

KIC 005643201

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})
005643201-01	OBS	No	0.643834	131.574260	46.3	2.282	12.6	13.5	1.39	6137	1.10	10958.18
005643201-02	OBS	No	409.893166	288.075502	5294.4	49.106	10.3	7.3	1.39	6137	18.31	2.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005643201-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
005643201-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

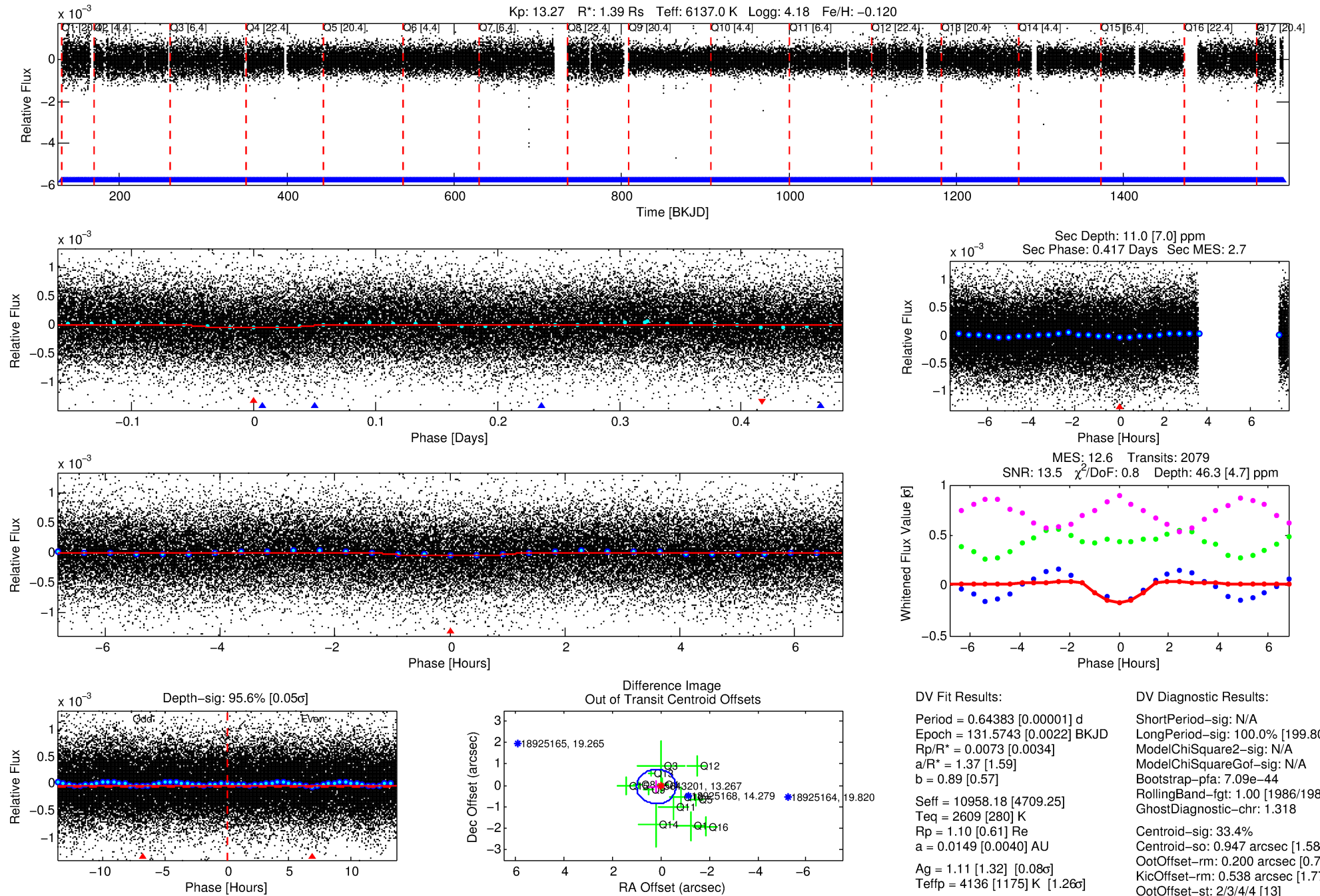
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005643201-01

No Significant Match Found

DV One-Page Summary

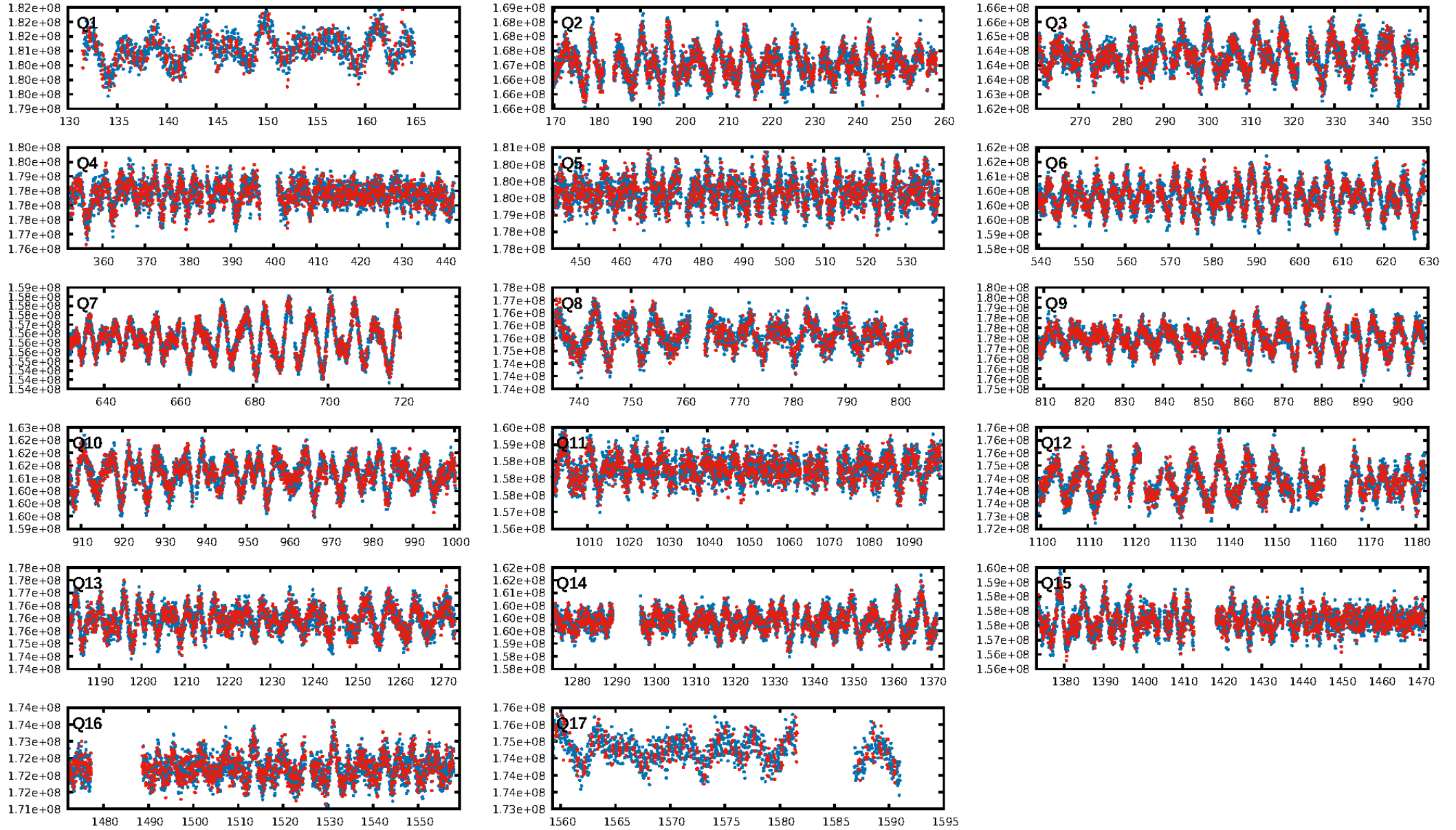
KIC: 5643201 Candidate: 1 of 2 Period: 0.644 d



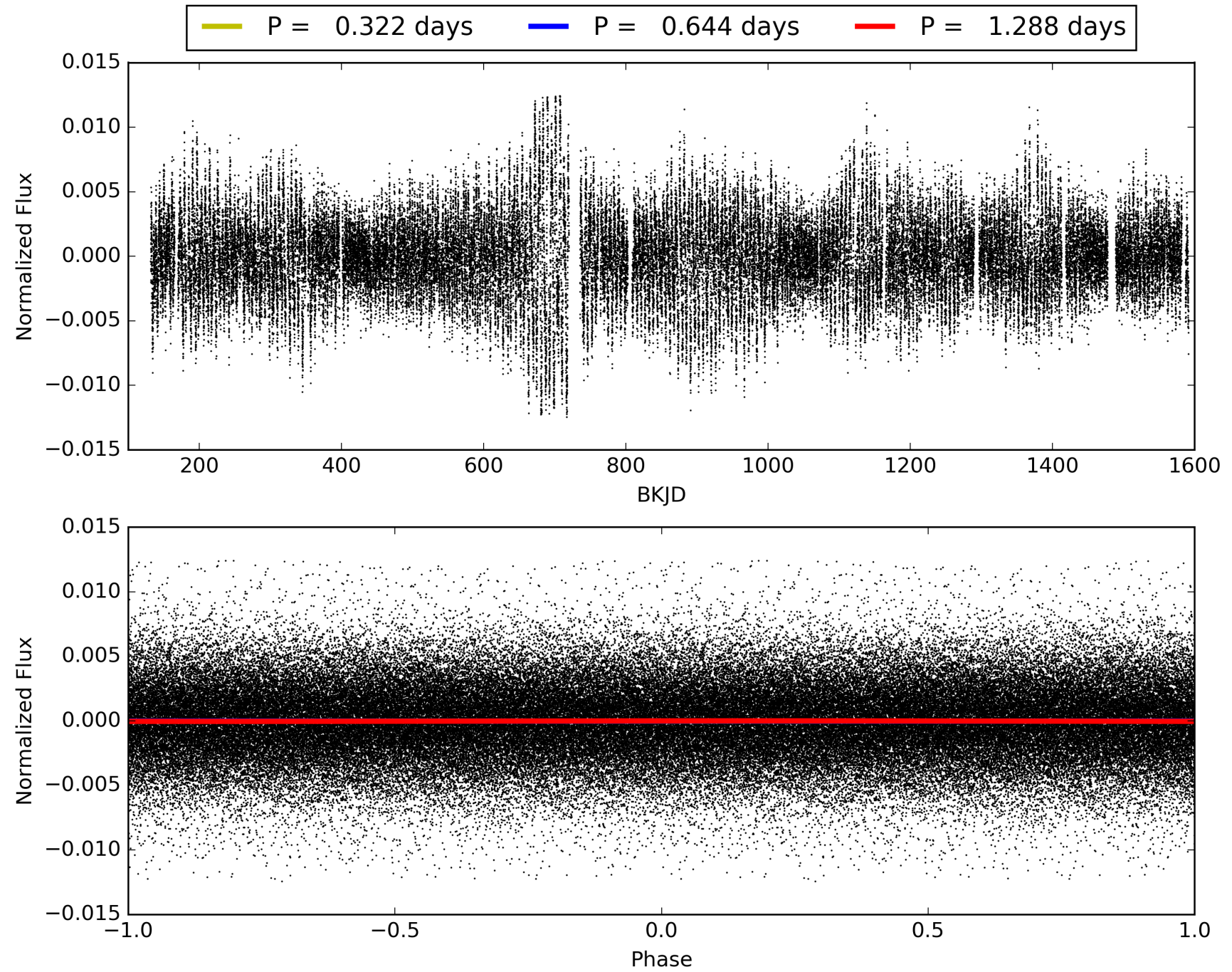
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:55:00 Z

