

KIC 005621528

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})
005621528-01	OBS	No	327.017468	311.788453	1529.2	33.913	12.5	7.4	0.38	3537	1.76	0.04
005621528-02	OBS	No	383.967077	346.940490	1458.4	19.793	8.9	5.9	0.38	3537	1.80	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005621528-01	OBS	FP	0.00	1	0	1	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005621528-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

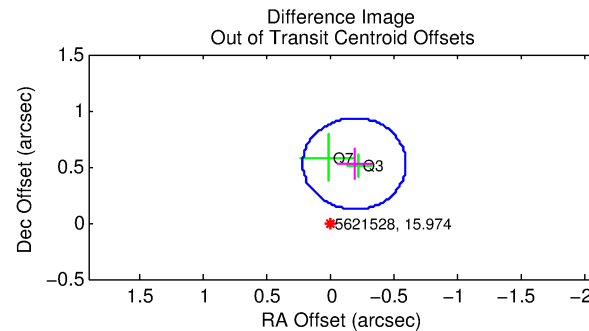
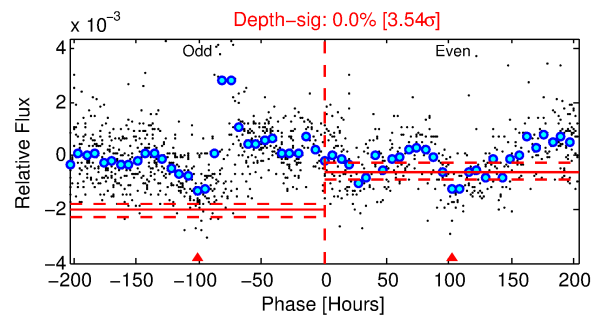
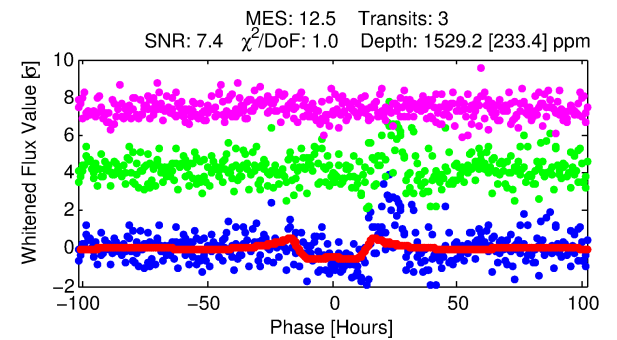
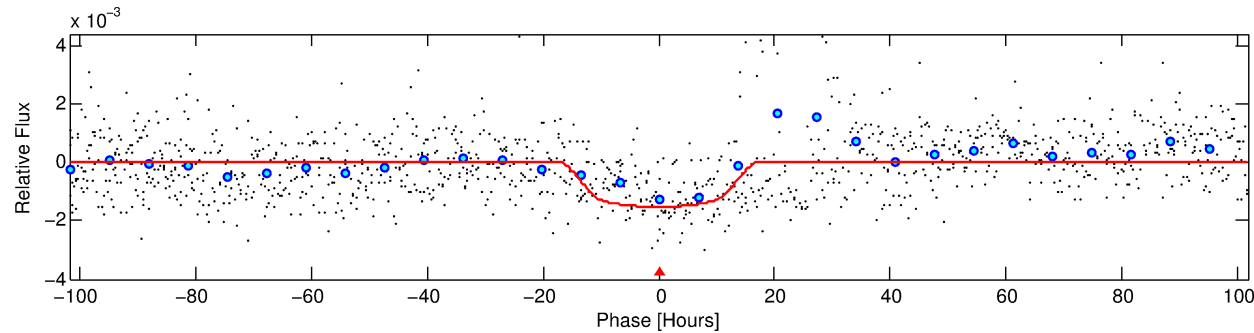
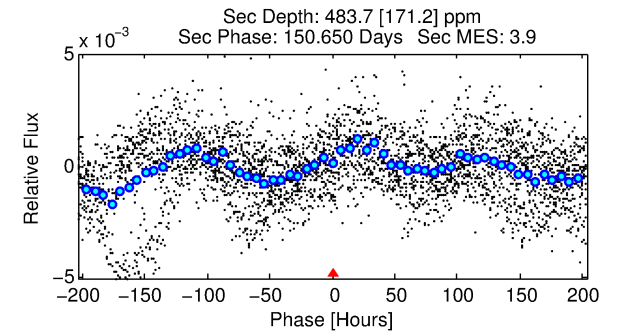
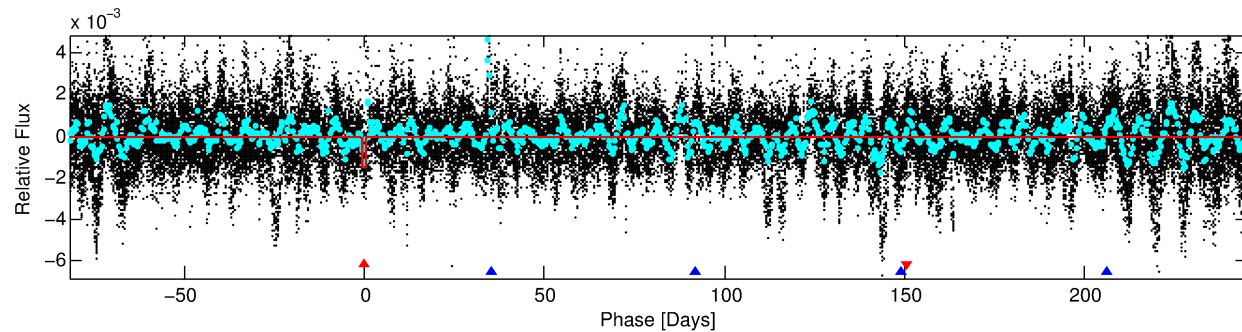
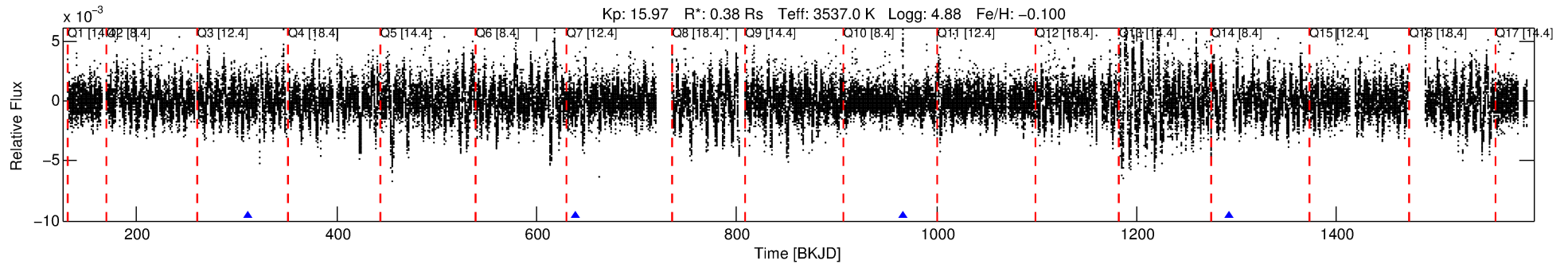
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005621528-01

