

KIC 006721089

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})
006721089-01	OBS	No	0.595294	132.054260	1.5	0.587	20.7	0.0	1.29	6738	0.19	14010.13
006721089-02	OBS	No	0.595274	131.913277	750.5	2.000	12.8	-1.0	1.29	6738	3.58	14010.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721089-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006721089-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

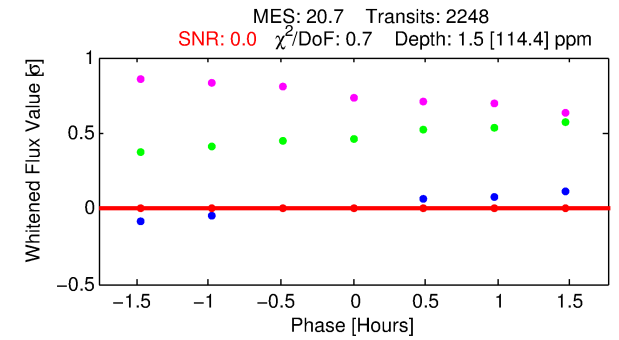
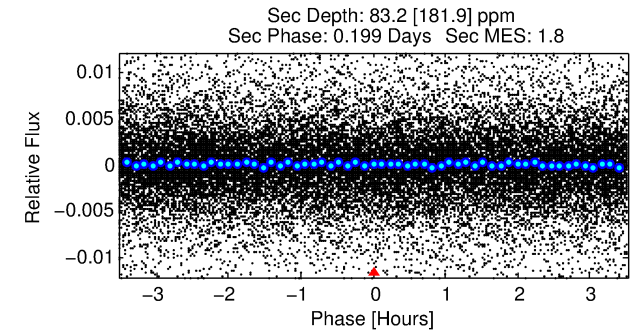
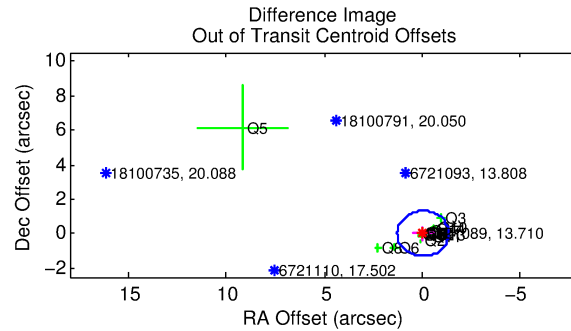
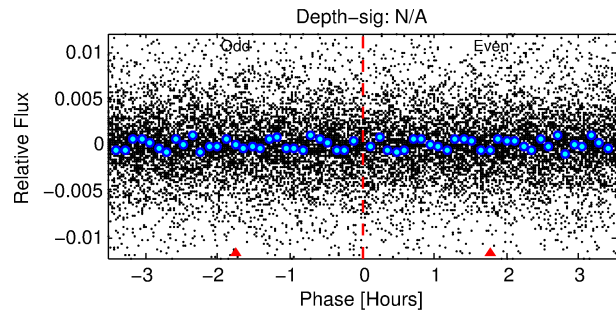
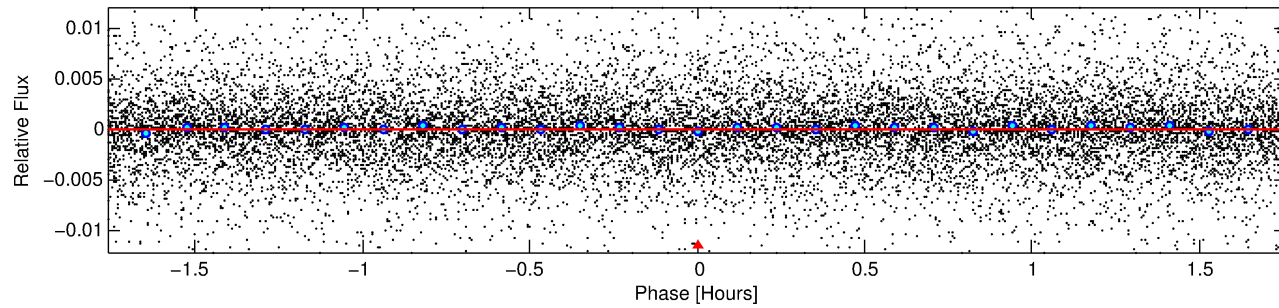
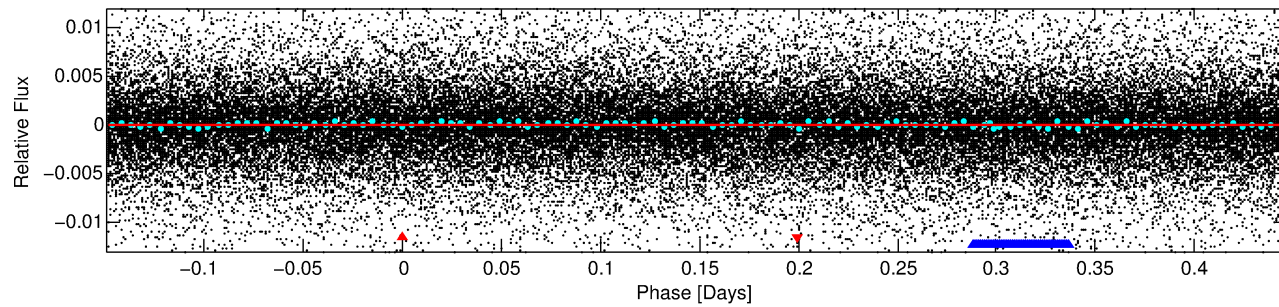
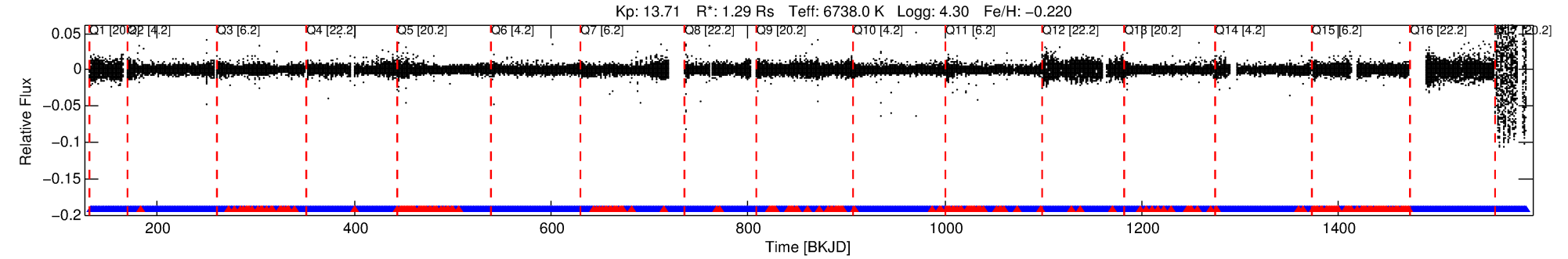
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721089-01

No Significant Match Found

DV One-Page Summary

KIC: 6721089 Candidate: 1 of 2 Period: 0.595 d



DV Fit Results:

Period = 0.59529 [0.00555] d
Epoch = 132.0543 [0.7344] BKJD
Rp/R* = 0.0013 [0.0594]
a/R* = 3.61 [415.49]
b = 0.89 [27.97]
Seff = 14010.13 [5735.81]
Teq = 2774 [284] K
Rp = 0.19 [8.38] Re
a = 0.0148 [0.0040] AU
Ag = 289.94 [26043.58] [0.01σ]
Teff = 17699 [397483] K [0.04σ]

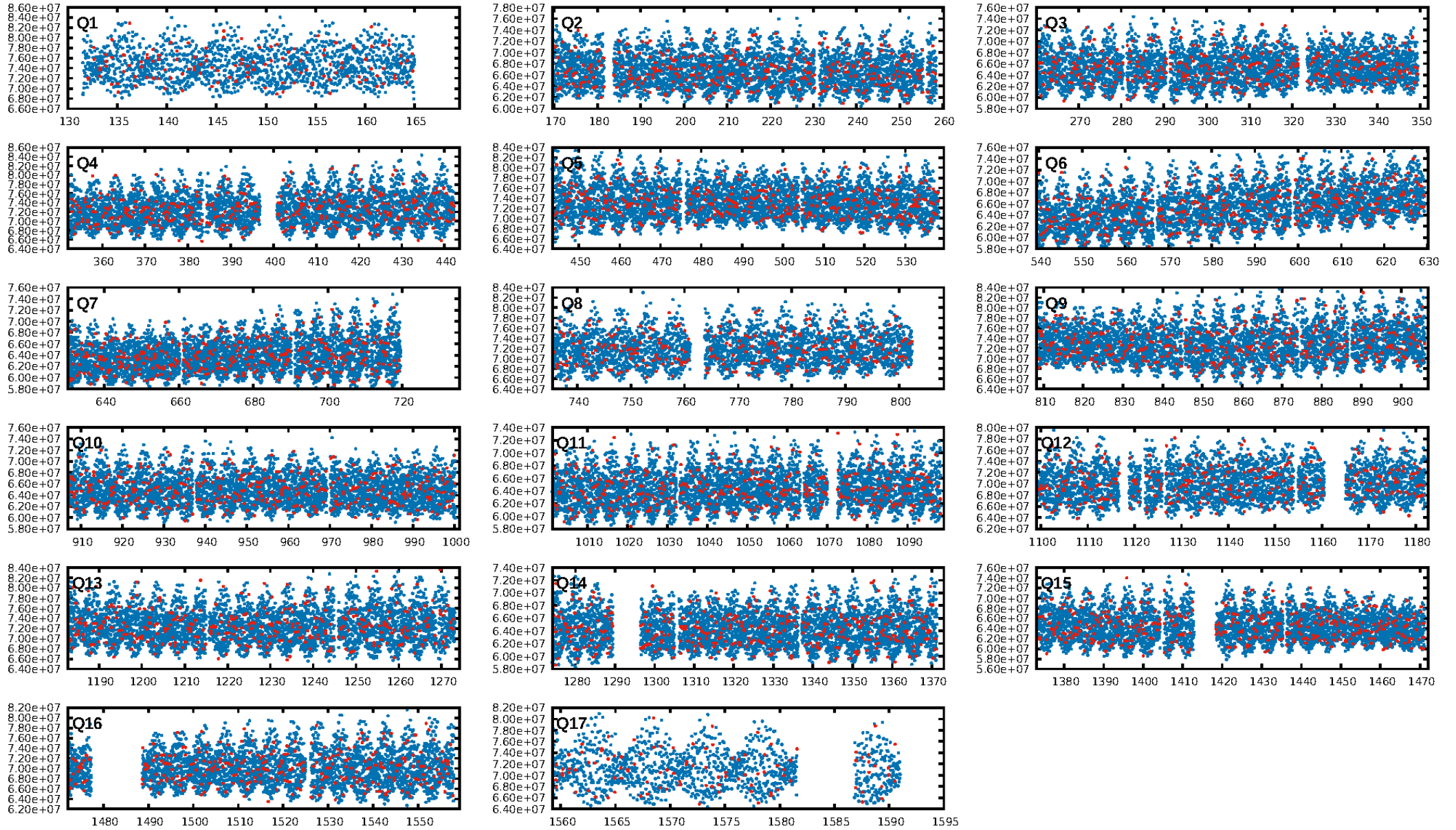
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.89 [1901/2147]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.039 arcsec [0.09σ]
KicOffset-rm: 0.102 arcsec [0.29σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 1.00 [17/17]

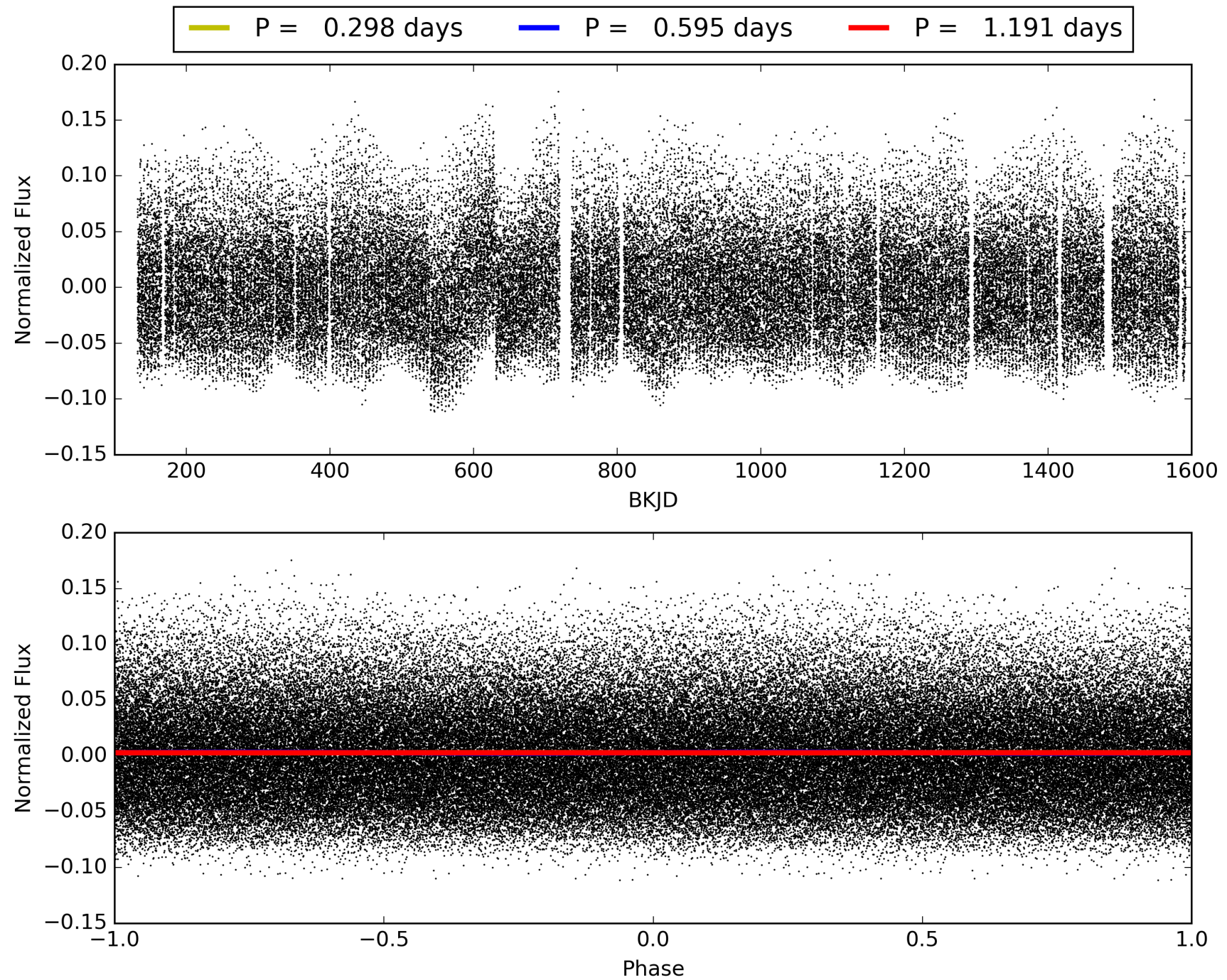
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:47:00 Z