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

TCE 005643201-01, PDC Light Curves

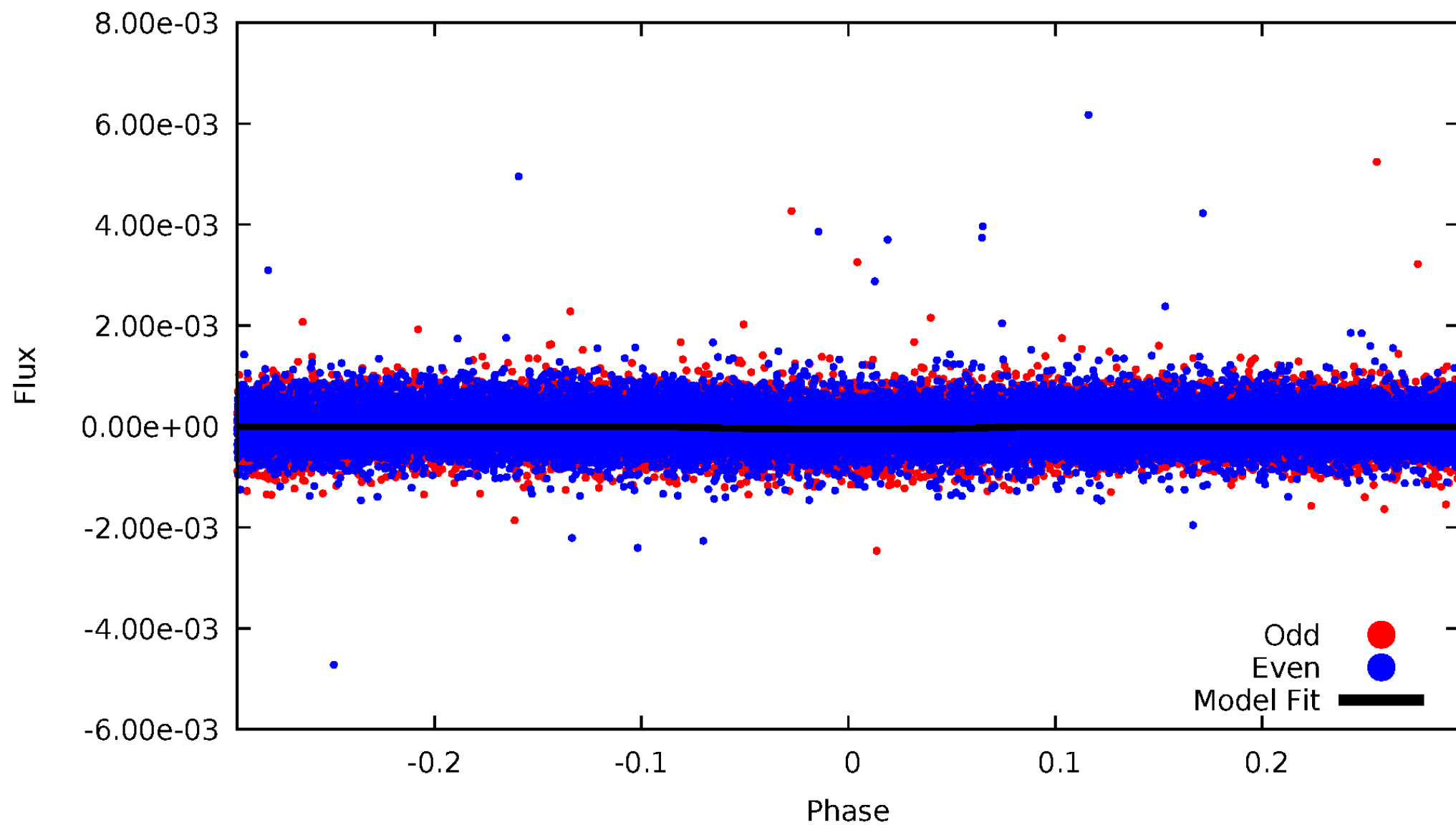


TCE 005643201-01



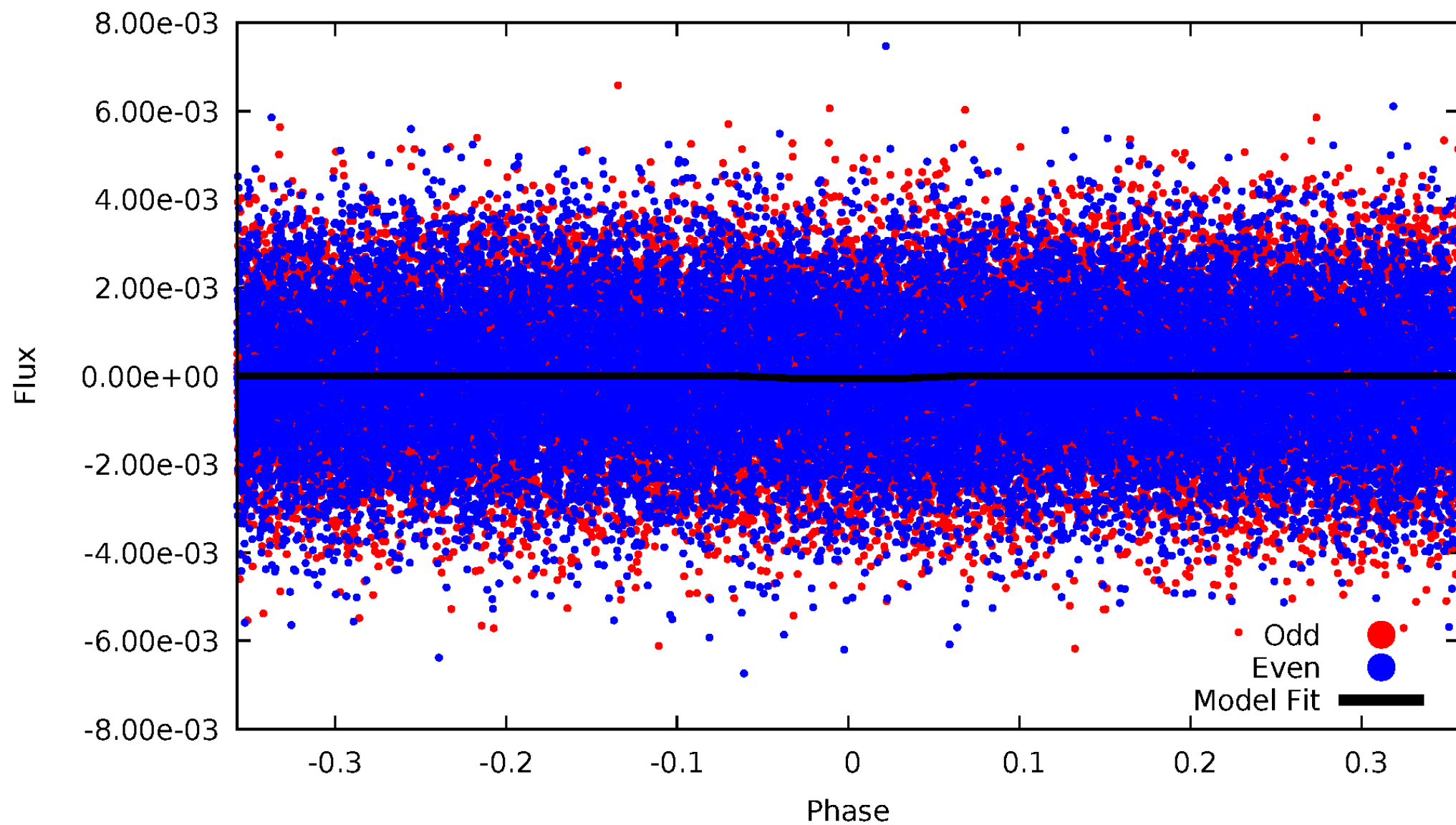
DV Odd/Even

TCE 005643201-01



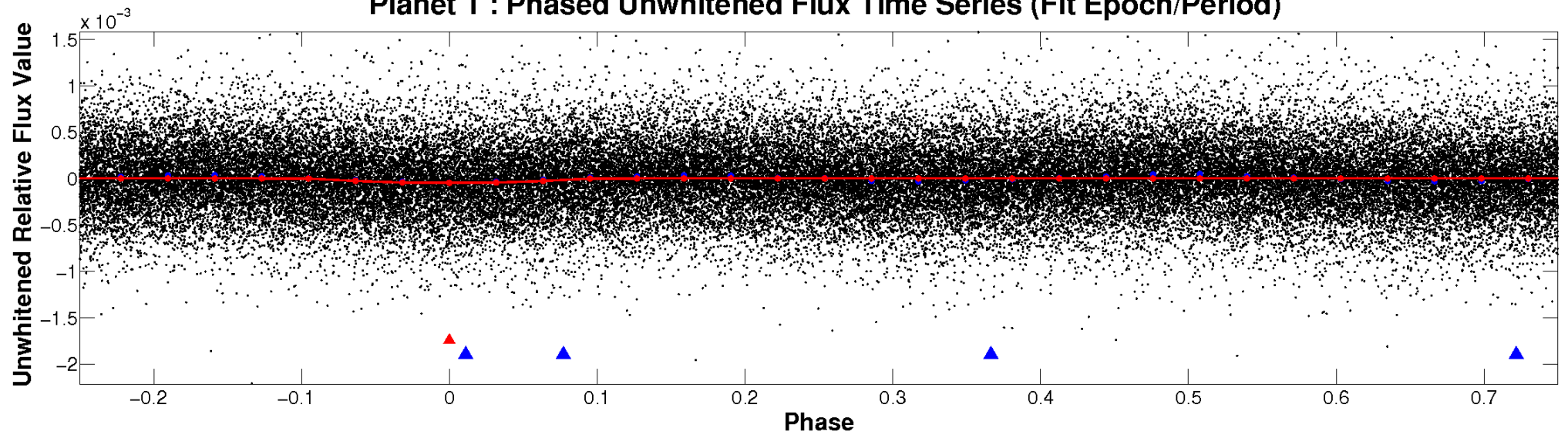
ALT Odd/Even

TCE 005643201-01

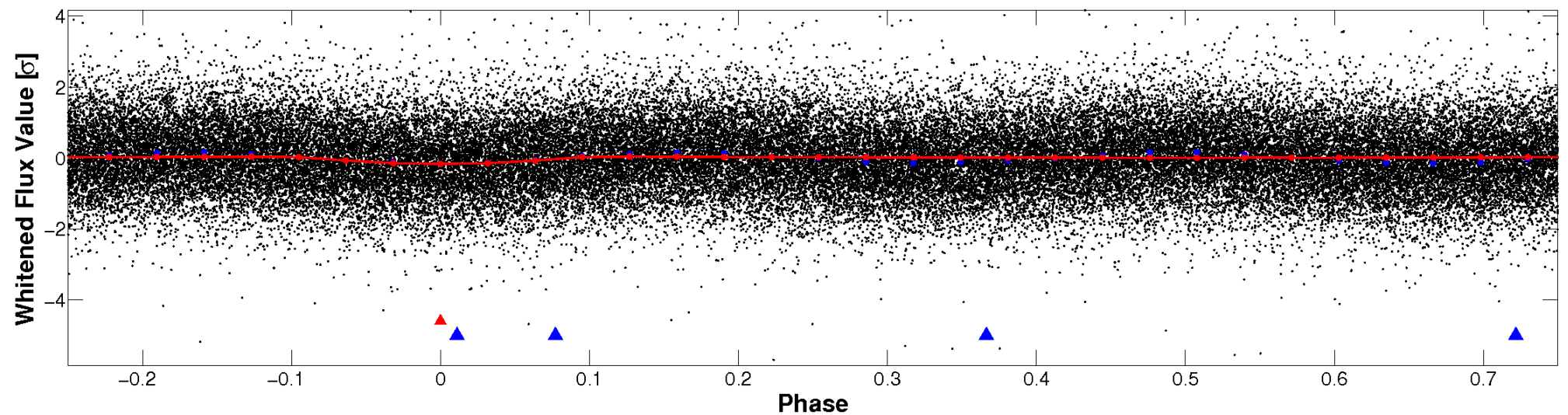


Non-Whitened Vs. Whitened Light Curve

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

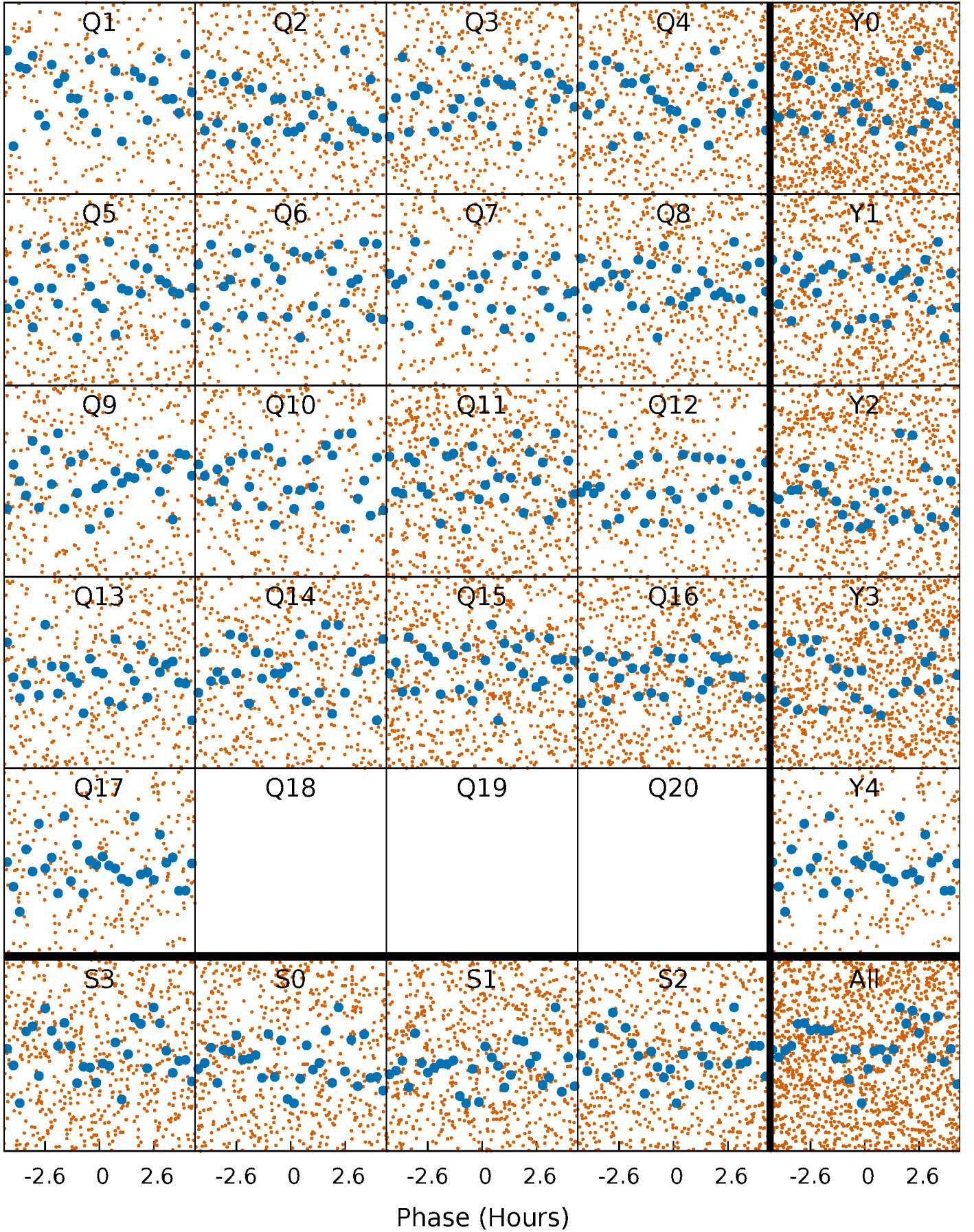


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



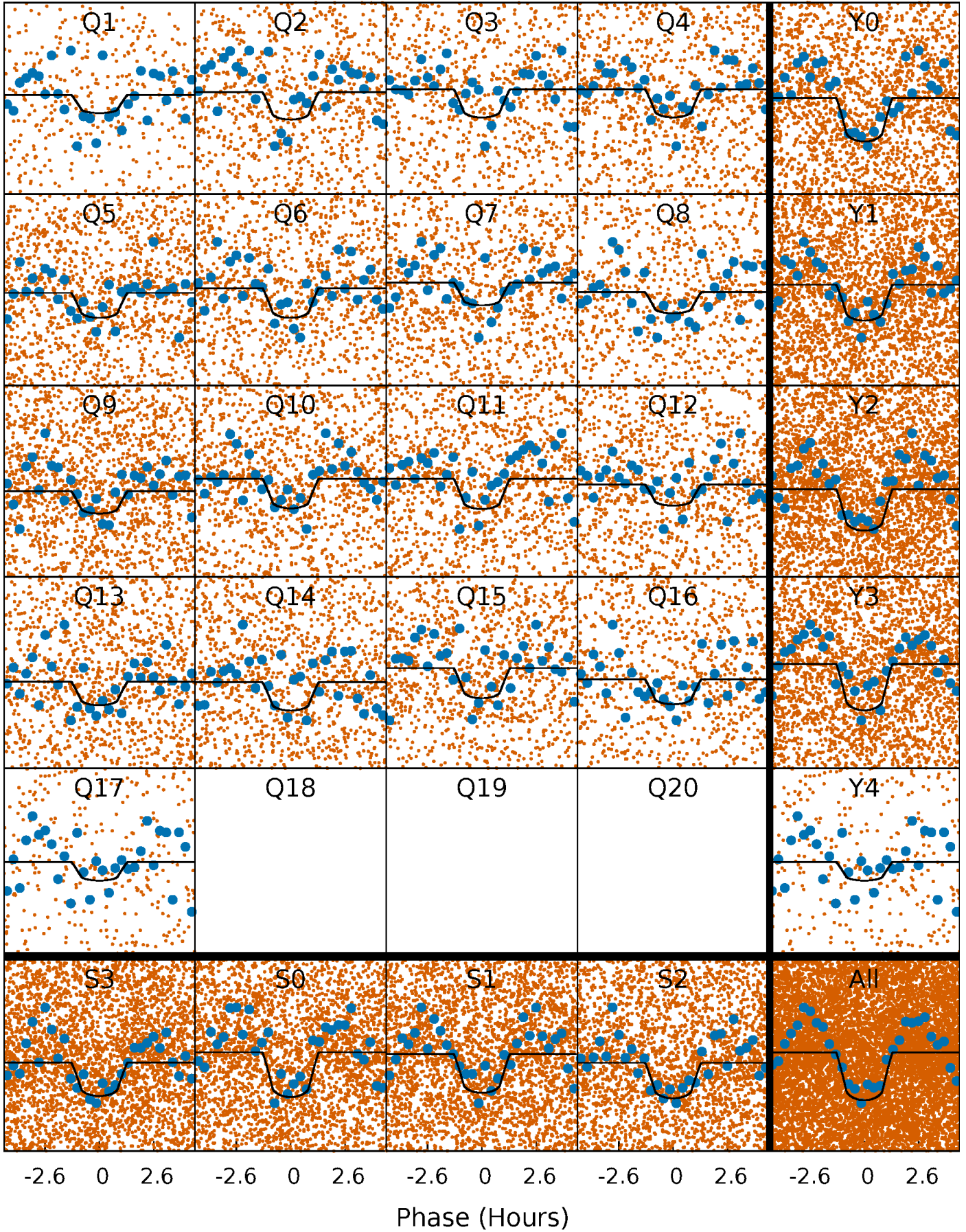
PDC Quarter-Phased Transit Curves

TCE 005643201-01 P= 0.643834 Days $T_0=131.574260$ (BKJD)



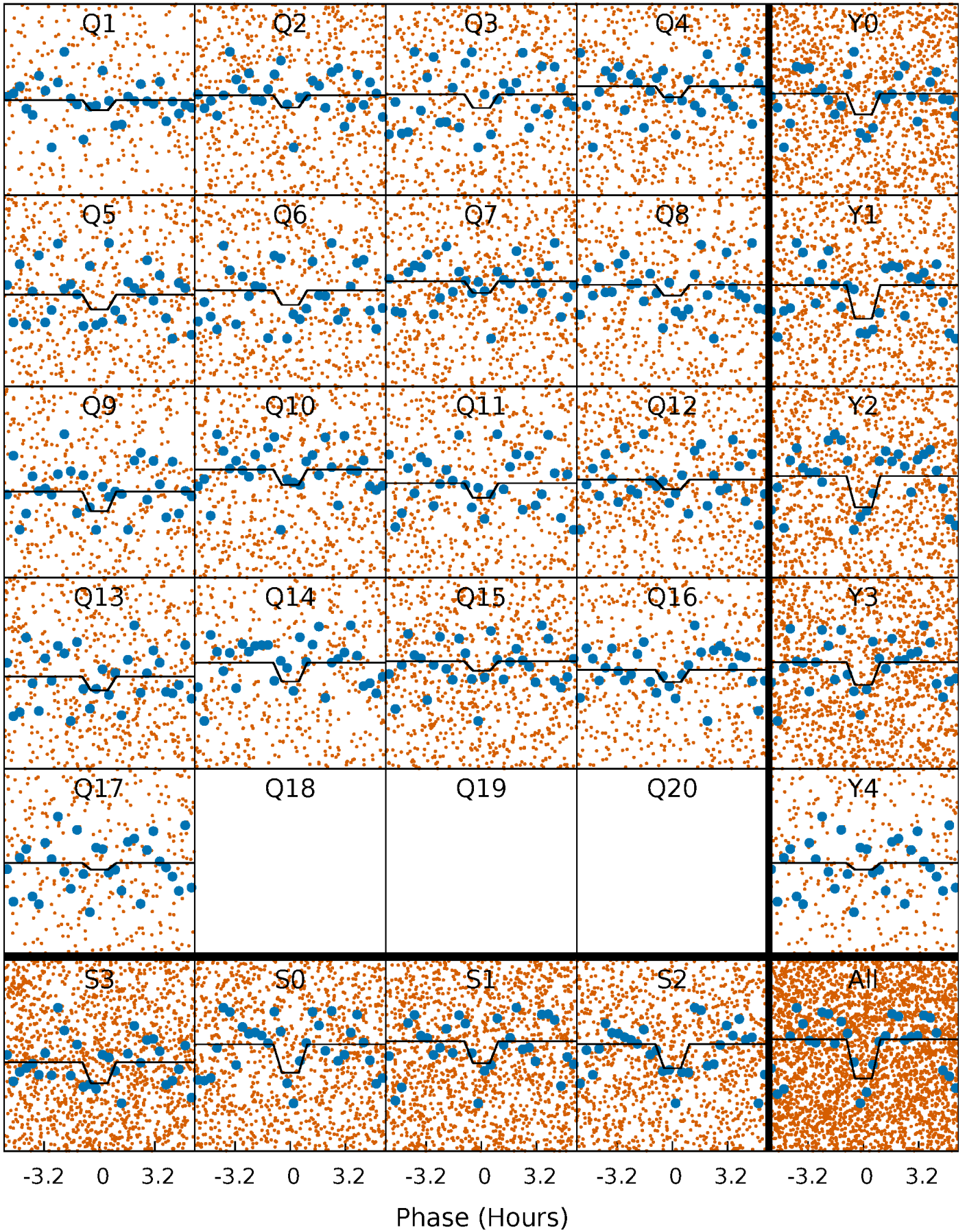
DV Quarter-Phased Transit Curves

TCE 005643201-01 P= 0.643834 Days $T_0=131.574260$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

