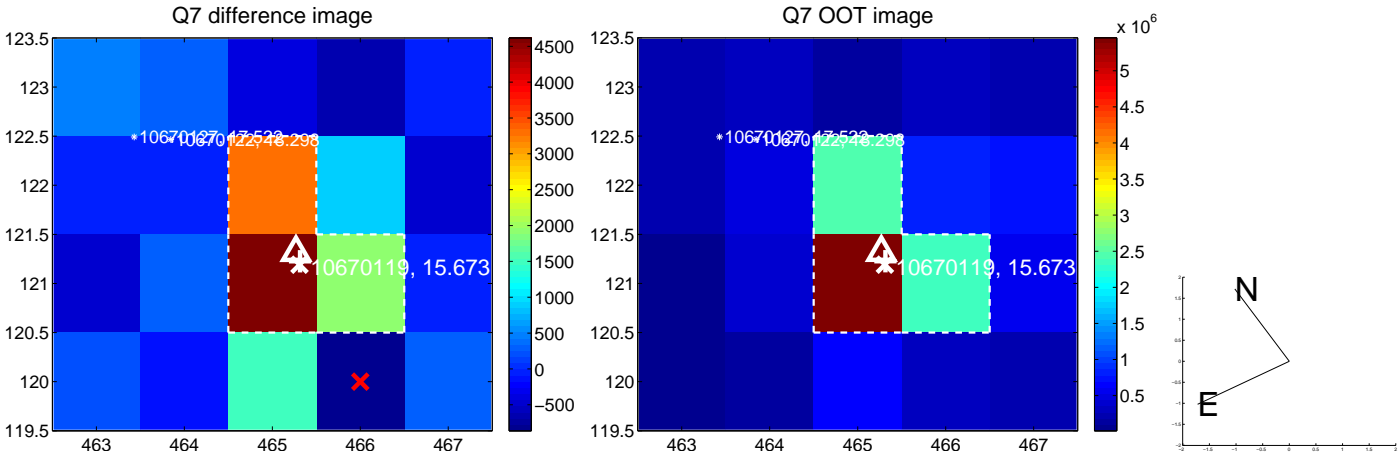
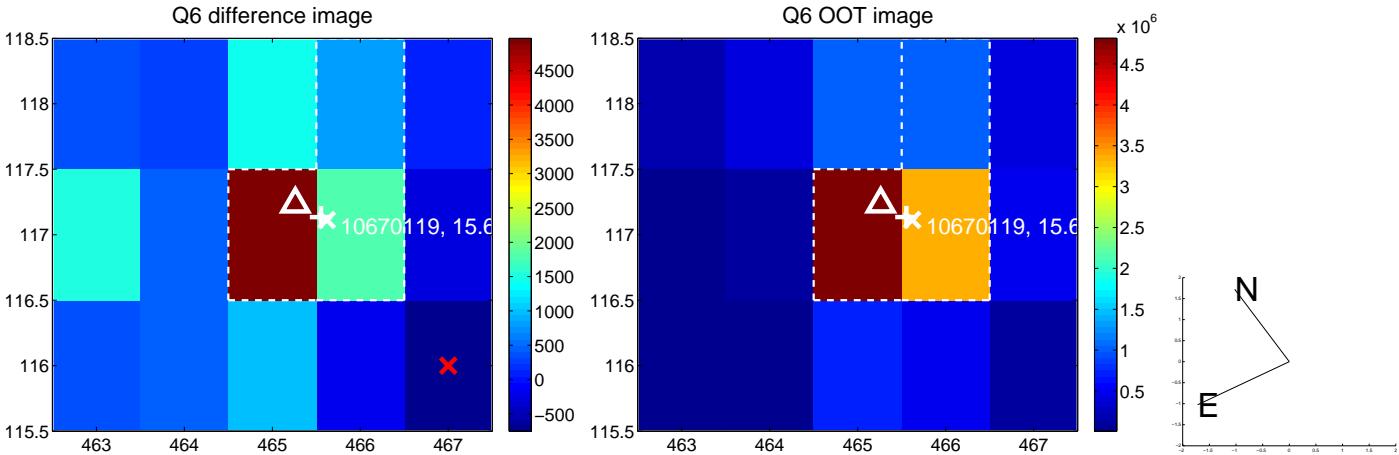
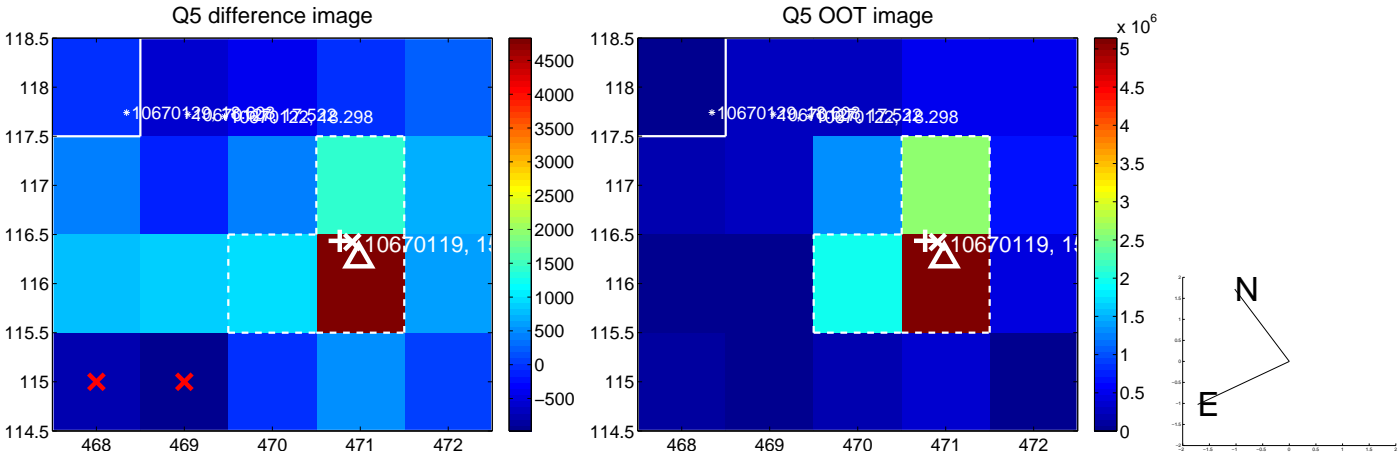


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

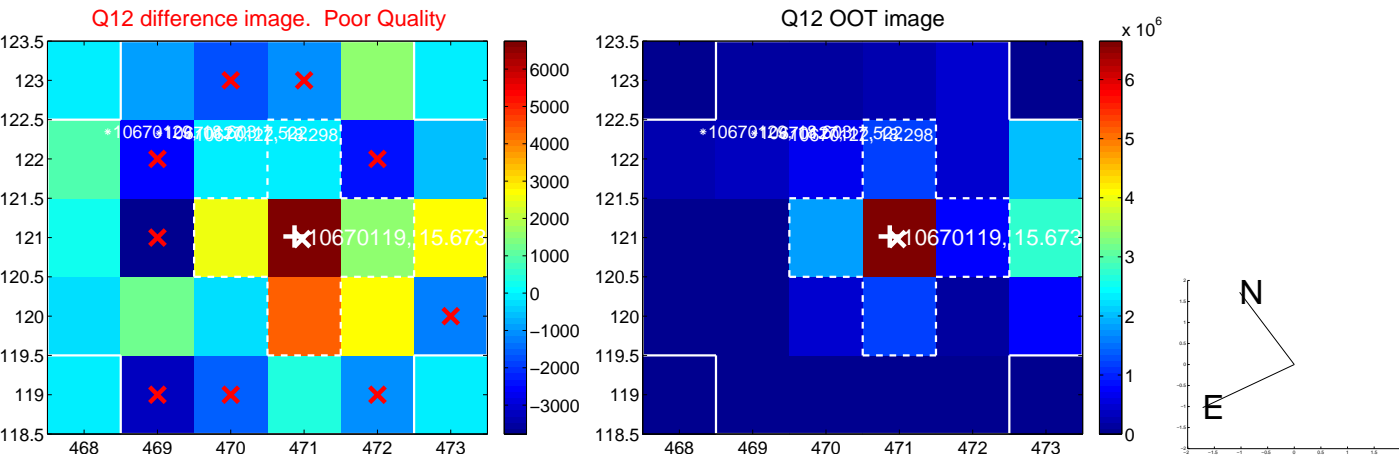
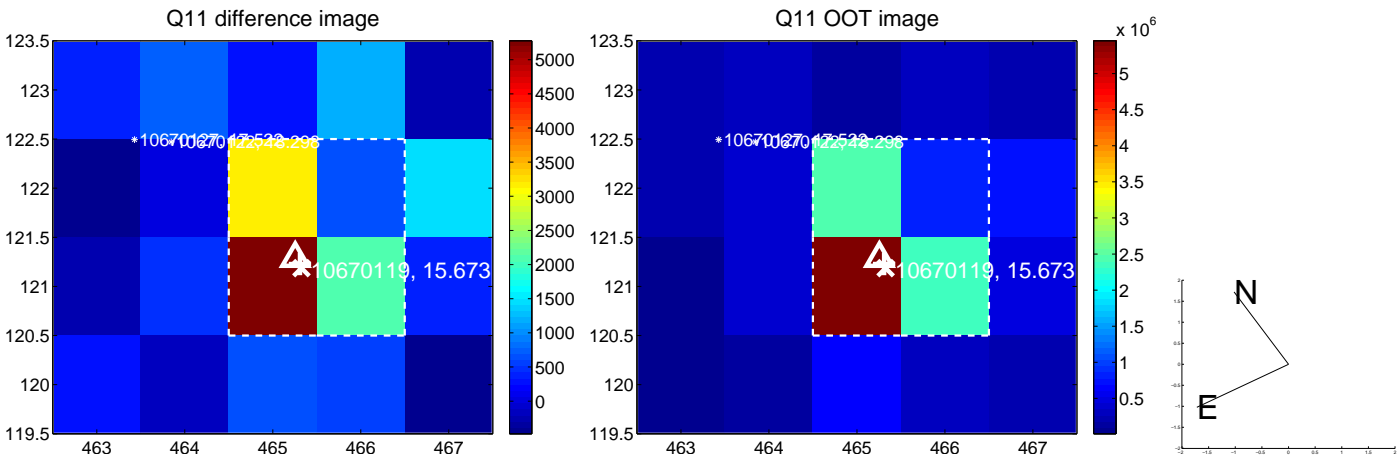
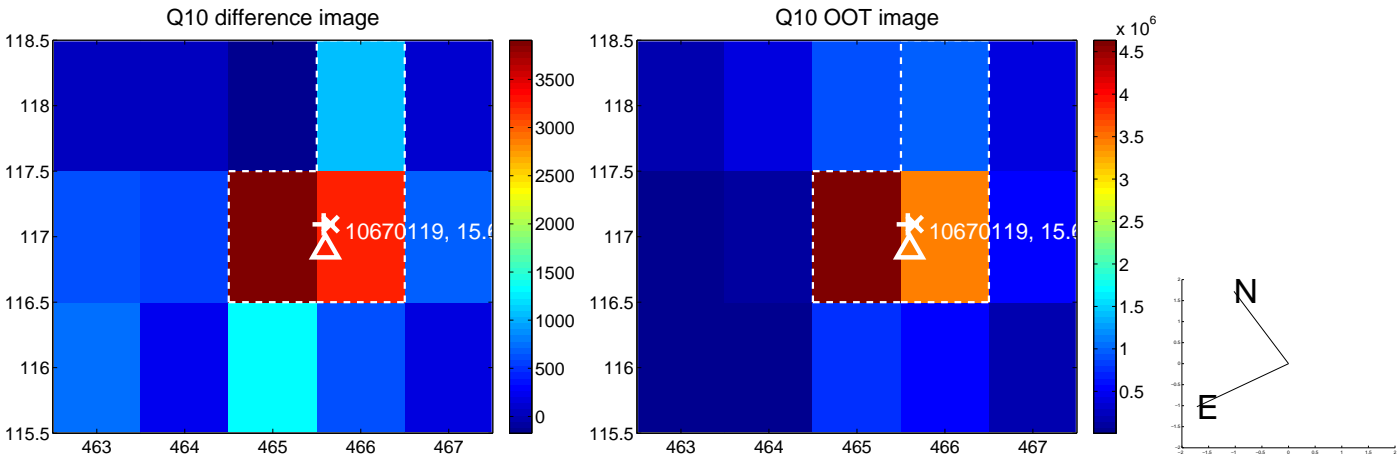
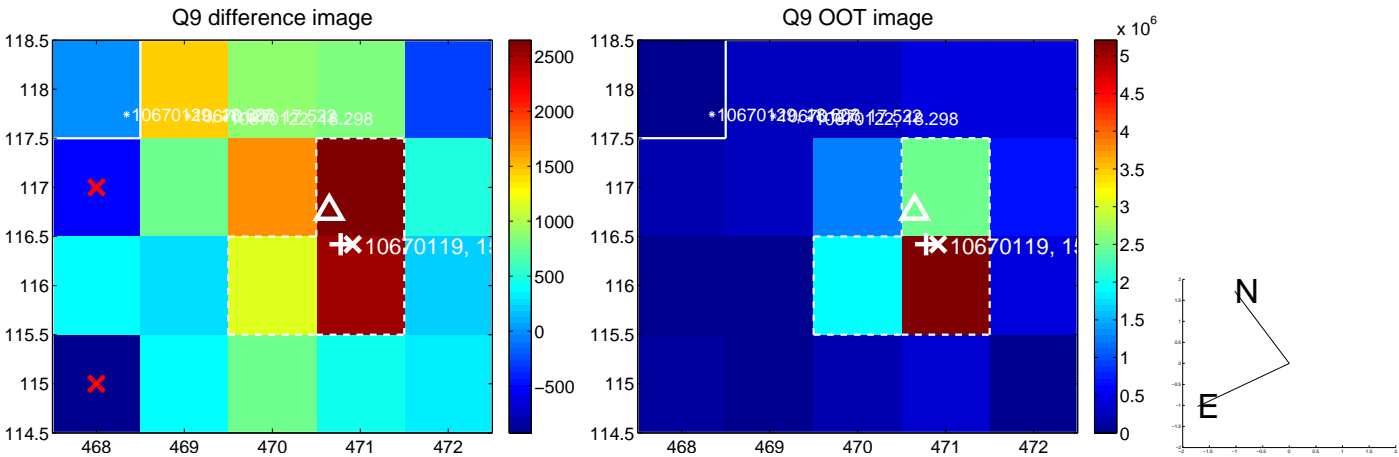
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