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

TCE 006721089-01, PDC Light Curves

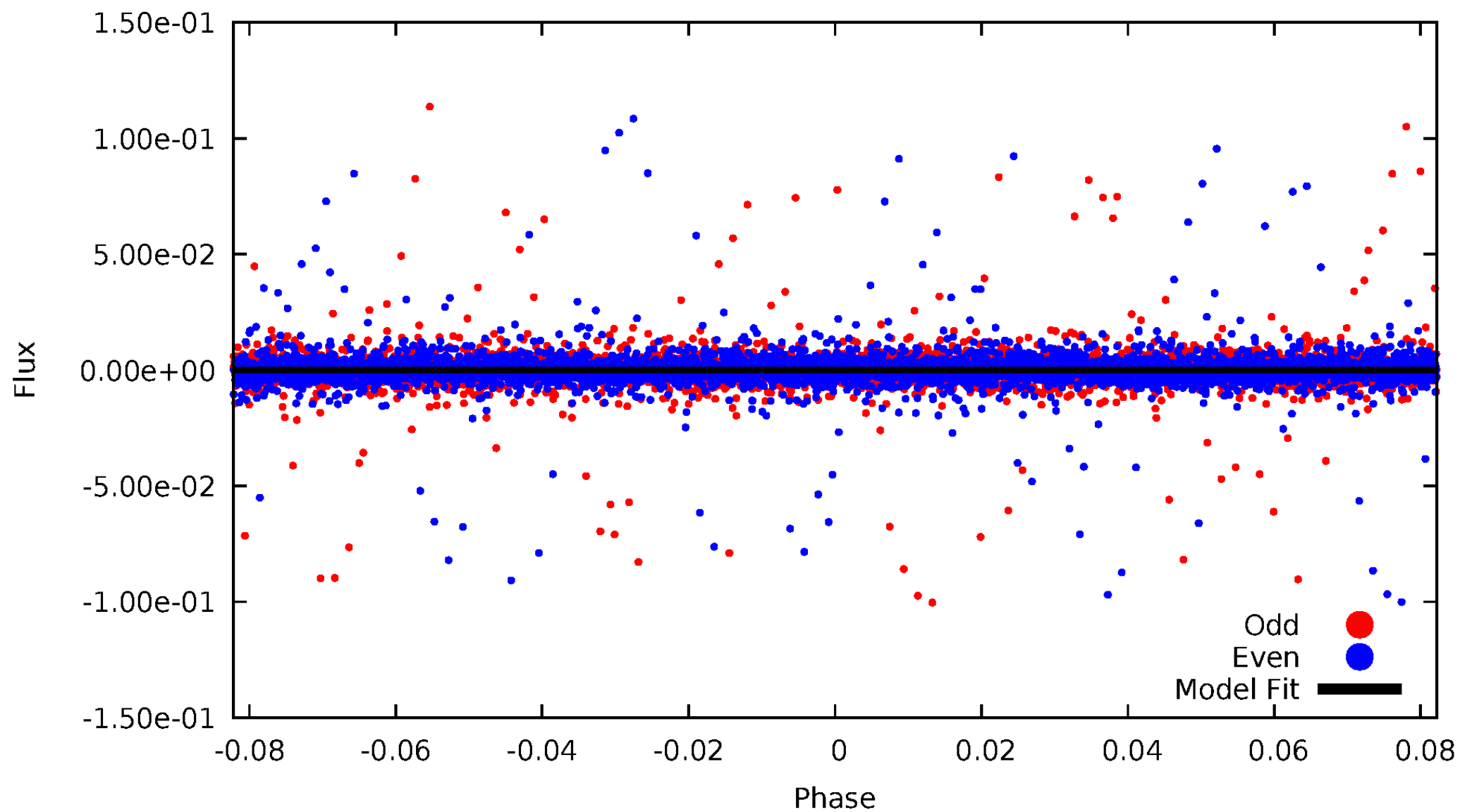


TCE 006721089-01



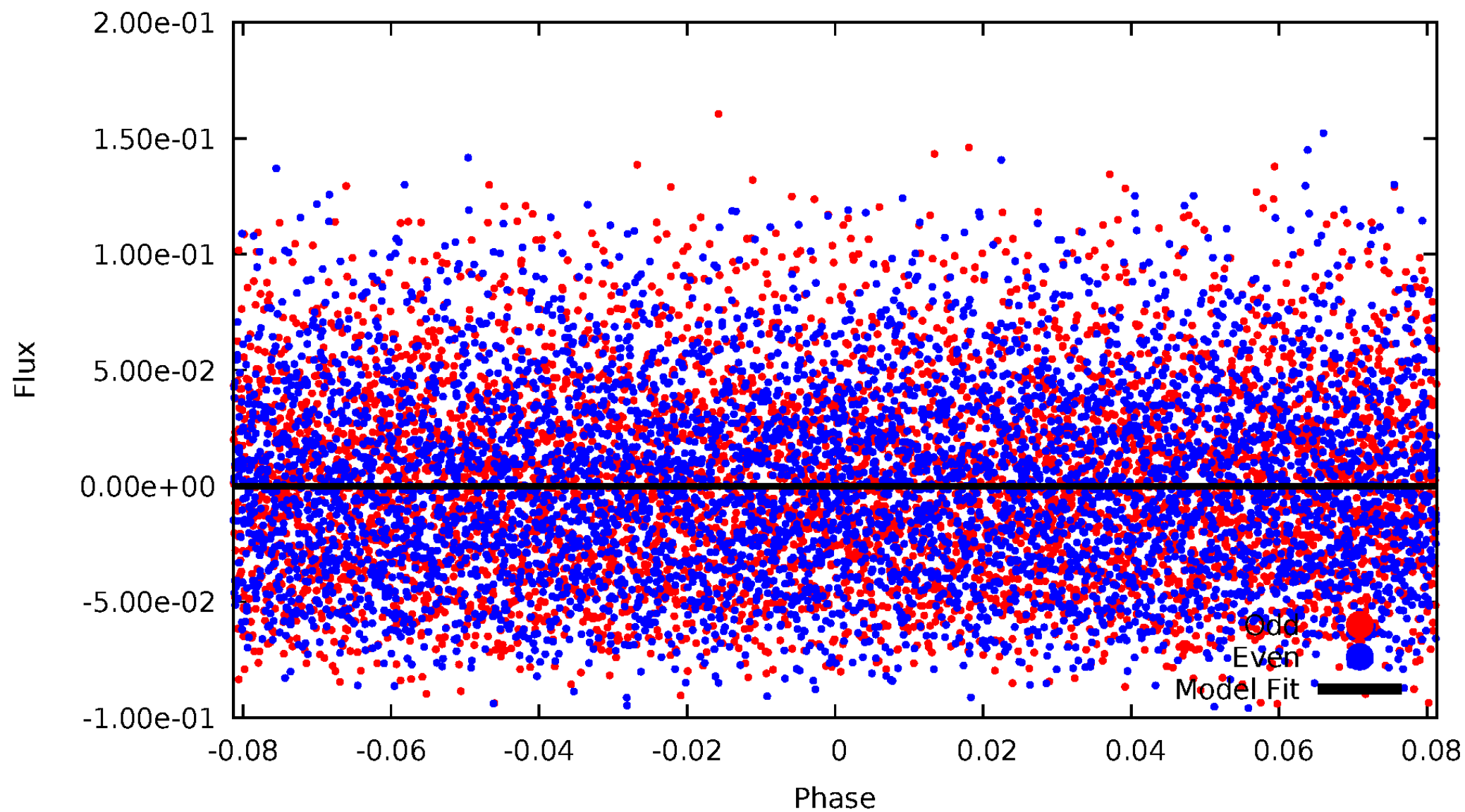
DV Odd/Even

TCE 006721089-01



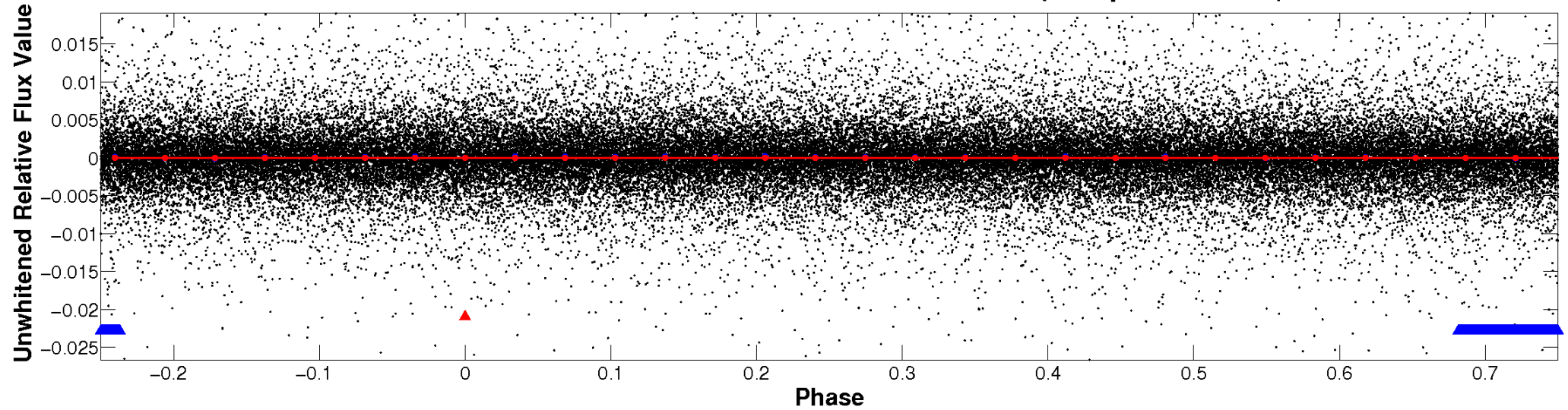
ALT Odd/Even

TCE 006721089-01

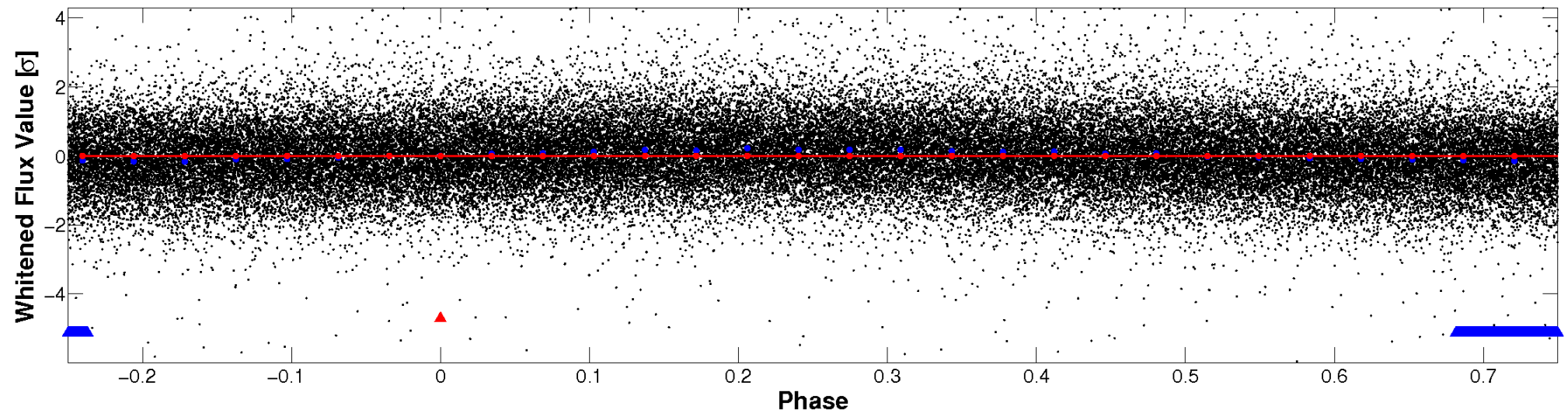


Non-Whitened Vs. Whitened Light Curve

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

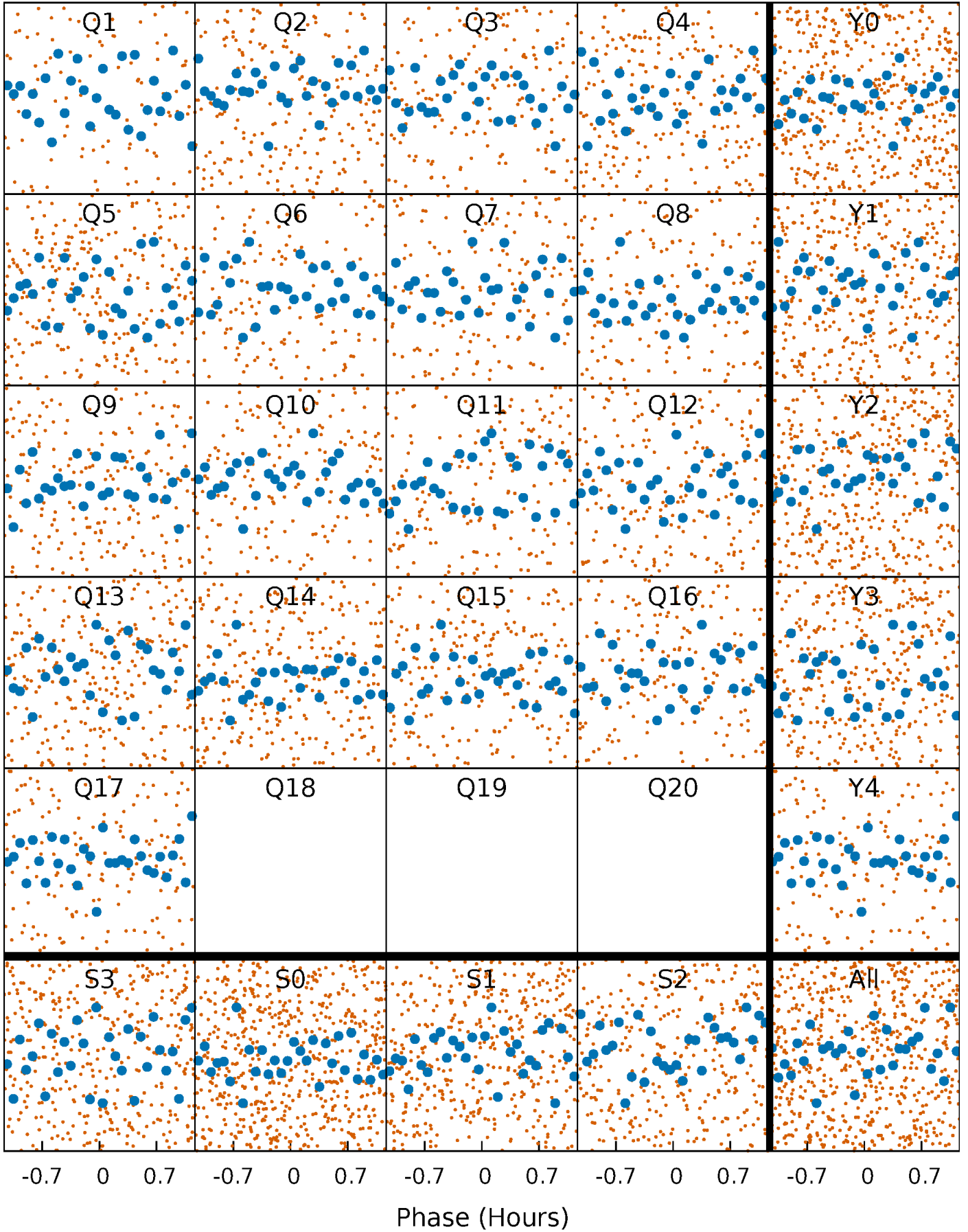


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



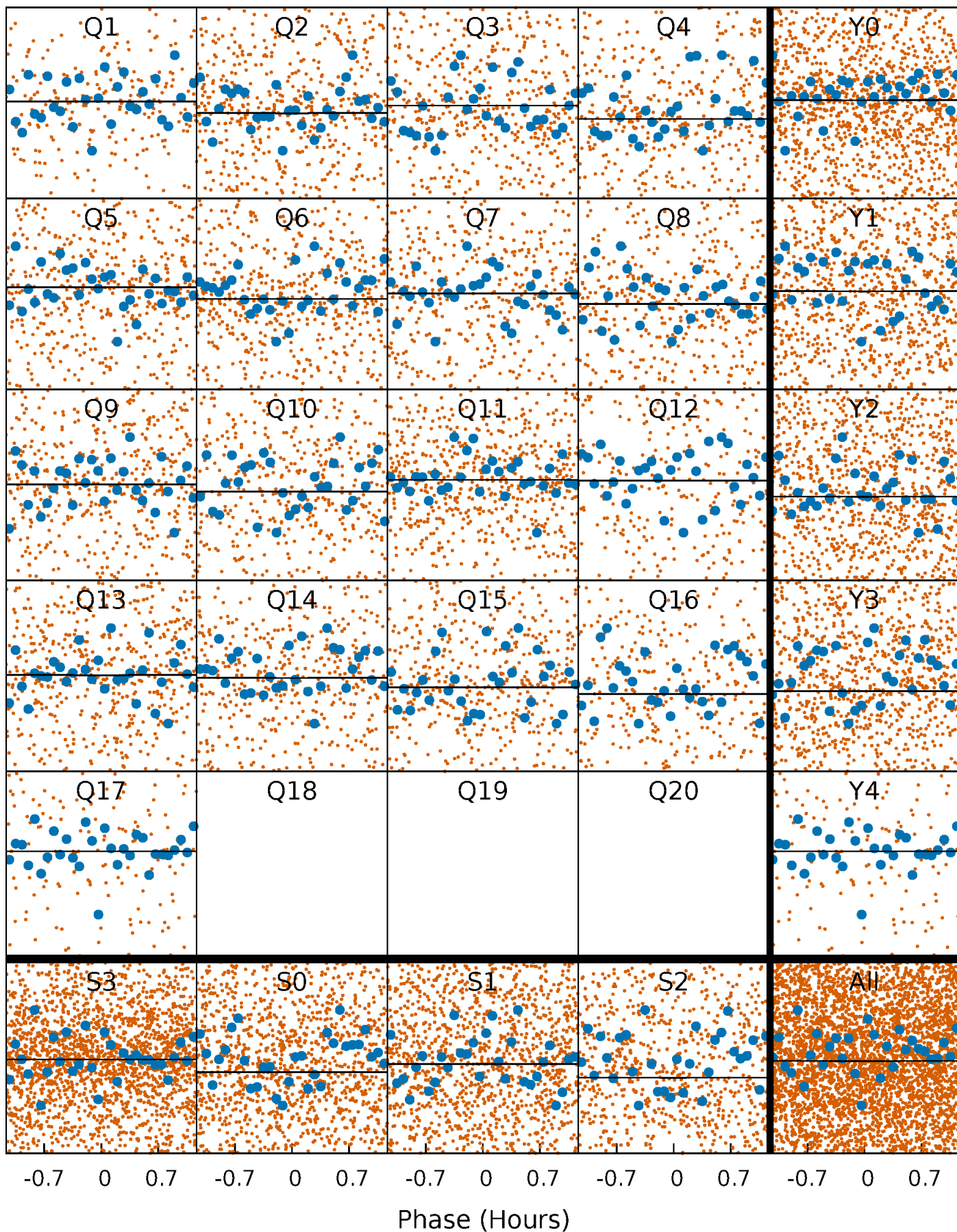
PDC Quarter-Phased Transit Curves

TCE 006721089-01 P= 0.595294 Days $T_0=132.054260$ (BKJD)



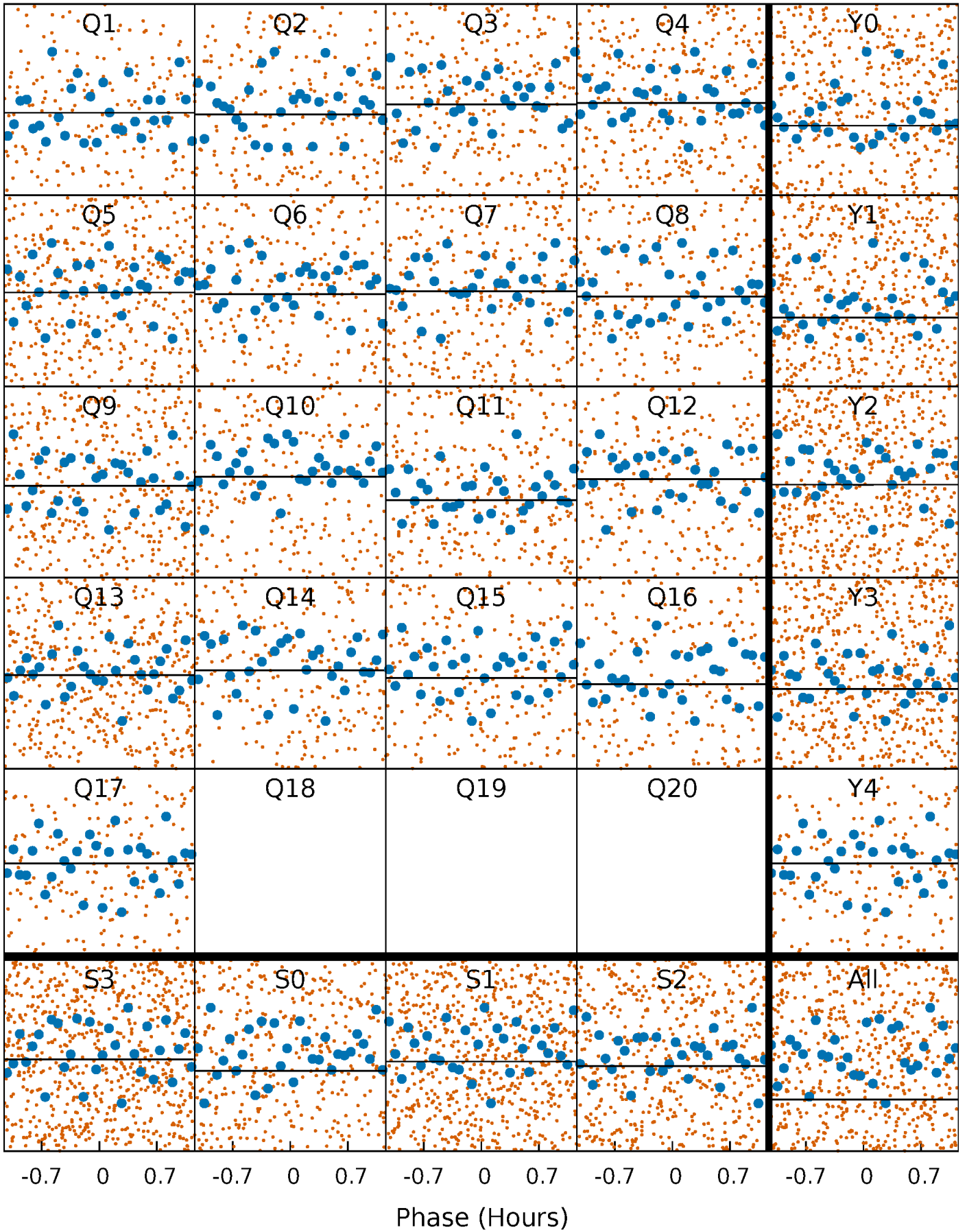
DV Quarter-Phased Transit Curves

TCE 006721089-01 P= 0.595294 Days $T_0=132.054260$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

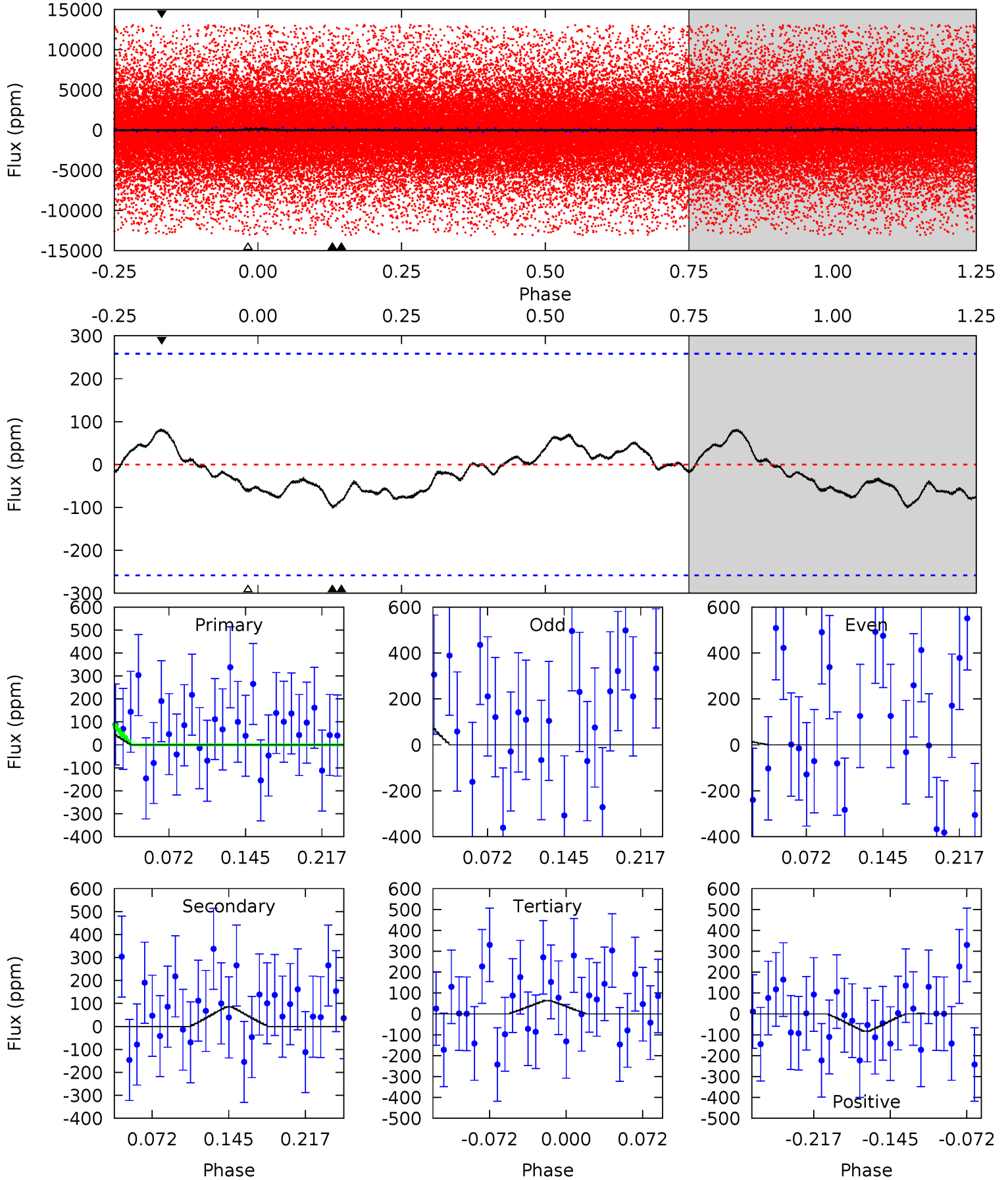
TCE 006721089-01 P= 0.595213 Days $T_0=132.058987$ (BKJD)