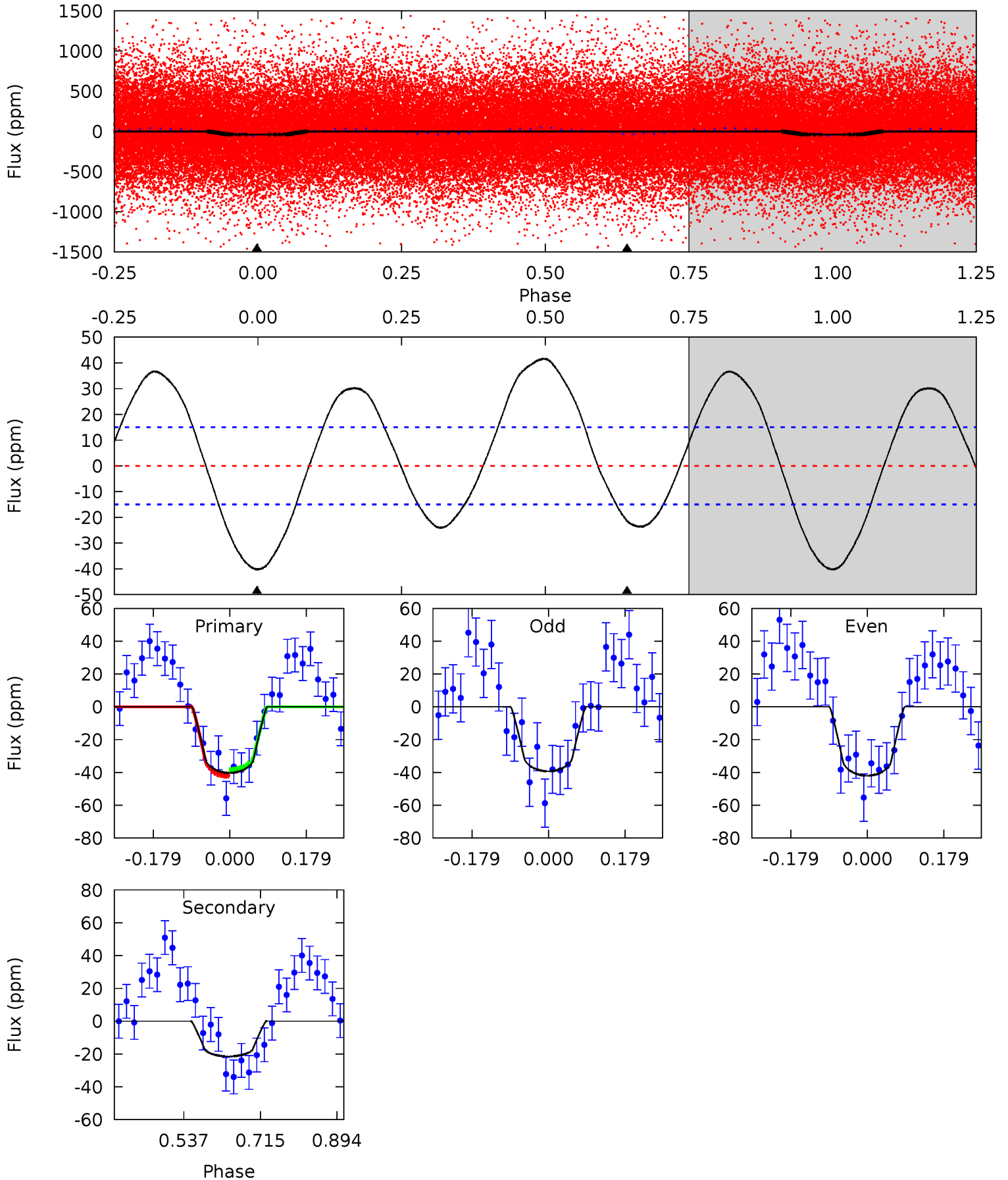
TCE 005643201-01 P= 0.643829 Days $T_0=131.572640$ (BKJD)



DV Model-Shift Uniqueness Test

005643201-01, P = 0.643834 Days, E = 130.930426 Days

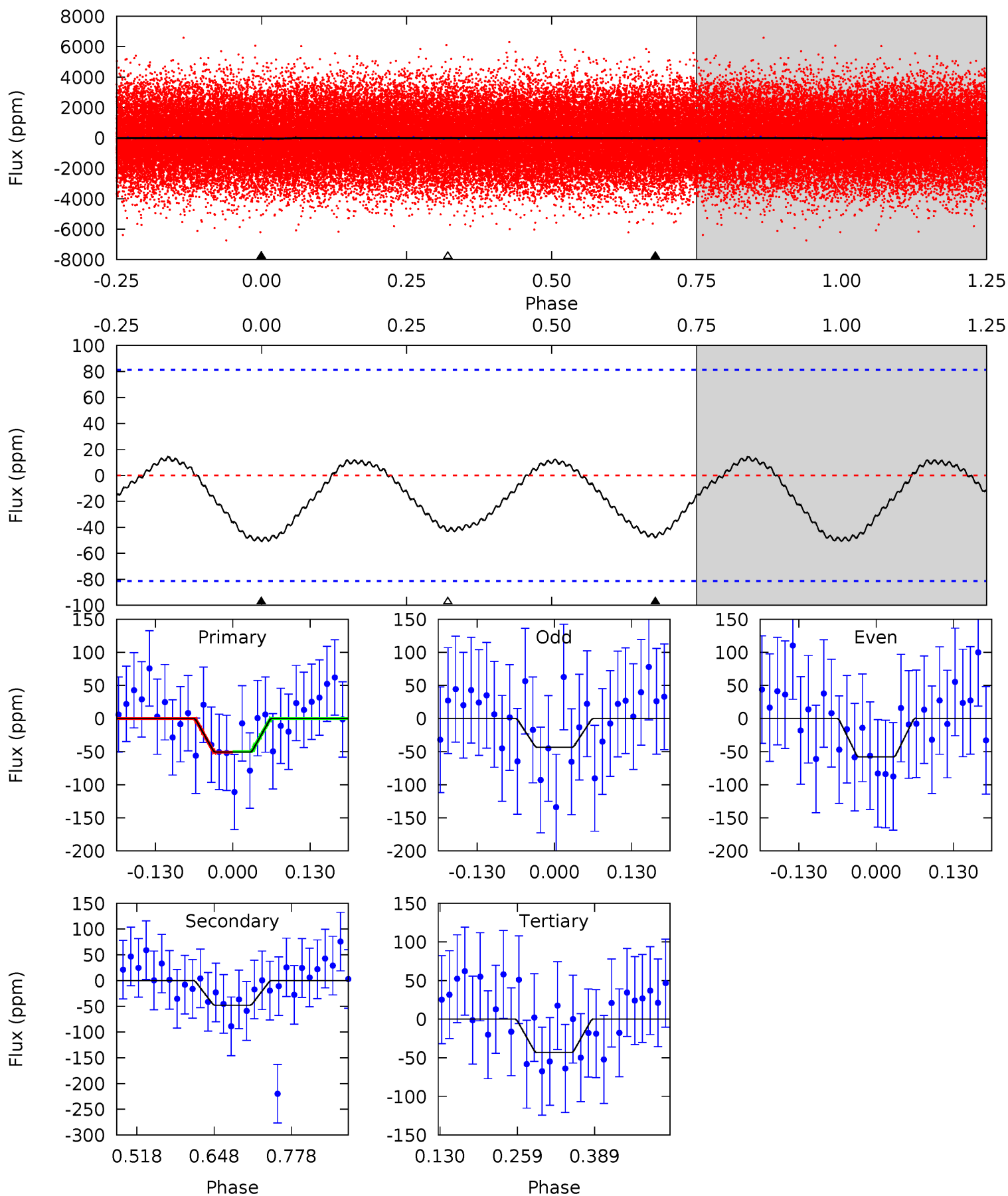
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	6.35	0	0	4.44	1.34	5.73	11.9	11.9	6.35	6.35	0.40	0.87	0.51	0.46



Alt Model-Shift Uniqueness Test

005643201-01, P = 0.643829 Days, E = 130.928811 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.81	2.65	2.39	0	4.51	1.52	1.07	0.41	2.81	0.26	2.65	0.40	1.33	0.22	0.03



Stellar Parameters For KIC 005643201

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6137^{+193}_{-236}	$4.184^{+0.225}_{-0.184}$	$-0.120^{+0.300}_{-0.300}$	$1.387^{+0.425}_{-0.348}$	$1.072^{+0.178}_{-0.146}$	$0.566^{+0.717}_{-0.275}$
	+3%/-4%	+5%/-4%	+250%/-250%	+31%/-25%	+17%/-14%	+127%/-49%
Source	KIC0	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 005643201-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21 ± 3	$1.09^{+0.57}_{-0.48}$	3631^{+309}_{-268}	4795^{+1562}_{-864}	$2.209^{+4.609}_{-1.292}$
Alt.	-48 ± 18	$1.10^{+0.53}_{-0.47}$	3634^{+293}_{-299}	5801^{+2359}_{-1164}	$4.870^{+10.906}_{-3.116}$

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

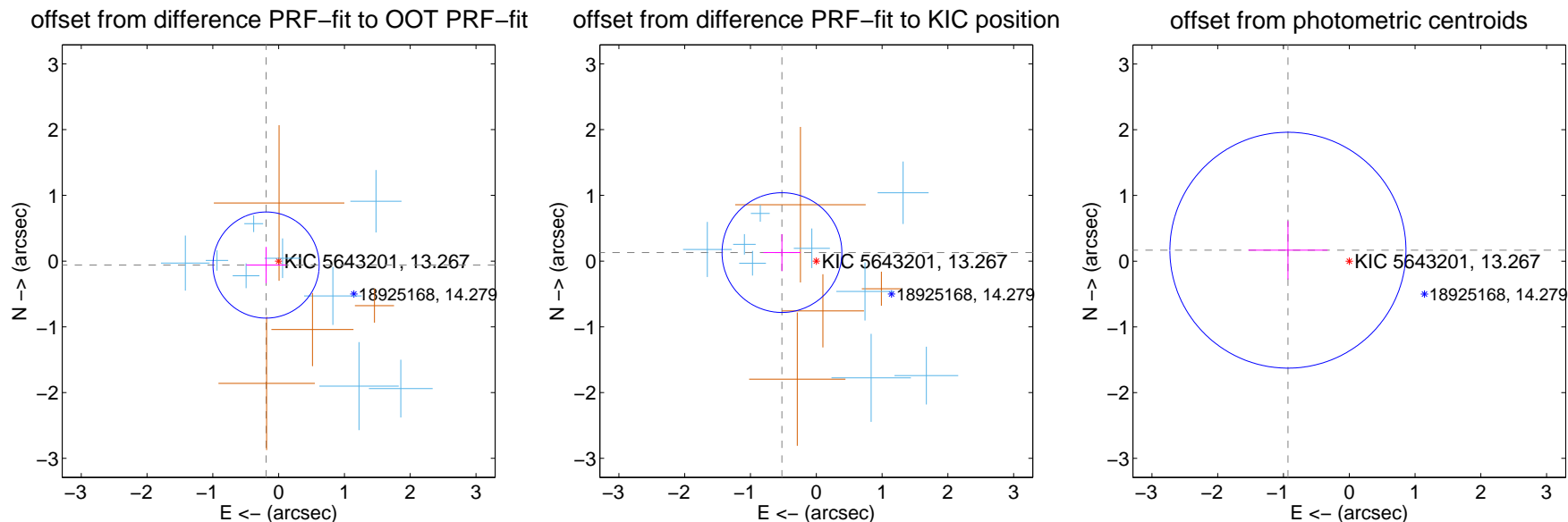
DV Centroid Data

Supplemental centroid analysis for 005643201-01. Kepler magnitude: 13.27. Transit SNR 13.49

There are 9 quarters with good PRF difference image offsets

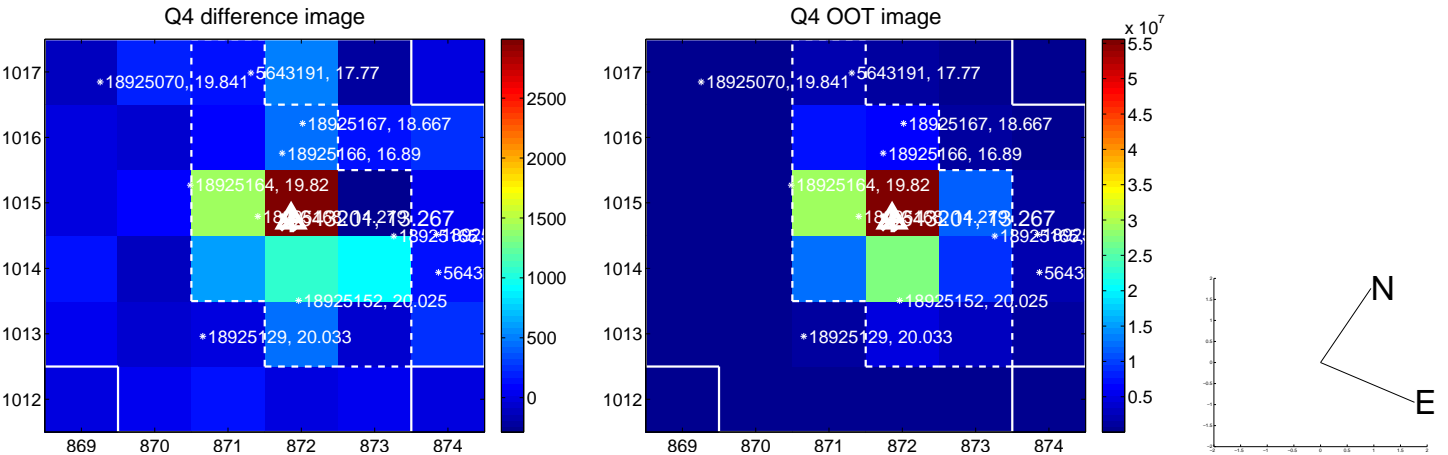
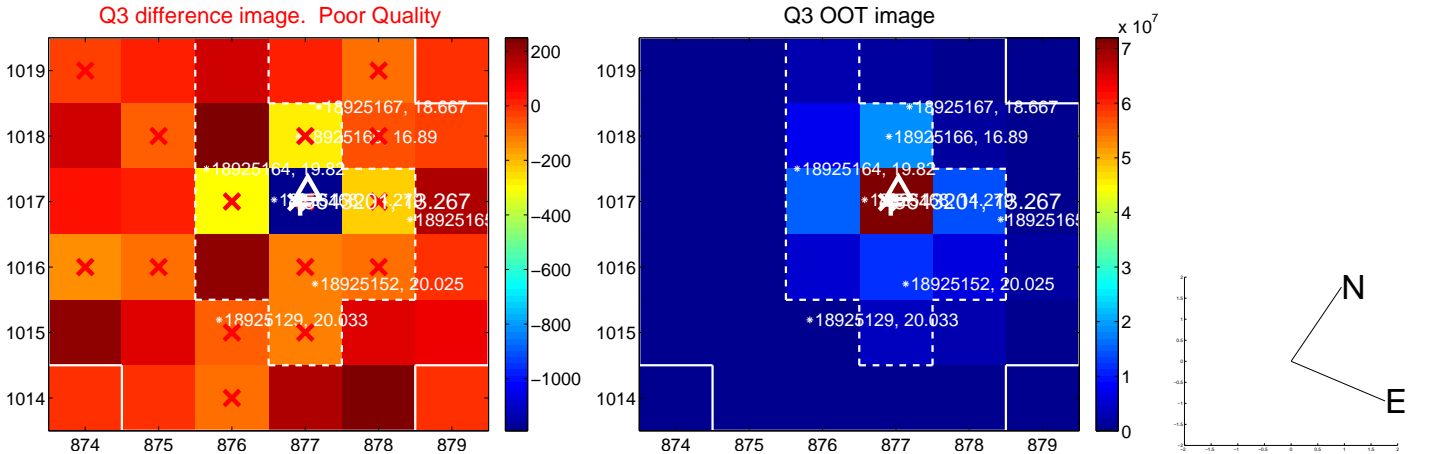
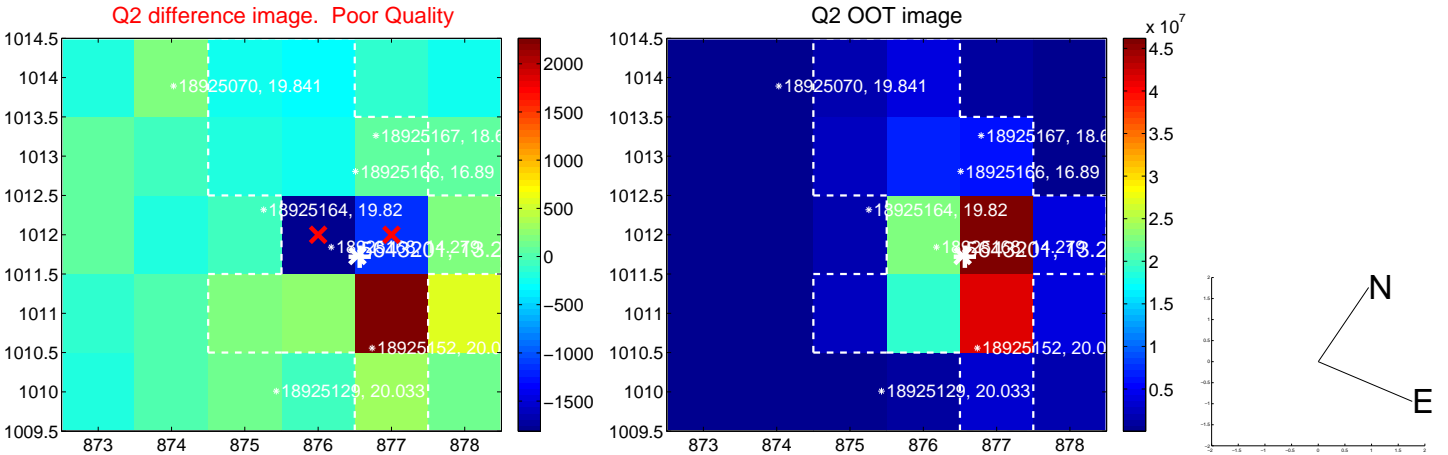
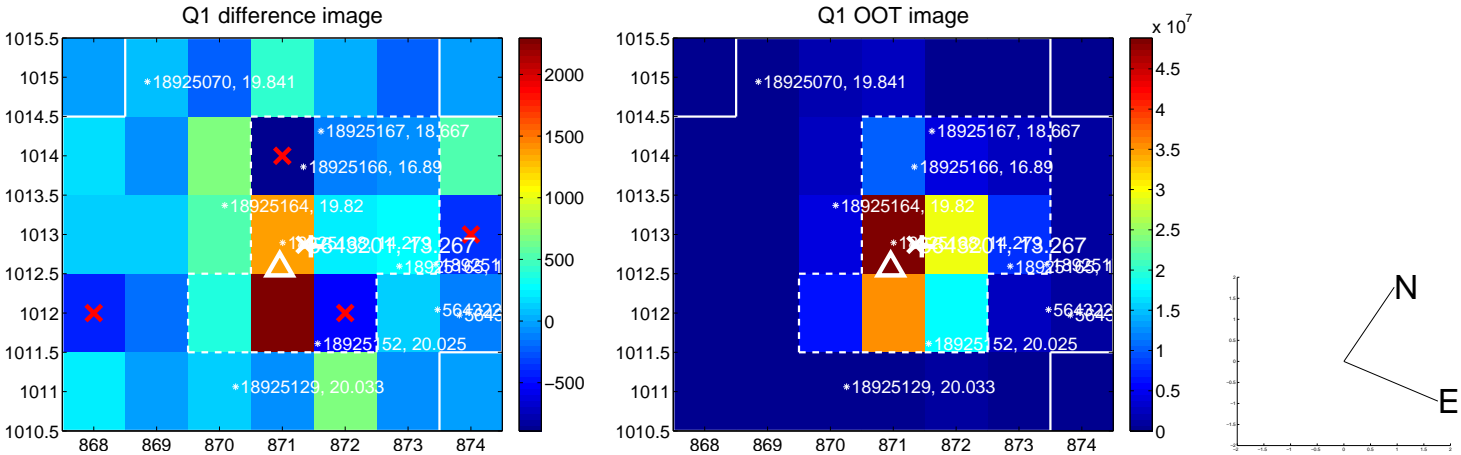
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.200 ± 0.269	0.74	0.191 ± 0.302	-0.060 ± 0.276
PRF-fit source offset from KIC position	0.538 ± 0.304	1.77	0.522 ± 0.283	0.129 ± 0.281
photometric centroid source offset	0.95 ± 0.60	1.58	0.93 ± 0.60	0.17 ± 0.44