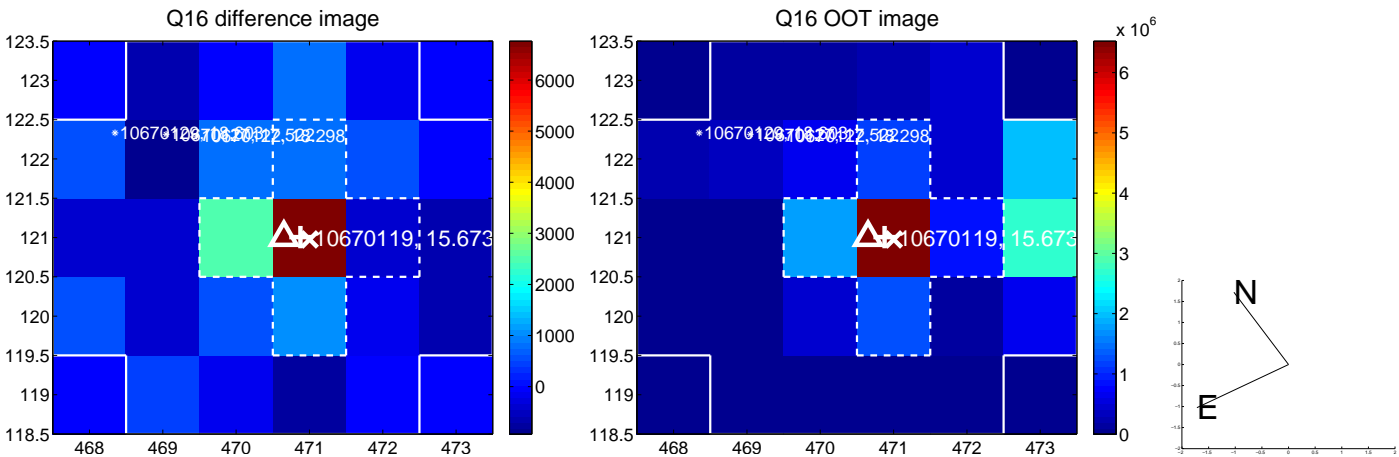
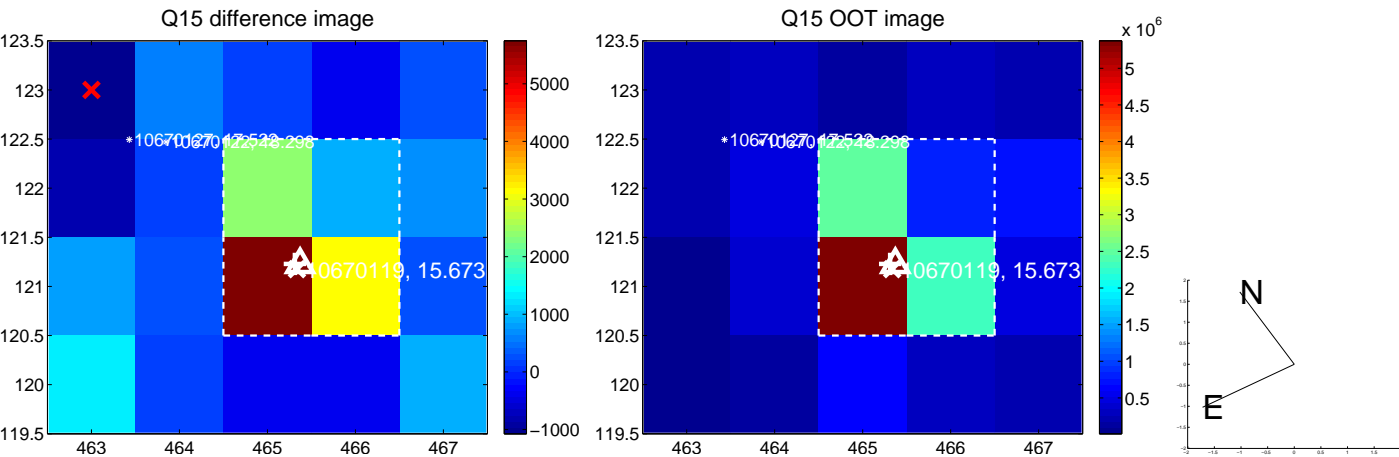
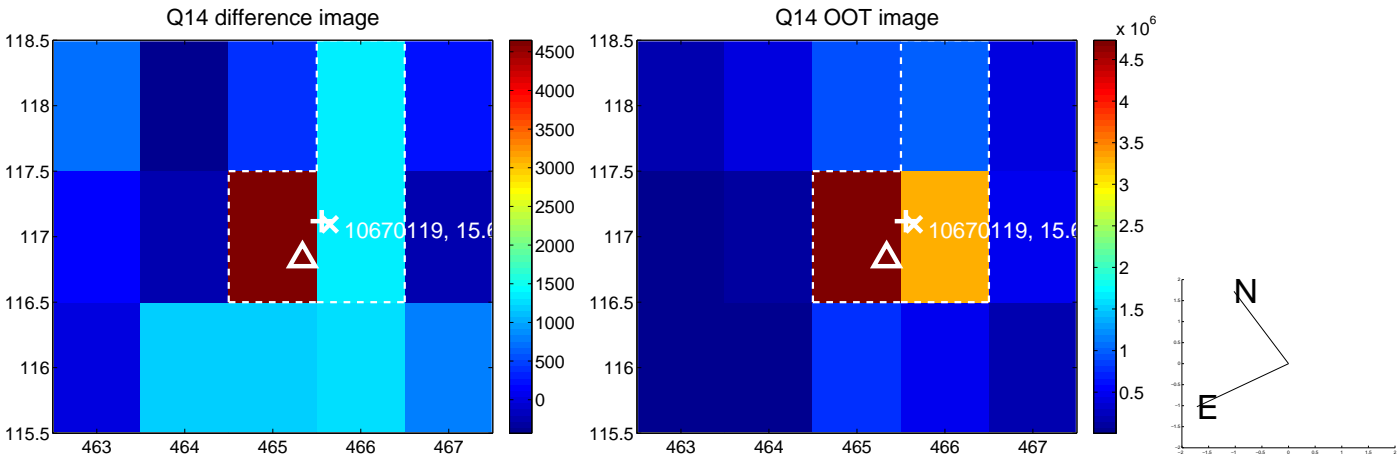
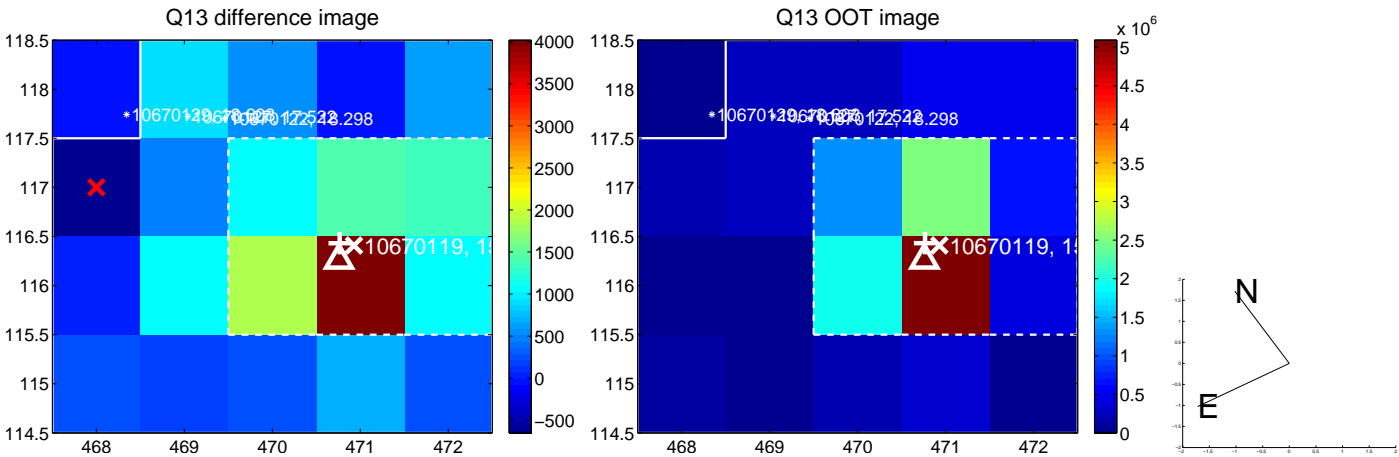
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



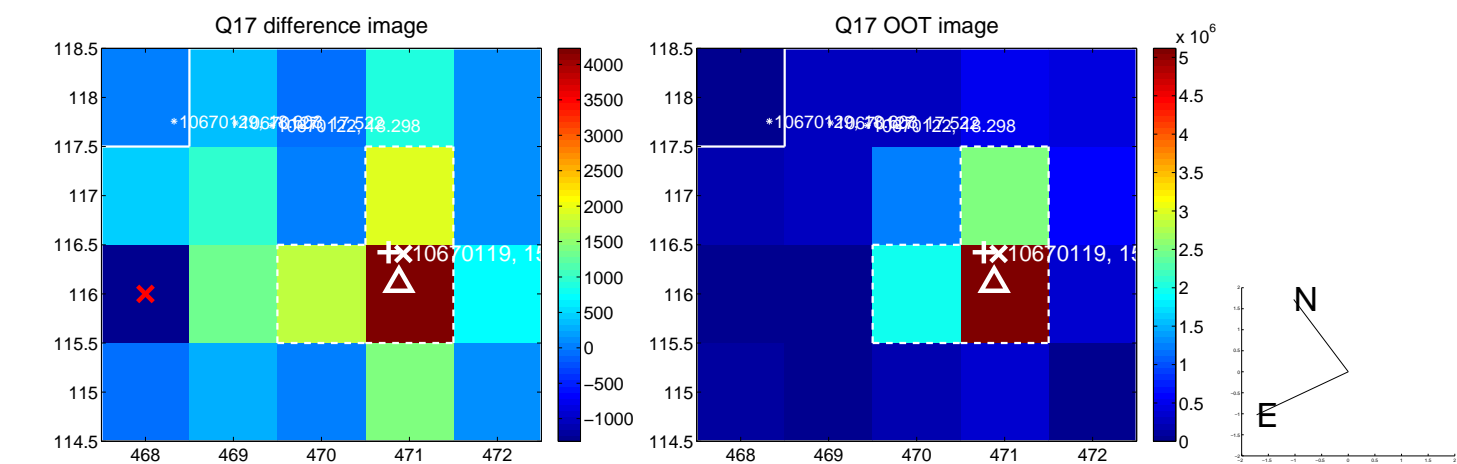
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



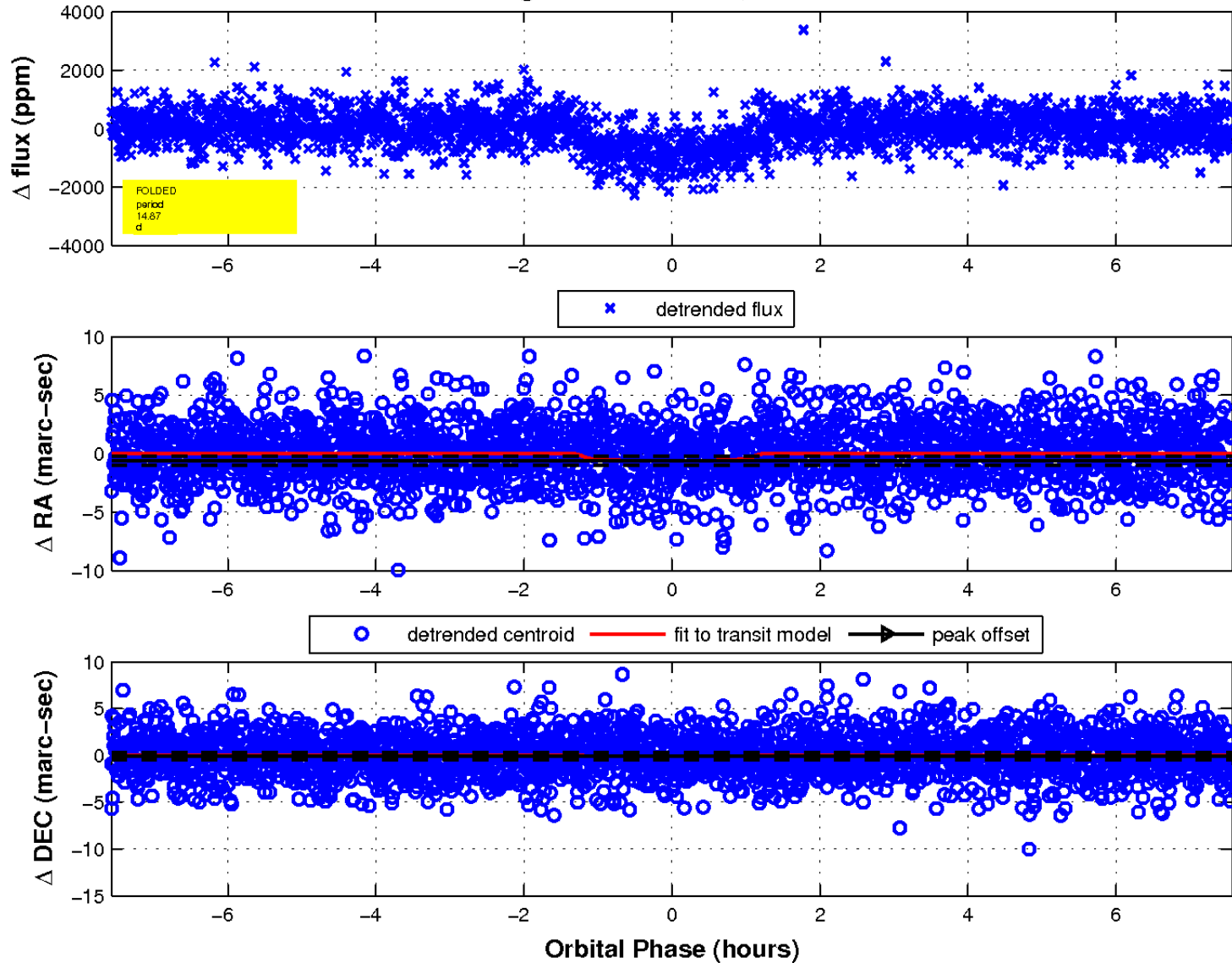
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