DV Model-Shift Uniqueness Test

006721089-01, P = 0.595294 Days, E = 131.458966 Days

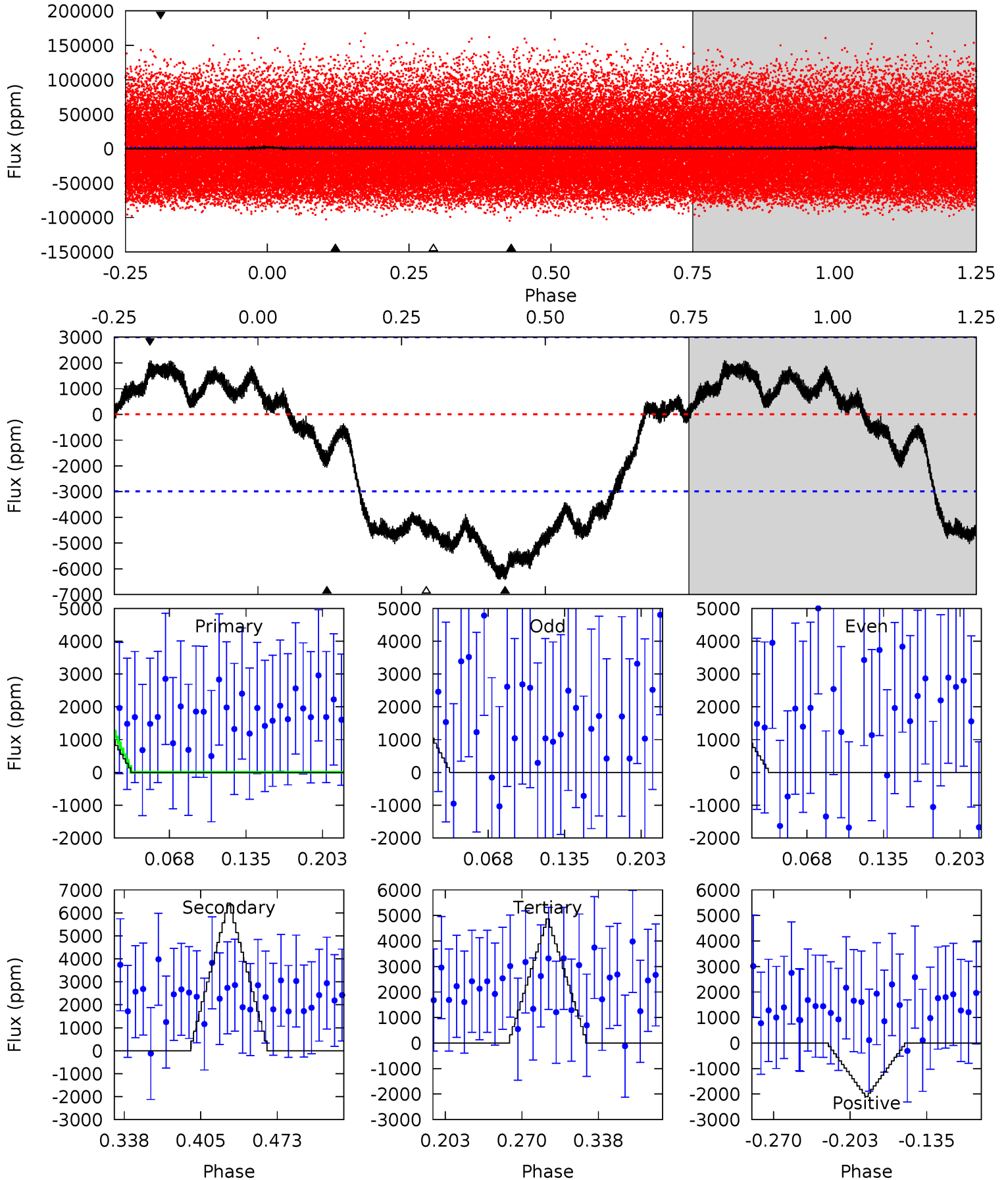
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	1.52	1.14	1.48	4.63	1.80	0.75	0.67	0.33	0.37	0.04	1.20	-6.61	0.45	1.61



Alt Model-Shift Uniqueness Test

006721089-01, P = 0.595213 Days, E = 131.463774 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.21	9.98	7.55	3.26	4.65	1.83	3.96	-4.35	-0.06	2.42	6.72	0.25	-1.21	0.25	0.97



Stellar Parameters For KIC 006721089

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6738^{+164}_{-258}	$4.305^{+0.087}_{-0.203}$	$-0.220^{+0.250}_{-0.300}$	$1.293^{+0.420}_{-0.180}$	$1.240^{+0.177}_{-0.195}$	$0.807^{+0.317}_{-0.439}$
	+2%/-4%	+2%/-5%	+114%/-136%	+32%/-14%	+14%/-16%	+39%/-54%
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 006721089-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-85 ± 56	$5.57^{+6.92}_{-3.67}$	3918^{+308}_{-216}	-2773^{+8230}_{-817}	$0.255^{+2.483}_{-0.217}$
Alt.	-6424 ± 644	$5.87^{+6.41}_{-4.15}$	3917^{+286}_{-213}	10256^{+28533}_{-3766}	23^{+234}_{-18}

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 $A_{obs} \gg 1.0$

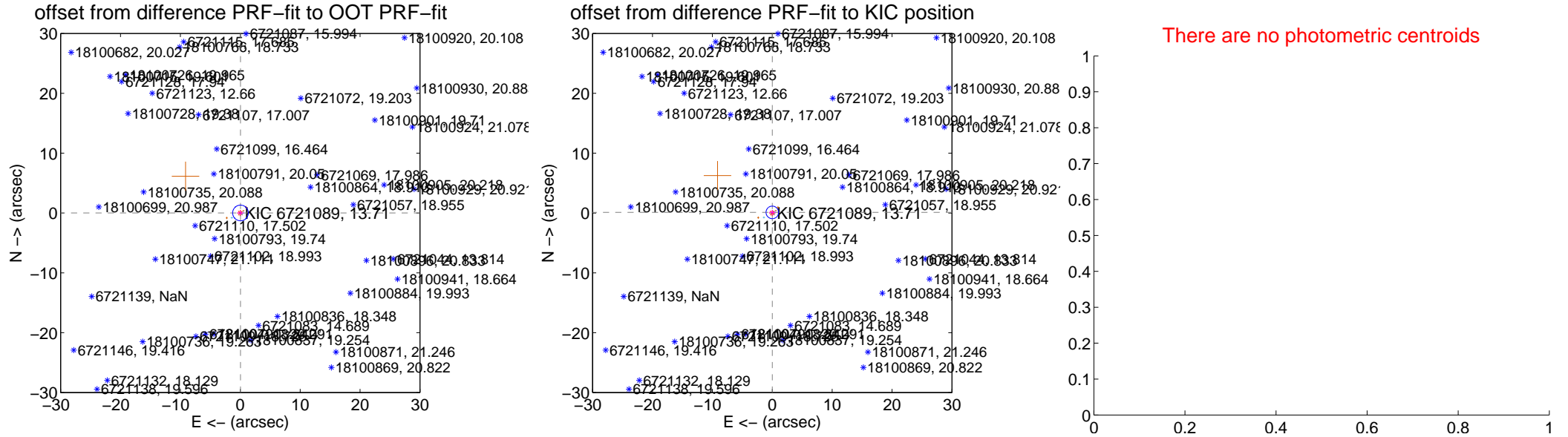
DV Centroid Data

Supplemental centroid analysis for 006721089-01. Kepler magnitude: 13.71. Transit SNR 0.02

There are 9 quarters with good PRF difference image offsets

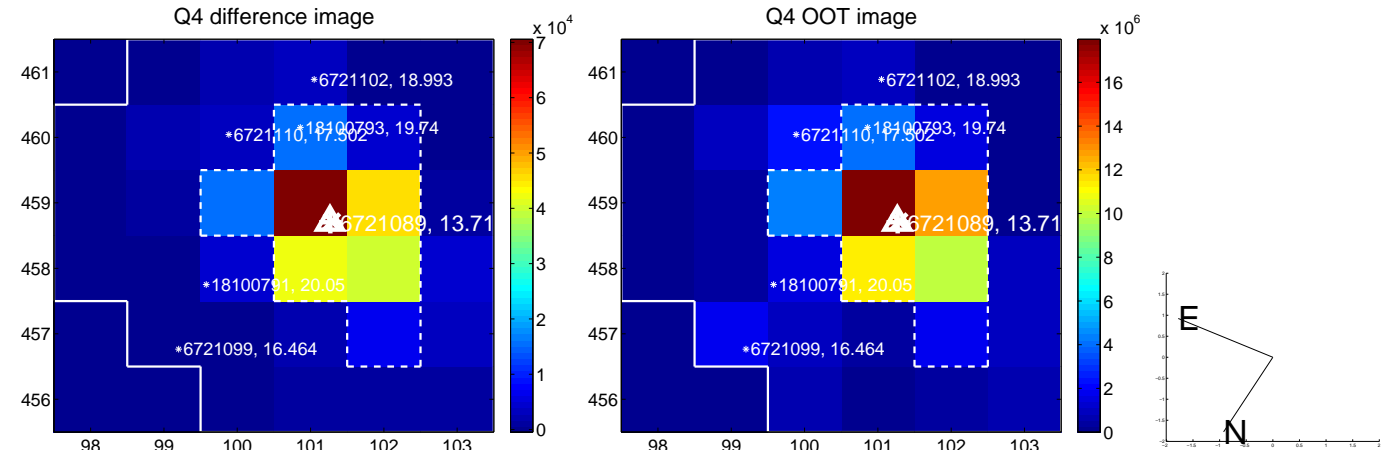
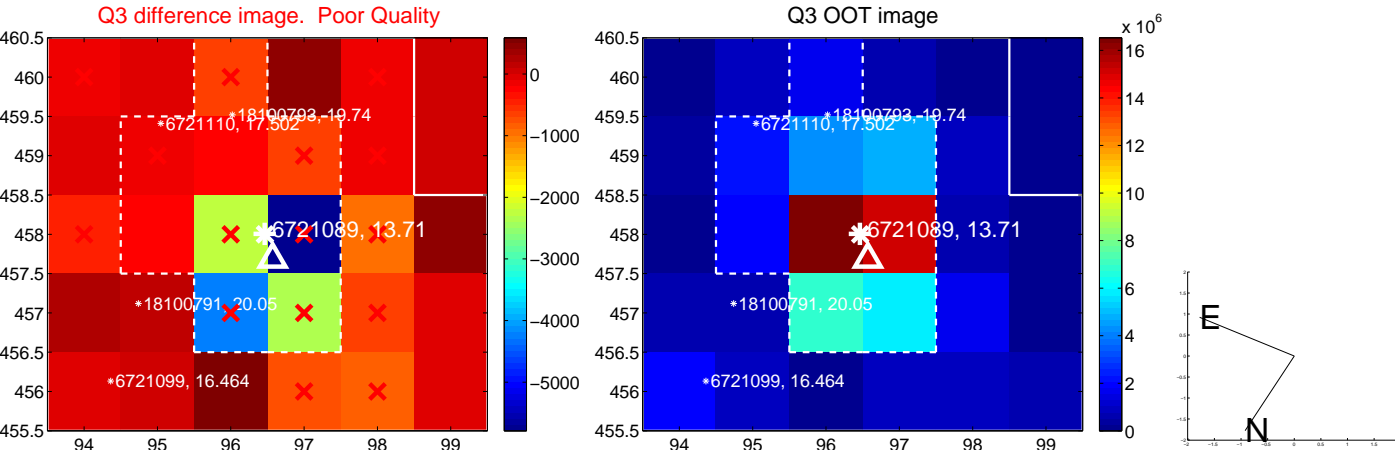
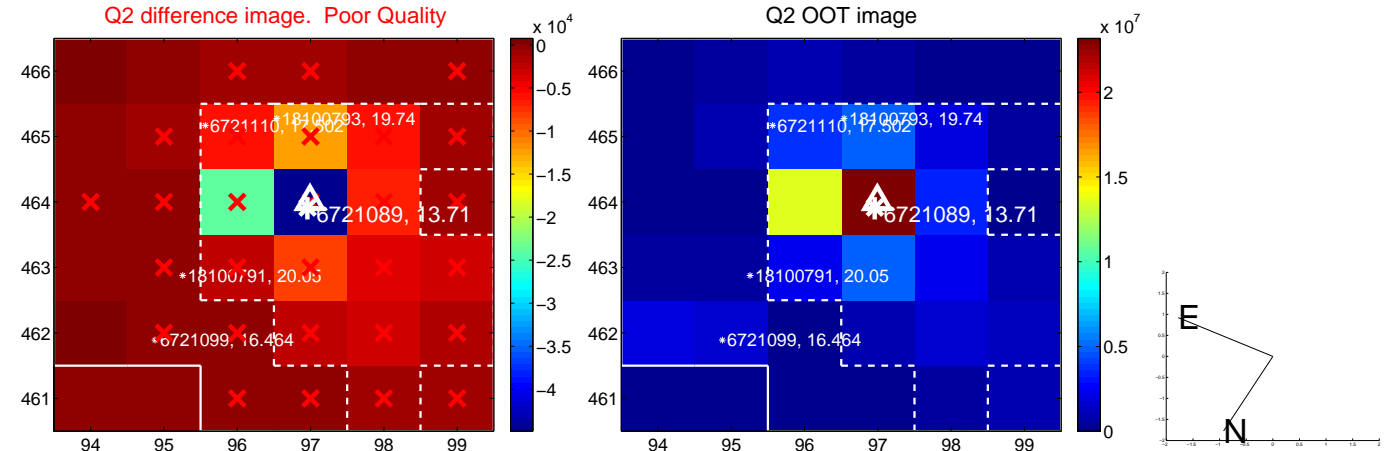
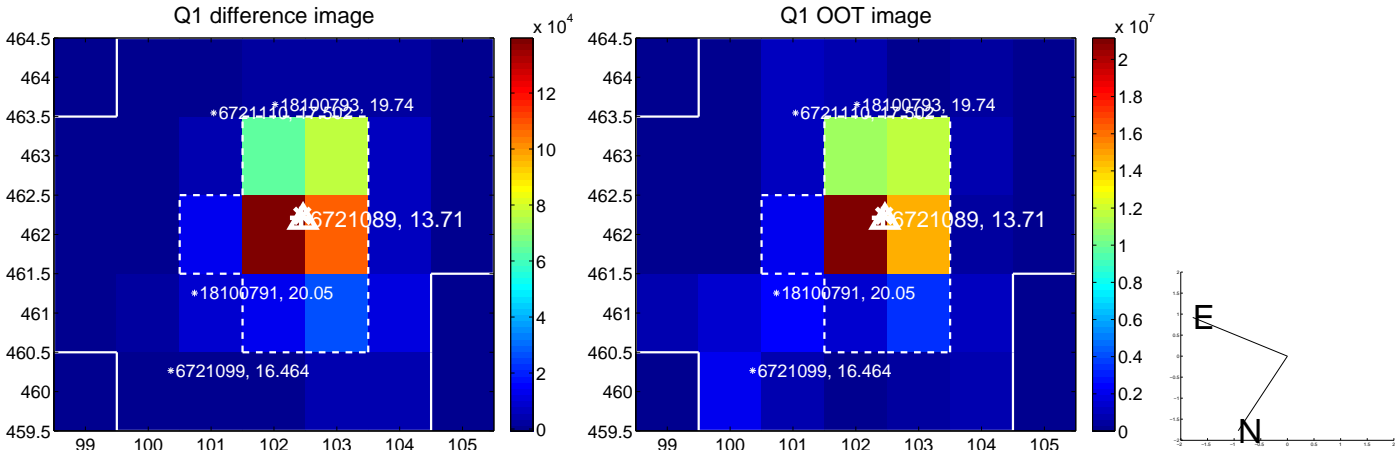
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.039 ± 0.437	0.09	-0.037 ± 0.541	0.012 ± 0.352
PRF-fit source offset from KIC position	0.102 ± 0.350	0.29	-0.010 ± 0.538	0.102 ± 0.392
photometric centroid source offset	—	—	—	—

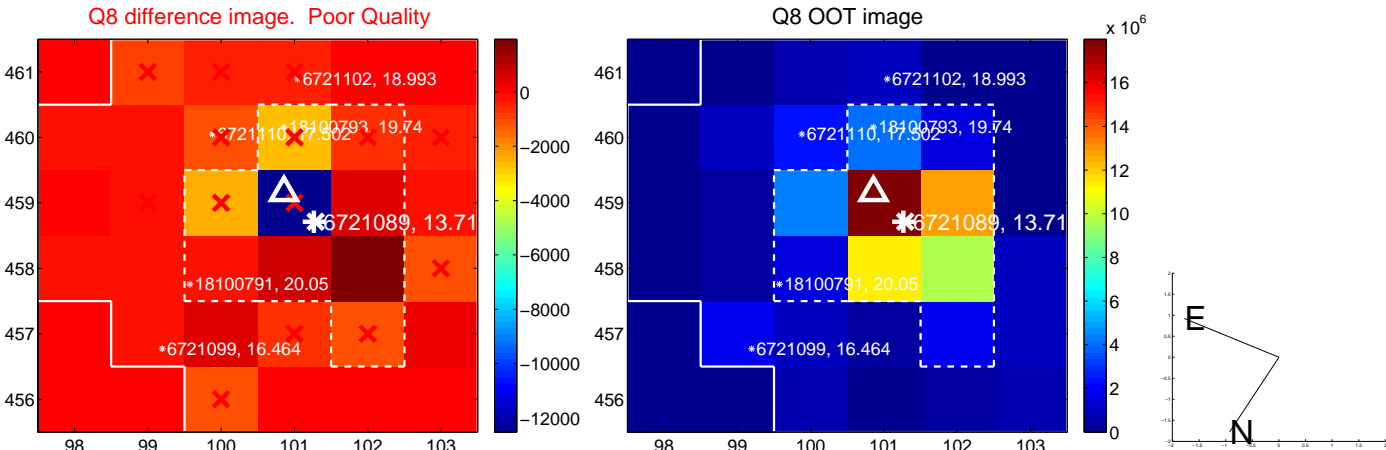
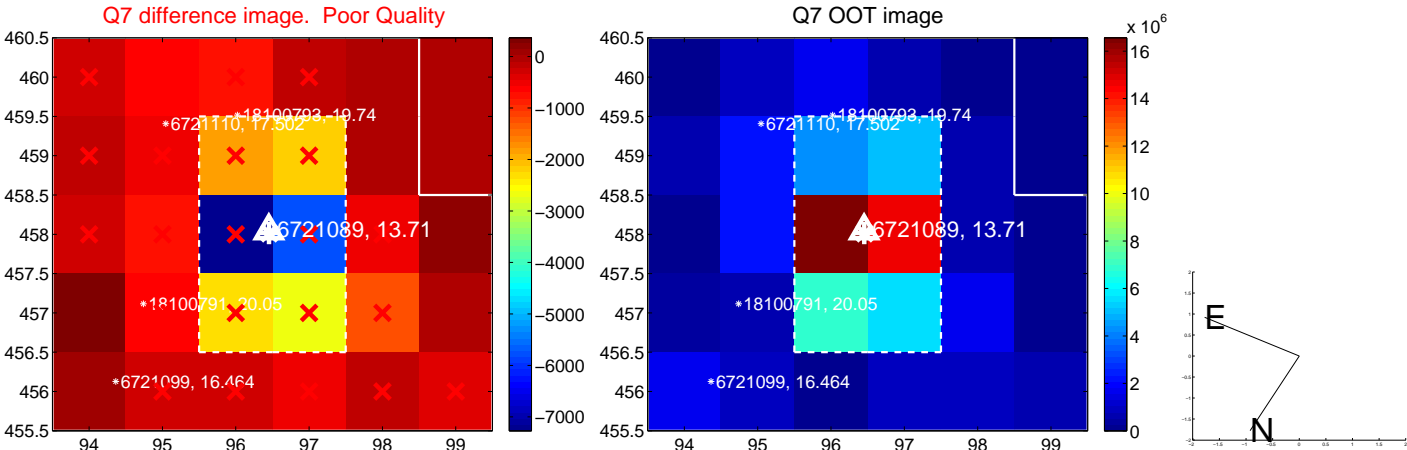
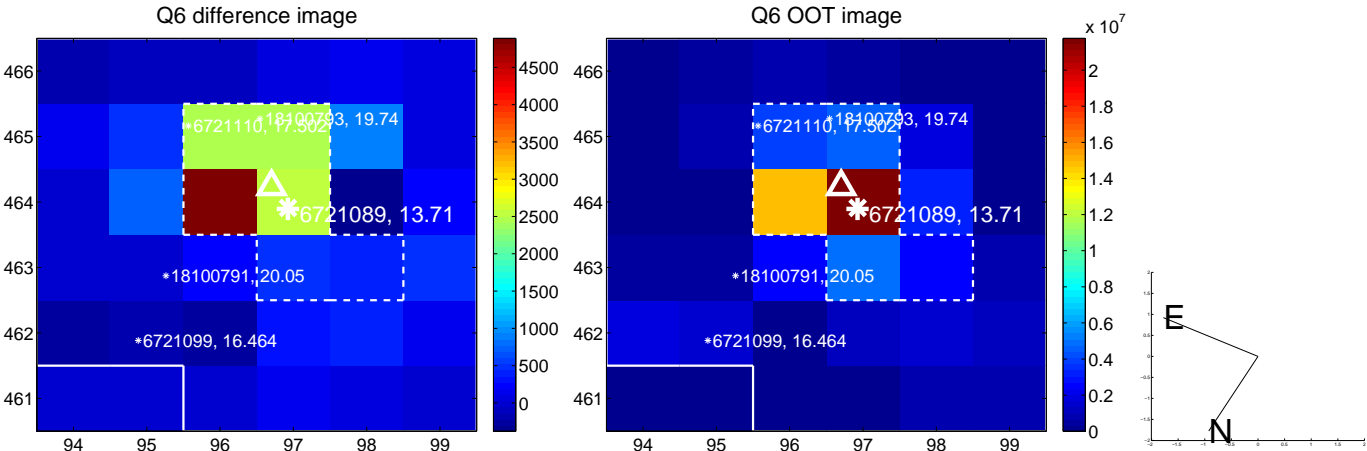
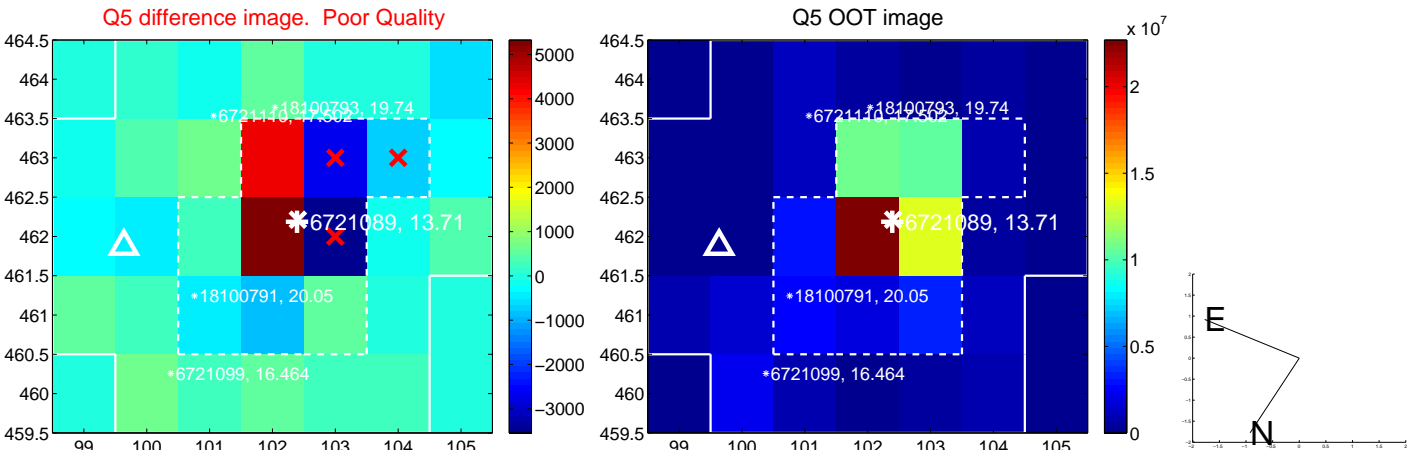