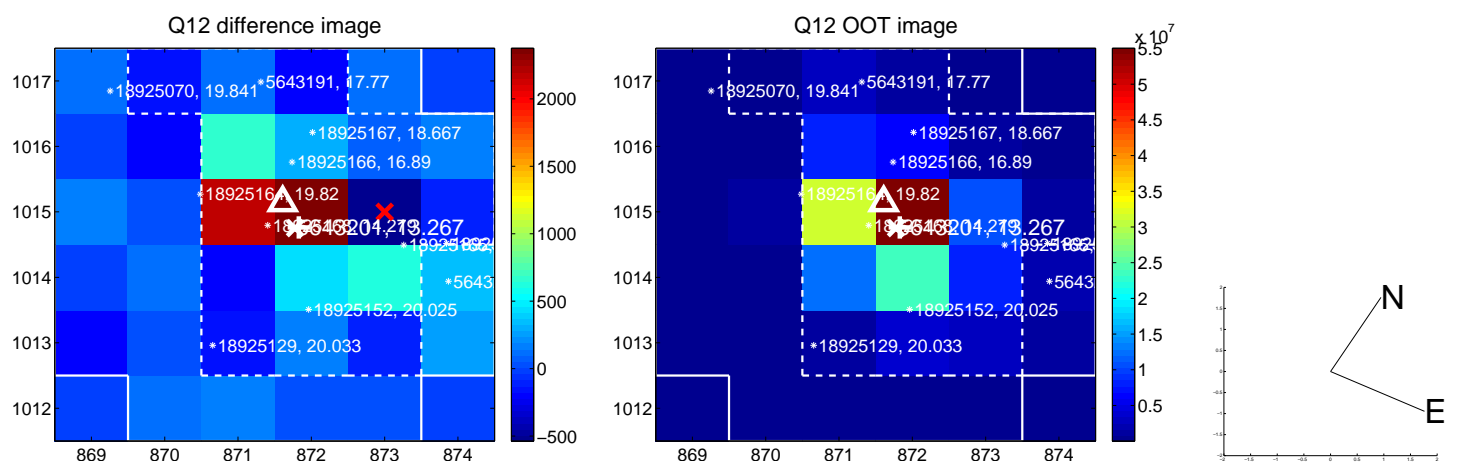
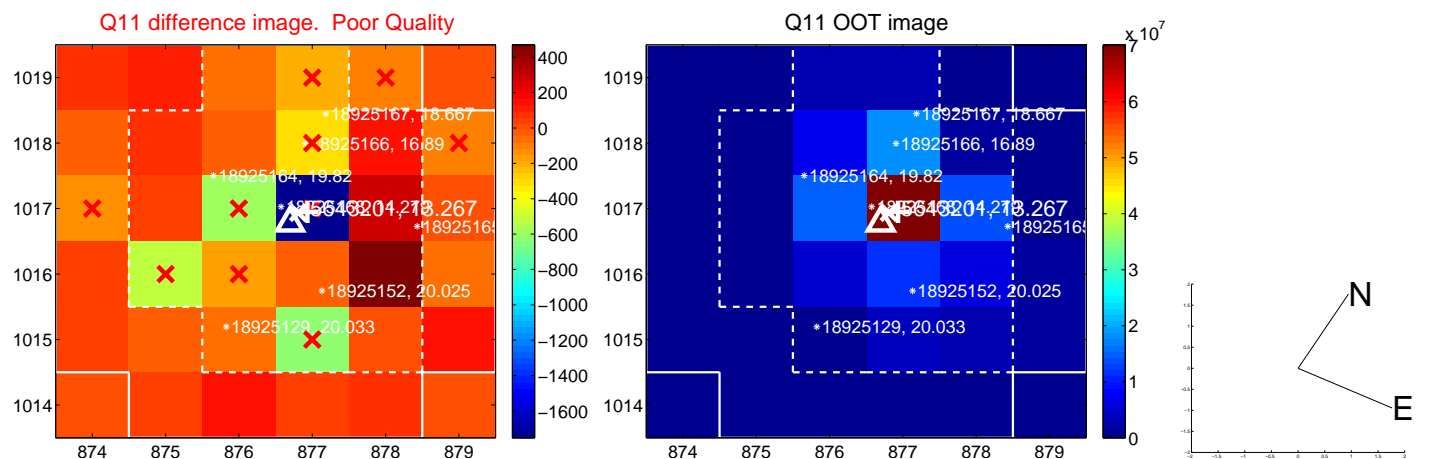
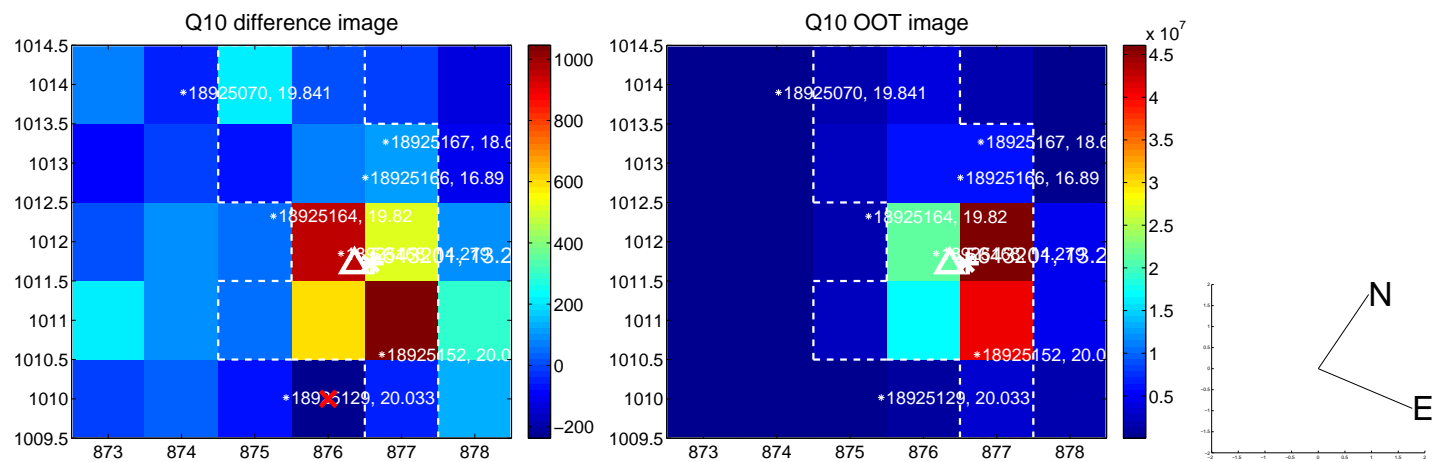
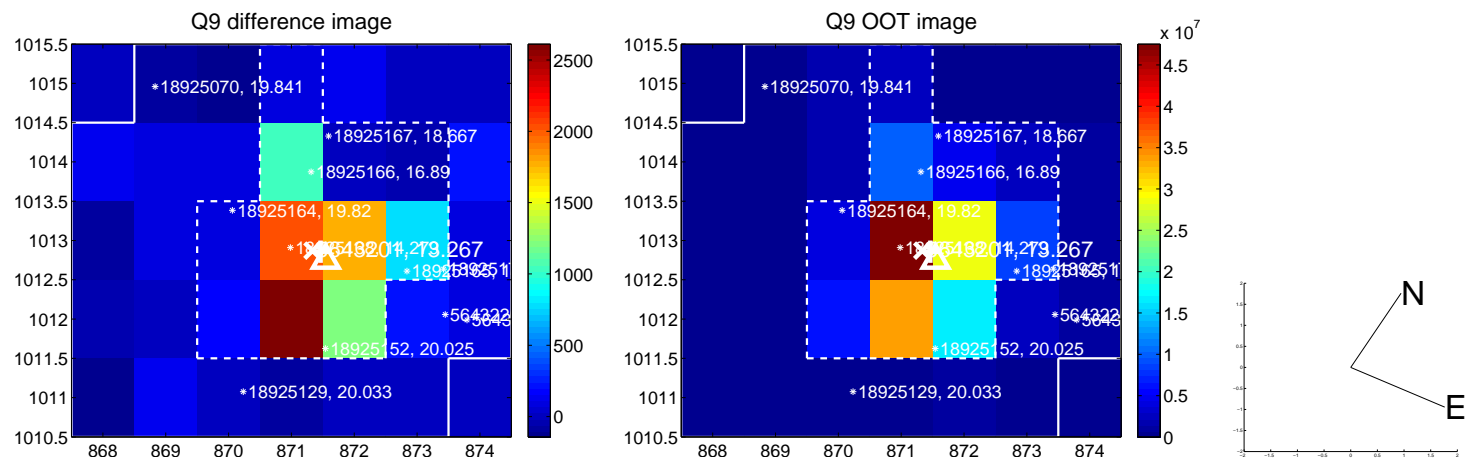


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

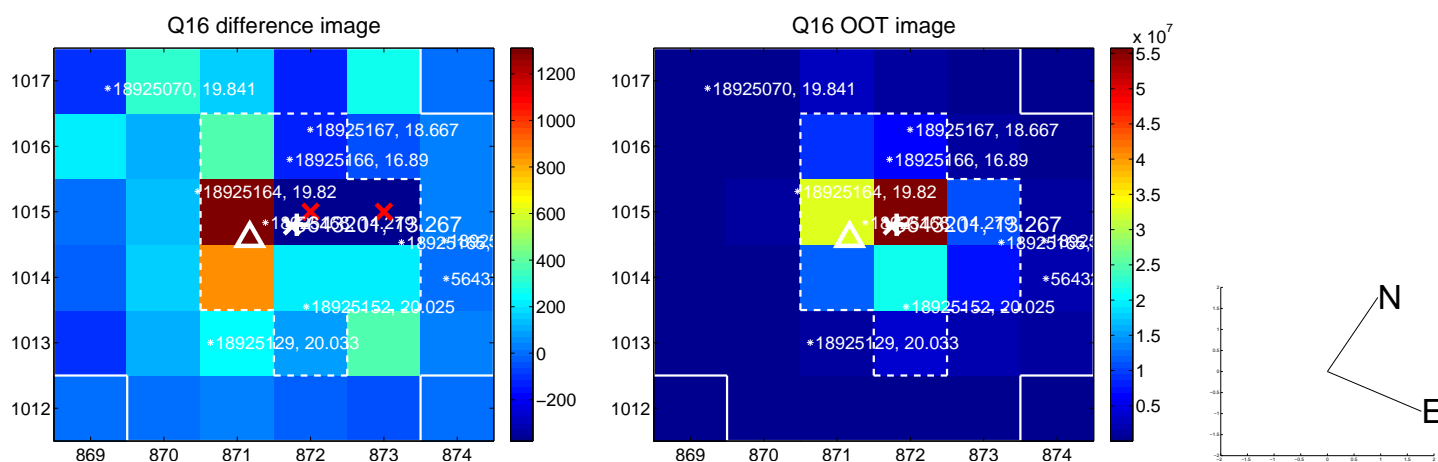
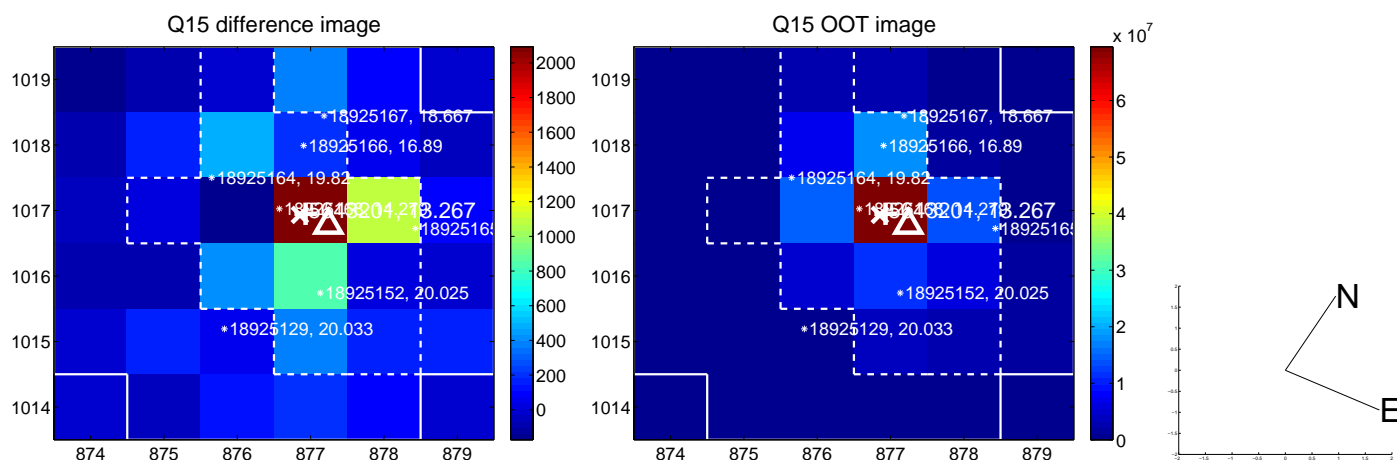
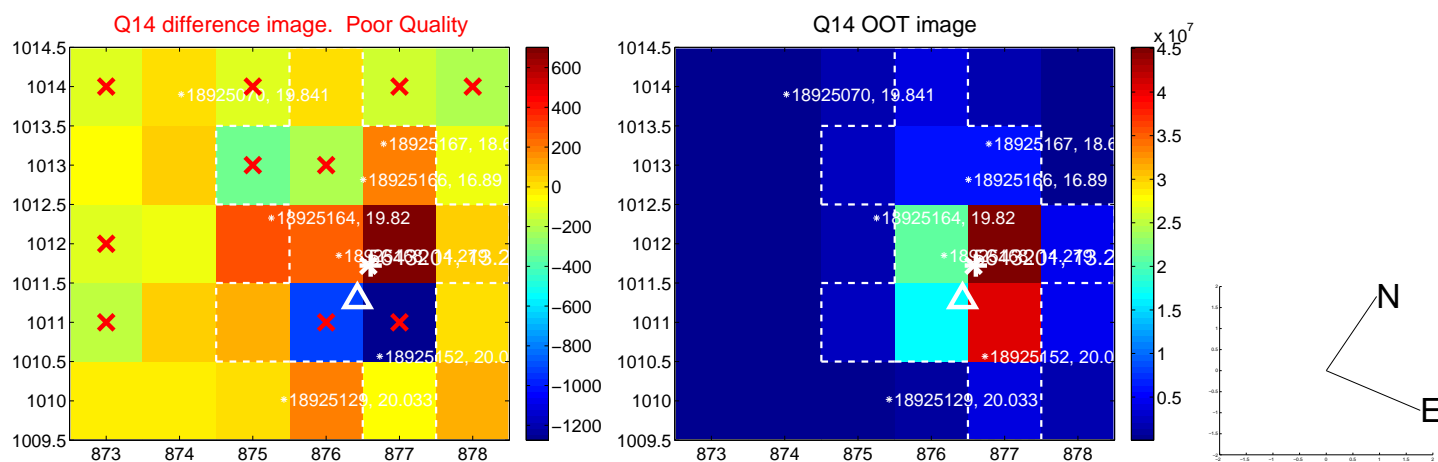
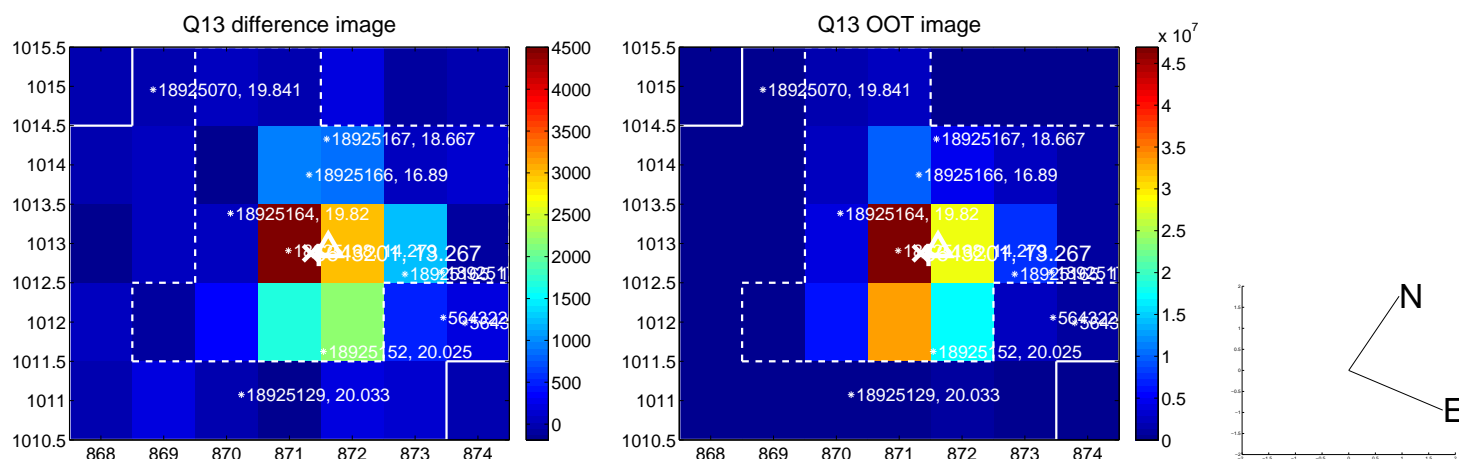
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