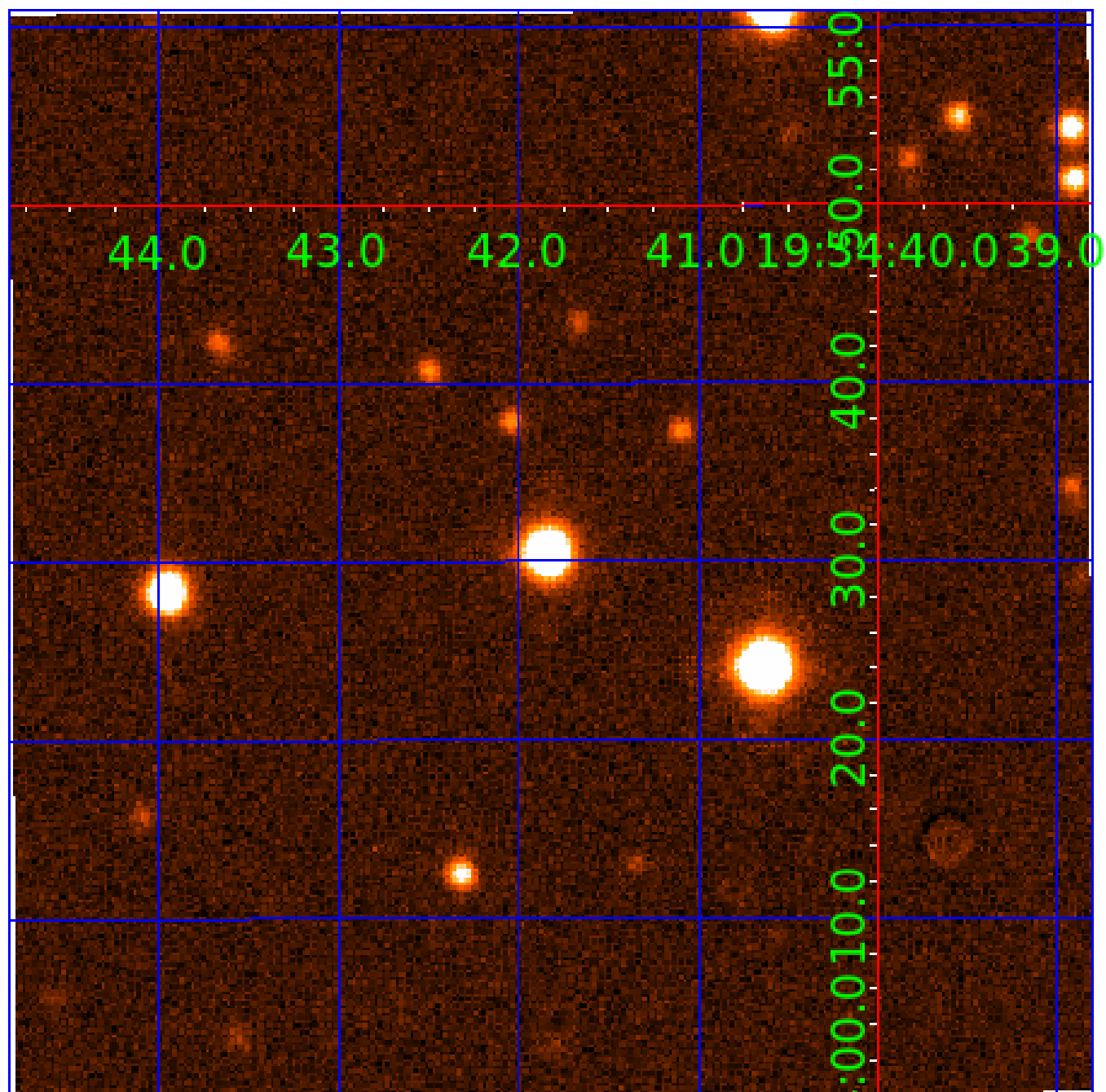


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010670119

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})
010670119-01	OBS	2179.01	14.871525	137.694598	972.6	2.525	24.3	26.4	0.52	3825	1.77	5.52
010670119-02	OBS	2179.02	2.732751	132.745909	617.6	1.053	21.7	28.0	0.52	3825	1.33	52.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010670119-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010670119-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT

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.

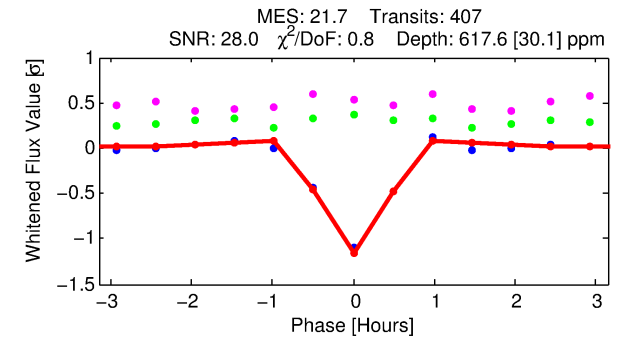
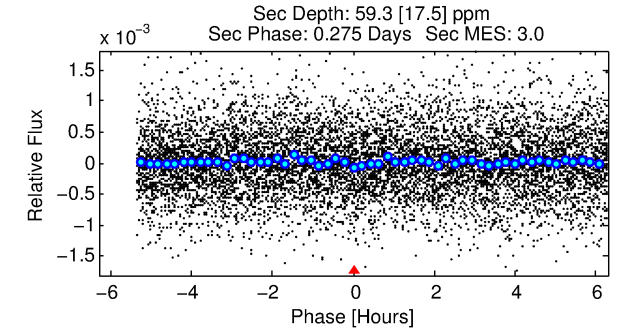
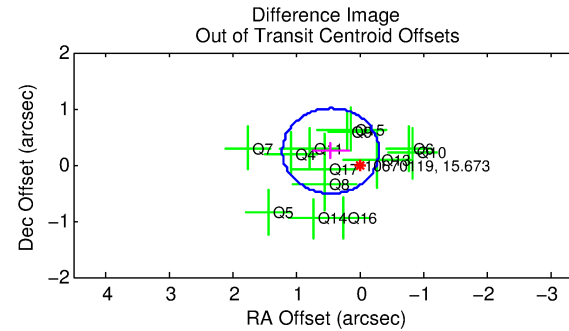
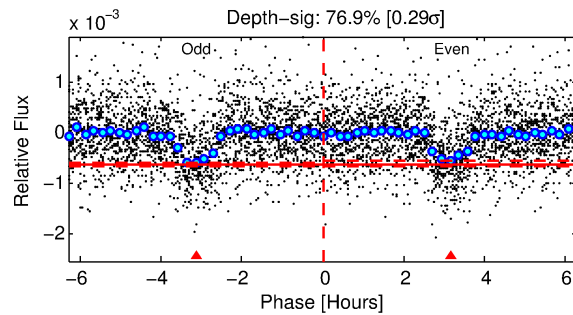
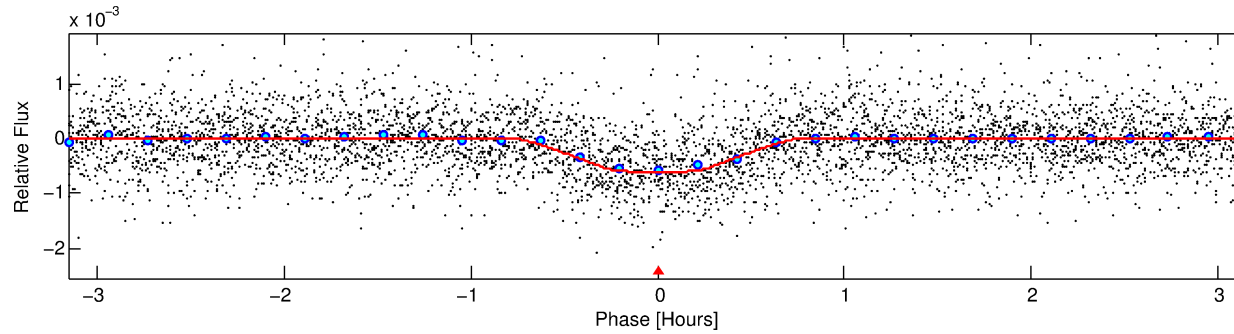
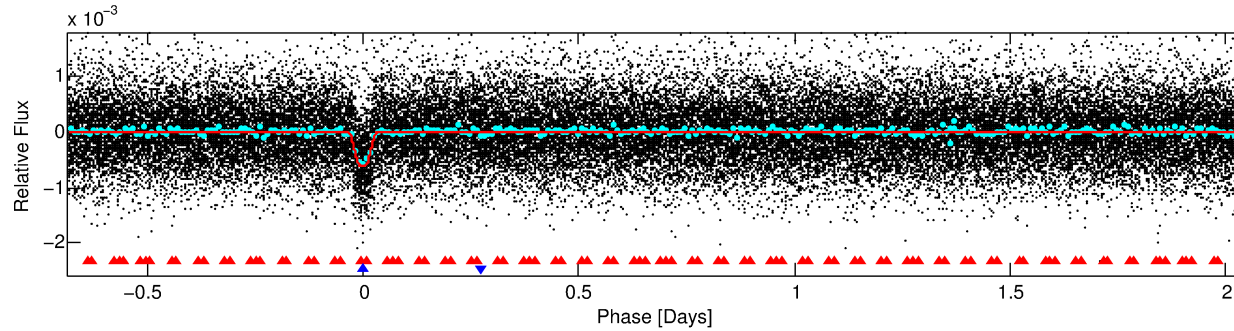
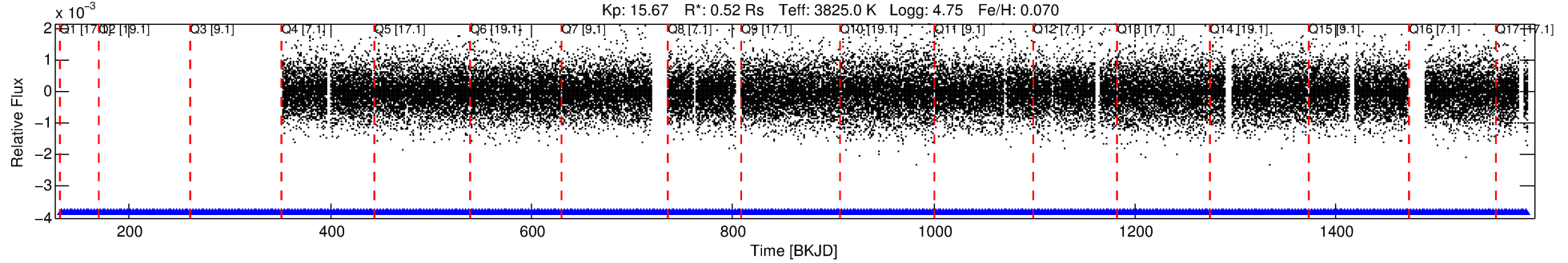
Ephemeris Match Information For 010670119-02

No Significant Match Found

DV One-Page Summary

KIC: 10670119 Candidate: 2 of 2 Period: 2.733 d
KOI: K02179.02 Name: Kepler-369b Corr: 0.951

Kp: 15.67 R*: 0.52 Rs Teff: 3825.0 K Logg: 4.75 Fe/H: 0.070



DV Fit Results:

Period = 2.73275 [0.00000] d
Epoch = 132.7459 [0.0007] BKJD
Rp/R* = 0.0234 [0.0078]
a/R* = 17.77 [23.66]
b = 0.49 [2.06]
Seff = 52.83 [6.39]
Teq = 687 [21] K
Rp = 1.34 [0.46] Re
a = 0.0316 [0.0019] AU
Ag = 18.24 [13.41] [1.29σ]
Teffp = 2197 [404] K [3.73σ]

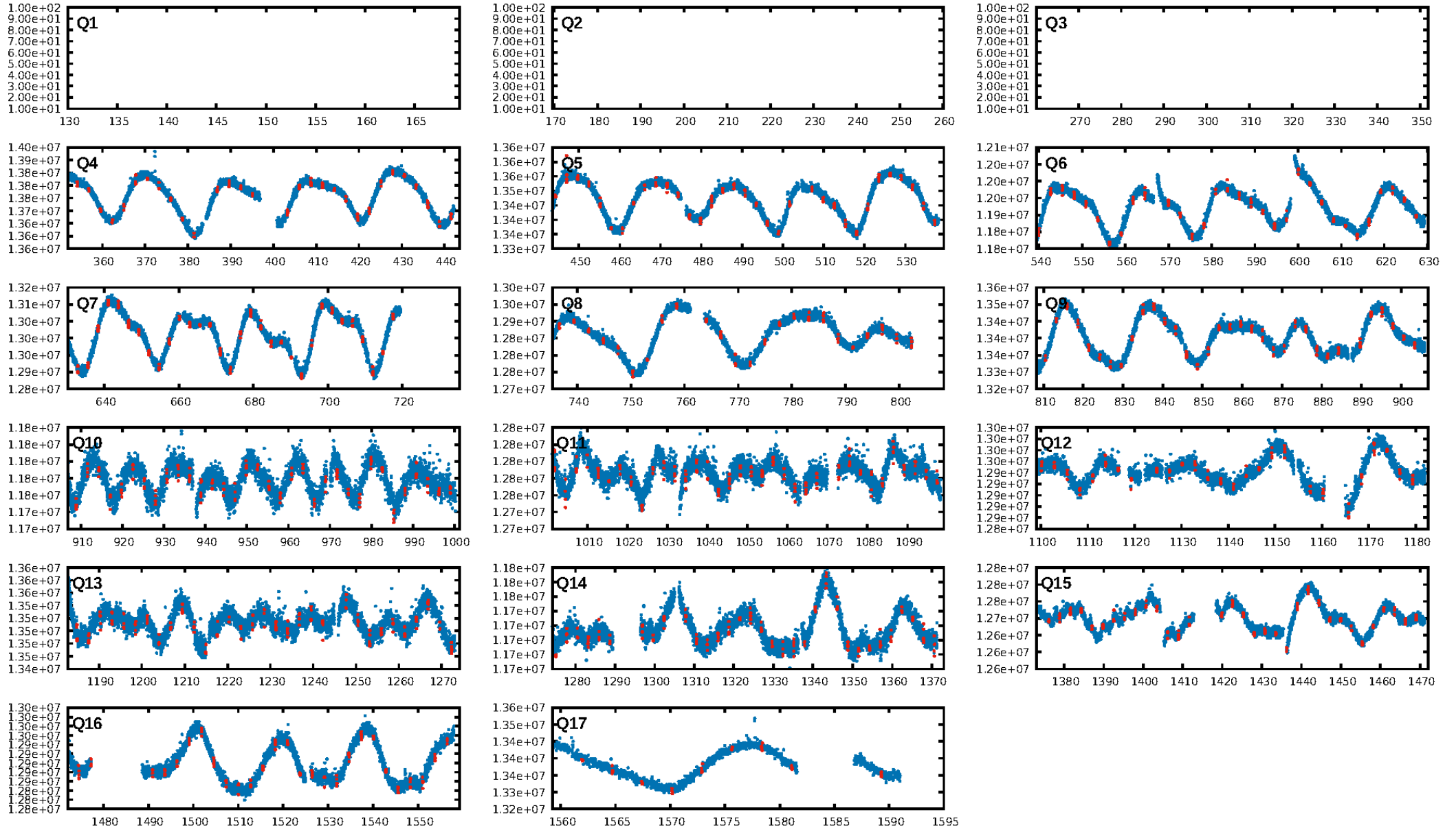
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [106.47σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.94e-99
RollingBand-fgt: 1.00 [397/397]
GhostDiagnostic-chr: 5.288
Centroid-sig: 0.1%
Centroid-so: 0.990 arcsec [2.48σ]
OotOffset-rm: 0.512 arcsec [2.03σ]
KicOffset-rm: 0.901 arcsec [4.08σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