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

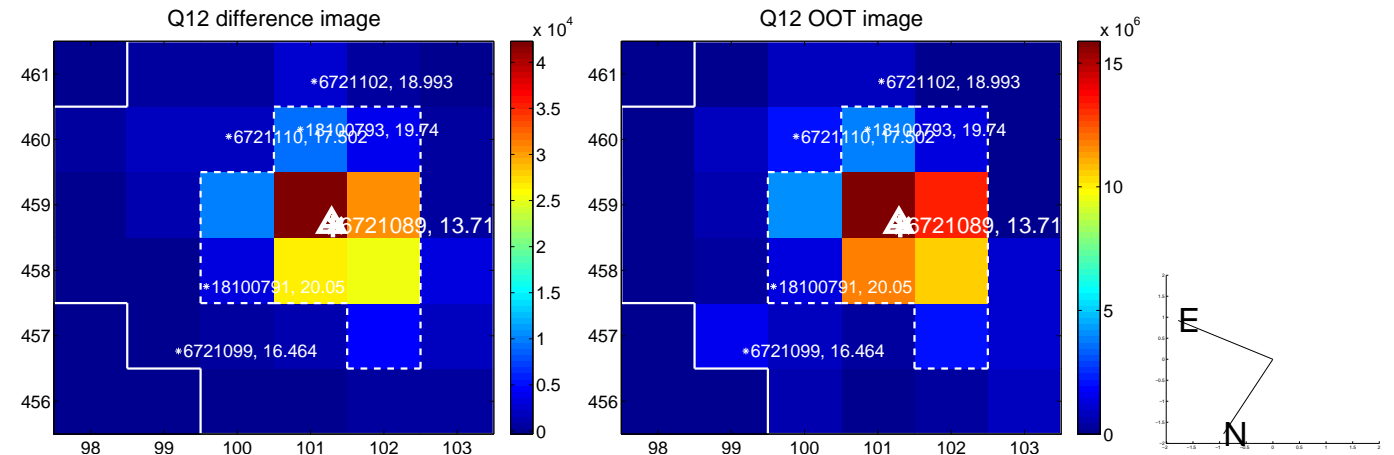
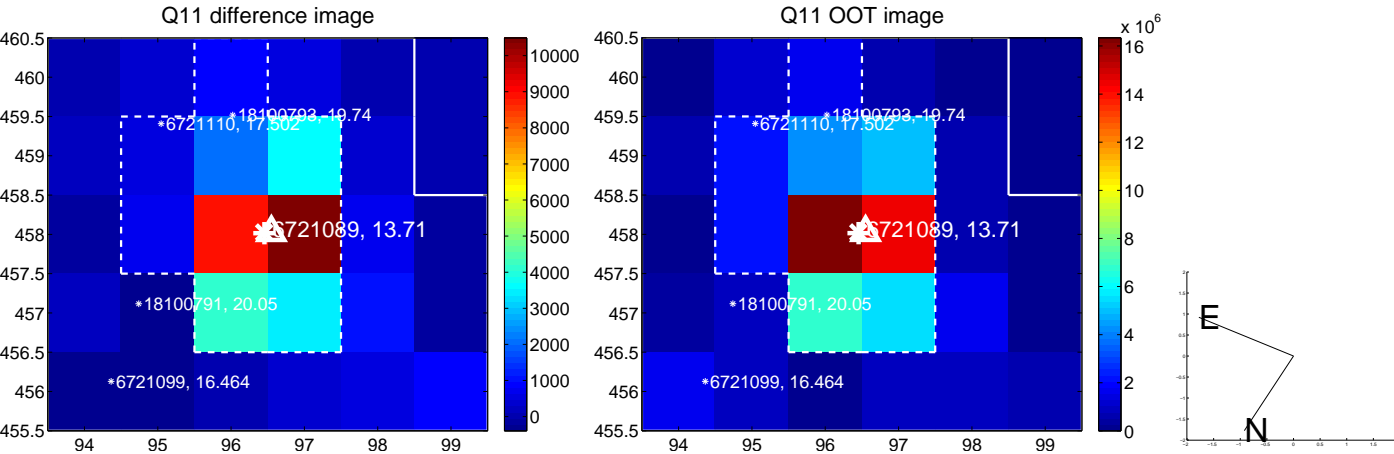
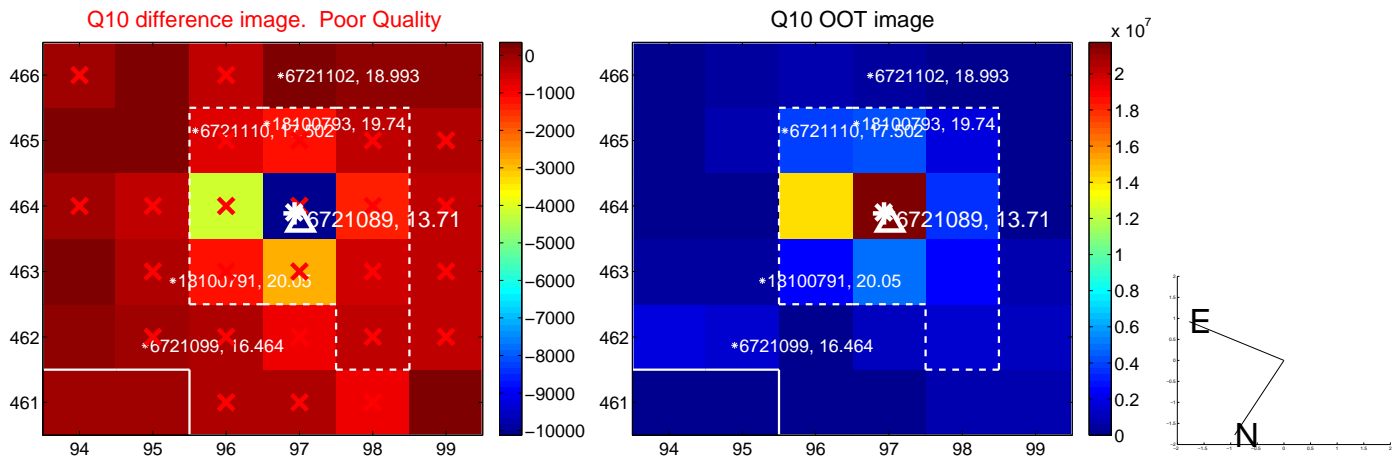
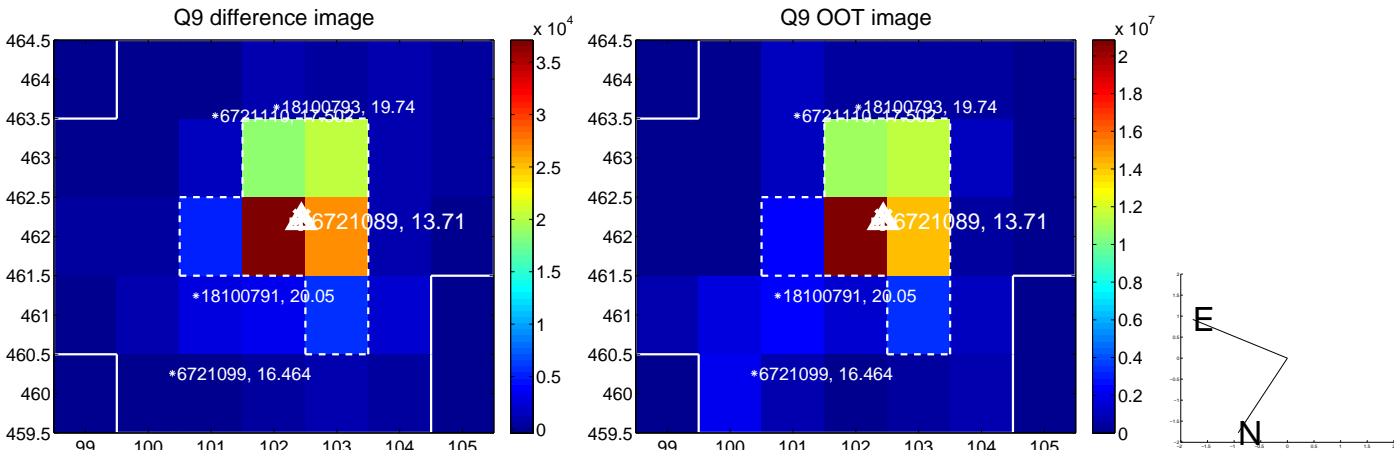
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



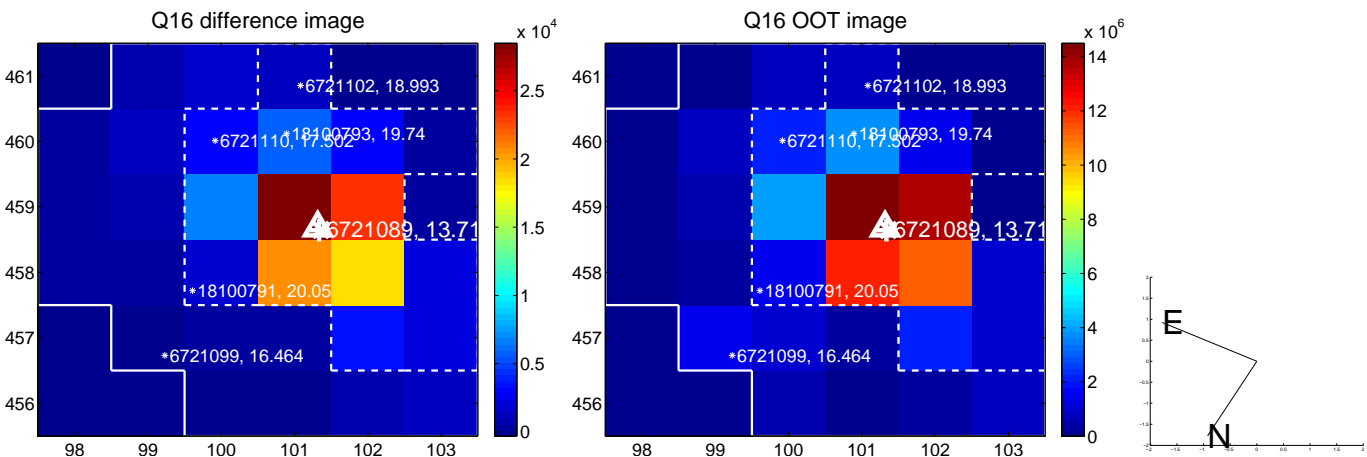
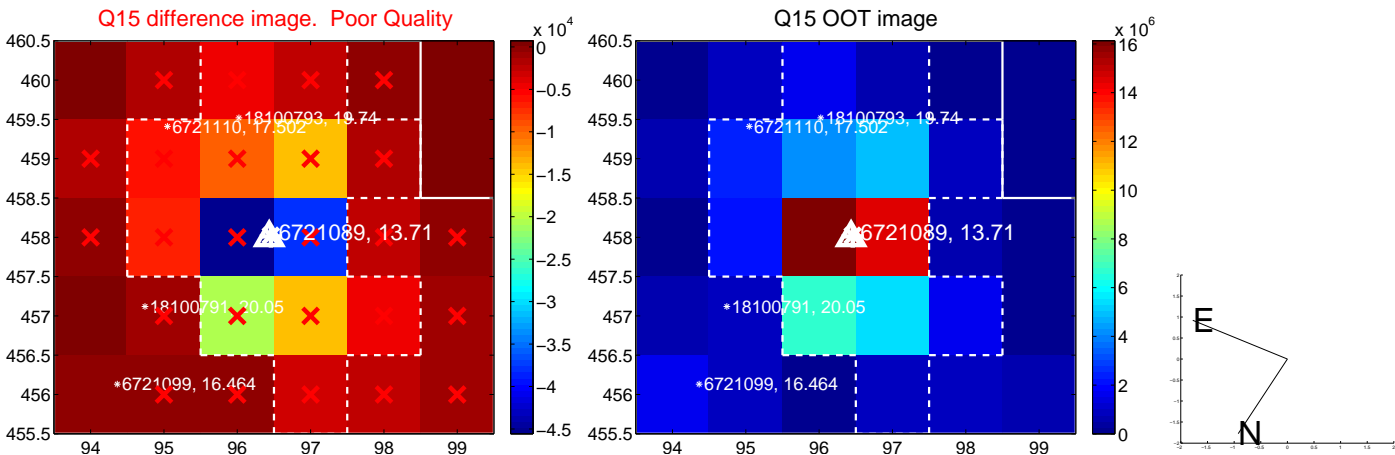
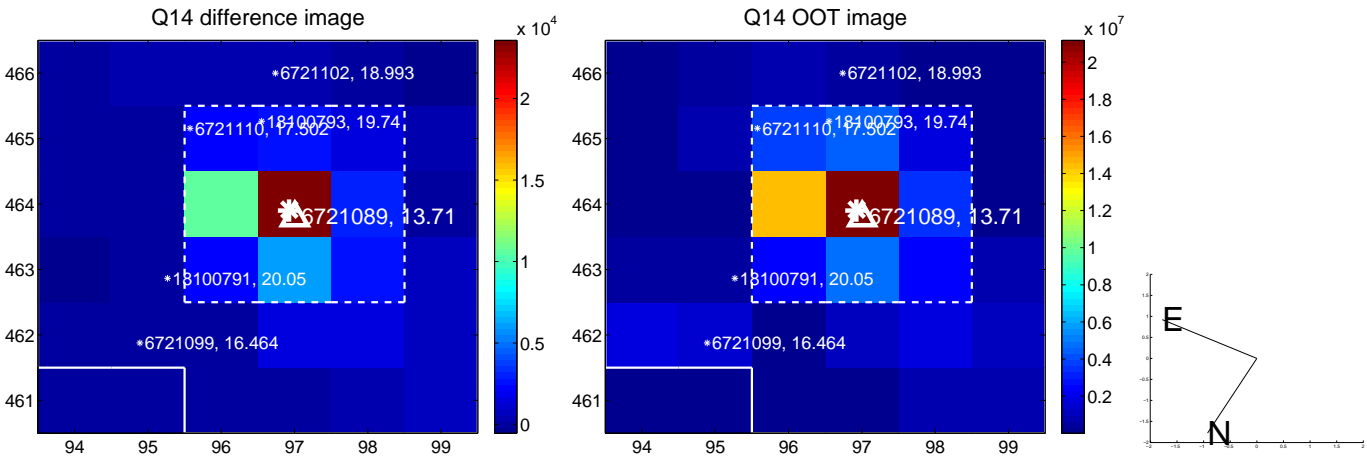
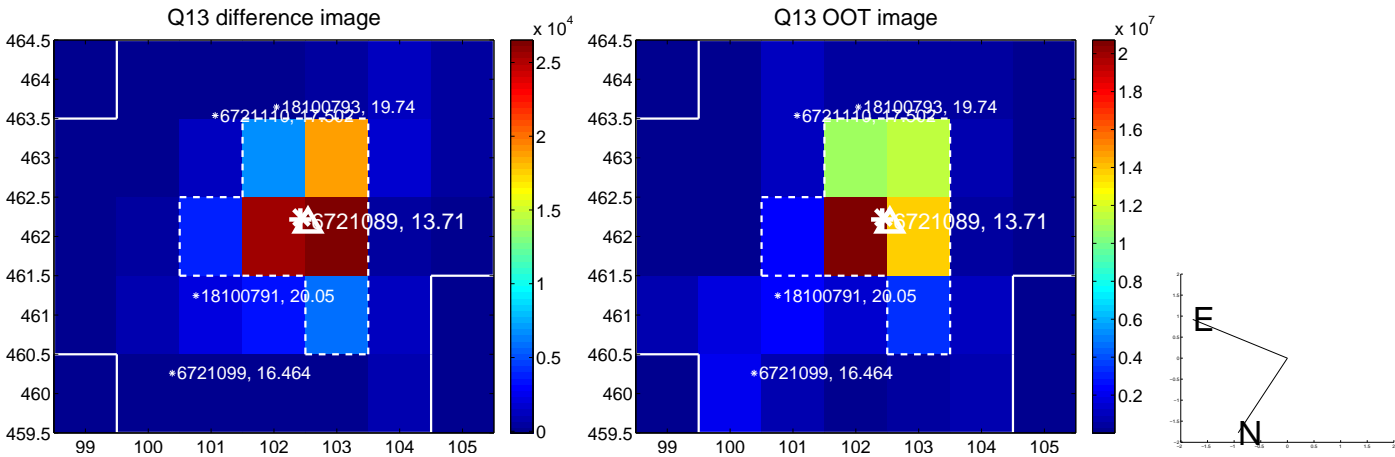
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



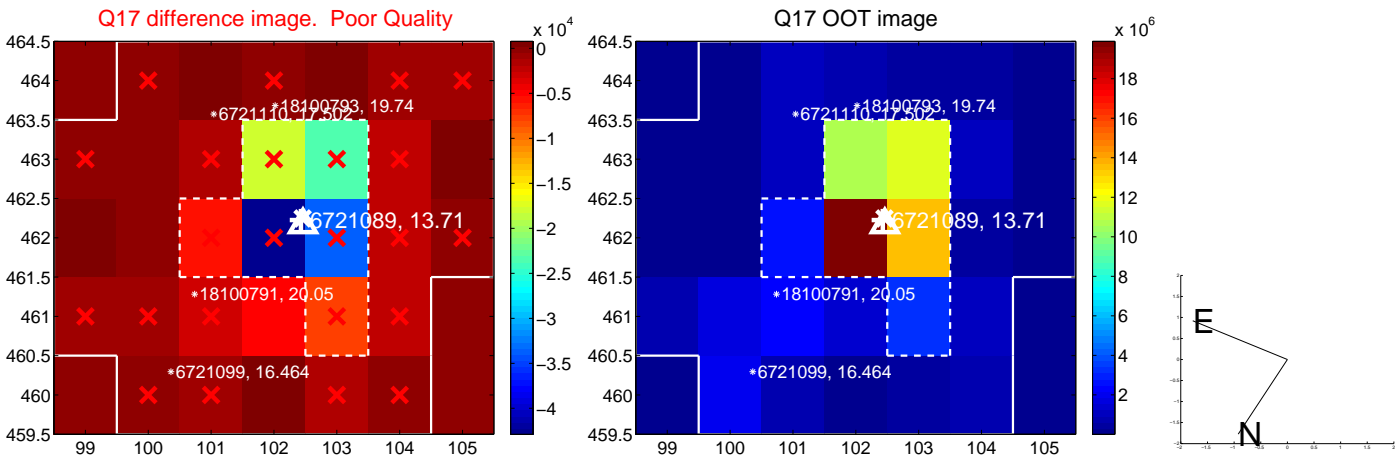
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



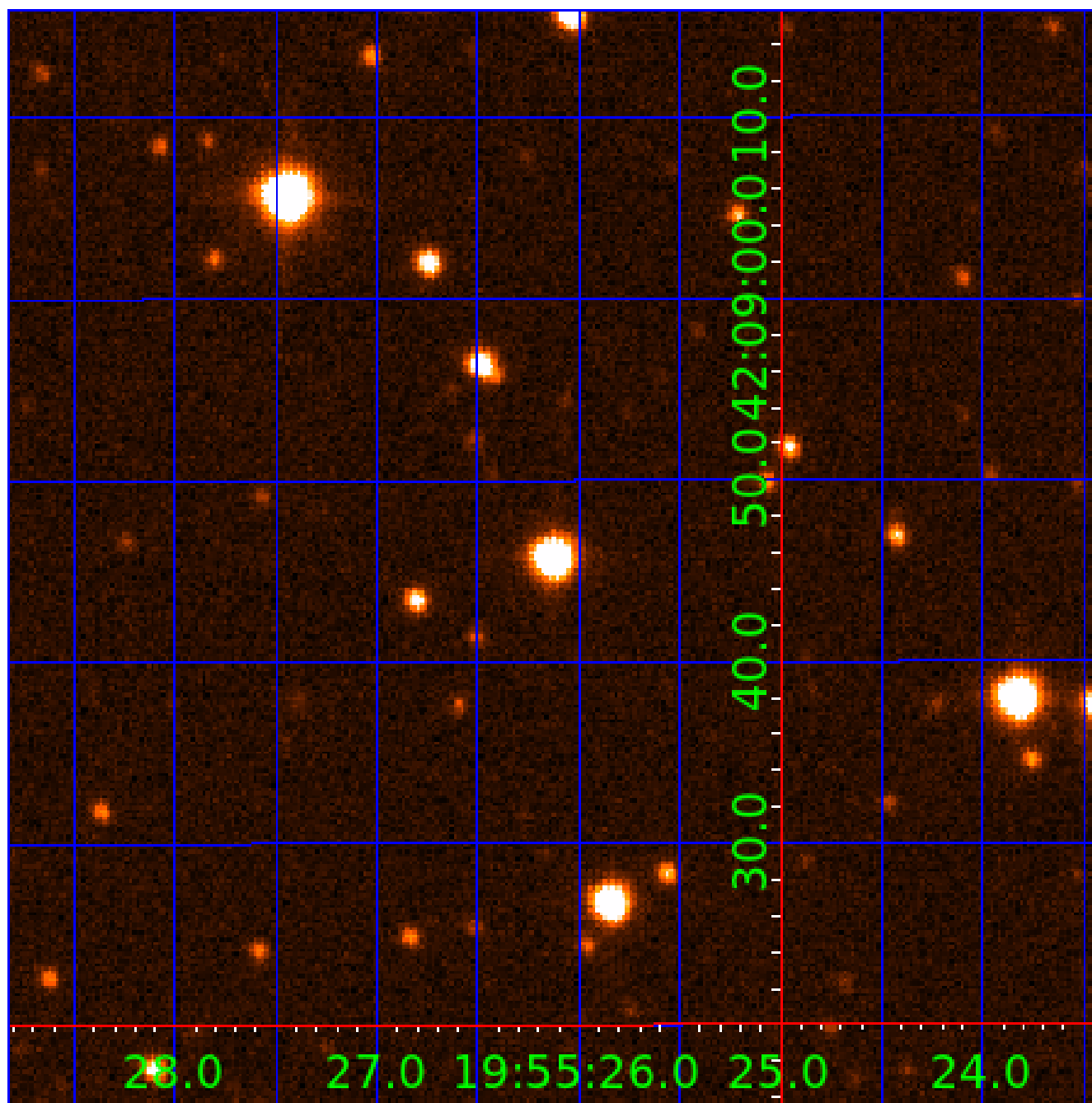
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006721089