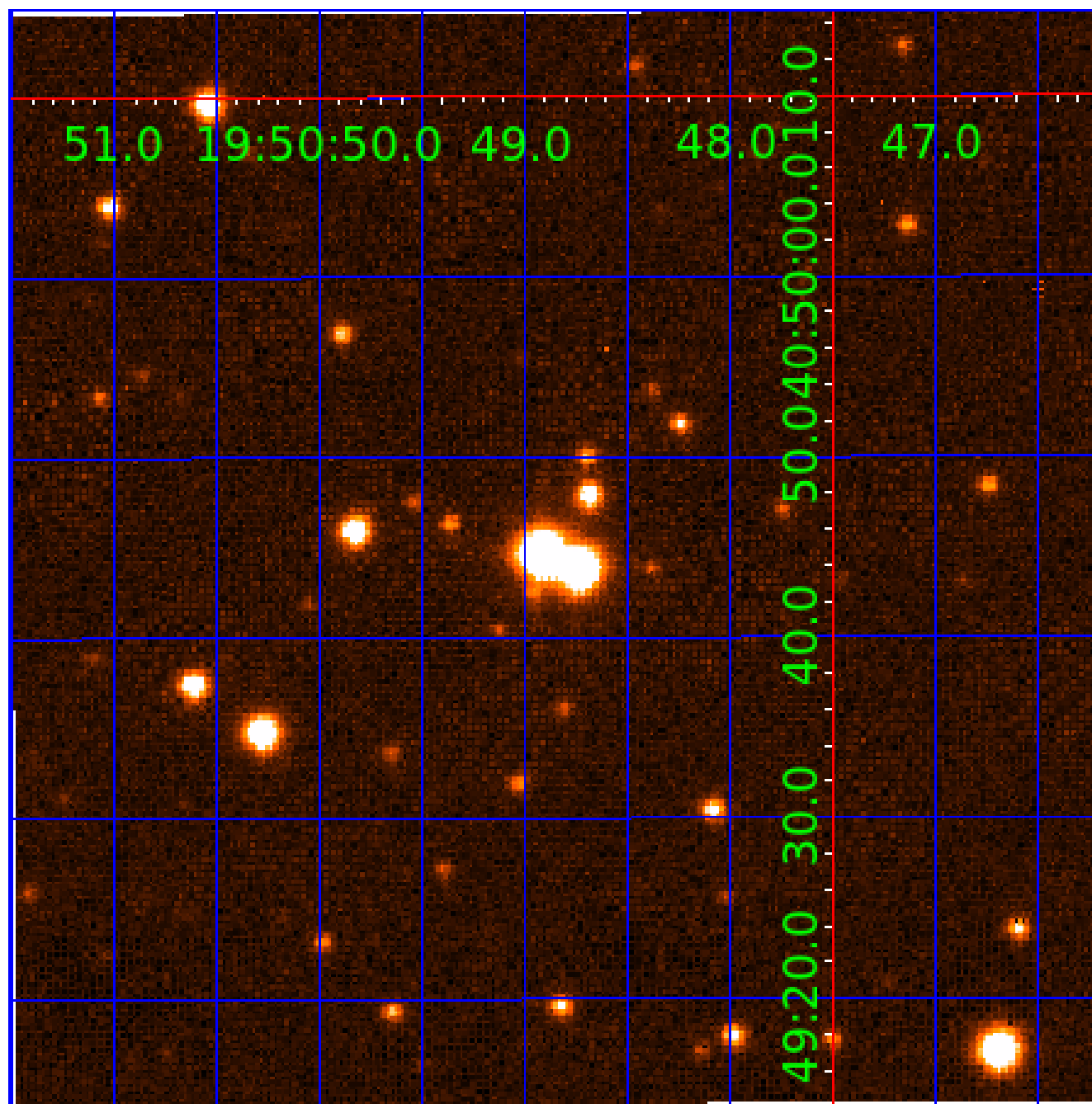


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005643201

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})
005643201-01	OBS	No	0.643834	131.574260	46.3	2.282	12.6	13.5	1.39	6137	1.10	10958.18
005643201-02	OBS	No	409.893166	288.075502	5294.4	49.106	10.3	7.3	1.39	6137	18.31	2.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005643201-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
005643201-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

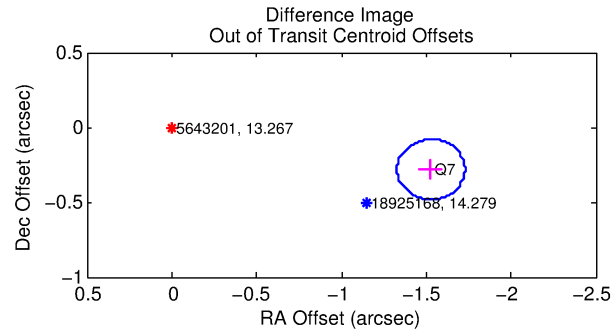
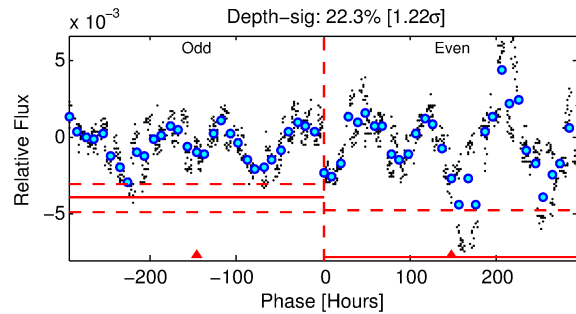
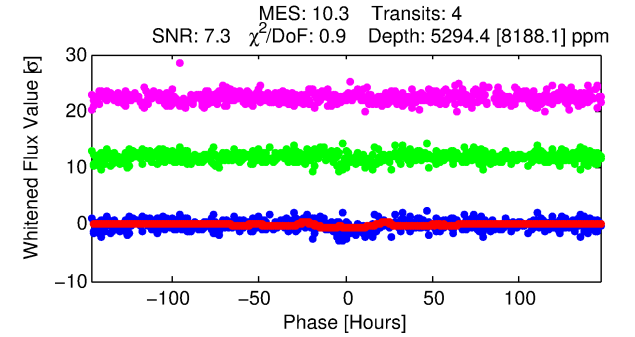
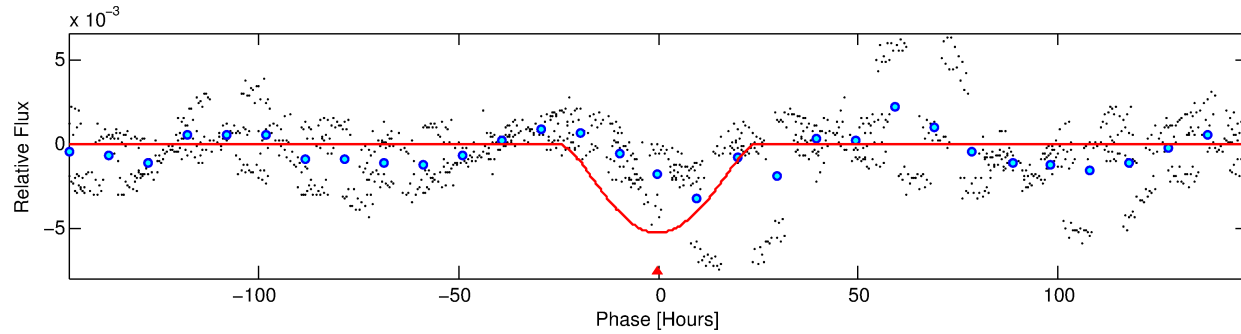
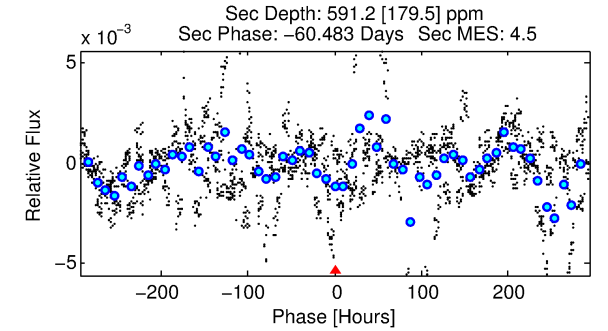
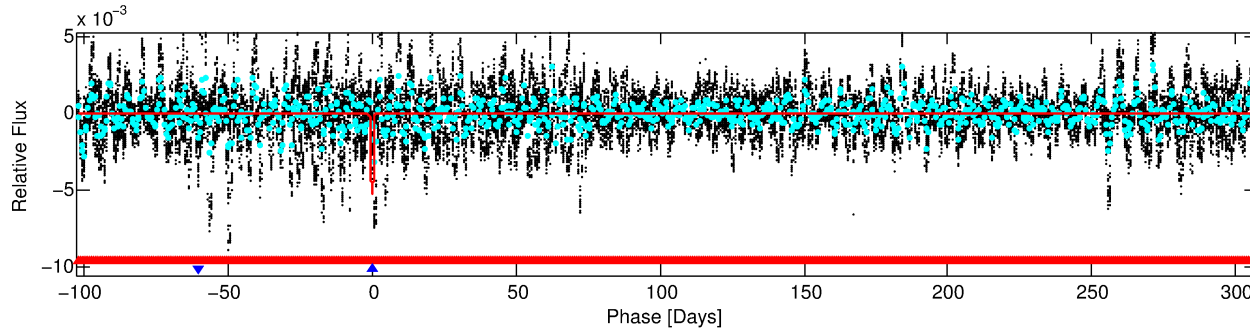
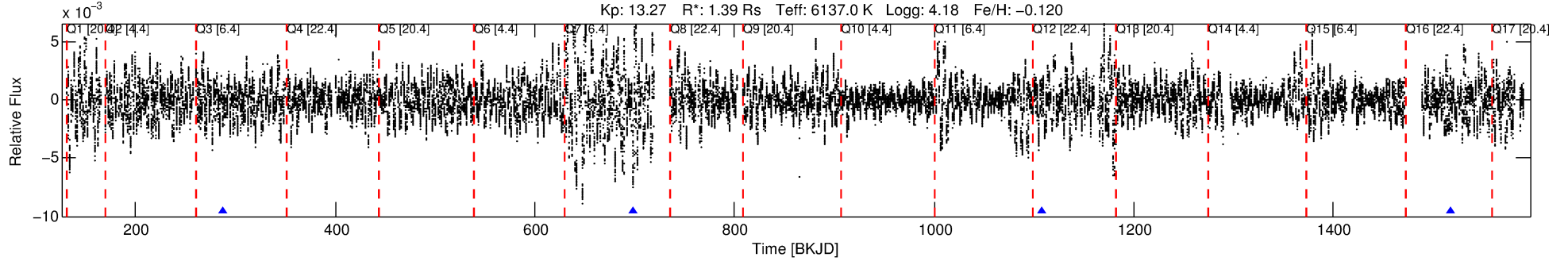
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005643201-02

No Significant Match Found

DV One-Page Summary

KIC: 5643201 Candidate: 2 of 2 Period: 409.893 d



DV Fit Results:

Period = 409.89317 [0.02551] d
Epoch = 288.0755 [0.0513] BKJD
Rp/R* = 0.1210 [0.1109]
a/R* = 32.32 [4.52]
b = 1.00 [0.03]
Seff = 2.00 [0.86]
Teq = 303 [33] K
Rp = 18.31 [17.70] Re
a = 1.1054 [0.2957] AU
Ag = 1185.20 [2253.23] [0.53σ]
Teffp = 2751 [1282] K [1.91σ]

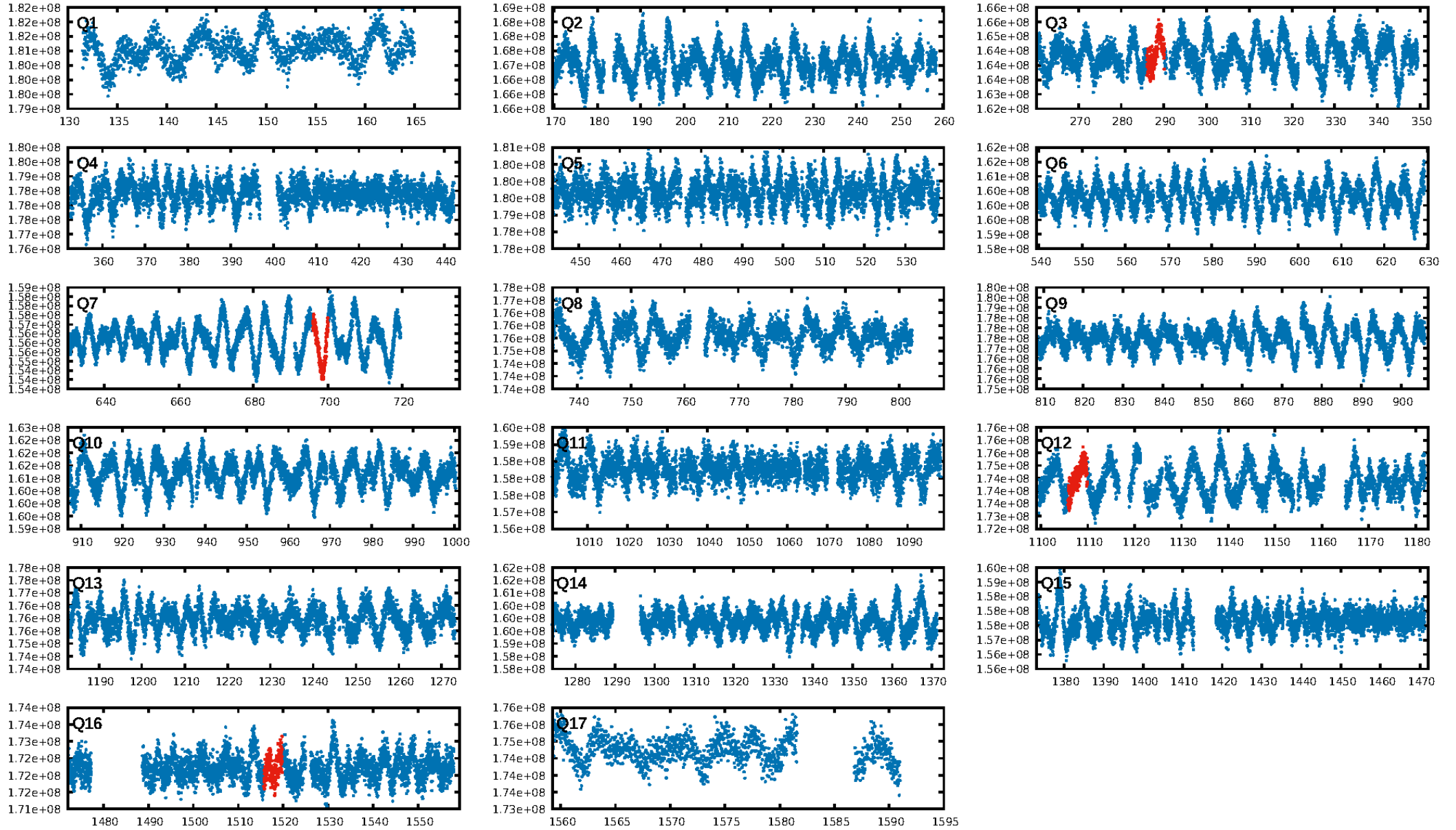
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [199.80σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.68e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 6.722
Centroid-sig: 0.8%
Centroid-so: 0.615 arcsec [1.83σ]
OotOffset-rm: 1.554 arcsec [23.28σ]
KicOffset-rm: 1.335 arcsec [19.99σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
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DiffImageOverlap-fno: 0.00 [0/1]