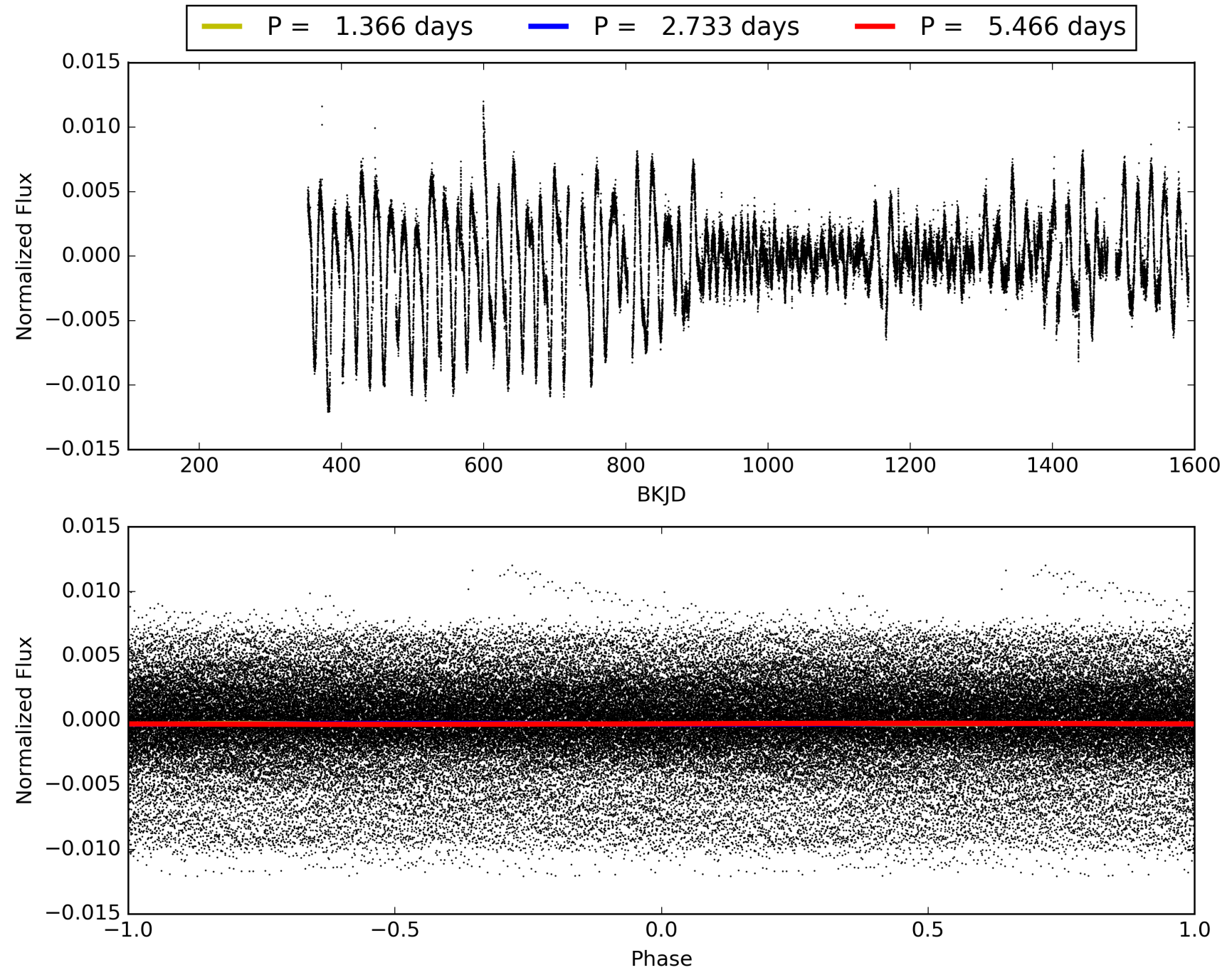
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:02:20 Z