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})
006721089-01	OBS	No	0.595294	132.054260	1.5	0.587	20.7	0.0	1.29	6738	0.19	14010.13
006721089-02	OBS	No	0.595274	131.913277	750.5	2.000	12.8	-1.0	1.29	6738	3.58	14010.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721089-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
006721089-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

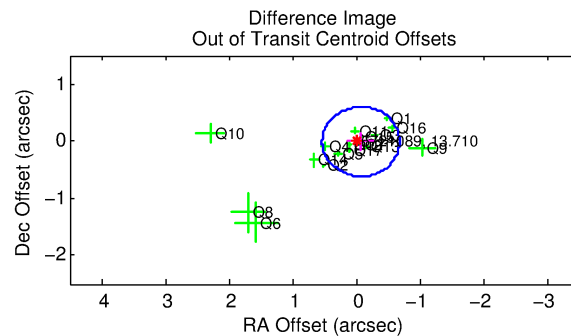
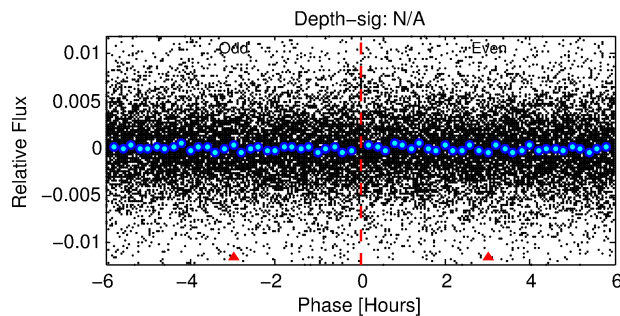
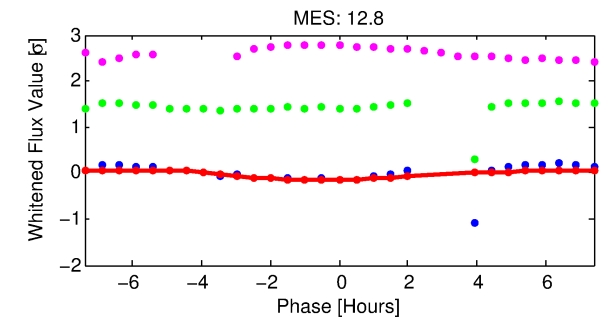
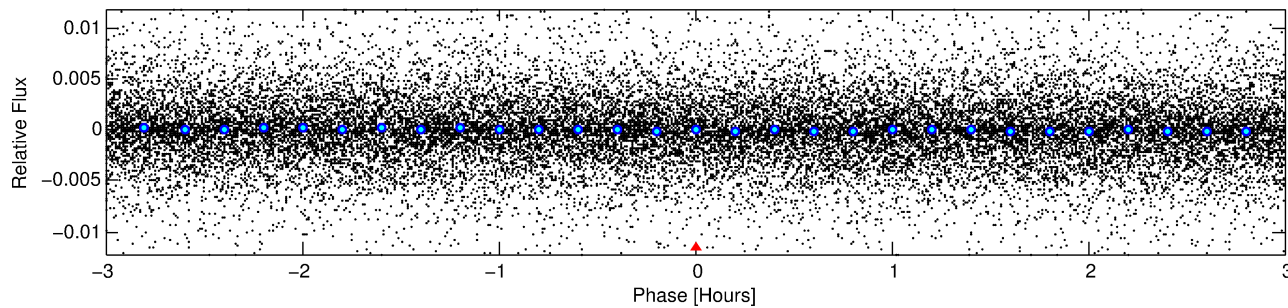
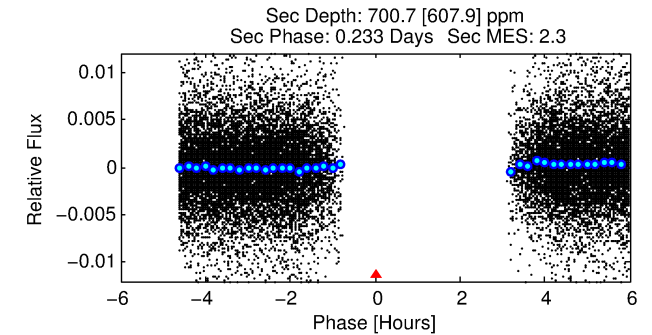
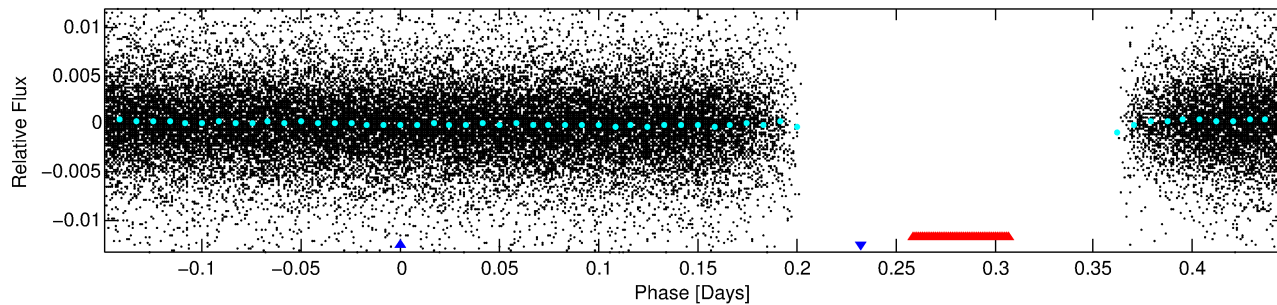
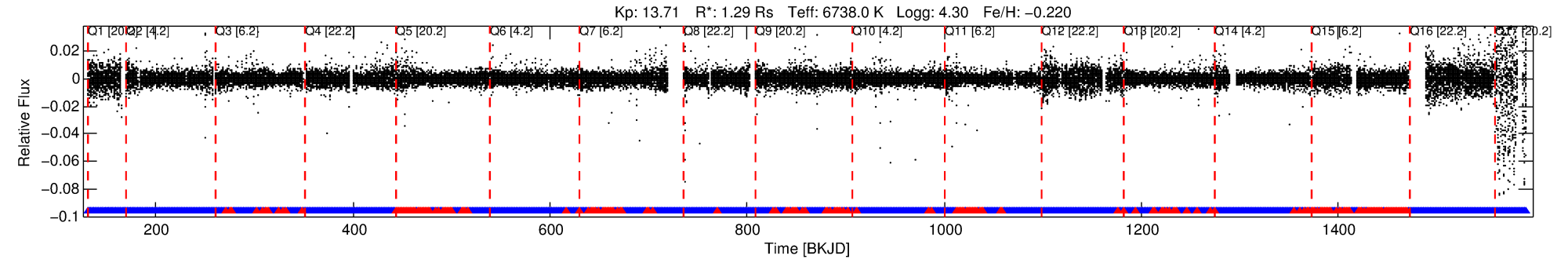
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721089-02

No Significant Match Found

DV One-Page Summary

KIC: 6721089 Candidate: 2 of 2 Period: 0.595 d



TPS TCE Results:

Period = 0.59527 d
Epoch = 131.9133 BKJD

DV fit results are unavailable

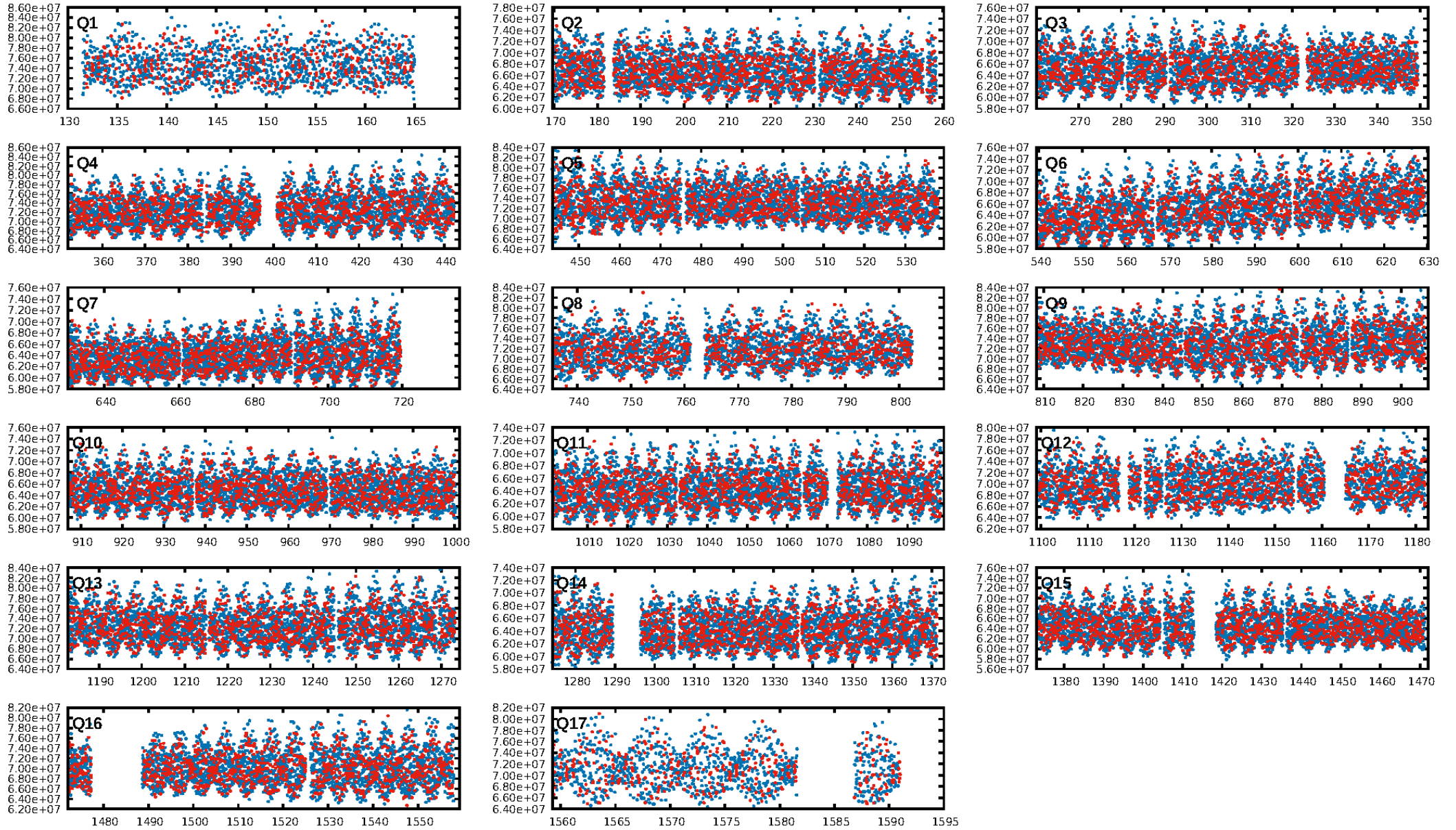
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.89 [1897/2143]
GhostDiagnostic-chr: -1.388
Centroid-sig: 16.3%
Centroid-so: 0.852 arcsec [2.30σ]
OotOffset-rm: 0.076 arcsec [0.37σ]
KicOffset-rm: 0.080 arcsec [0.38σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

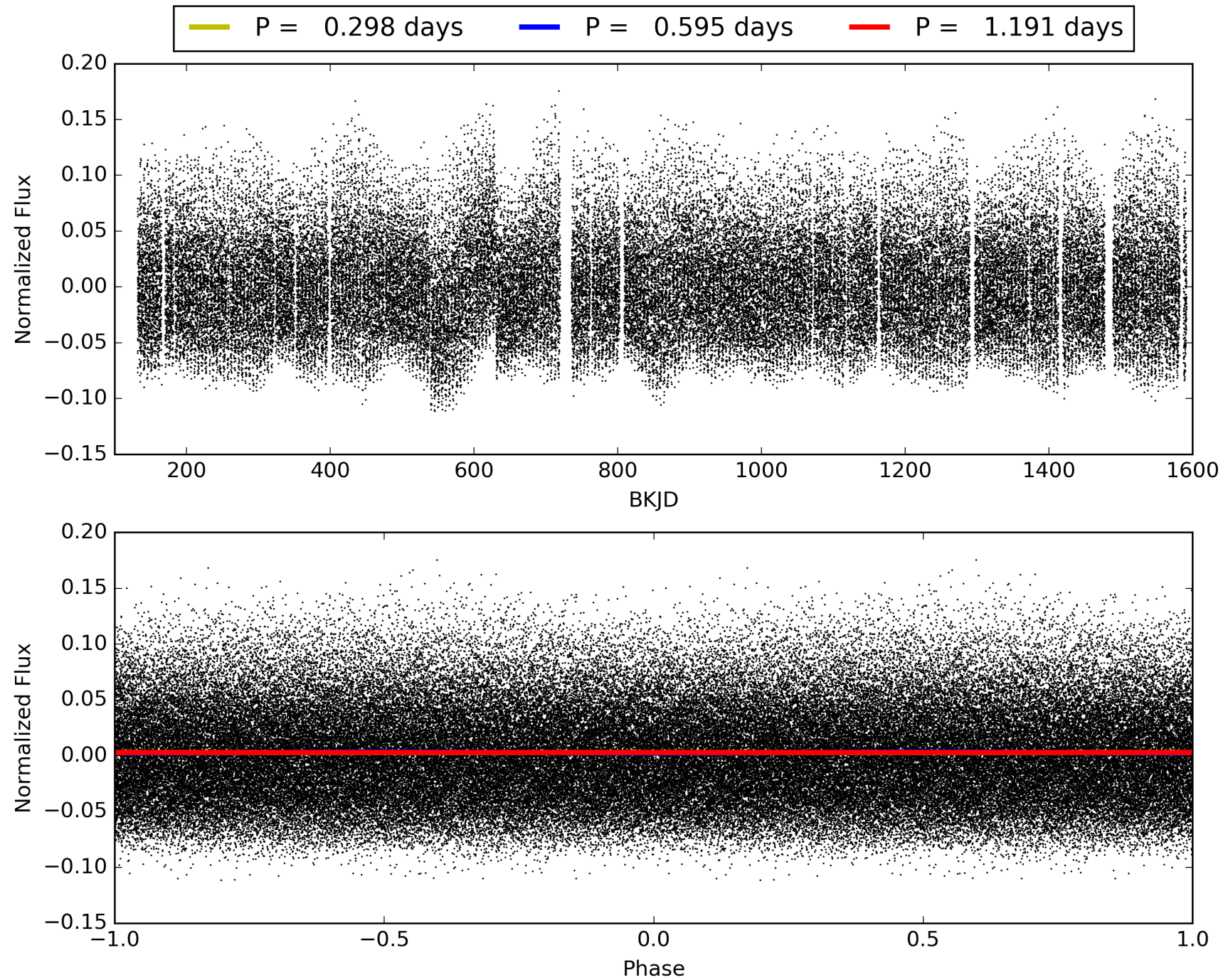
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:47:09 Z