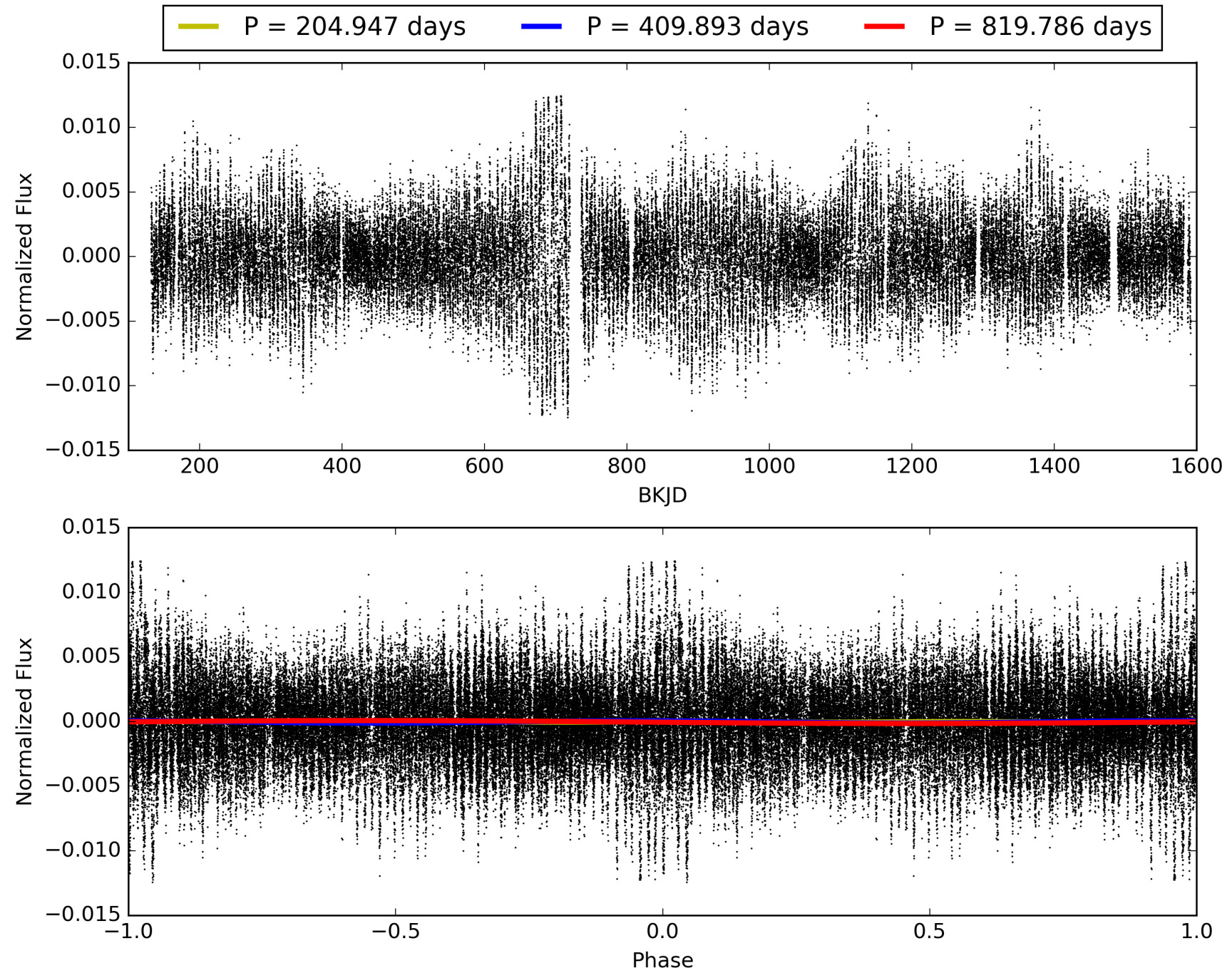
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:55:12 Z