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

TCE 010670119-02, PDC Light Curves

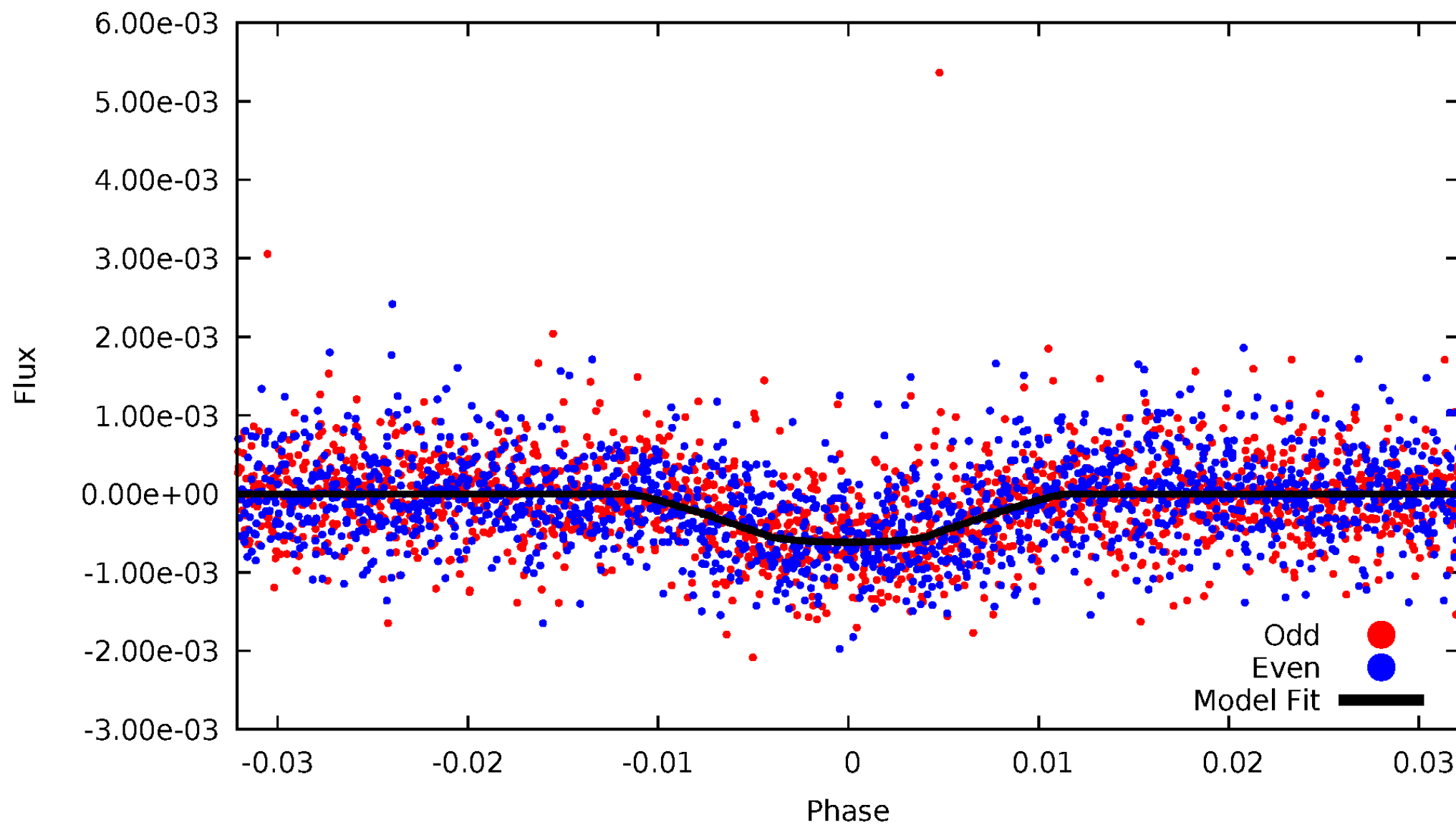


TCE 010670119-02



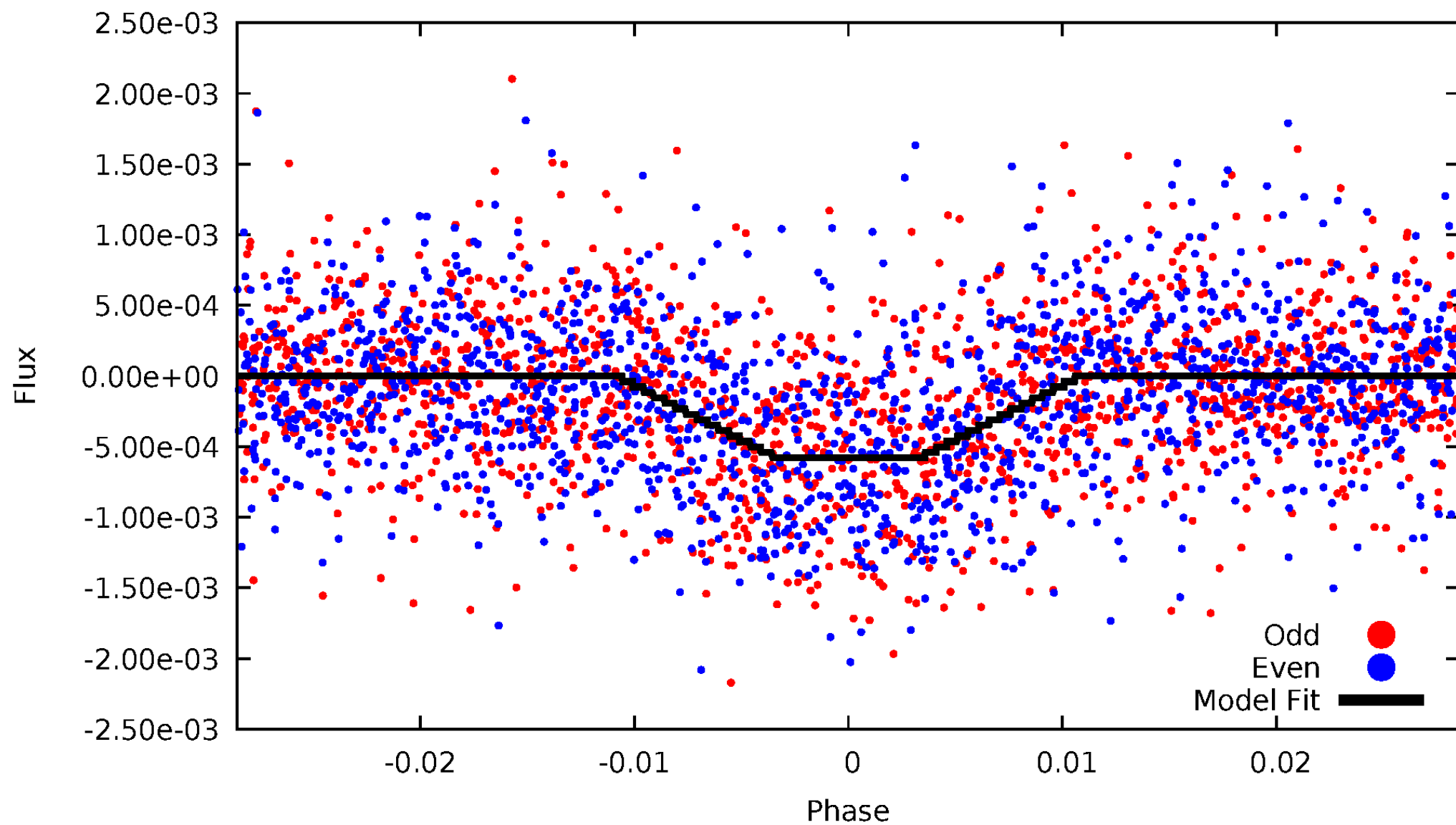
DV Odd/Even

TCE 010670119-02



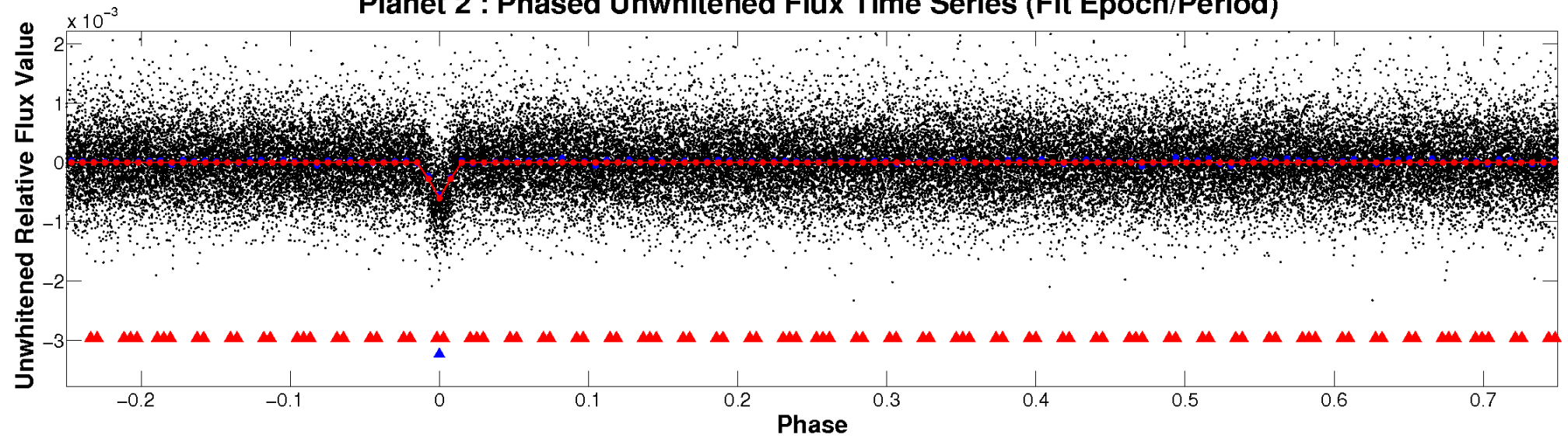
ALT Odd/Even

TCE 010670119-02

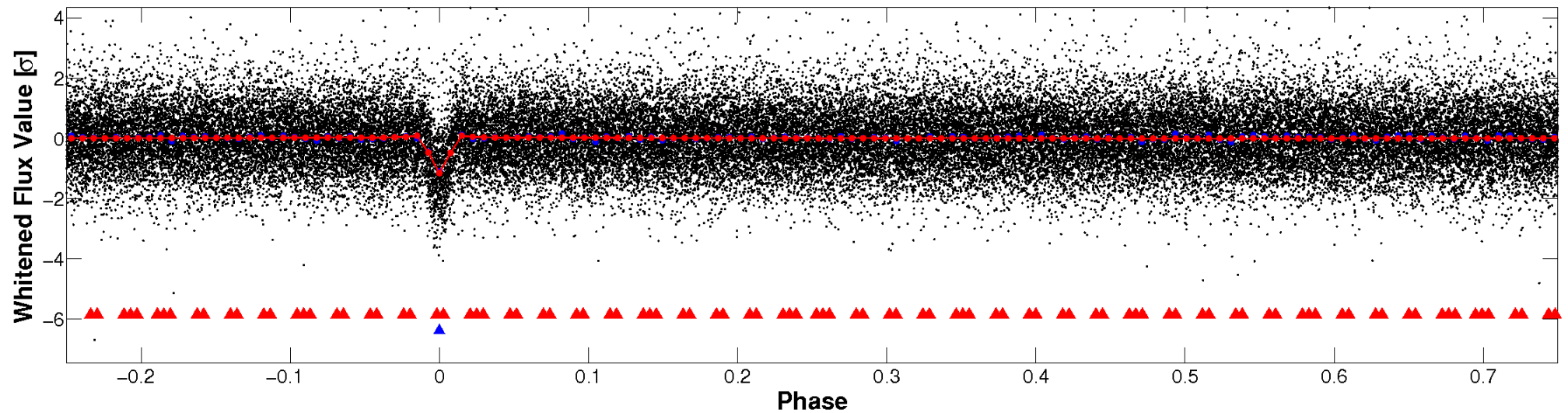


Non-Whitened Vs. Whitened Light Curve

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

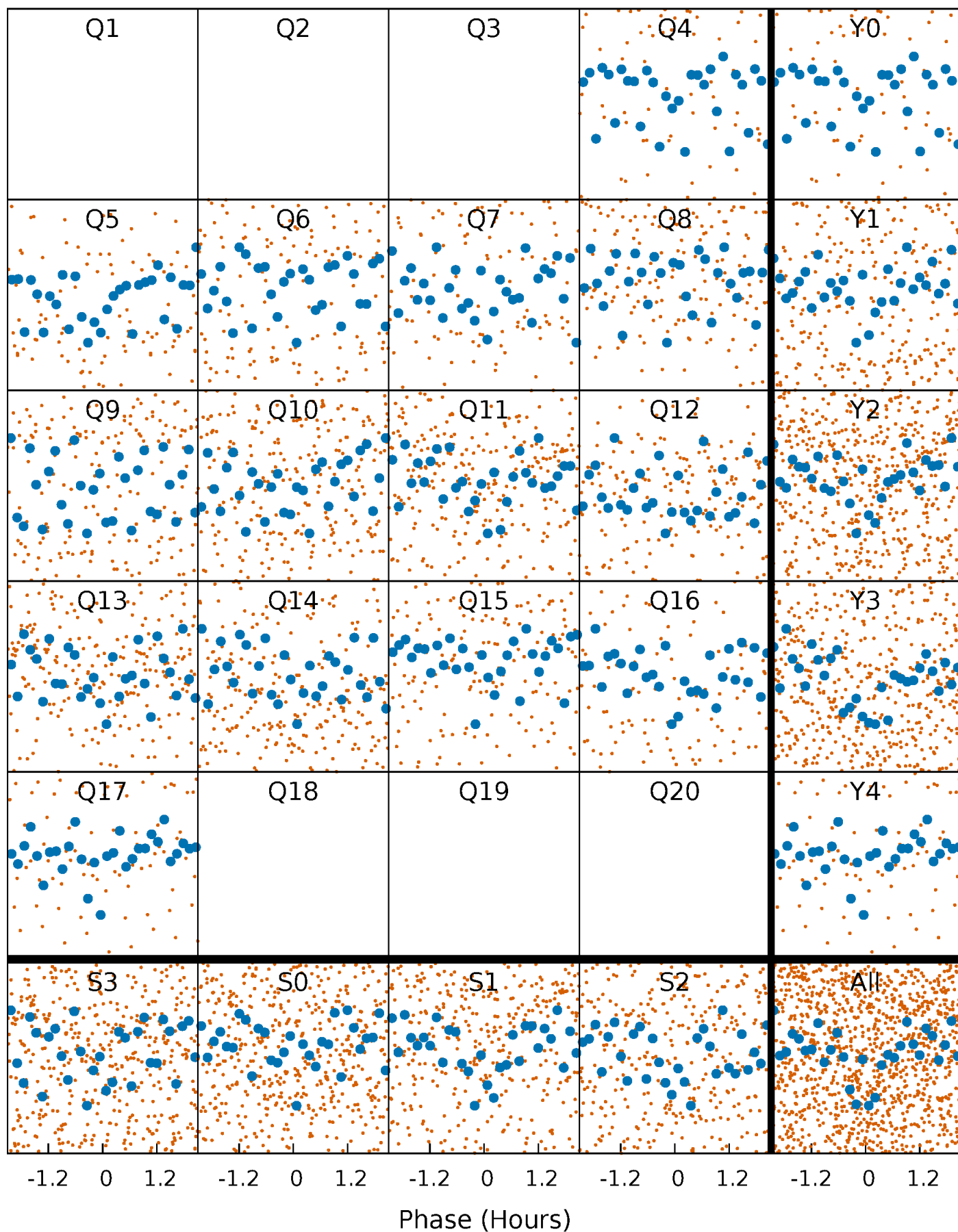


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



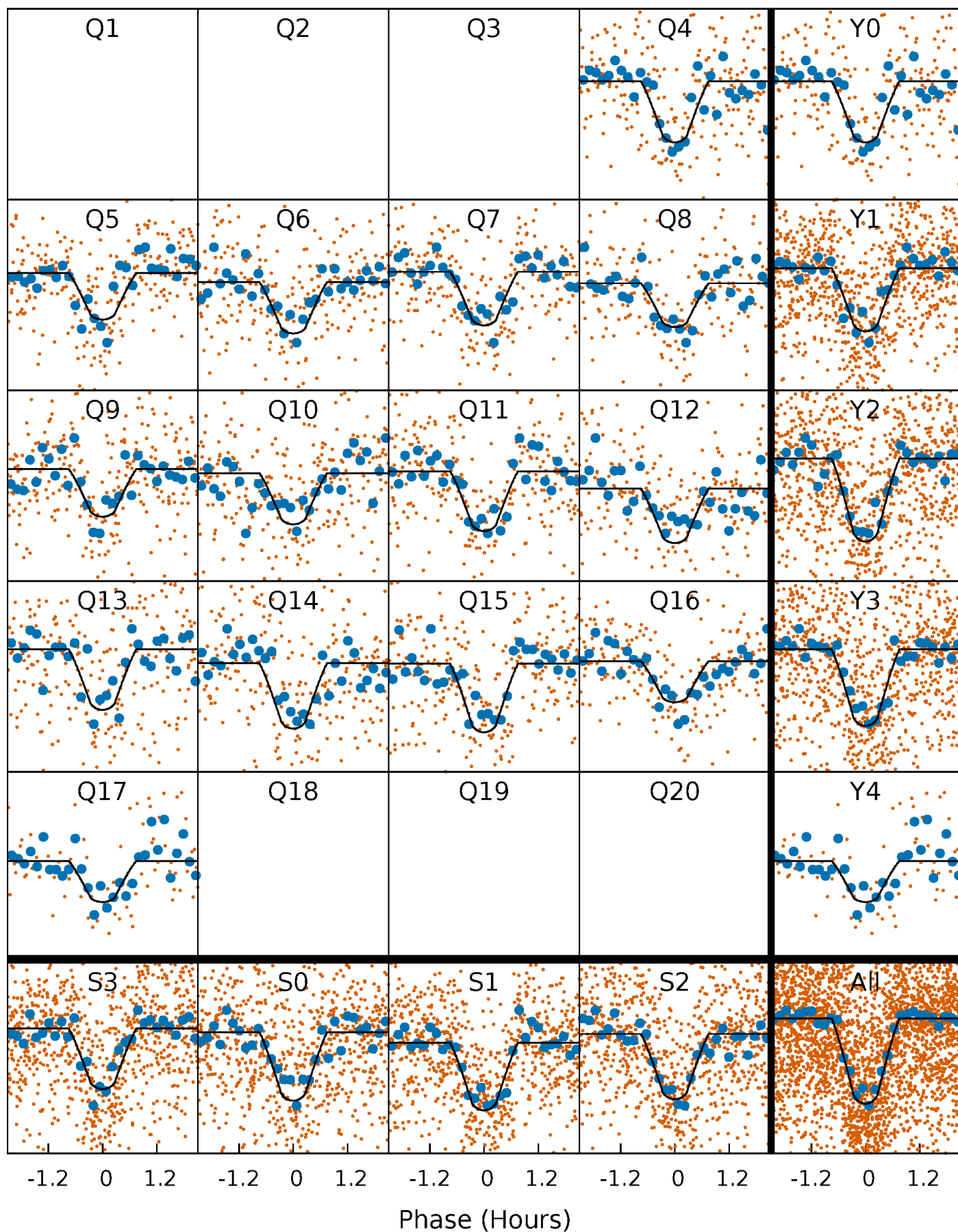
PDC Quarter-Phased Transit Curves

TCE 010670119-02 P= 2.732751 Days $T_0=132.745909$ (BKJD)



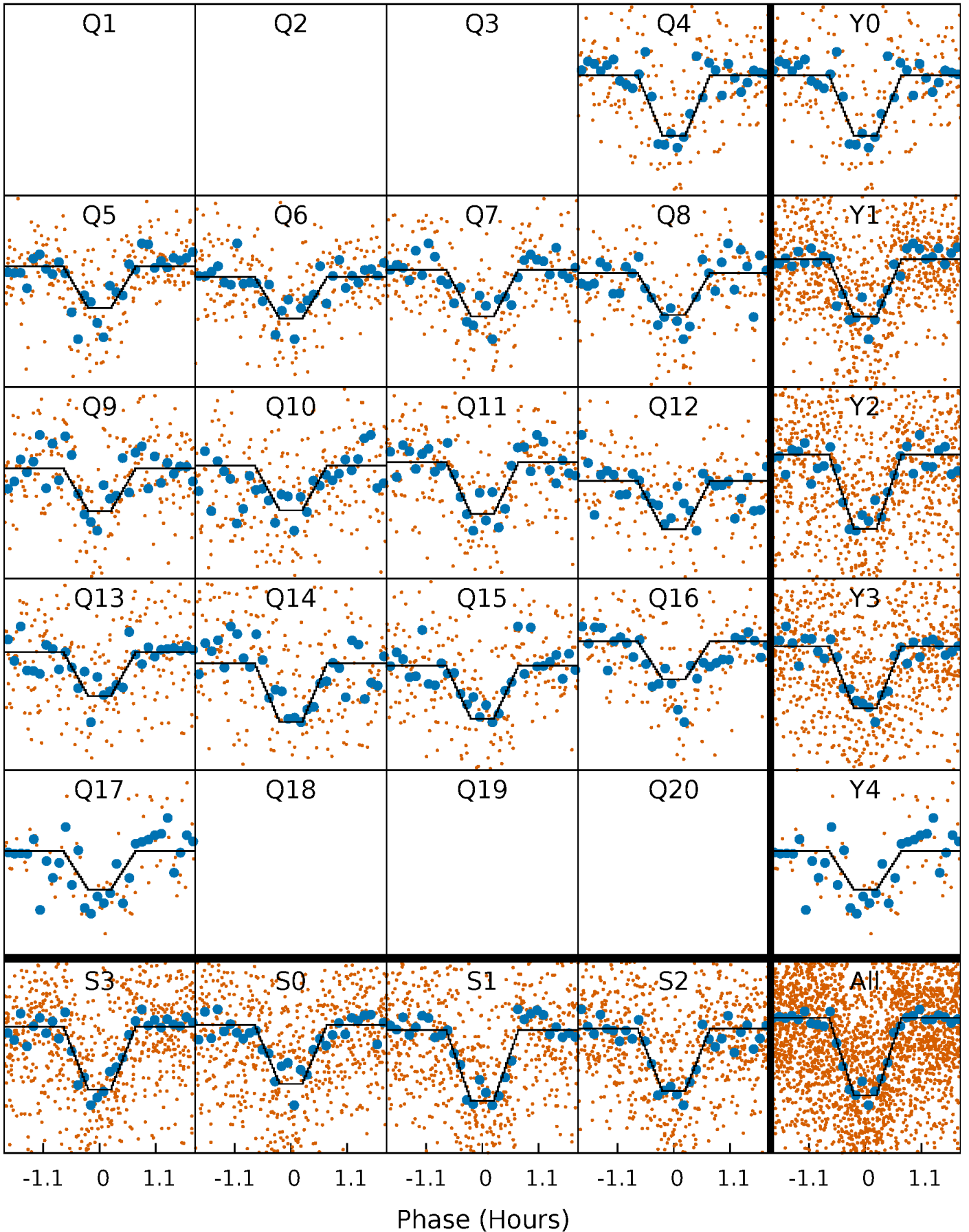
DV Quarter-Phased Transit Curves

TCE 010670119-02 P= 2.732751 Days $T_0=132.745909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

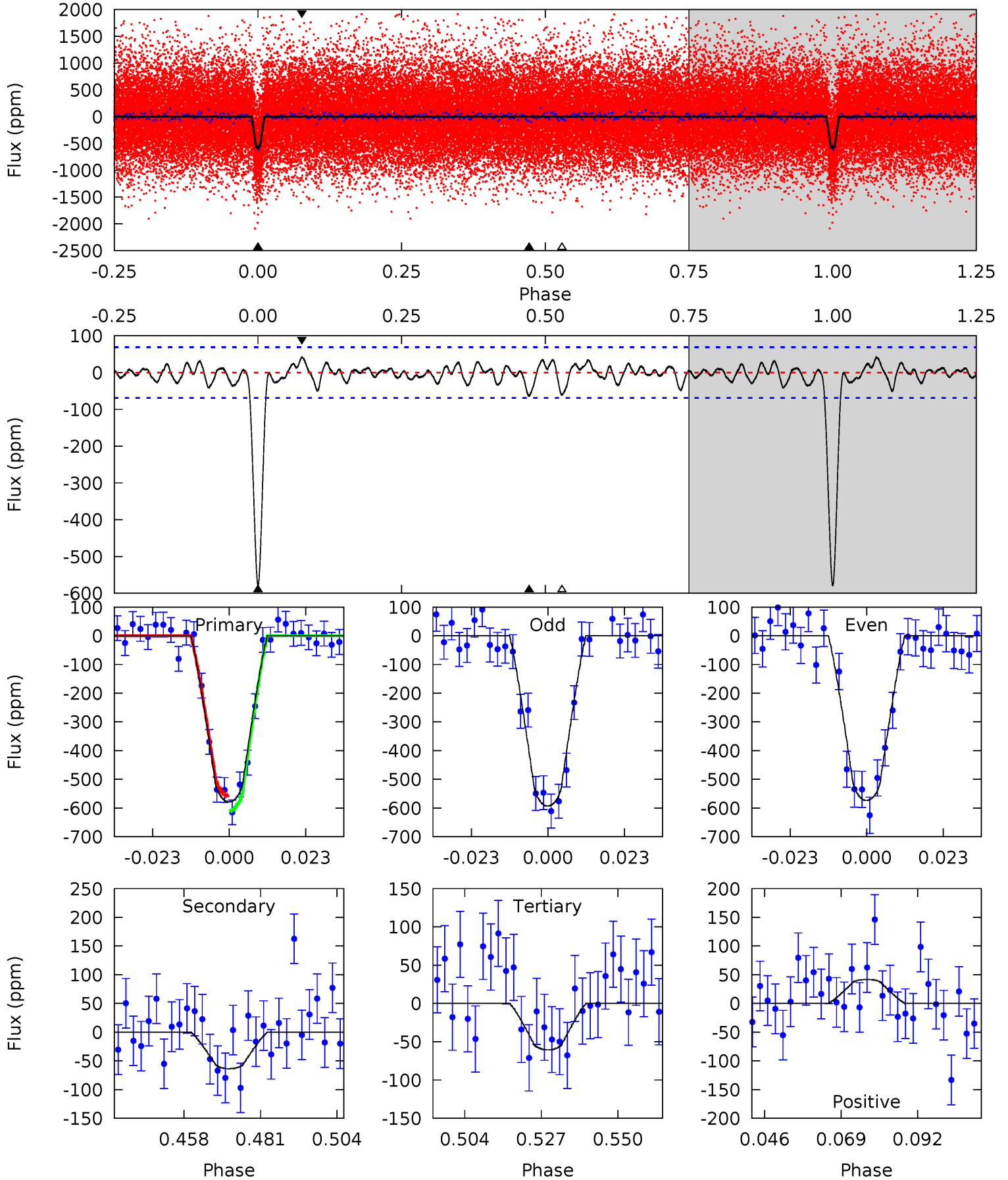
TCE 010670119-02 P= 2.732753 Days $T_0=132.746057$ (BKJD)