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

TCE 006721089-02, PDC Light Curves

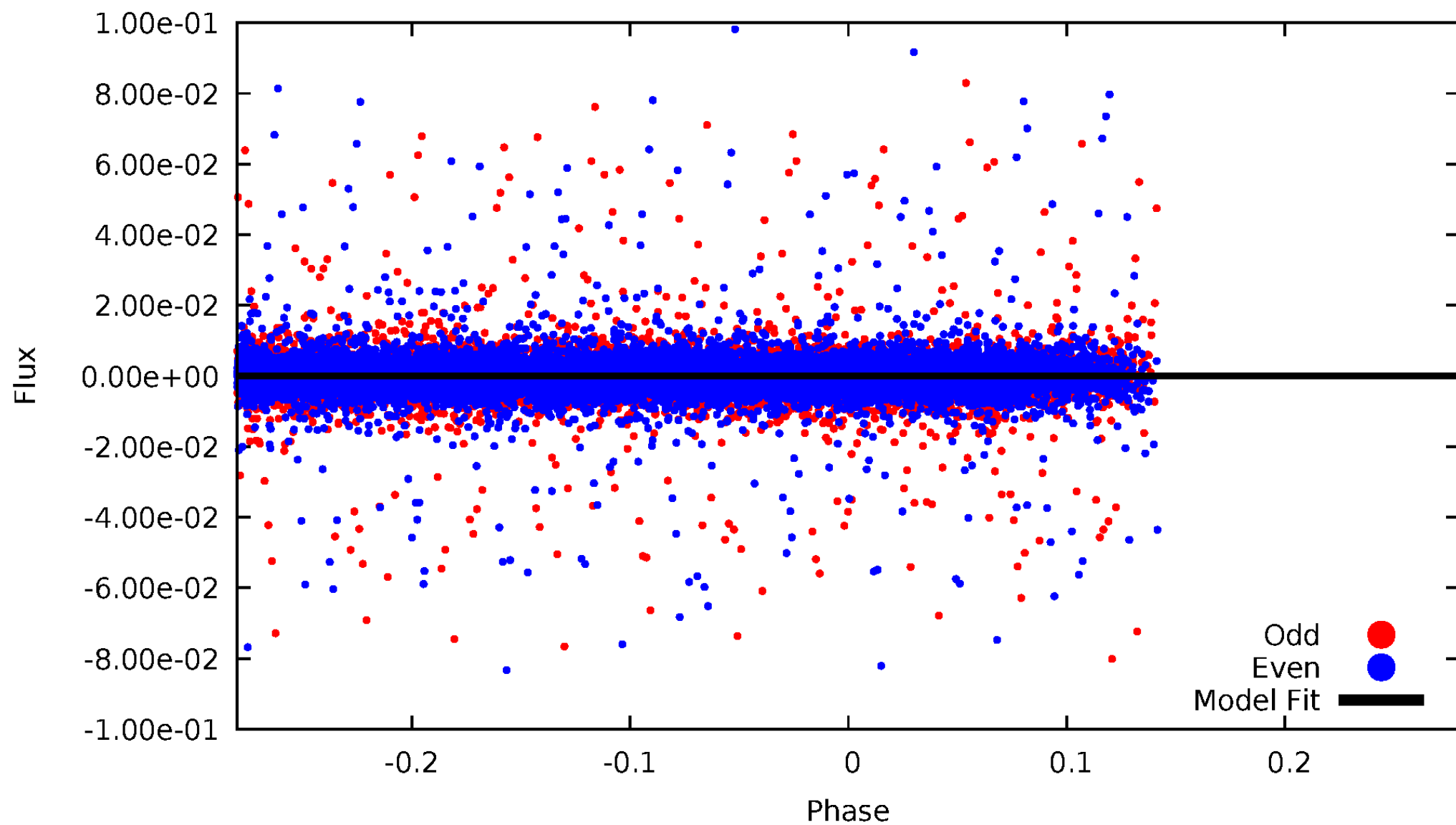


TCE 006721089-02



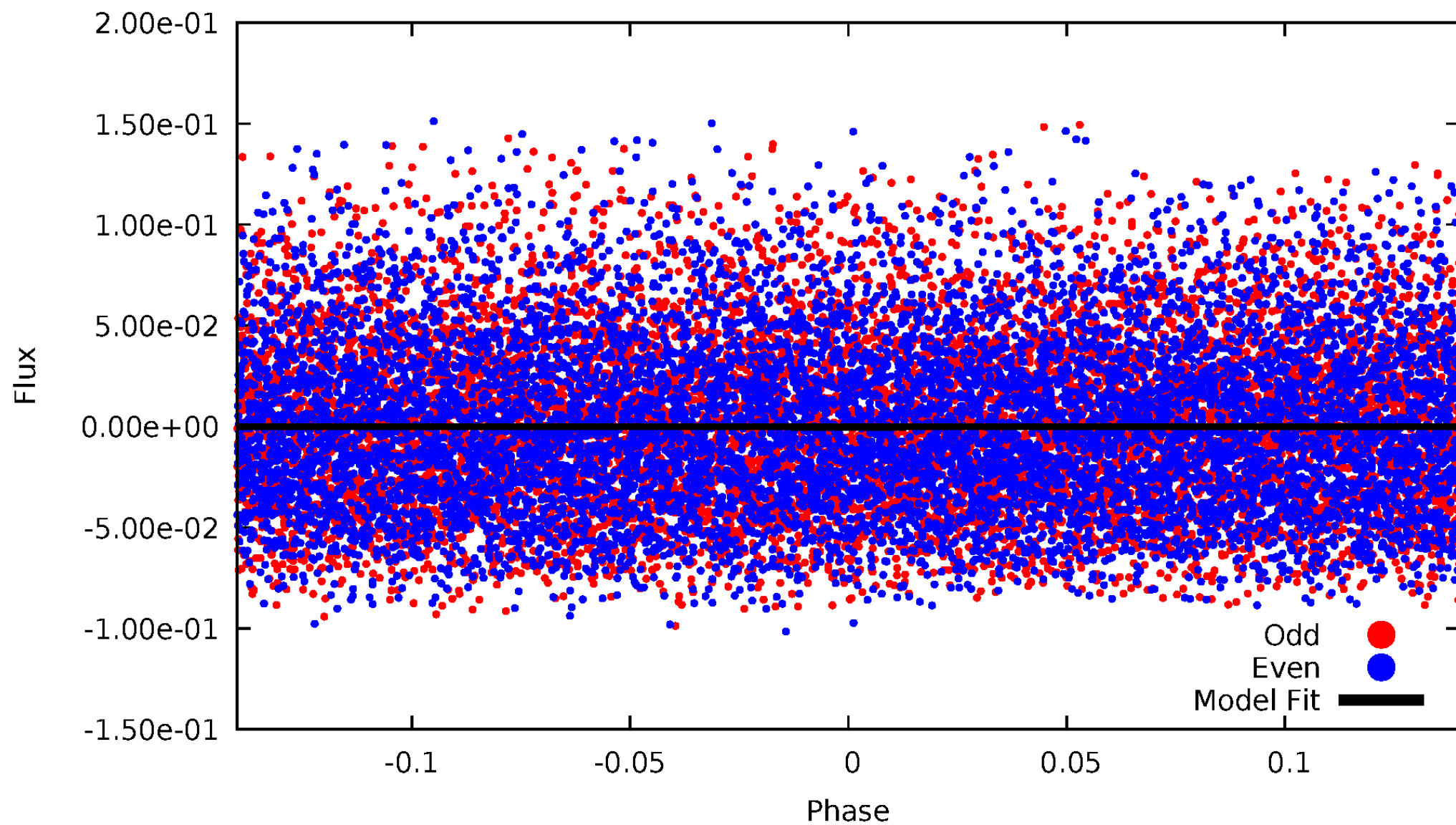
DV Odd/Even

TCE 006721089-02



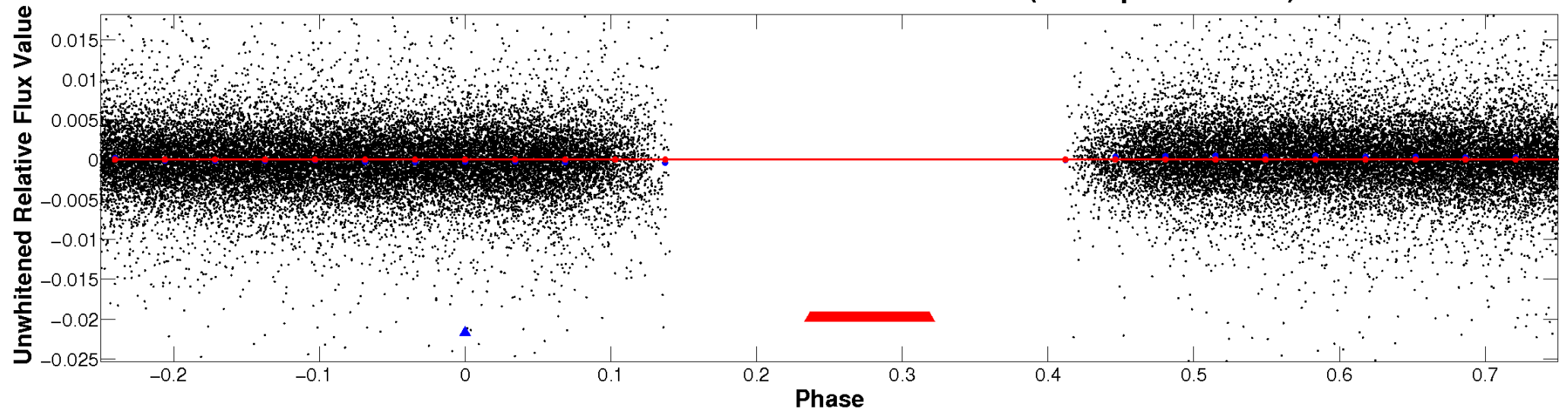
ALT Odd/Even

TCE 006721089-02



Non-Whitened Vs. Whitened Light Curve

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

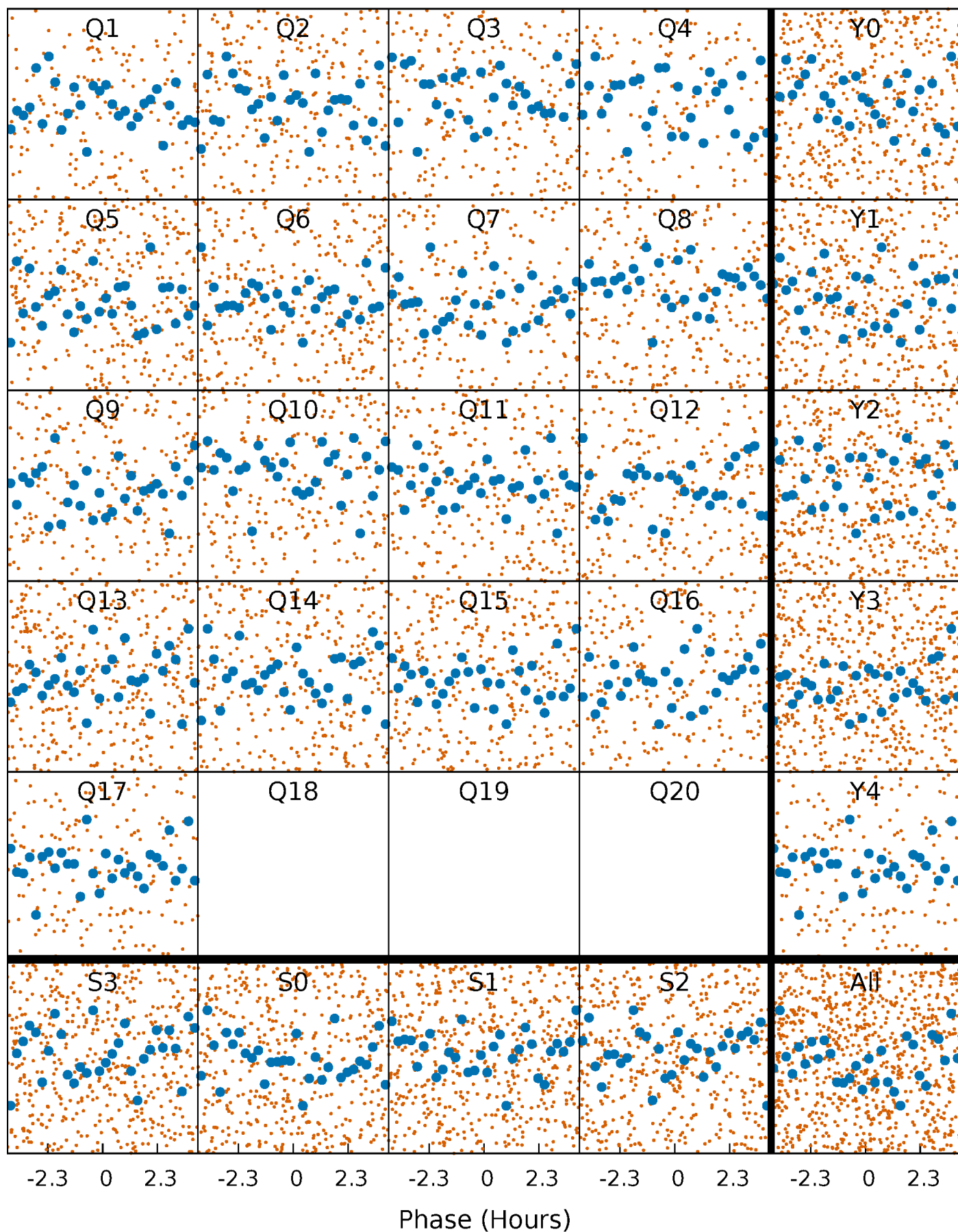


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



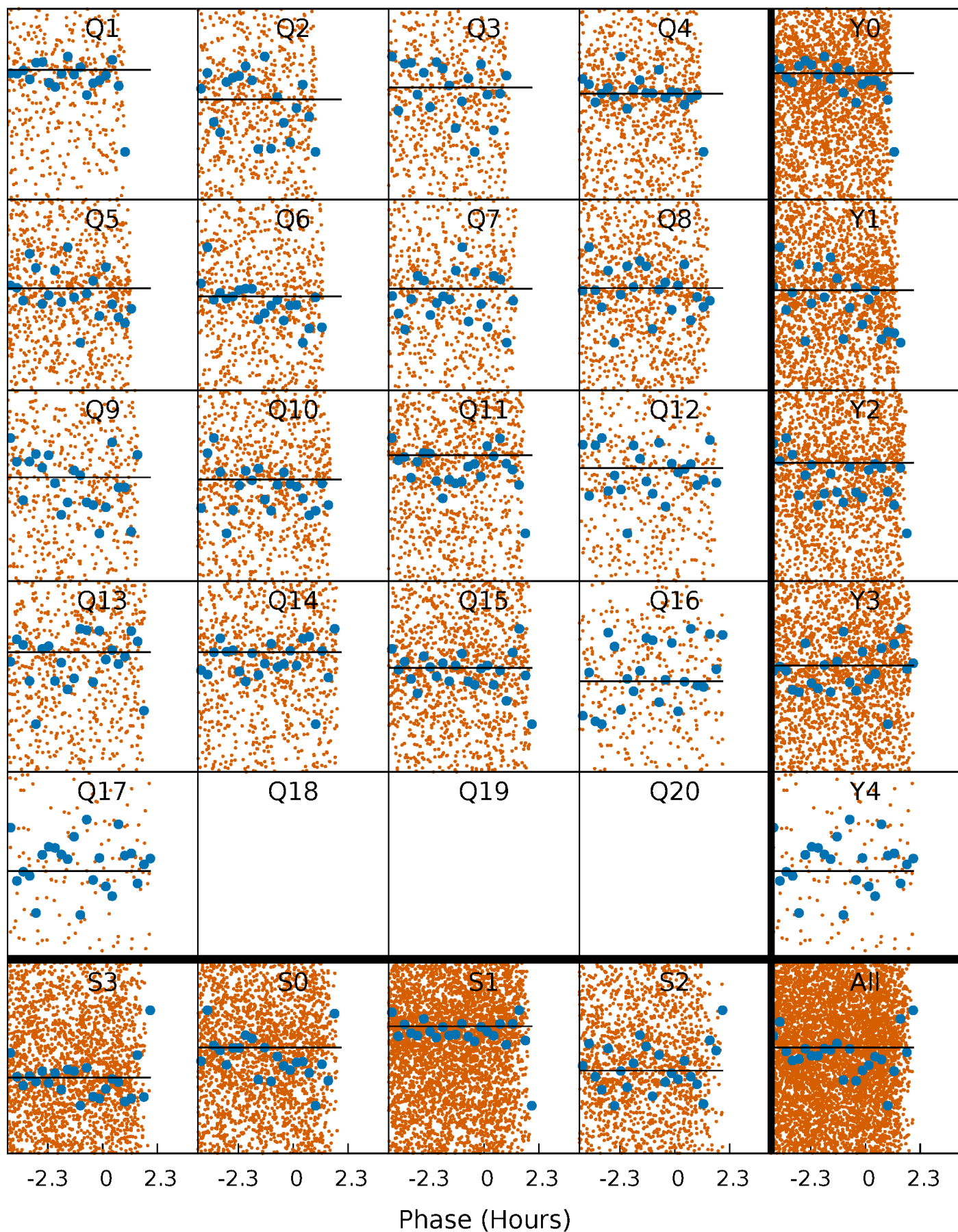
PDC Quarter-Phased Transit Curves

TCE 006721089-02 P= 0.595274 Days $T_0=131.913277$ (BKJD)



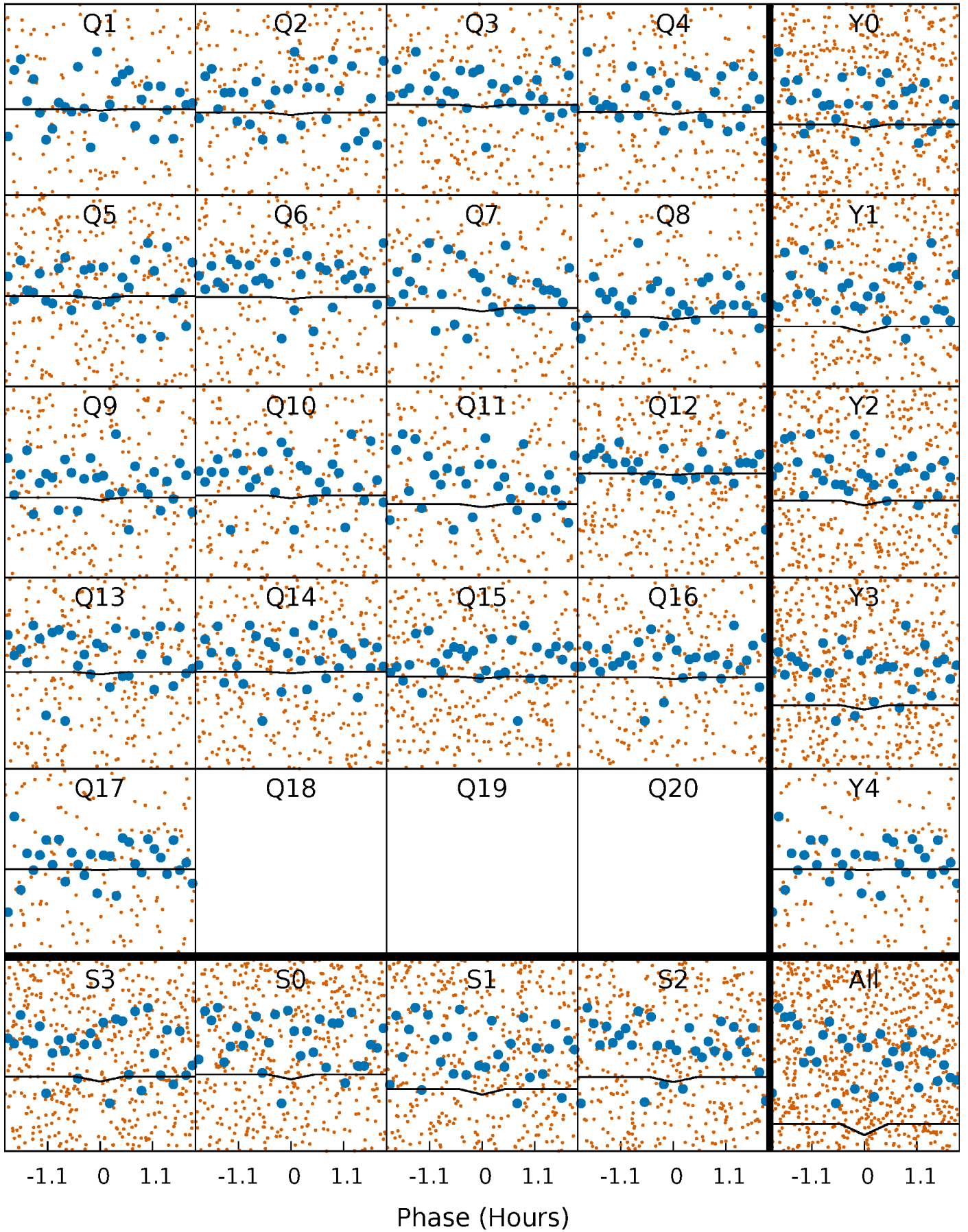
DV Quarter-Phased Transit Curves

TCE 006721089-02 P= 0.595274 Days $T_0=131.913277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

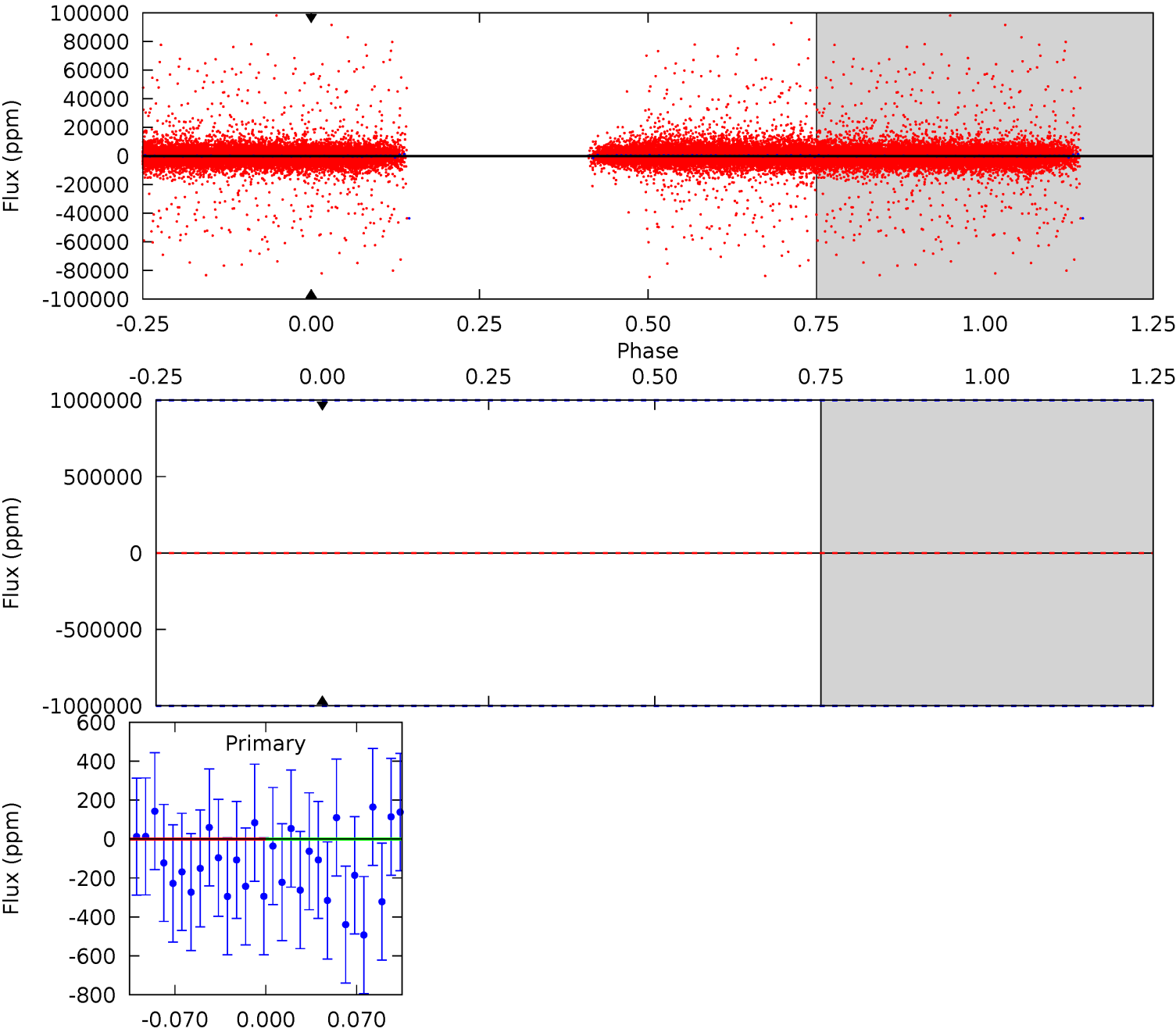
TCE 006721089-02 P= 0.595274 Days $T_0=131.795604$ (BKJD)



DV Model-Shift Uniqueness Test

006721089-02, P = 0.595274 Days, E = 131.318003 Days

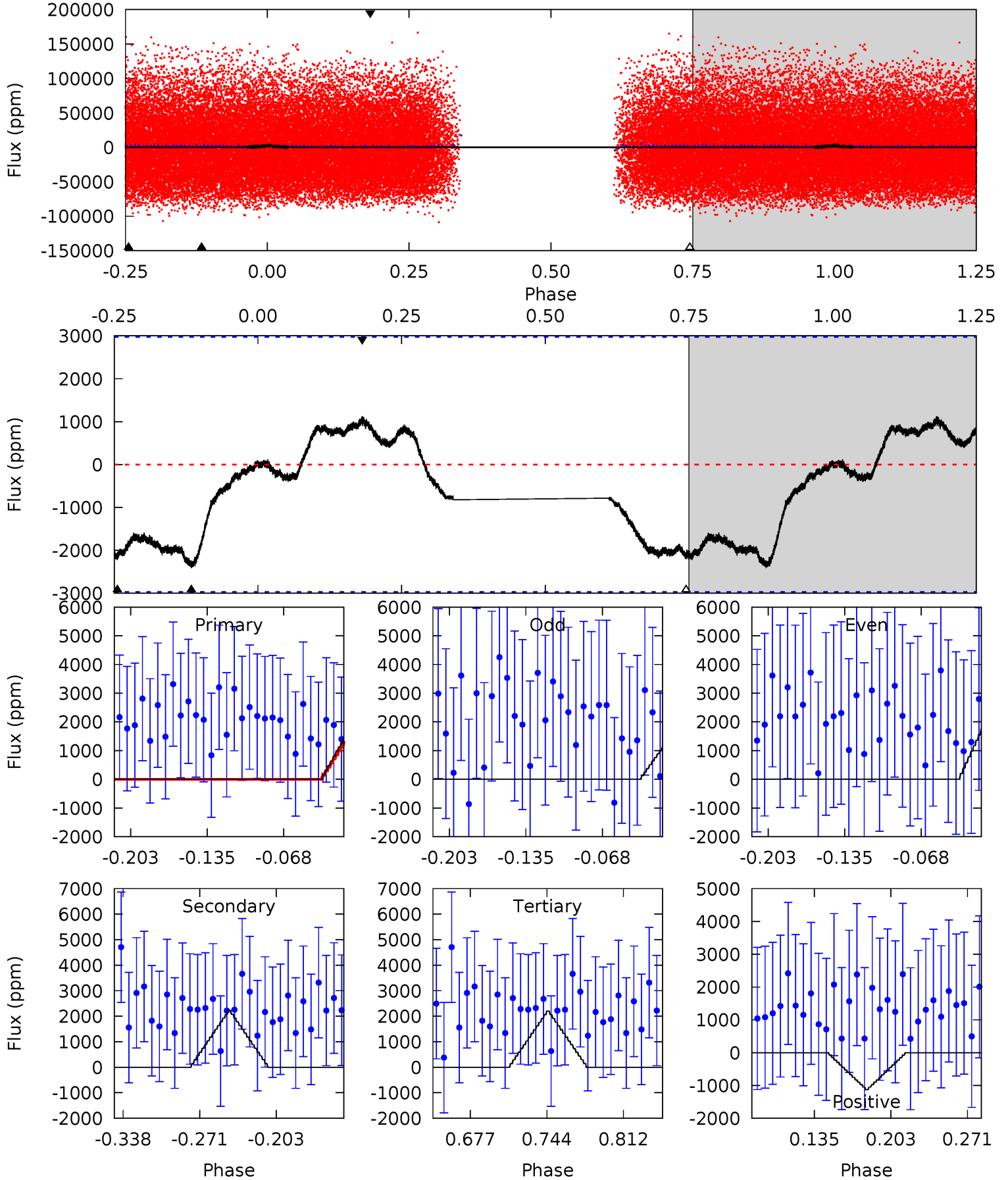
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006721089-02, P = 0.595274 Days, E = 131.200330 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.76	3.47	3.45	1.76	4.65	1.83	1.60	0.32	2.01	0.03	1.72	0.80	-4.21	0.32	0.41