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

TCE 005643201-02, PDC Light Curves

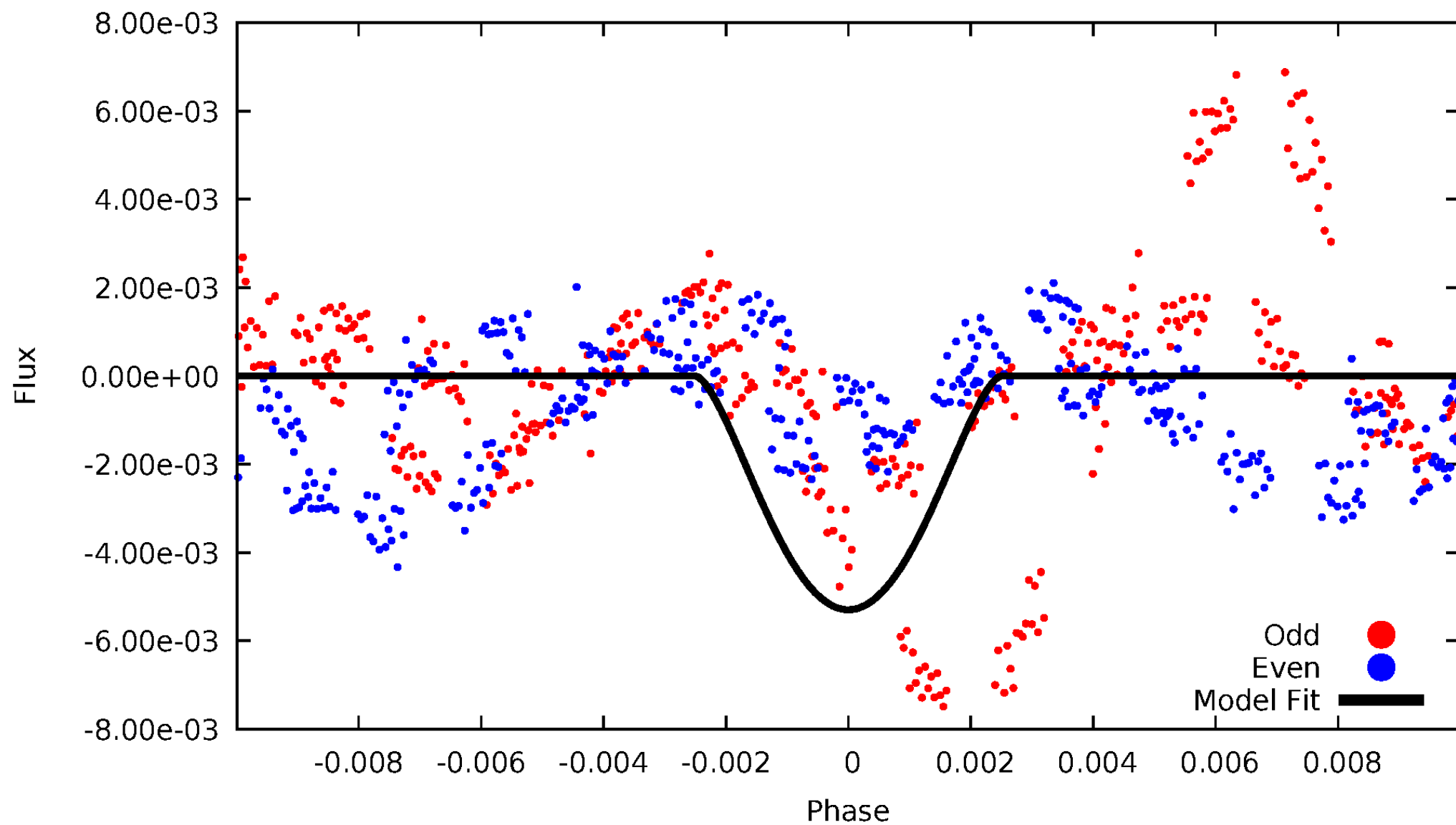


TCE 005643201-02



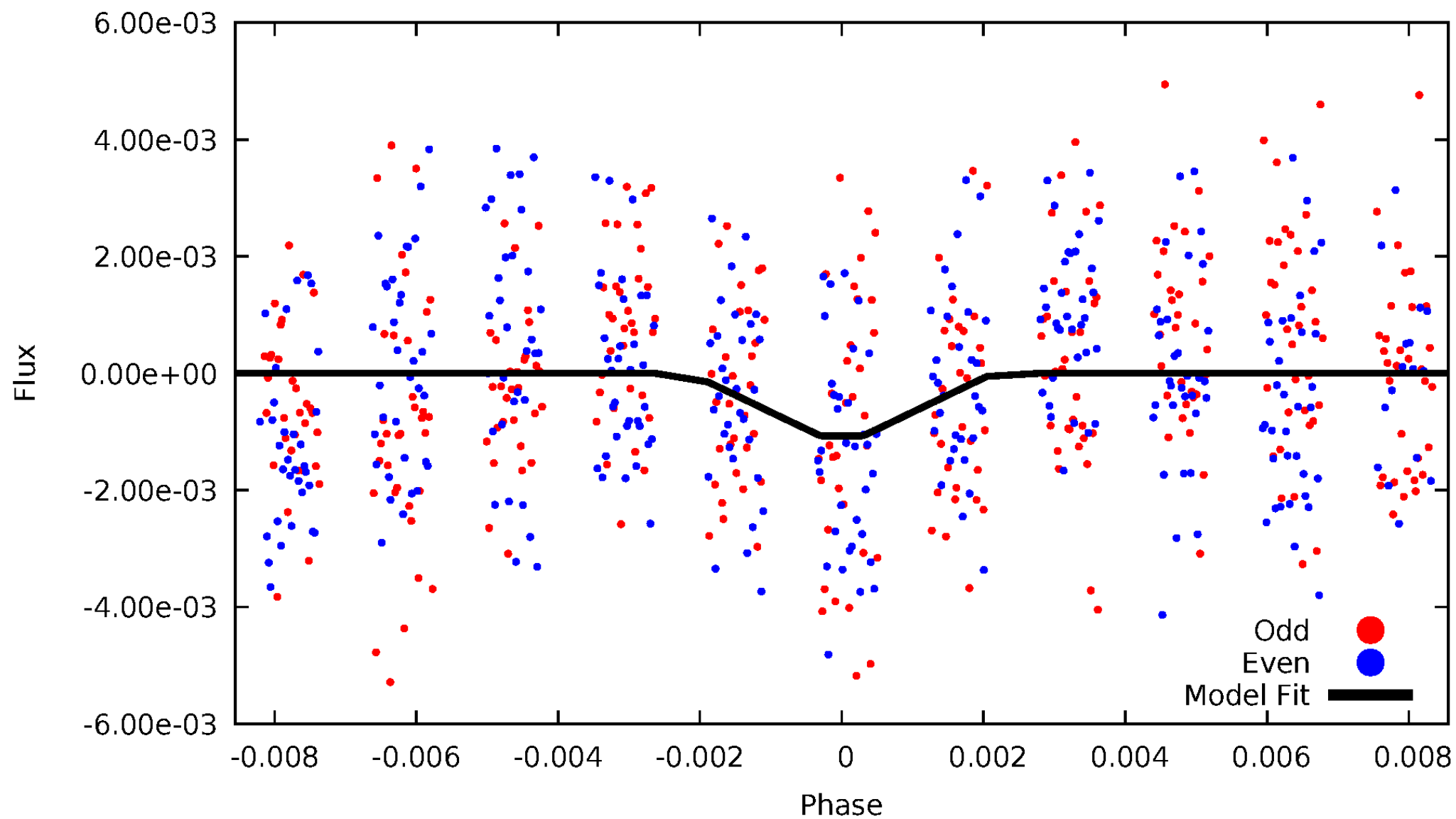
DV Odd/Even

TCE 005643201-02



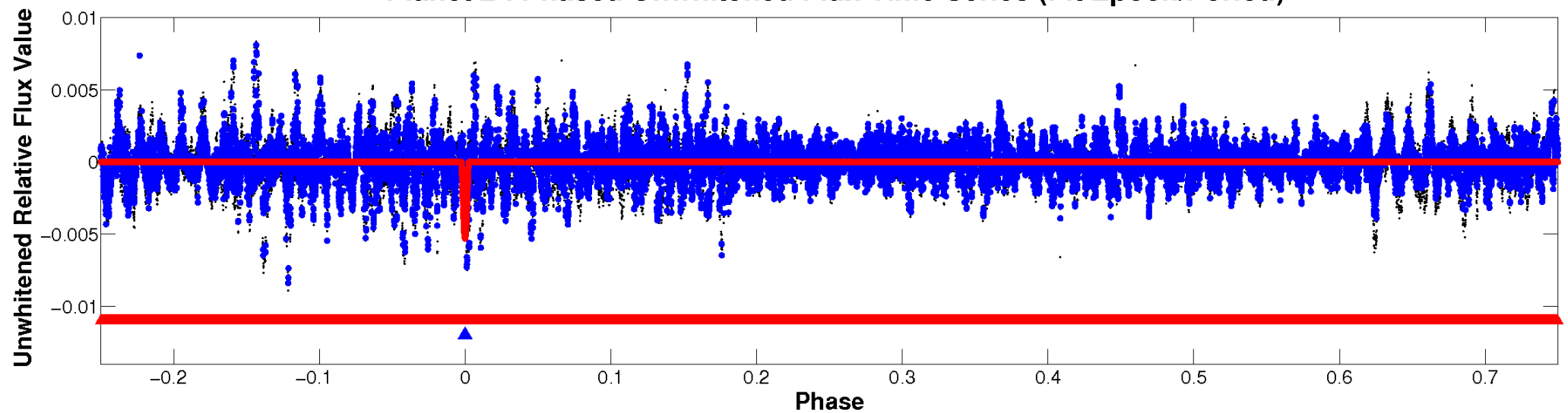
ALT Odd/Even

TCE 005643201-02

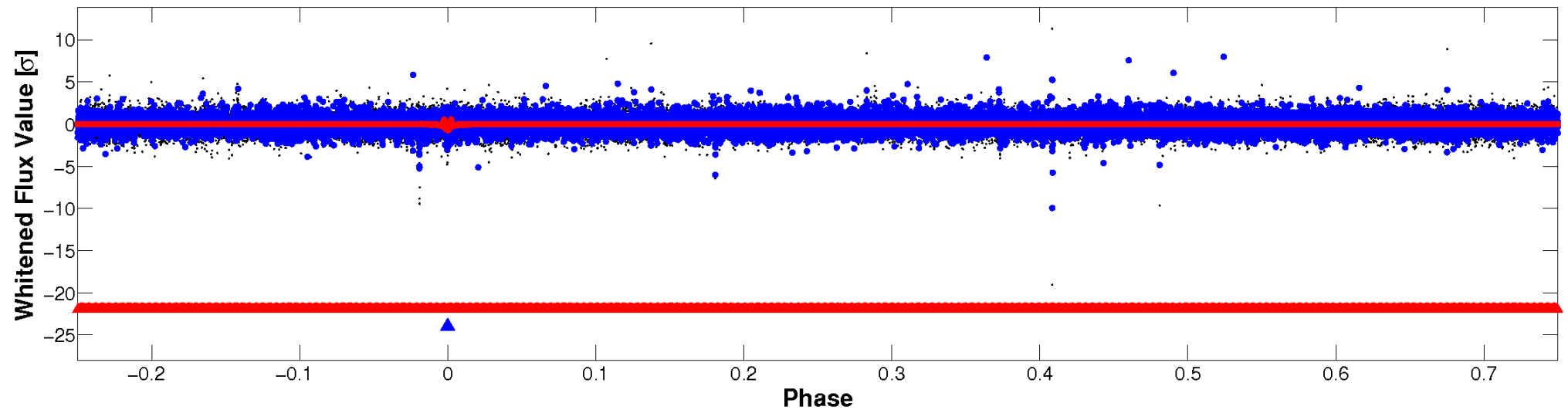


Non-Whitened Vs. Whitened Light Curve

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

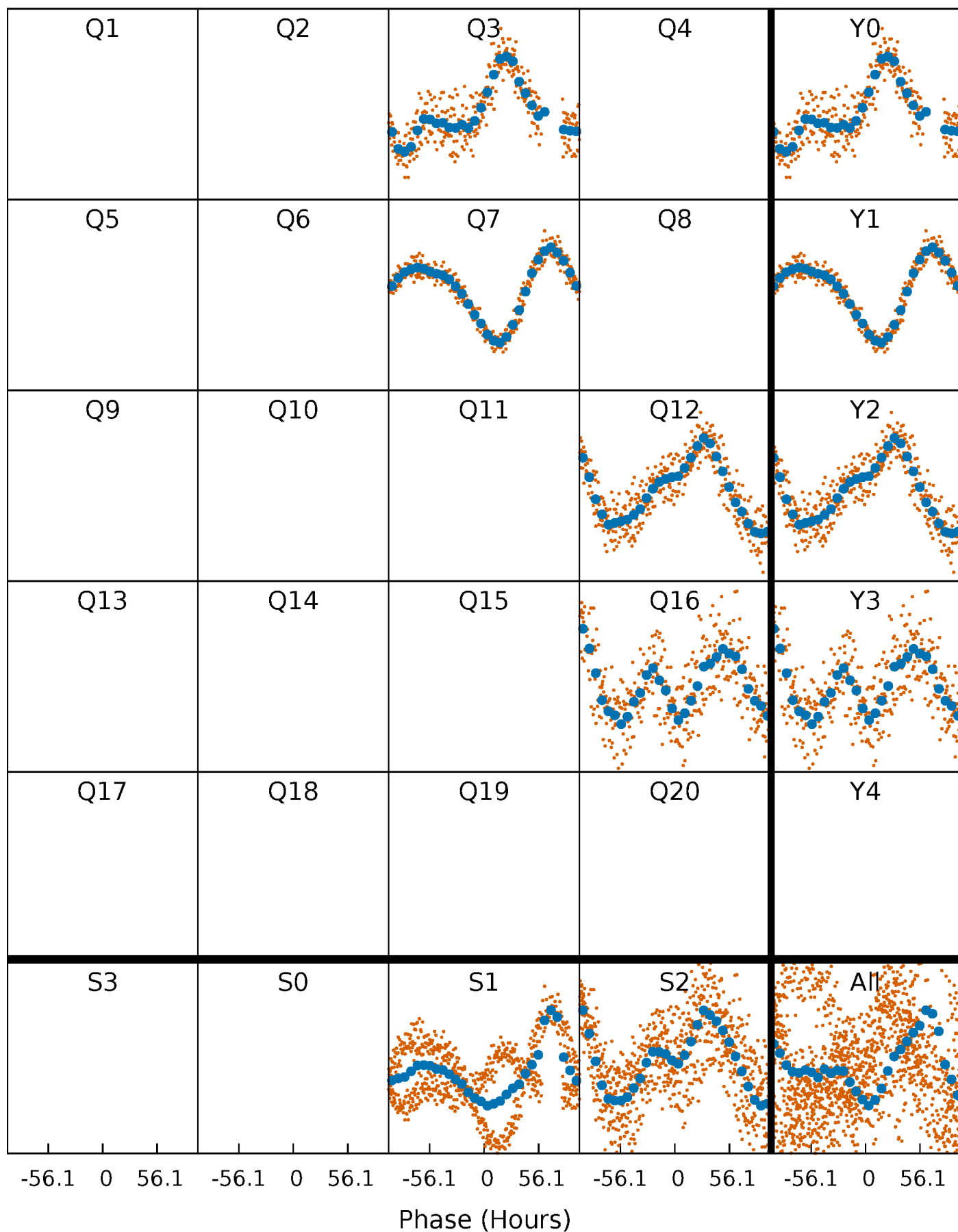


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



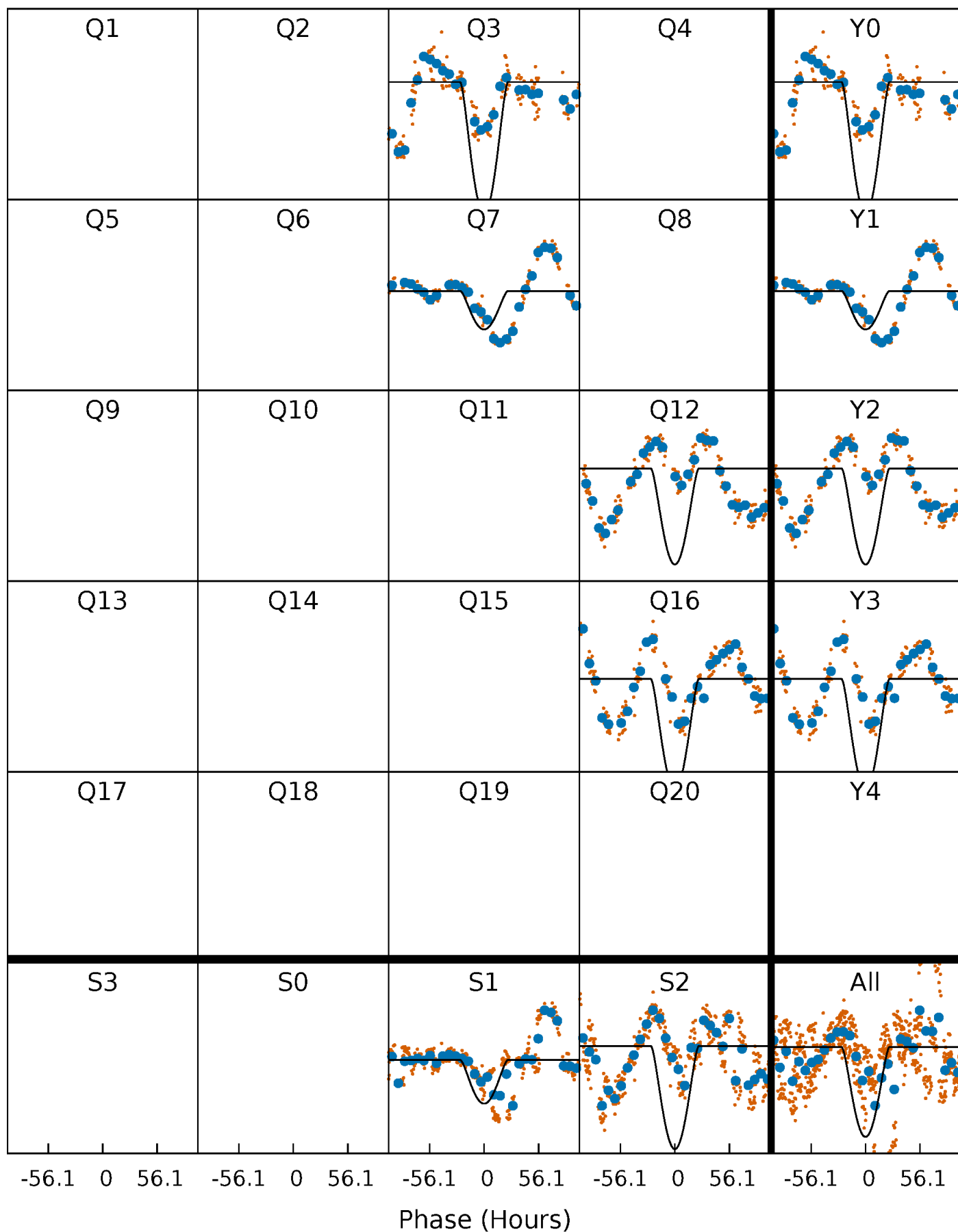
PDC Quarter-Phased Transit Curves

TCE 005643201-02 $P=409.893166$ Days $T_0=288.075501$ (BKJD)



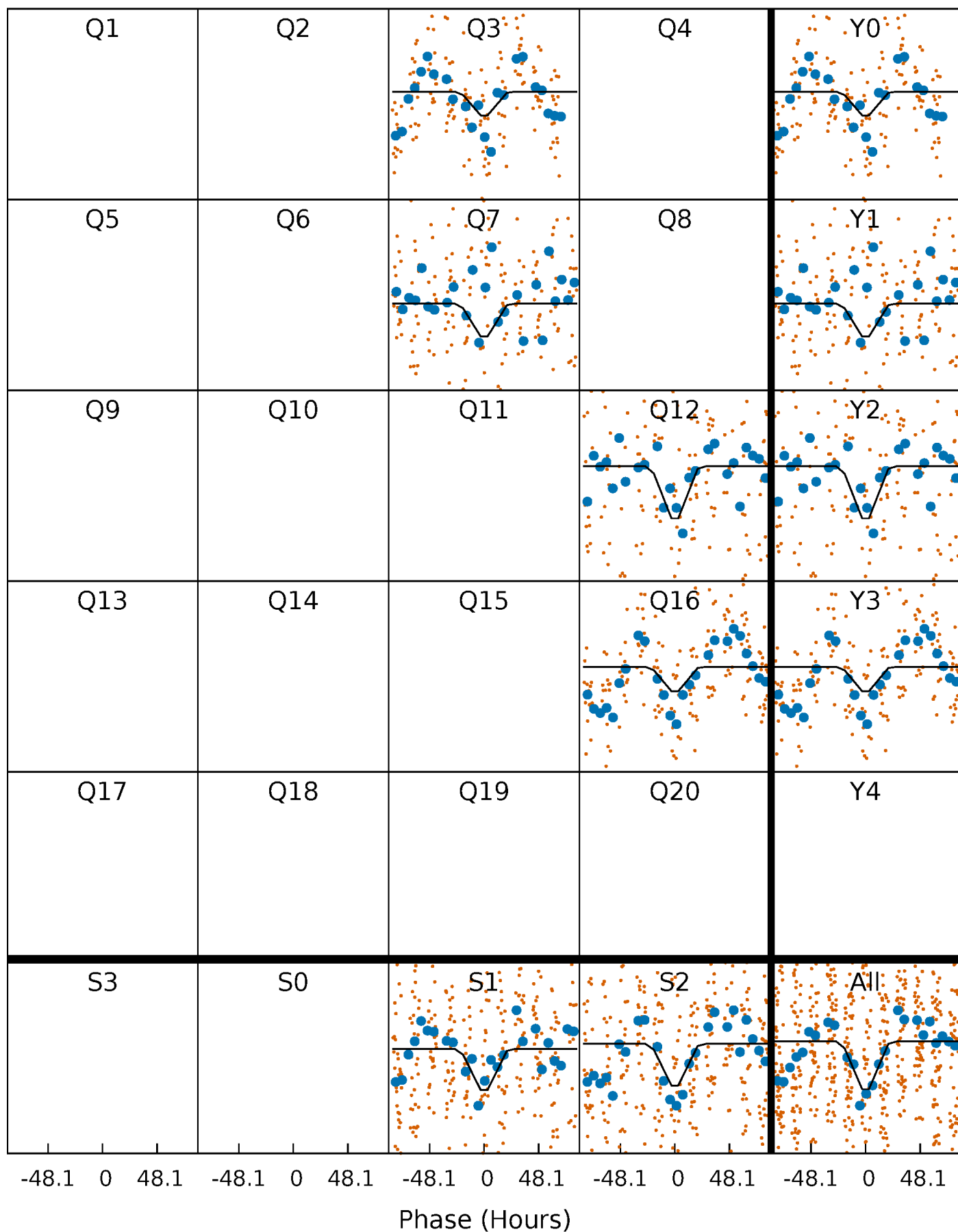
DV Quarter-Phased Transit Curves

TCE 005643201-02 $P=409.893166$ Days $T_0=288.075501$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

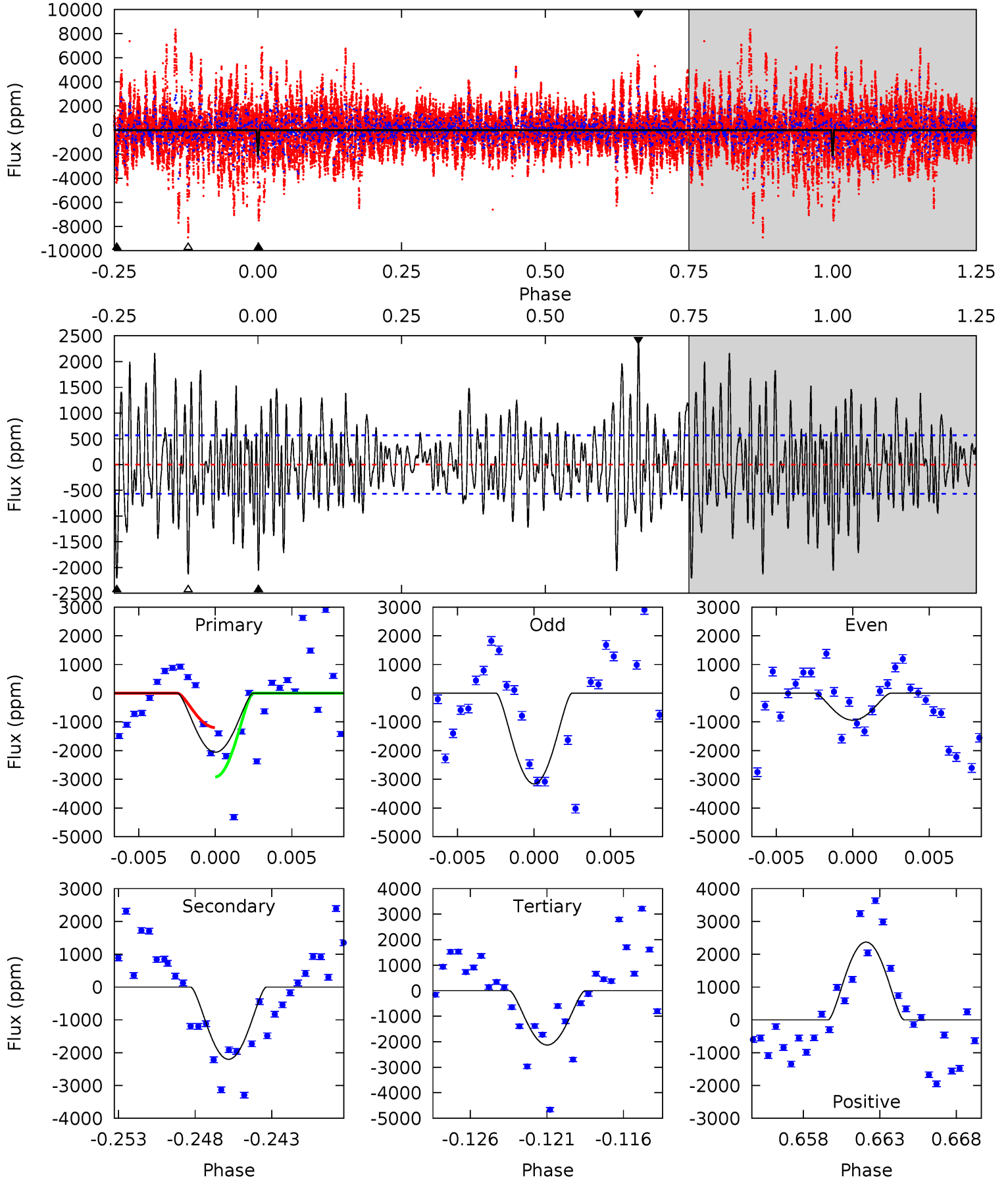
TCE 005643201-02 P=410.115172 Days $T_0=287.682210$ (BKJD)



DV Model-Shift Uniqueness Test

005643201-02, P = 409.893166 Days, E = 288.075501 Days

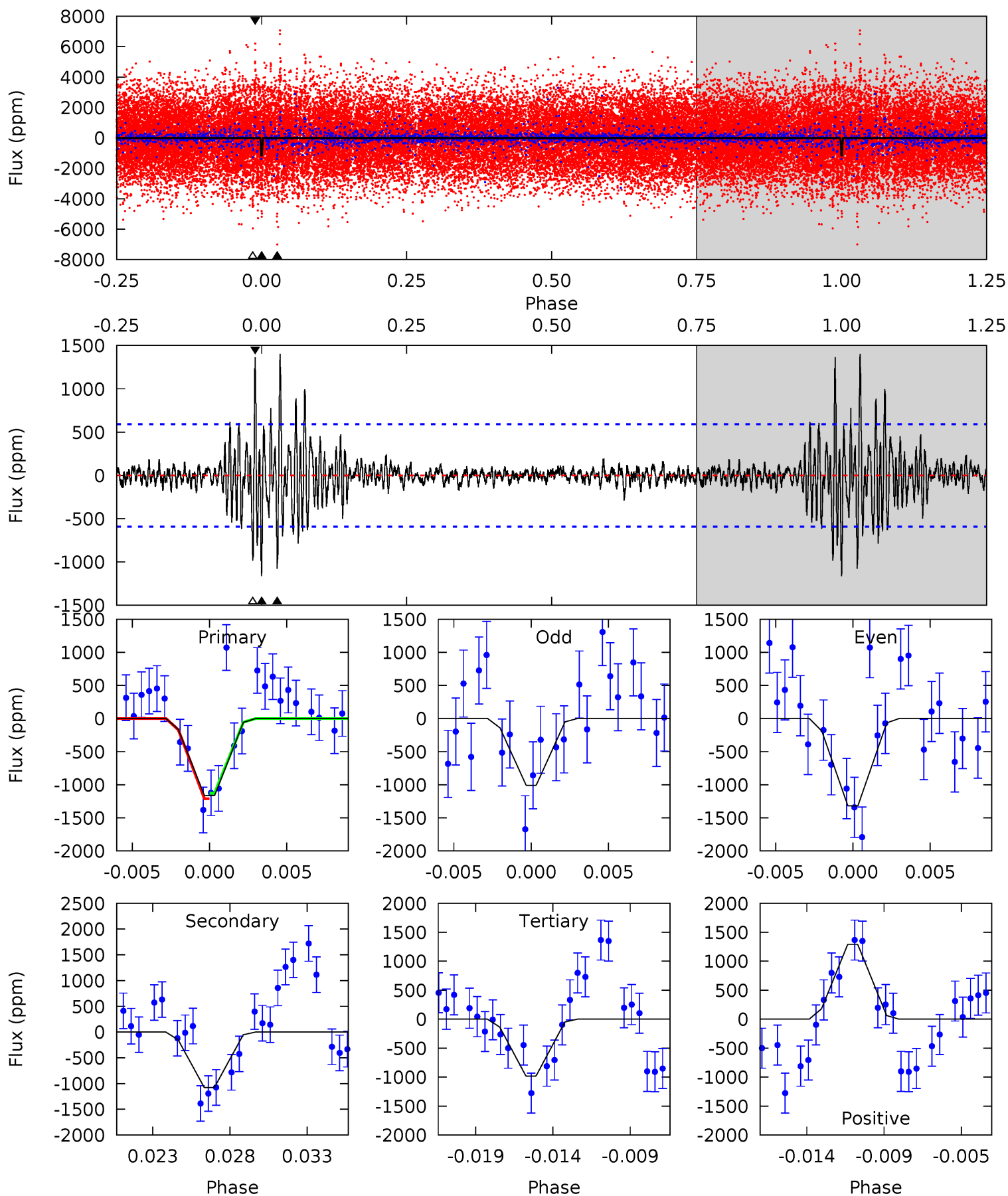
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	20.0	19.3	21.5	5.16	2.80	6.13	-0.66	-2.85	0.66	-1.53	10.2	1.25	0.52	7.90