DV Model-Shift Uniqueness Test

010670119-02, P = 2.732751 Days, E = 132.745909 Days

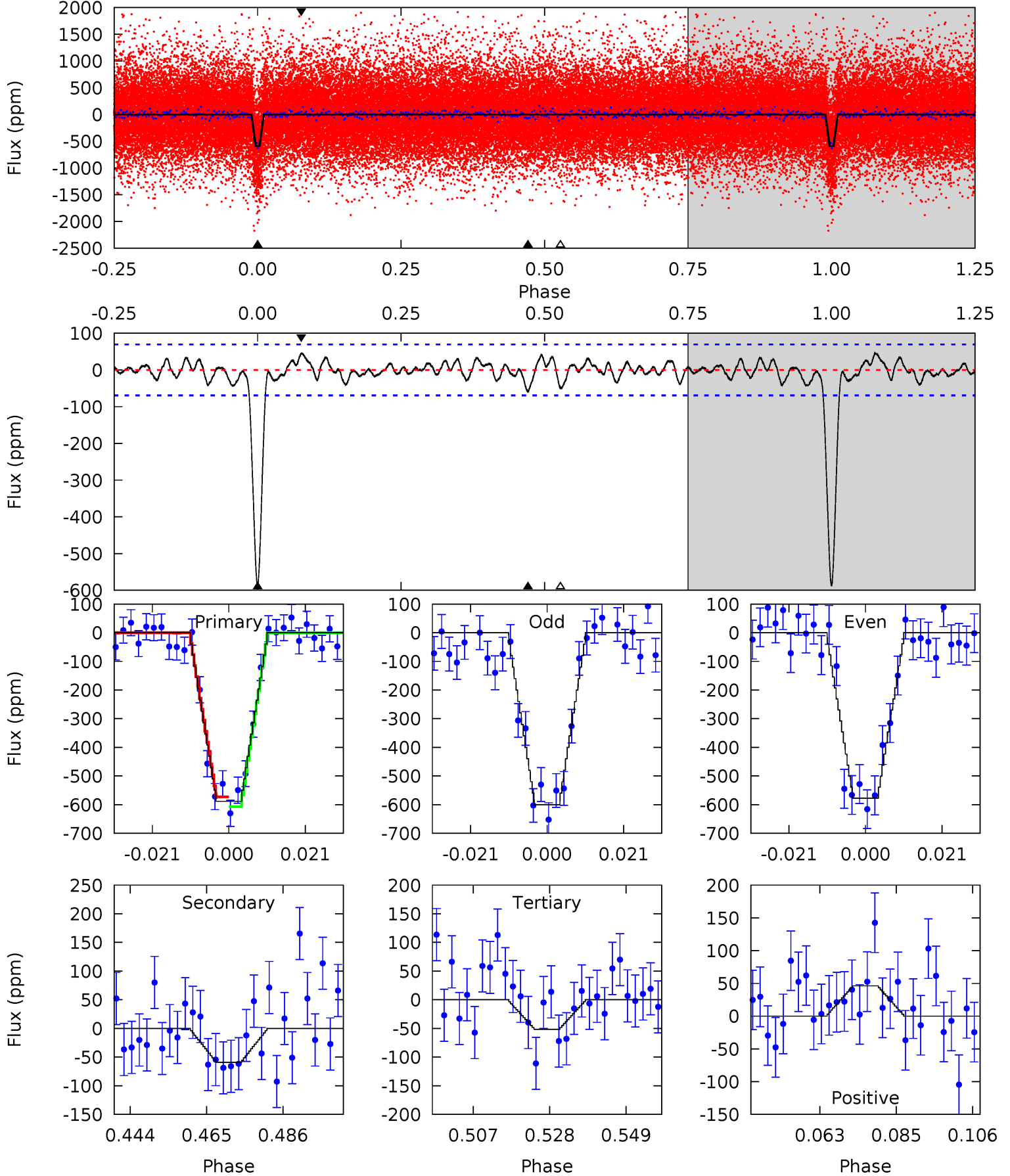
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	4.50	4.28	2.95	4.86	2.27	1.29	36.6	37.9	0.22	1.55	0.68	0.96	0.07	1.81



Alt Model-Shift Uniqueness Test

010670119-02, P = 2.732753 Days, E = 132.746057 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.4	4.17	3.64	3.25	4.88	2.31	1.26	37.7	38.1	0.53	0.92	0.79	0.95	0.07	1.22



Stellar Parameters For KIC 010670119

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3825^{+76}_{-84}	$4.749^{+0.028}_{-0.044}$	$0.070^{+0.150}_{-0.150}$	$0.524^{+0.038}_{-0.034}$	$0.561^{+0.032}_{-0.040}$	$5.503^{+0.790}_{-0.832}$
	+2%/-2%	+1%/-1%	+214%/-214%	+7%/-6%	+6%/-7%	+14%/-15%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 010670119-02 / KOI 2179.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-64 ± 14	$1.33^{+0.45}_{-0.47}$	963^{+27}_{-24}	2764^{+364}_{-228}	19^{+27}_{-9}
Alt.	-59 ± 14	$1.39^{+0.46}_{-0.45}$	963^{+26}_{-25}	2704^{+326}_{-214}	16^{+21}_{-8}

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 $A_{obs} \gg 1.0$

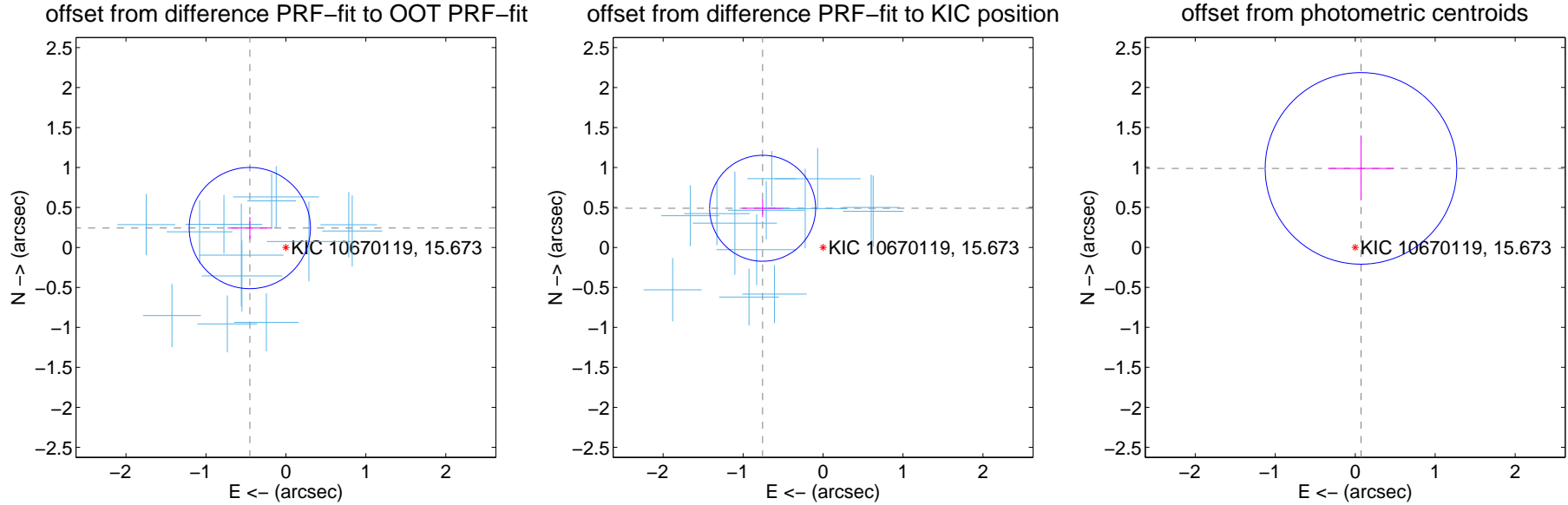
DV Centroid Data

Supplemental centroid analysis for 010670119-02. Kepler magnitude: 15.67. Transit SNR 27.96

There are 13 quarters with good PRF difference image offsets

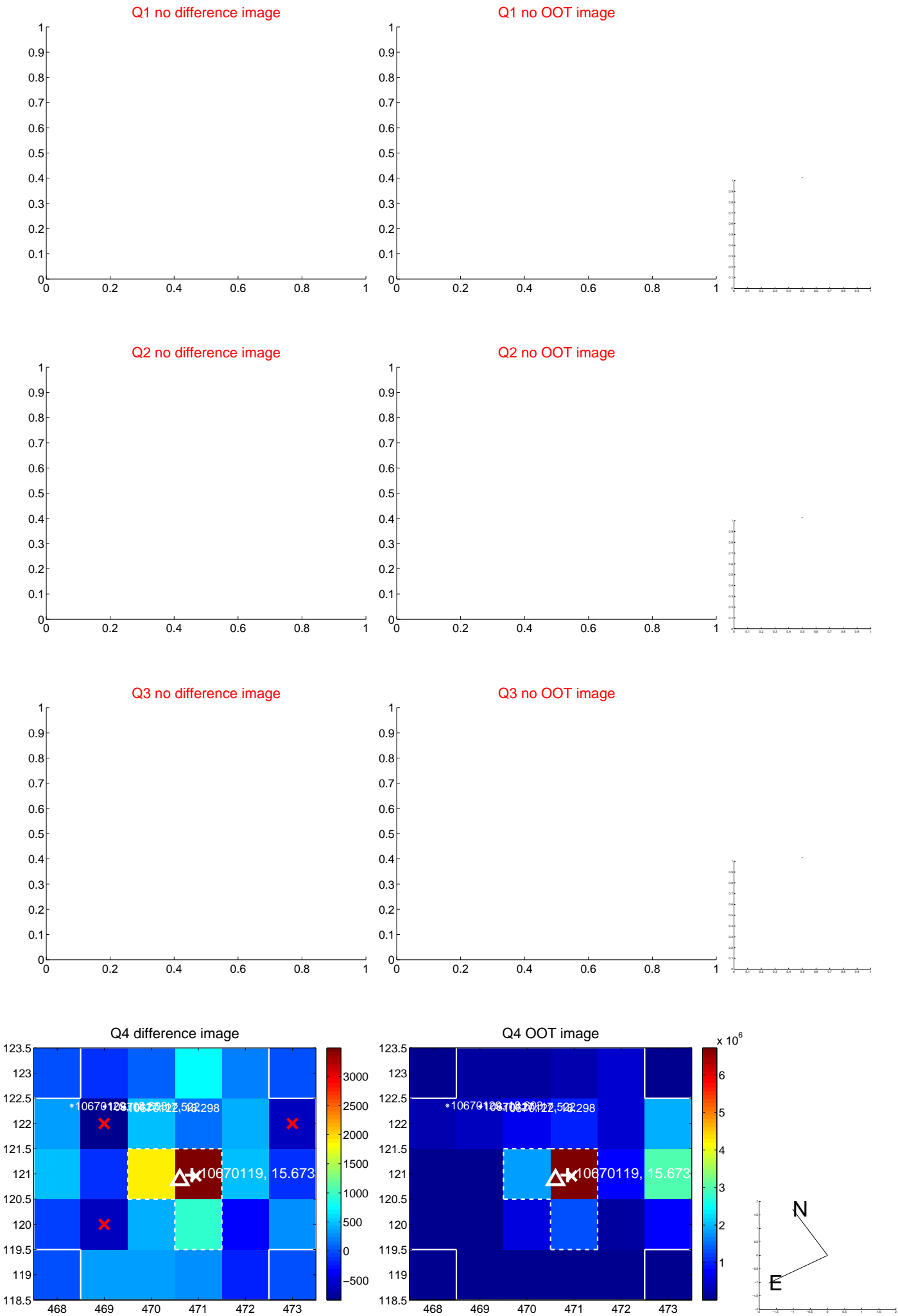
The direct PRF centroid is offset from the target star catalog position by about 0.68 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.512 ± 0.253	2.03	0.451 ± 0.277	0.242 ± 0.140
PRF-fit source offset from KIC position	0.901 ± 0.221	4.08	0.756 ± 0.254	0.490 ± 0.110
photometric centroid source offset	0.99 ± 0.40	2.48	-0.07 ± 0.41	0.99 ± 0.40