Stellar Parameters For KIC 006721089

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6738^{+164}_{-258}	$4.305^{+0.087}_{-0.203}$	$-0.220^{+0.250}_{-0.300}$	$1.293^{+0.420}_{-0.180}$	$1.240^{+0.177}_{-0.195}$	$0.807^{+0.317}_{-0.439}$
	+2%/-4%	+2%/-5%	+114%/-136%	+32%/-14%	+14%/-16%	+39%/-54%
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 006721089-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$11.18^{+12.04}_{-7.71}$	3920^{+271}_{-221}	-5193^{+34474}_{-22028}	$-1.589^{+186.454}_{-152.860}$
Alt.	-2223 ± 640	$10.35^{+10.87}_{-7.06}$	3923^{+299}_{-230}	5296^{+5294}_{-1727}	$2.289^{+21.965}_{-1.712}$

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 $A_{obs} \gg 1.0$

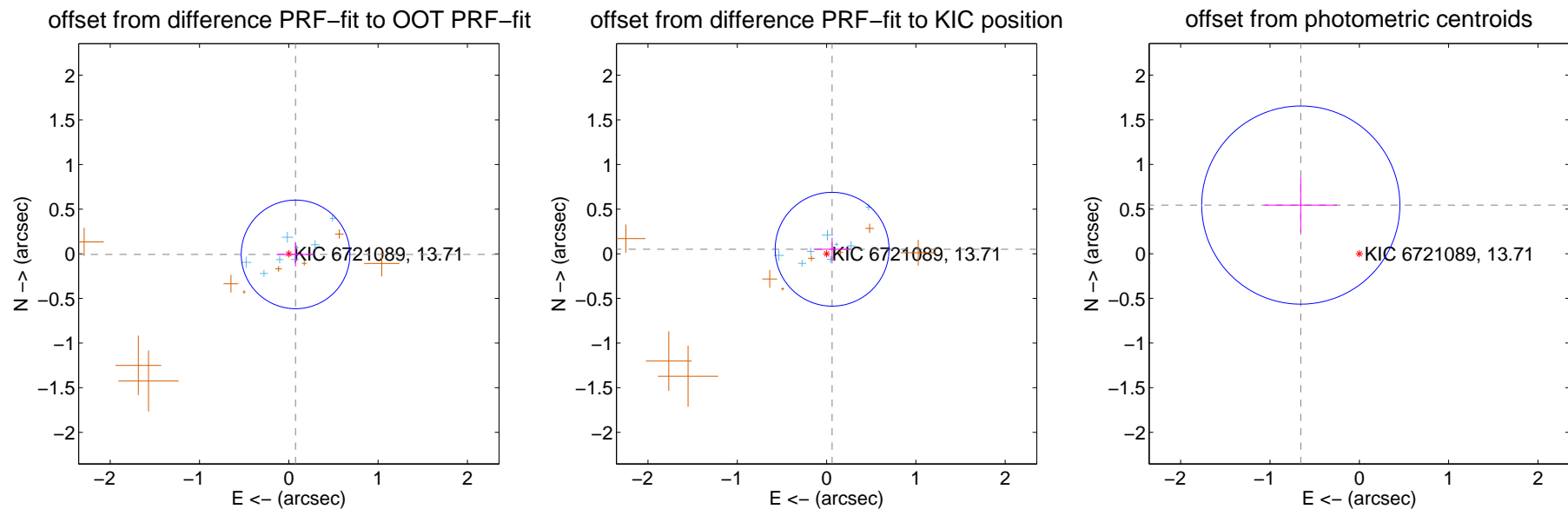
DV Centroid Data

Supplemental centroid analysis for 006721089-02. Kepler magnitude: 13.71. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

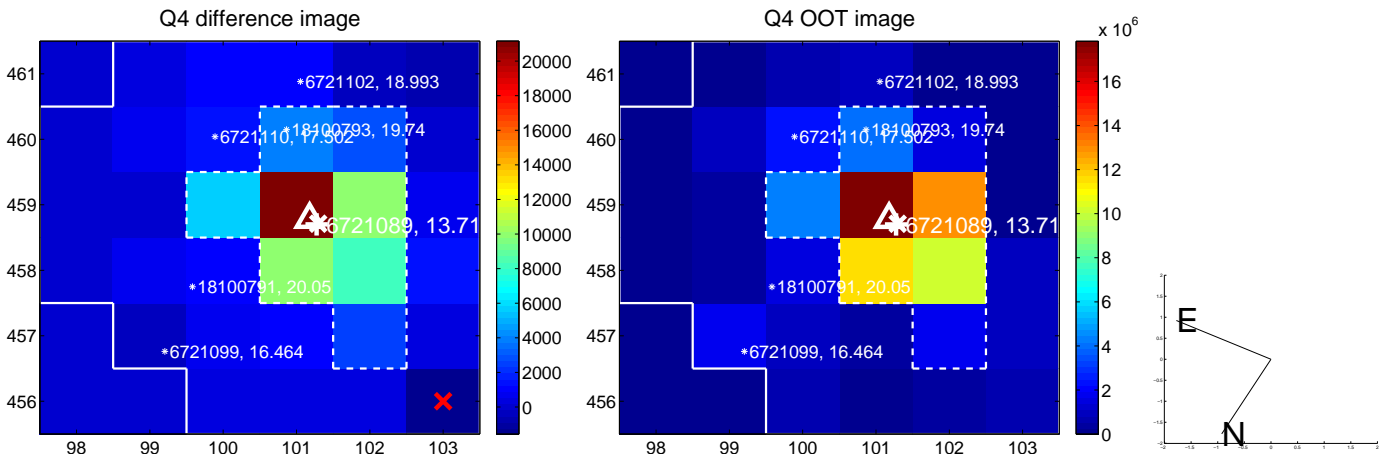
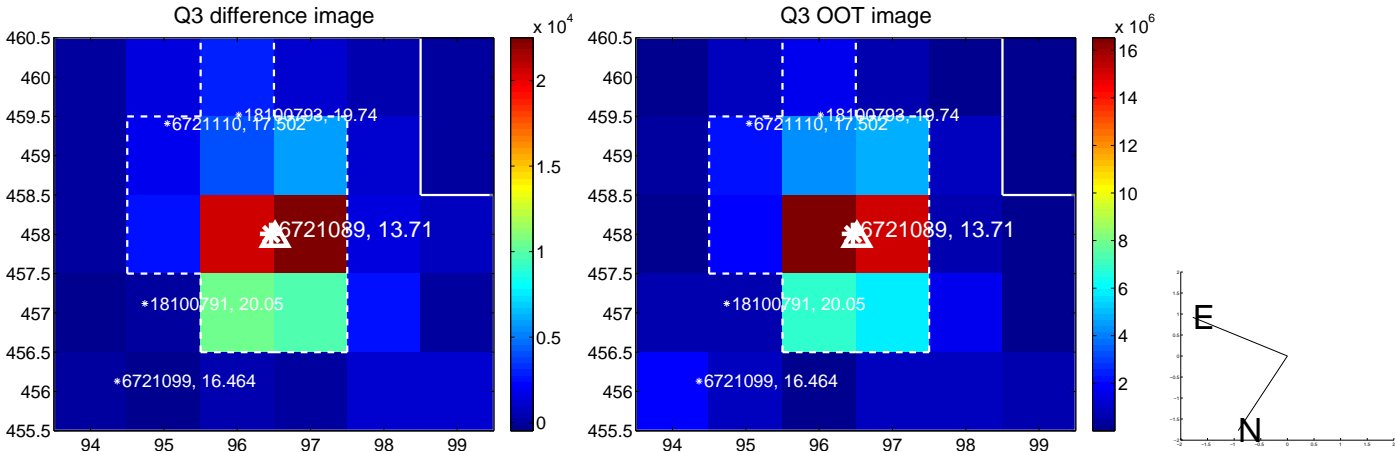
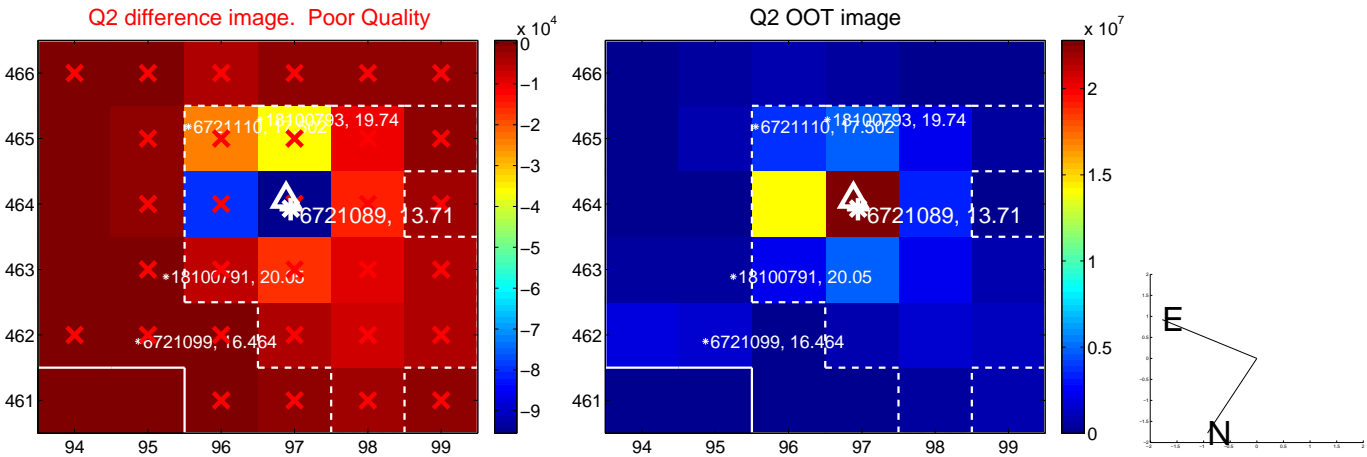
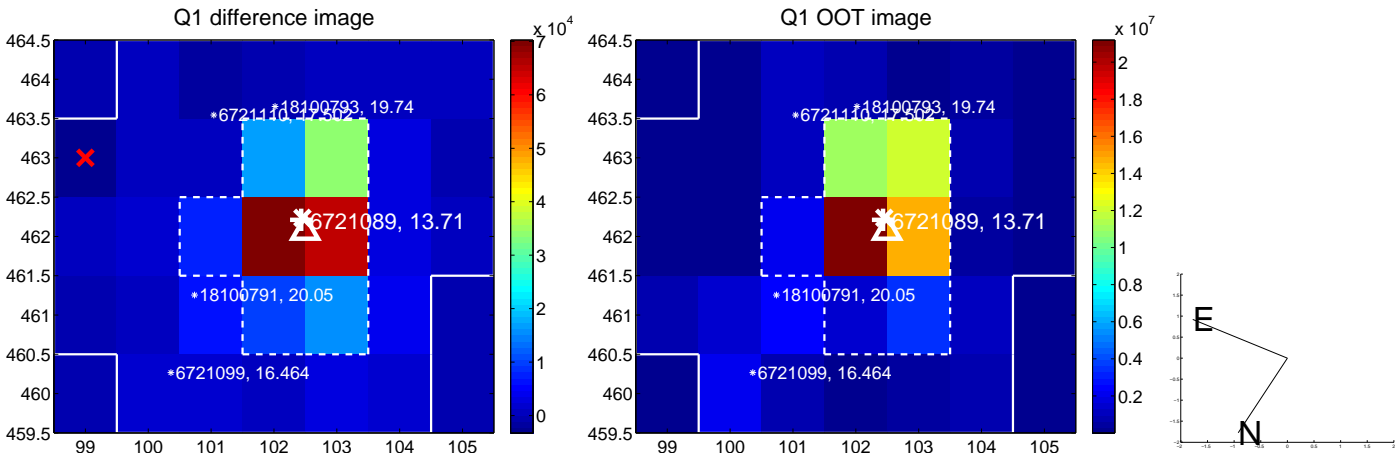
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.076 ± 0.203	0.37	-0.076 ± 0.209	-0.007 ± 0.135
PRF-fit source offset from KIC position	0.080 ± 0.212	0.38	-0.062 ± 0.207	0.051 ± 0.128
photometric centroid source offset	0.85 ± 0.37	2.30	0.66 ± 0.41	0.54 ± 0.31

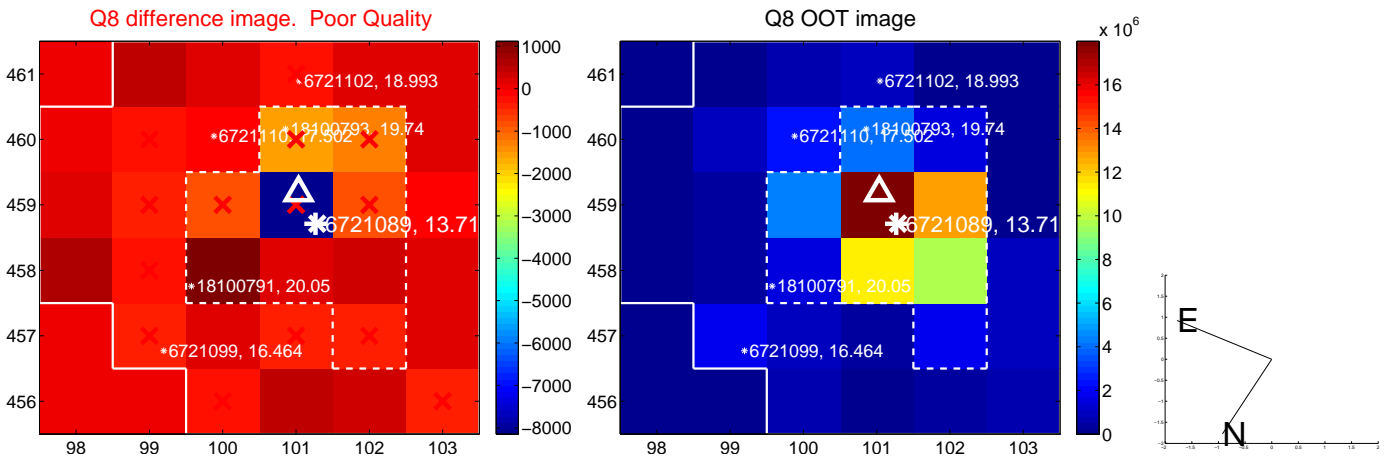
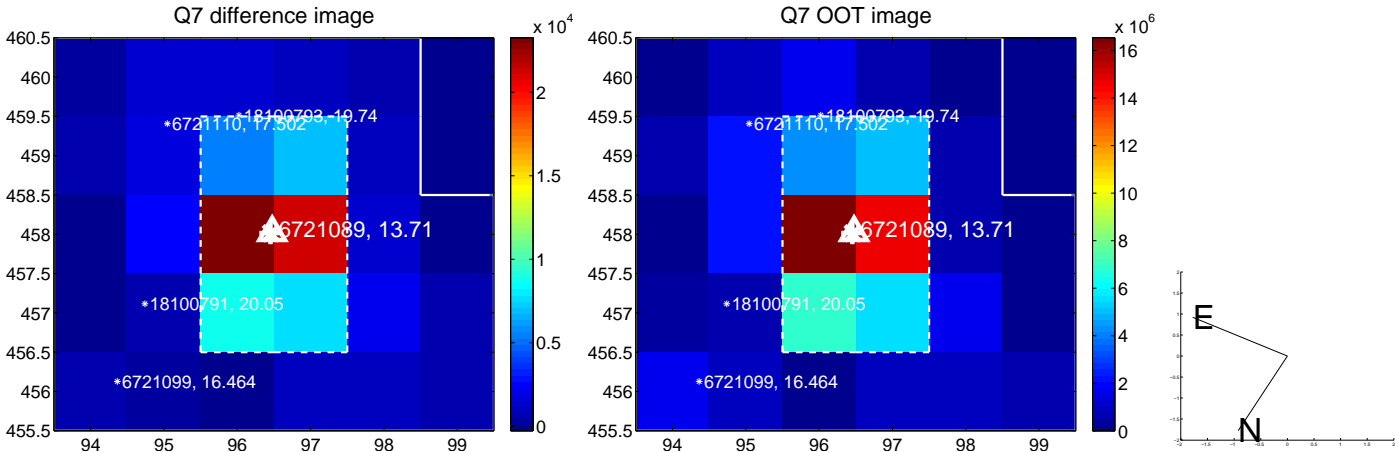
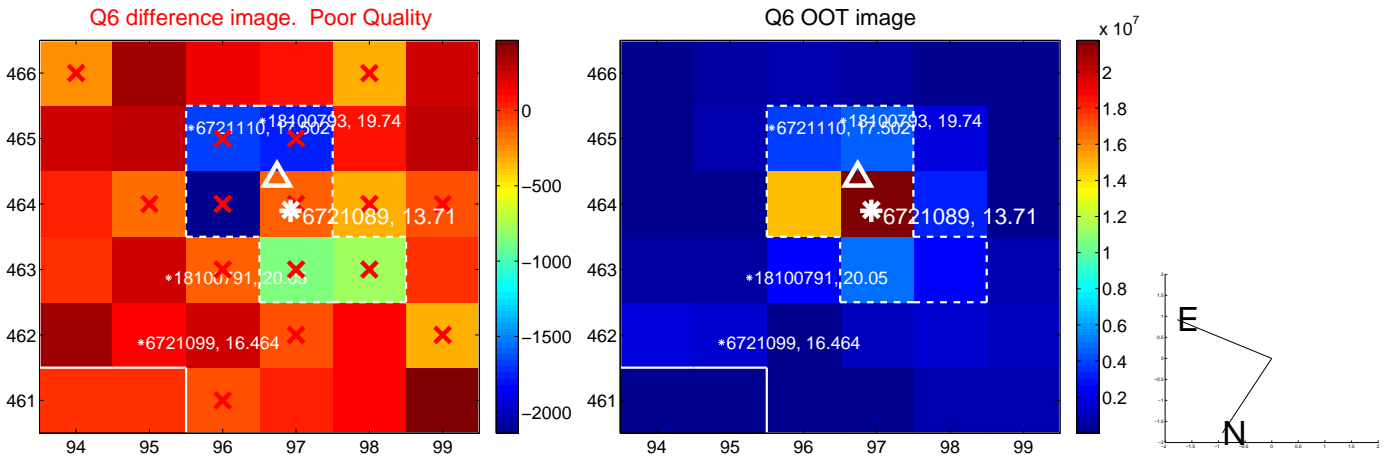
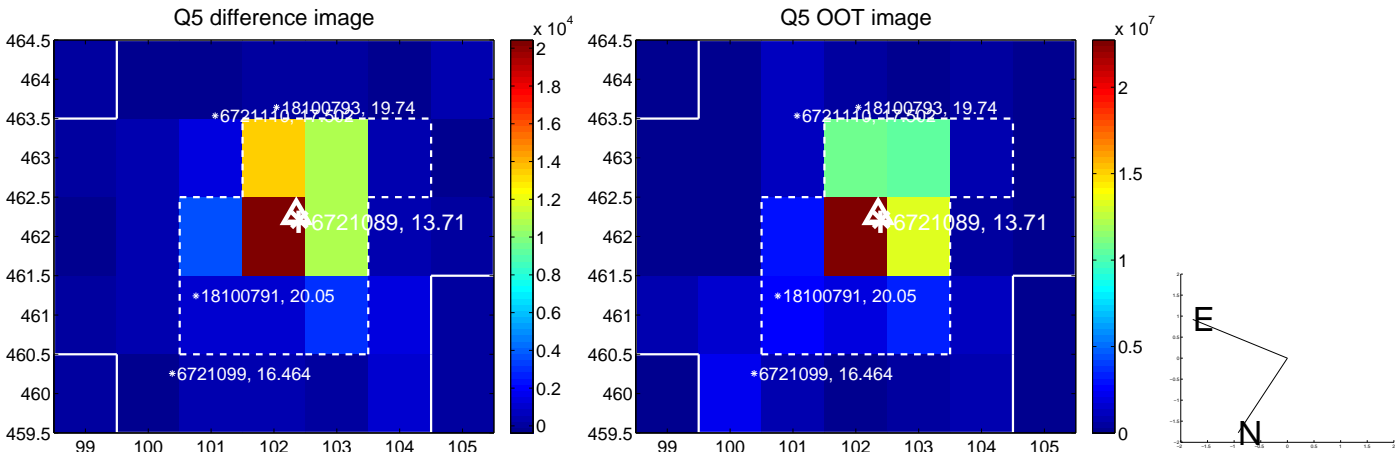