Alt Model-Shift Uniqueness Test

005643201-02, P = 410.115172 Days, E = 287.682210 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	9.43	8.59	11.3	5.17	2.83	1.61	1.61	-1.09	0.84	-1.86	1.37	0.90	0.55	0.36



Stellar Parameters For KIC 005643201

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6137^{+193}_{-236}	$4.184^{+0.225}_{-0.184}$	$-0.120^{+0.300}_{-0.300}$	$1.387^{+0.425}_{-0.348}$	$1.072^{+0.178}_{-0.146}$	$0.566^{+0.717}_{-0.275}$
	+3%/-4%	+5%/-4%	+250%/-250%	+31%/-25%	+17%/-14%	+127%/-49%
Source	KIC0	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 005643201-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2202 ± 110	$20.43^{+15.89}_{-12.45}$	420^{+35}_{-31}	3893^{+1736}_{-619}	3448^{+20581}_{-2349}
Alt.	-1078 ± 114	$13.45^{+13.60}_{-8.95}$	421^{+33}_{-34}	4042^{+2360}_{-817}	4136^{+31938}_{-3124}

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 $A_{obs} \gg 1.0$

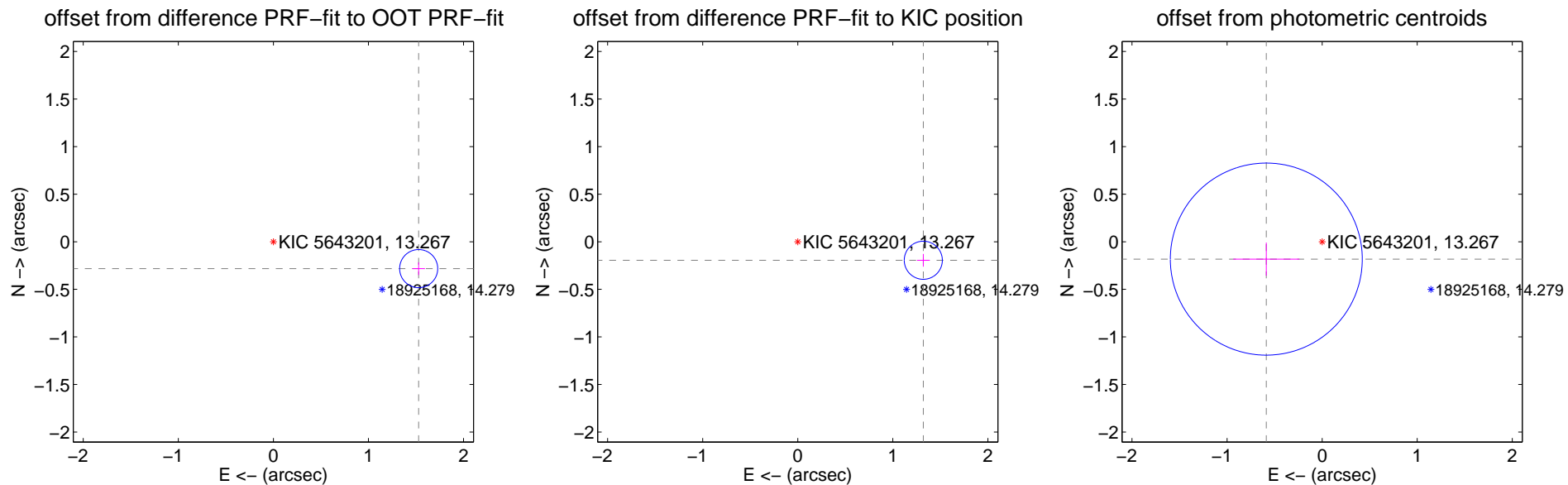
DV Centroid Data

Supplemental centroid analysis for 005643201-02. Kepler magnitude: 13.27. Transit SNR 7.29

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.554 ± 0.067	23.28	-1.528 ± 0.067	-0.282 ± 0.067
PRF-fit source offset from KIC position	1.335 ± 0.067	19.99	-1.320 ± 0.067	-0.194 ± 0.067
photometric centroid source offset	0.61 ± 0.34	1.83	0.59 ± 0.35	-0.18 ± 0.17

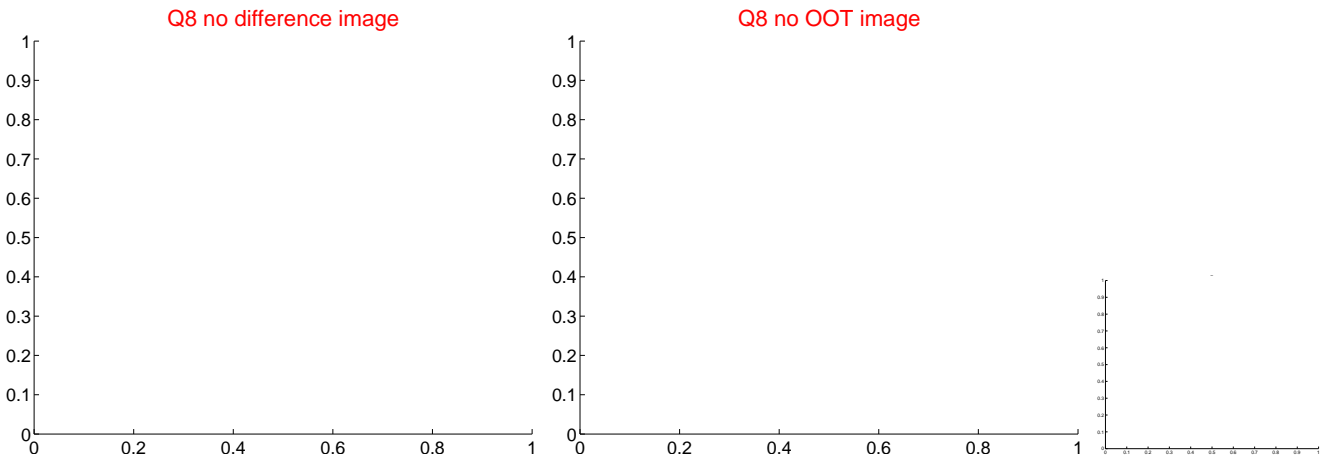
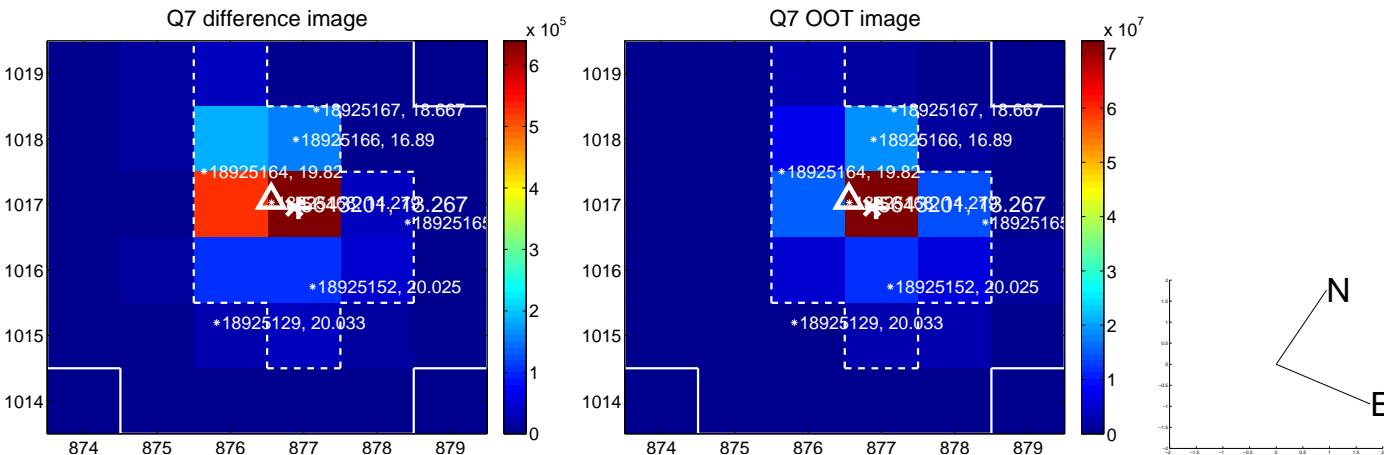
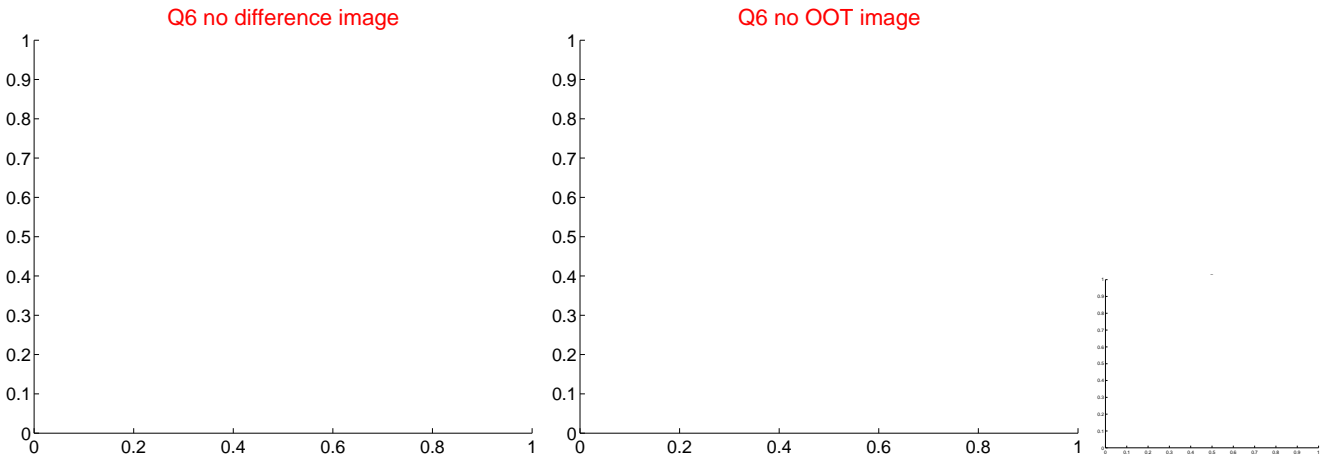
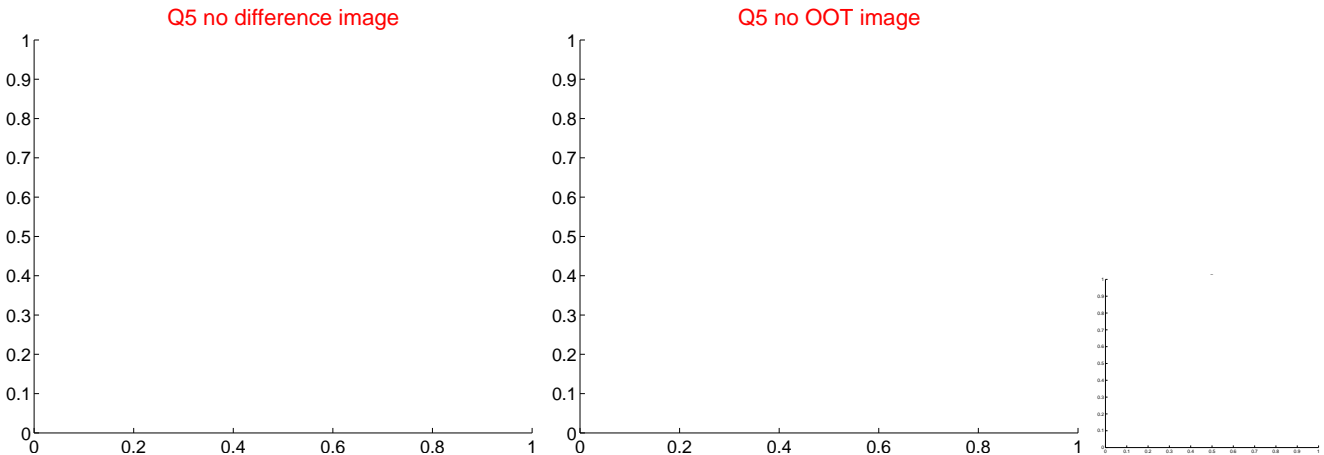


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



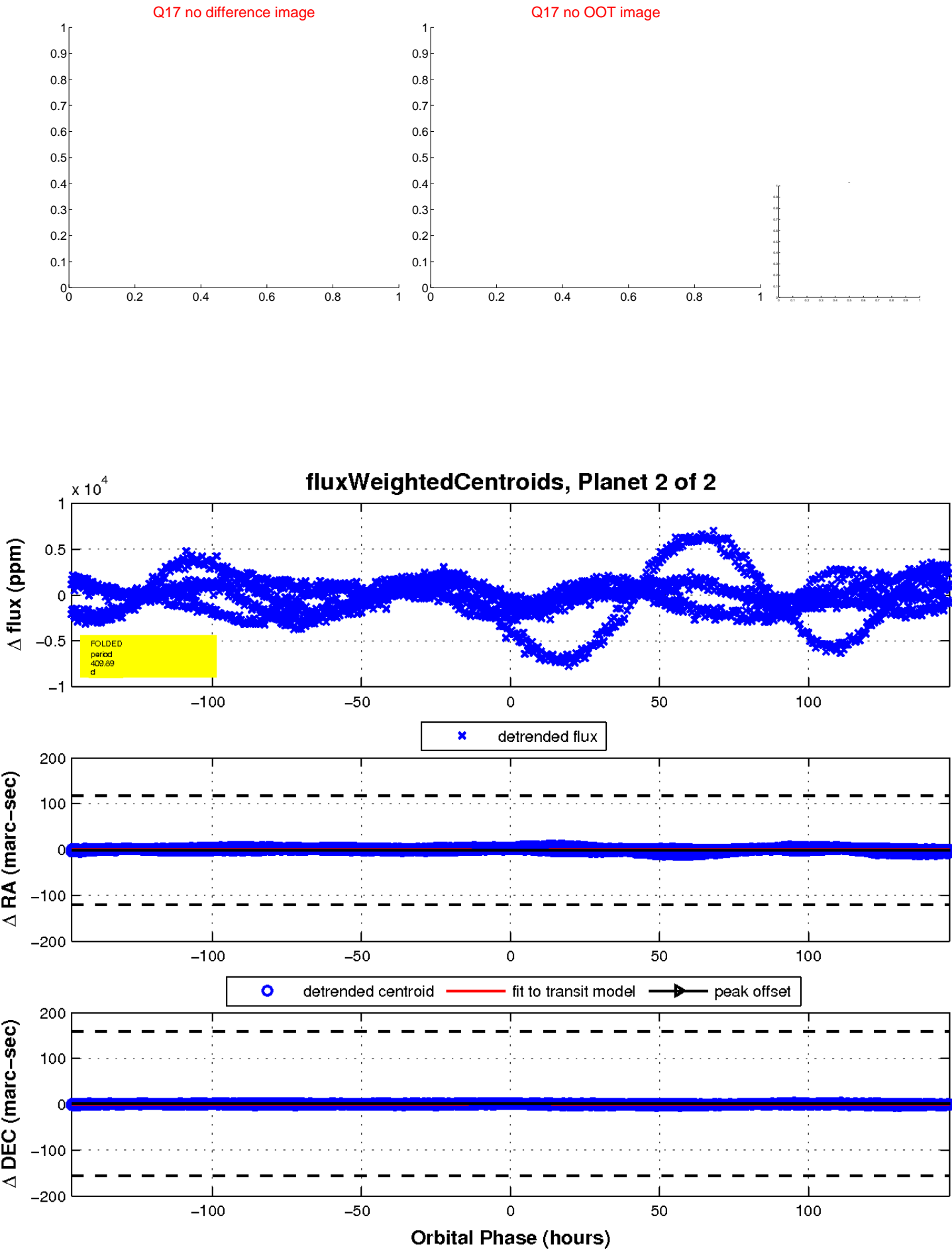
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