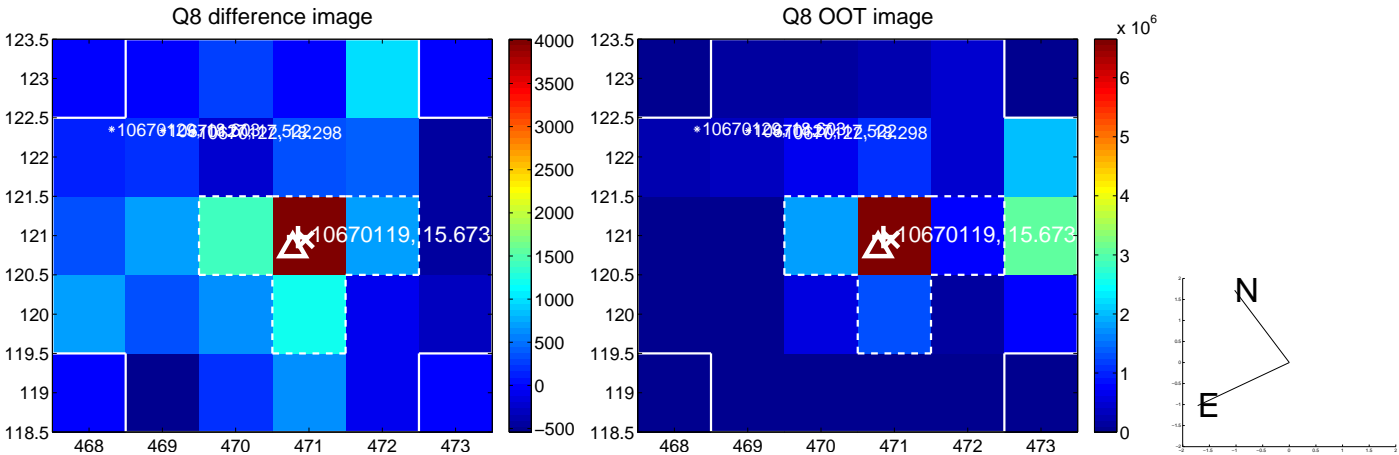
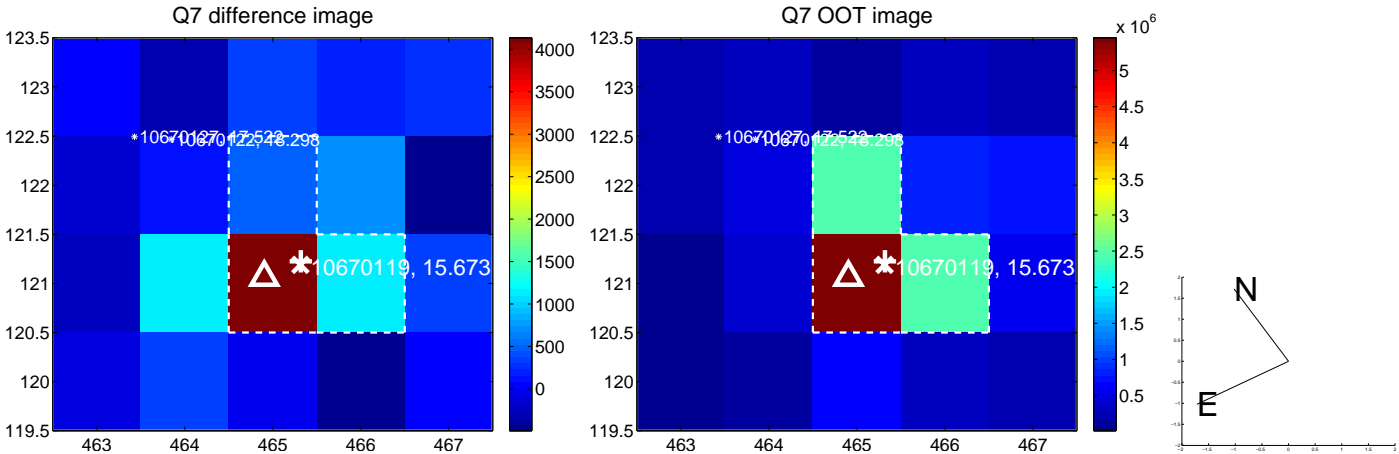
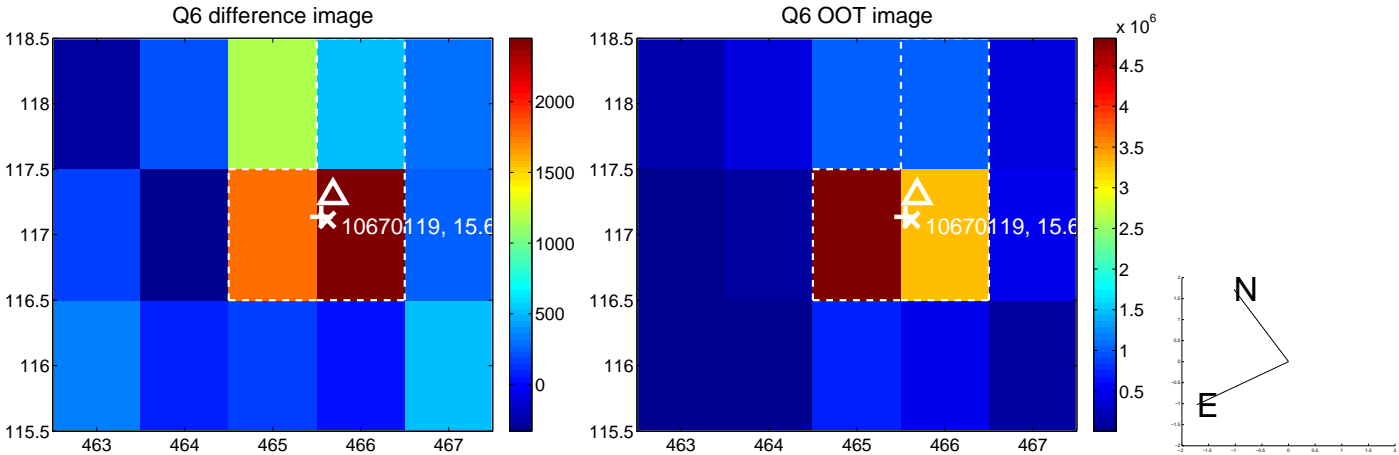
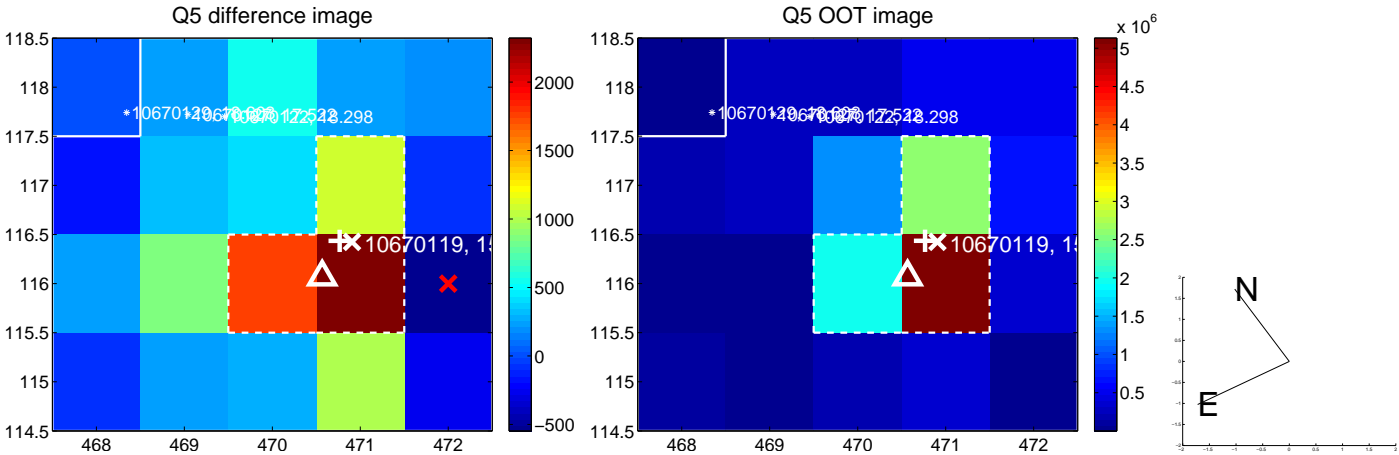


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

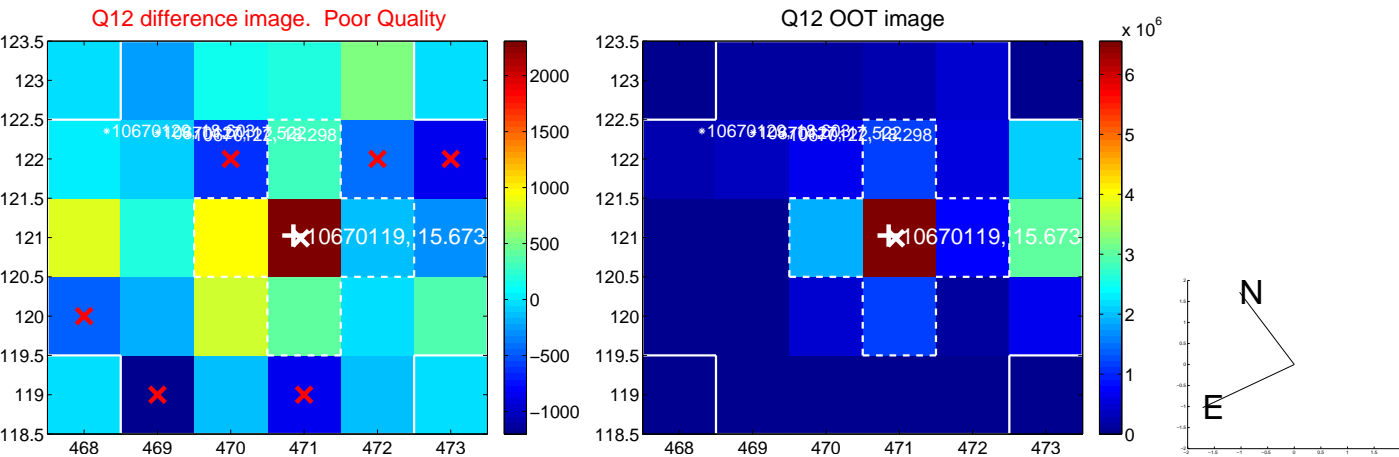
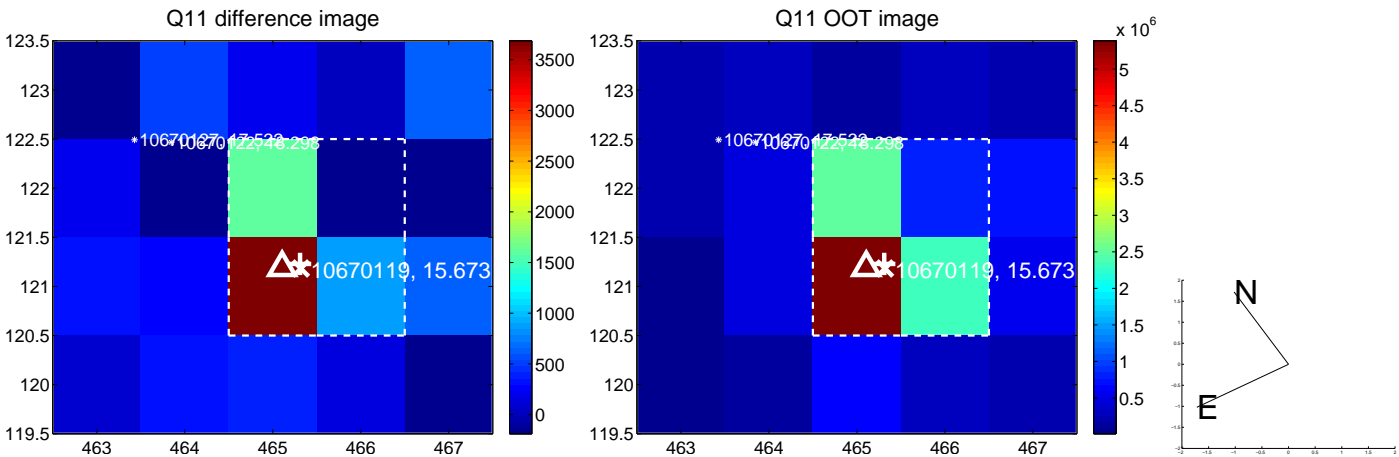
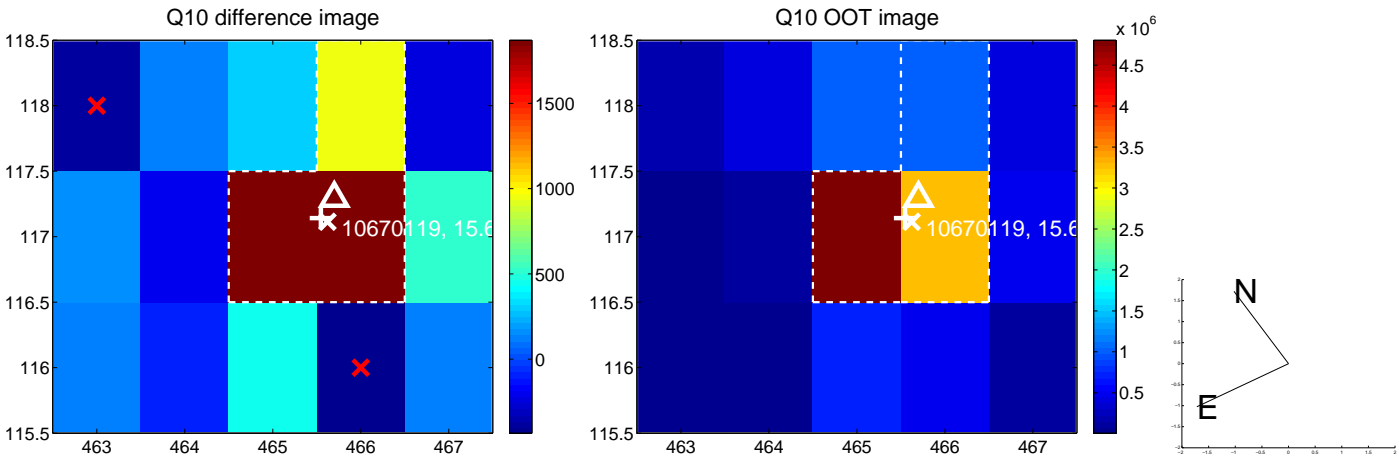
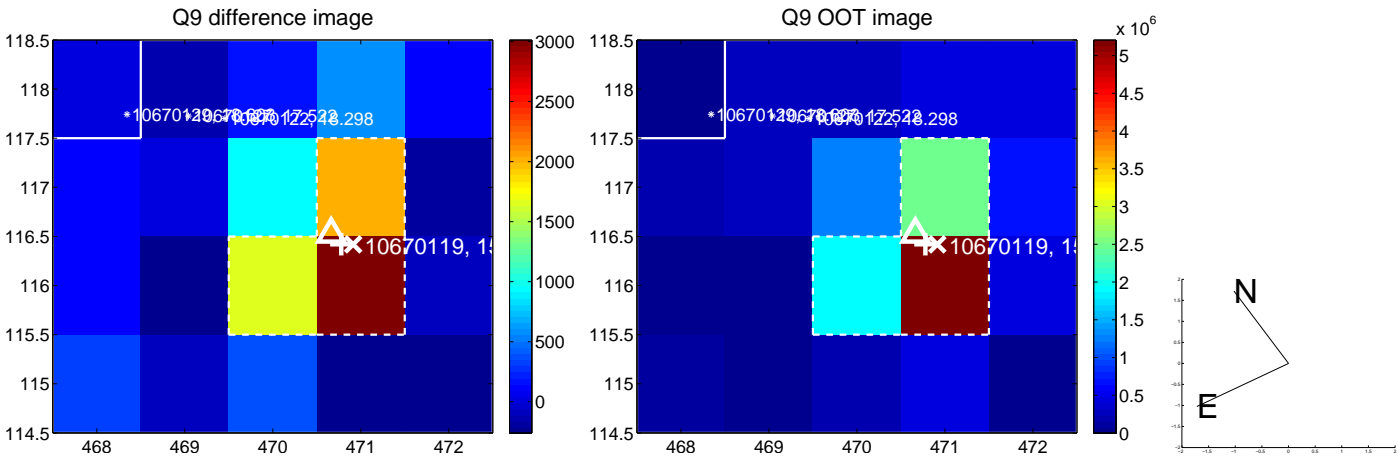
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