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

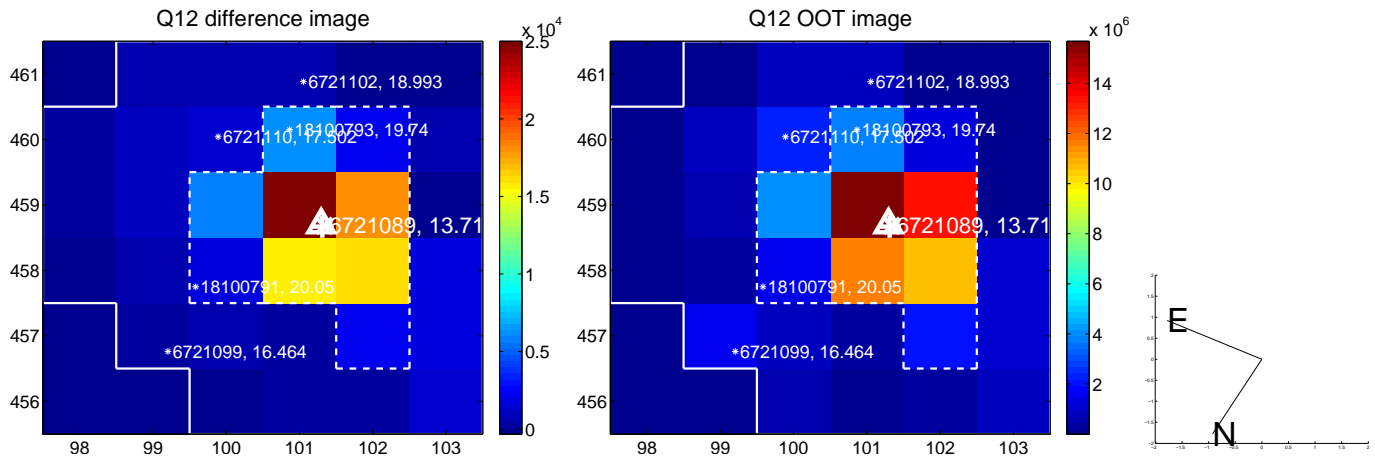
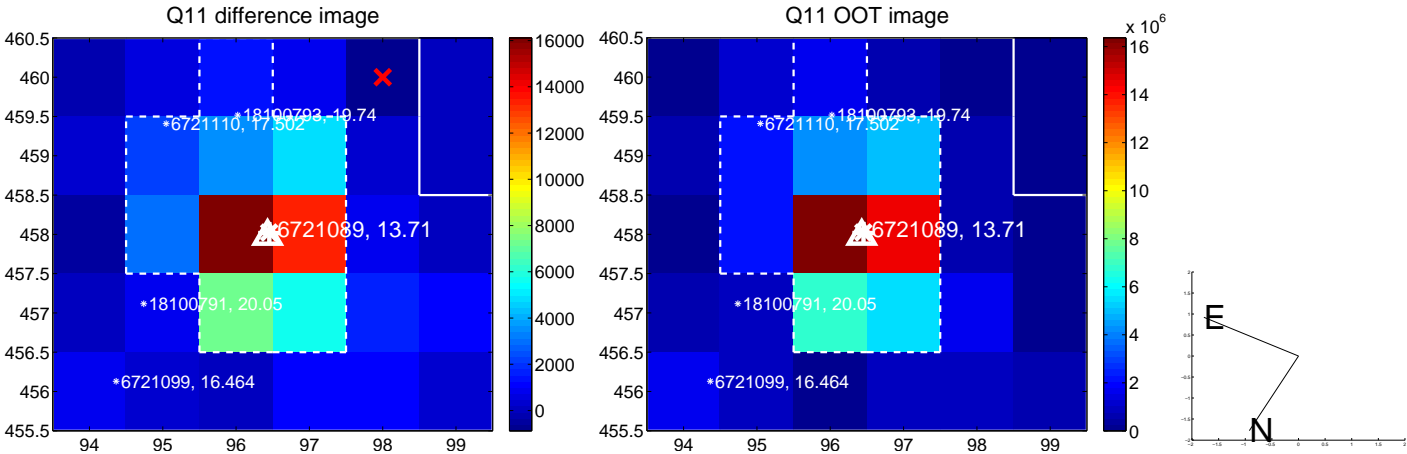
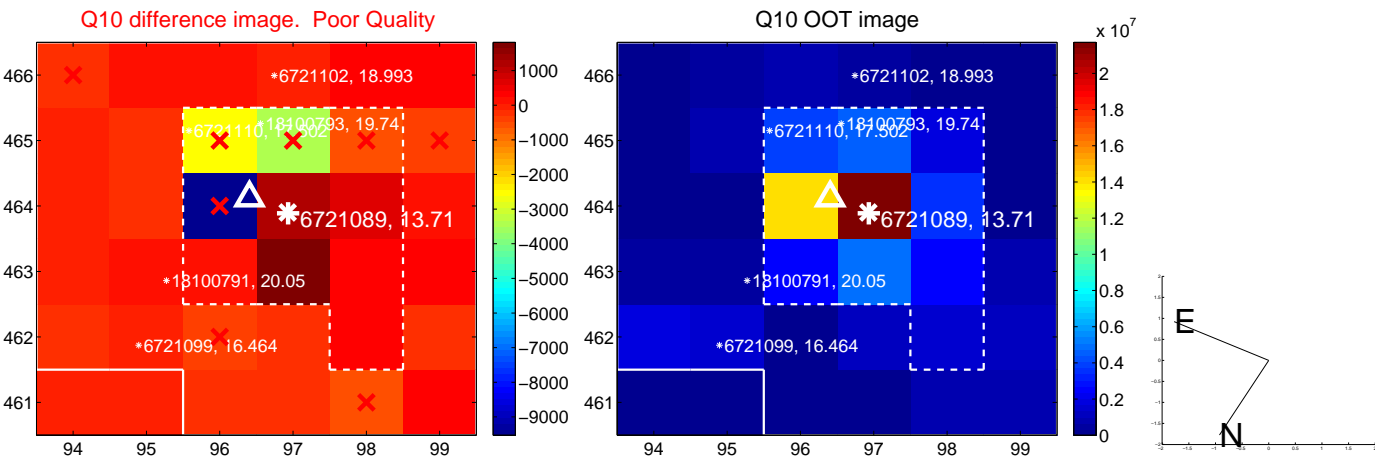
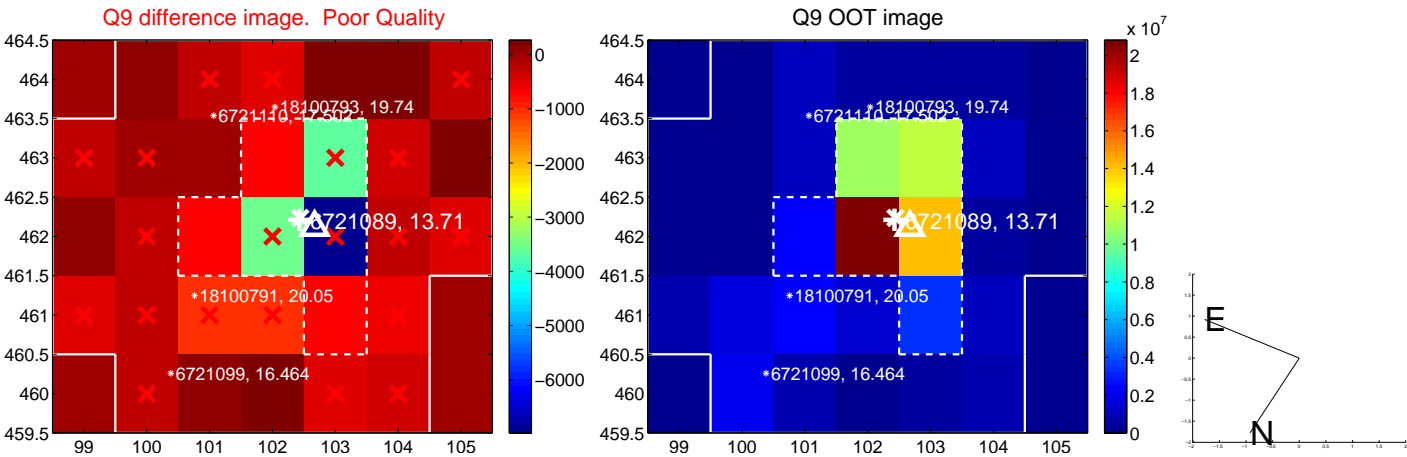
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



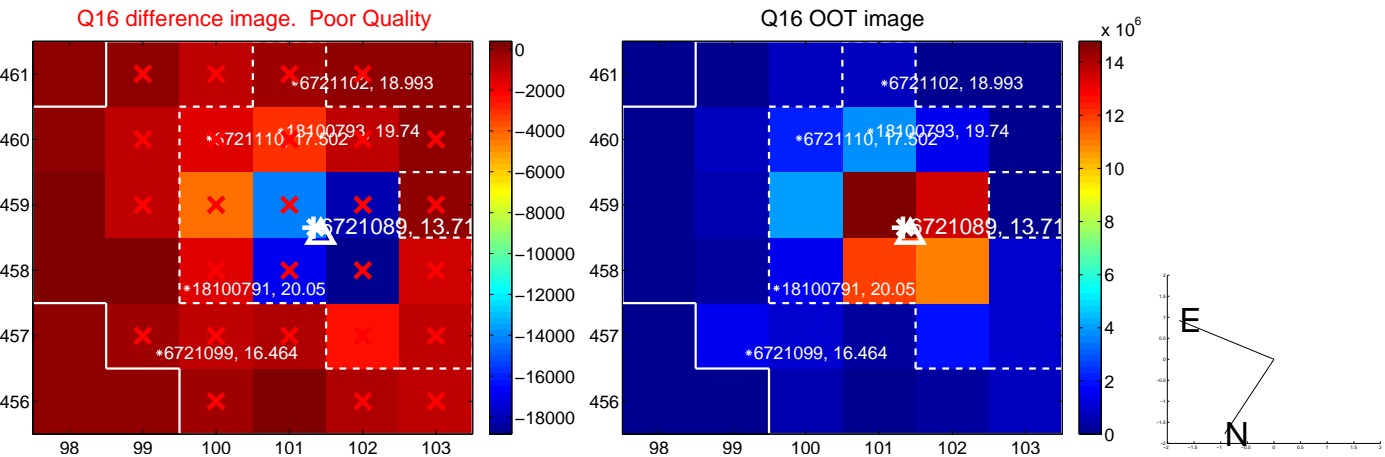
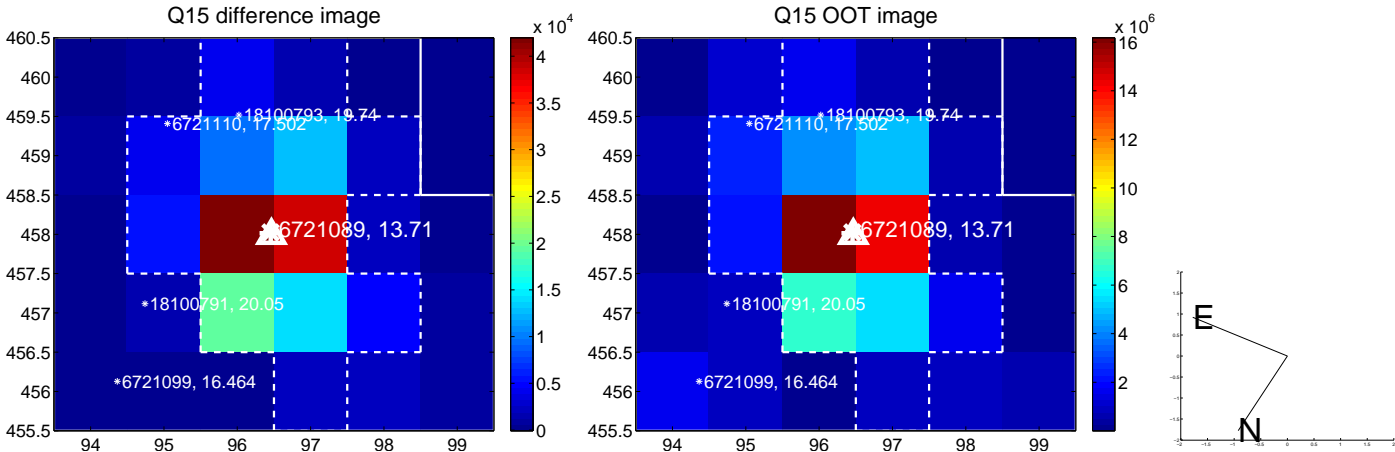
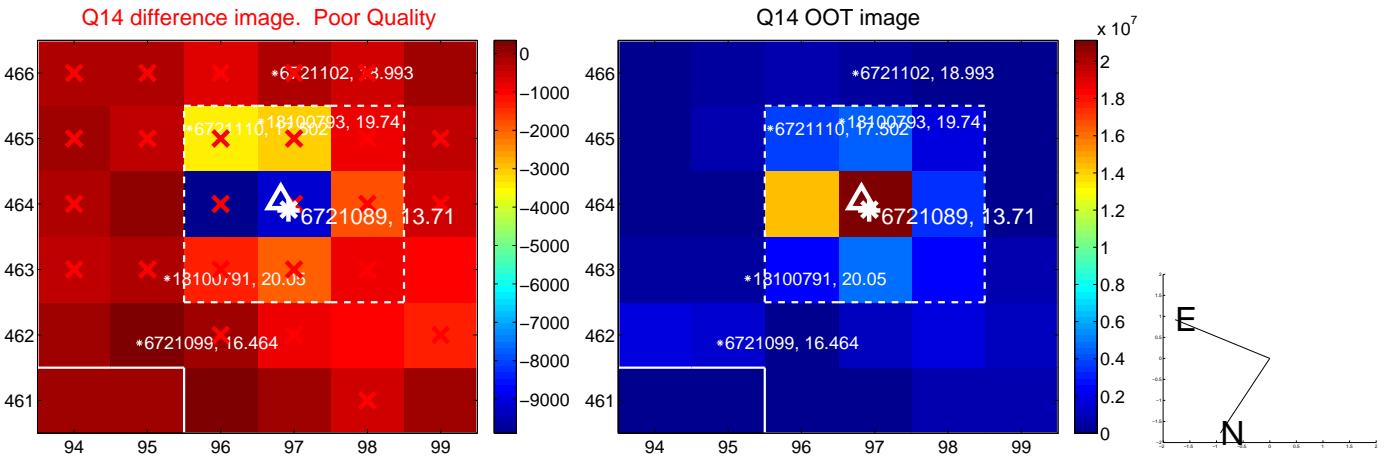
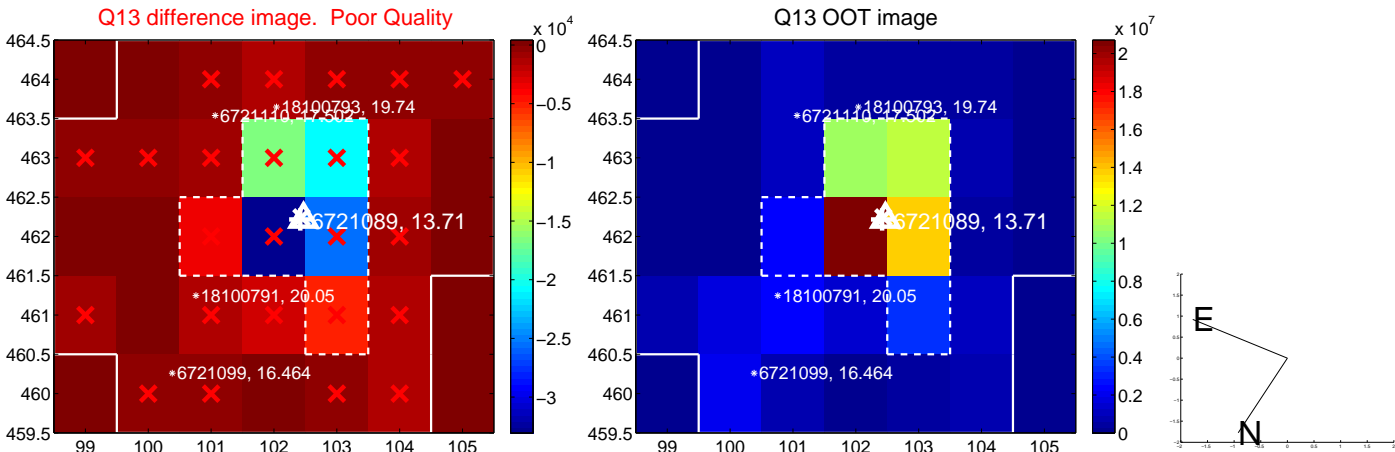
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



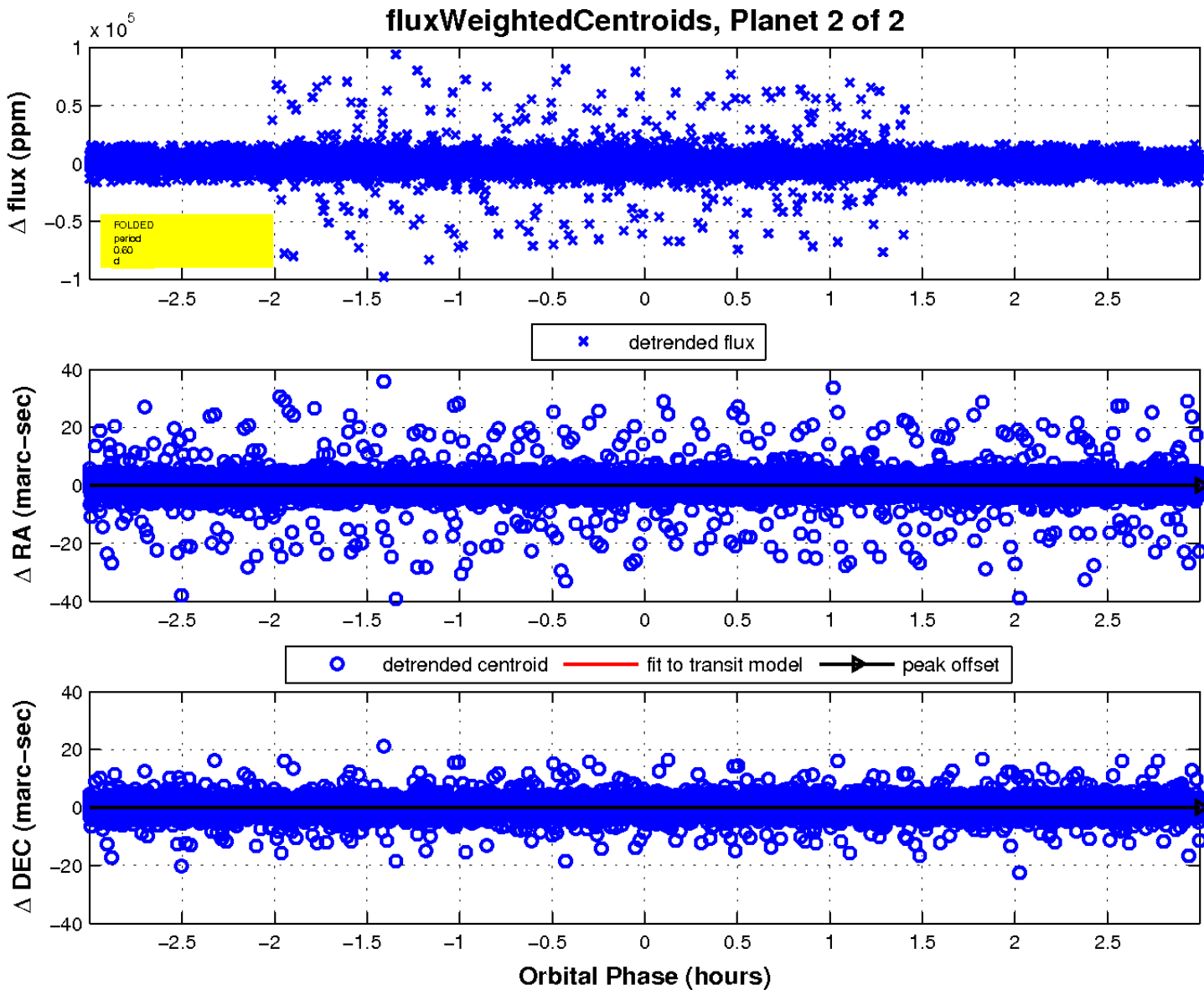
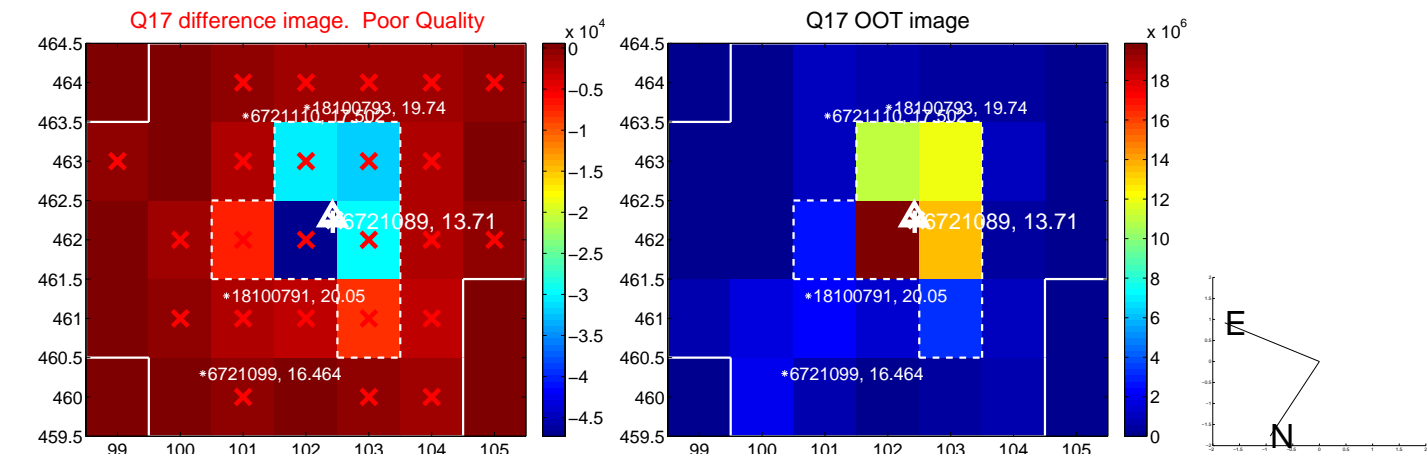
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