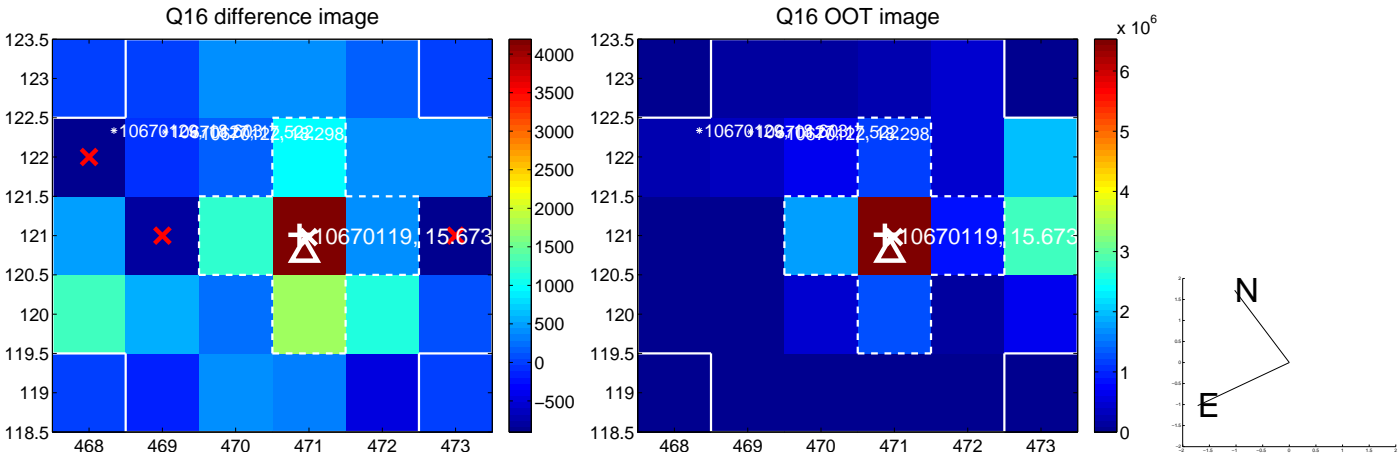
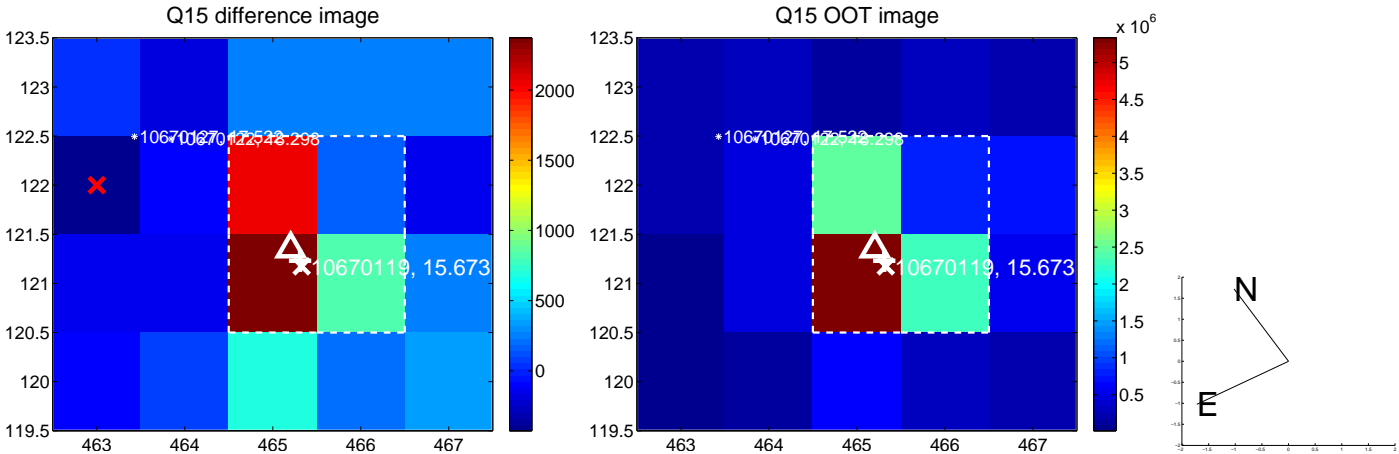
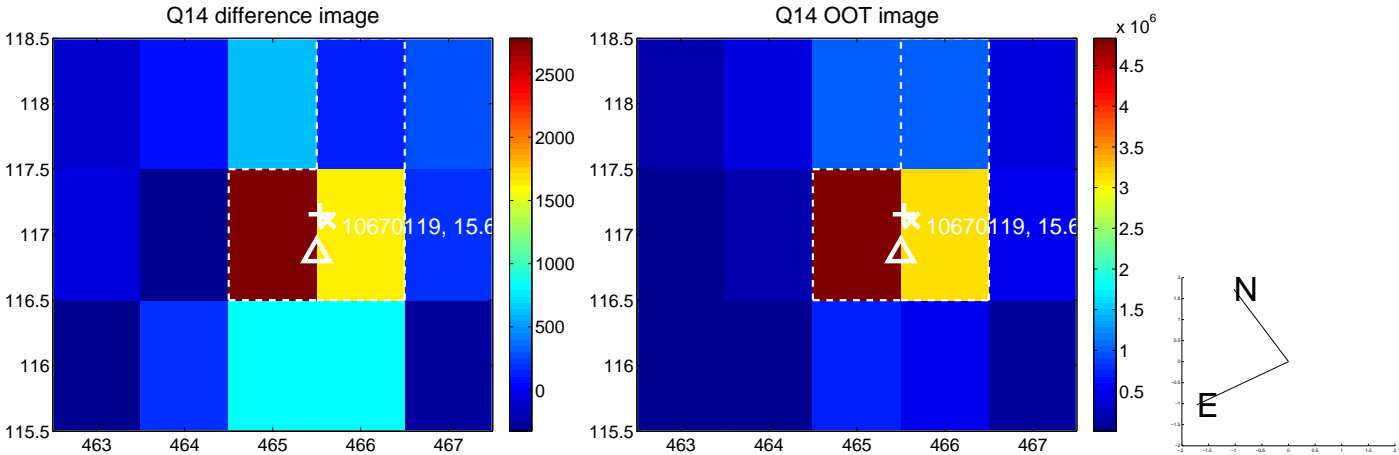
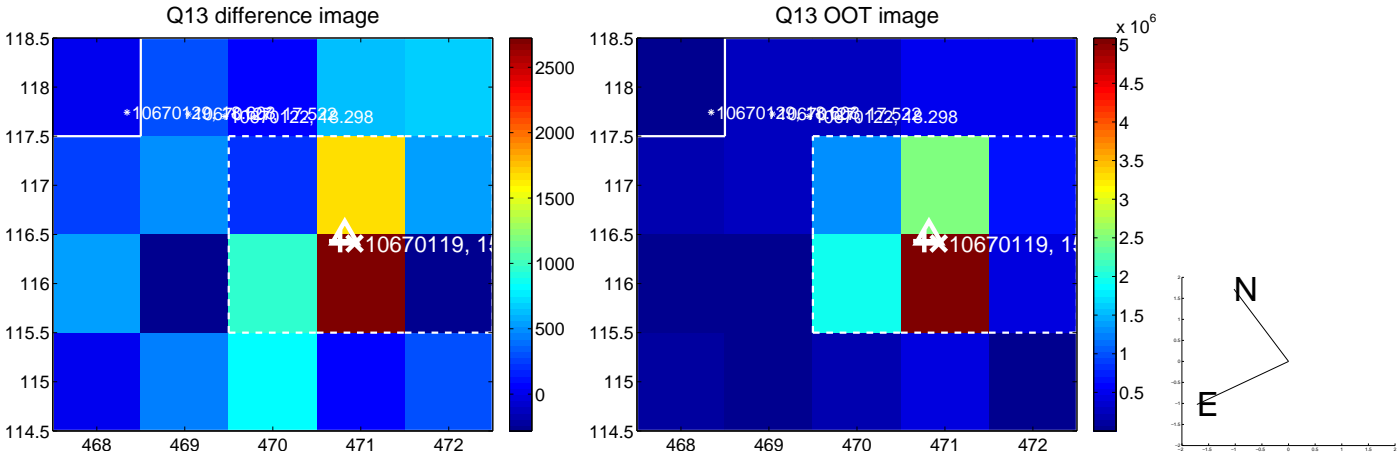
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



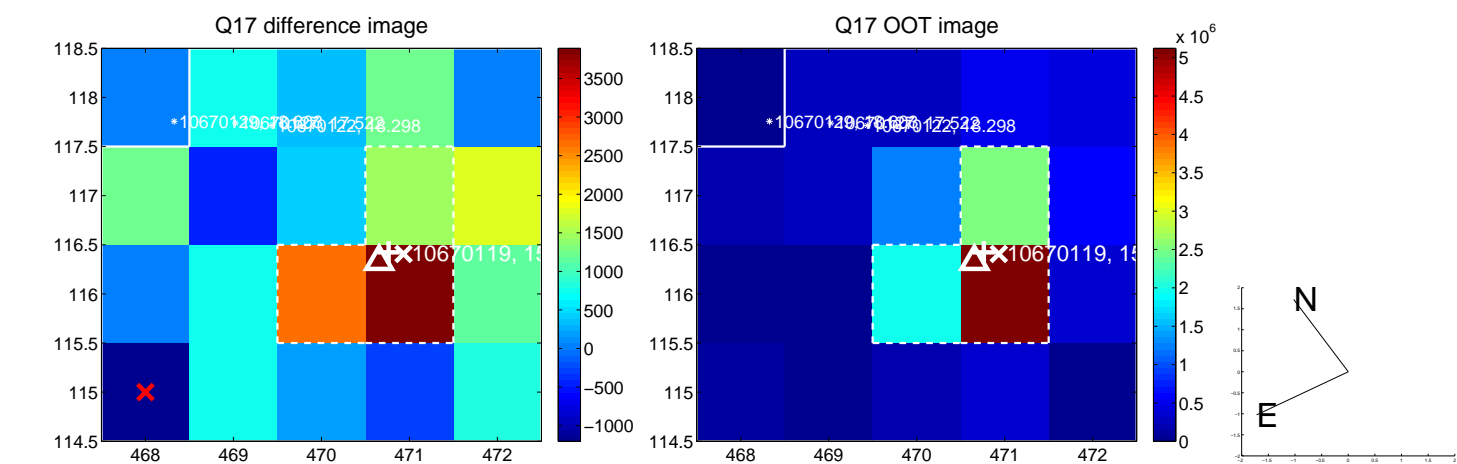
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



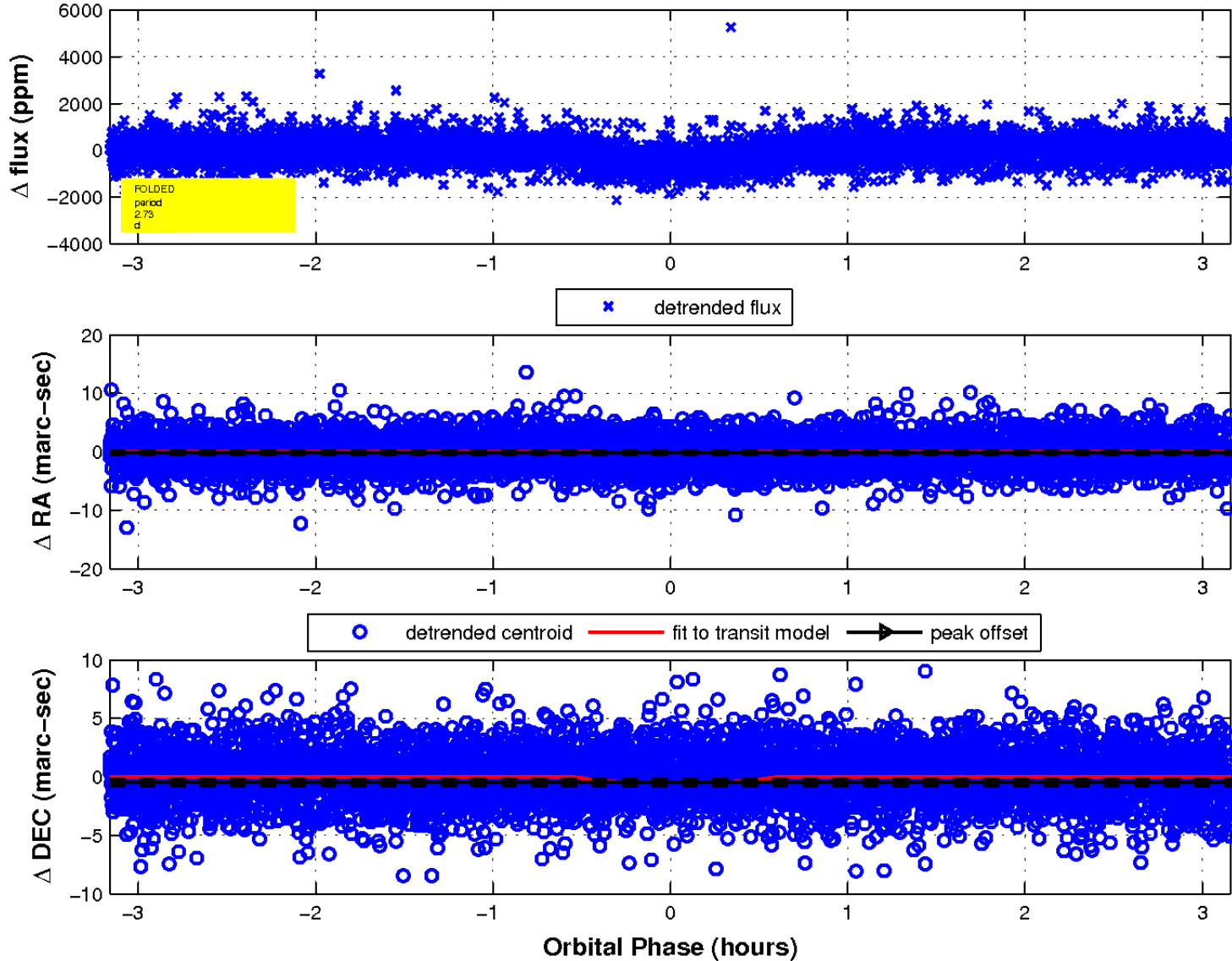
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