No Significant Match Found

DV One-Page Summary

KIC: 5621528 Candidate: 1 of 2 Period: 327.017 d



DV Fit Results:

Period = 327.01747 [0.03581] d
Epoch = 311.7885 [0.0523] BKJD
Rp/R* = 0.0428 [0.0042]
a/R* = 38.50 [8.01]
b = 0.90 [0.04]
Seff = 0.04 [0.00]
Teq = 116 [3] K
Rp = 1.76 [0.25] Re
a = 0.6785 [0.0502] AU
Ag = 39666.17 [16493.05] [2.40σ]
Teffp = 2535 [260] K [9.31σ]

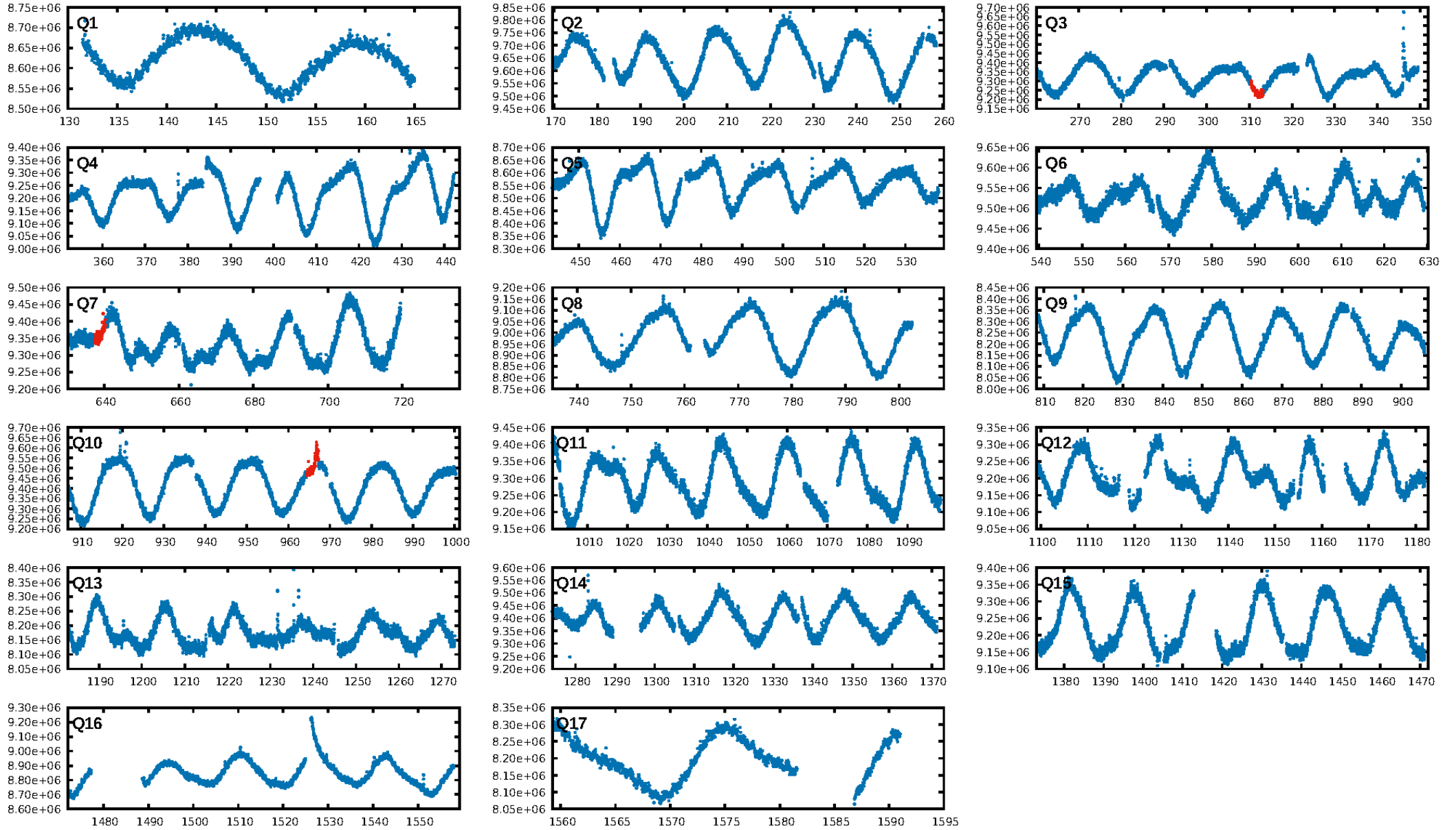
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [34.81σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.81e-19
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.134
Centroid-sig: 8.5%
Centroid-so: 0.941 arcsec [1.27σ]
OotOffset-rm: 0.561 arcsec [4.14σ]
KicOffset-rm: 0.652 arcsec [4.82σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

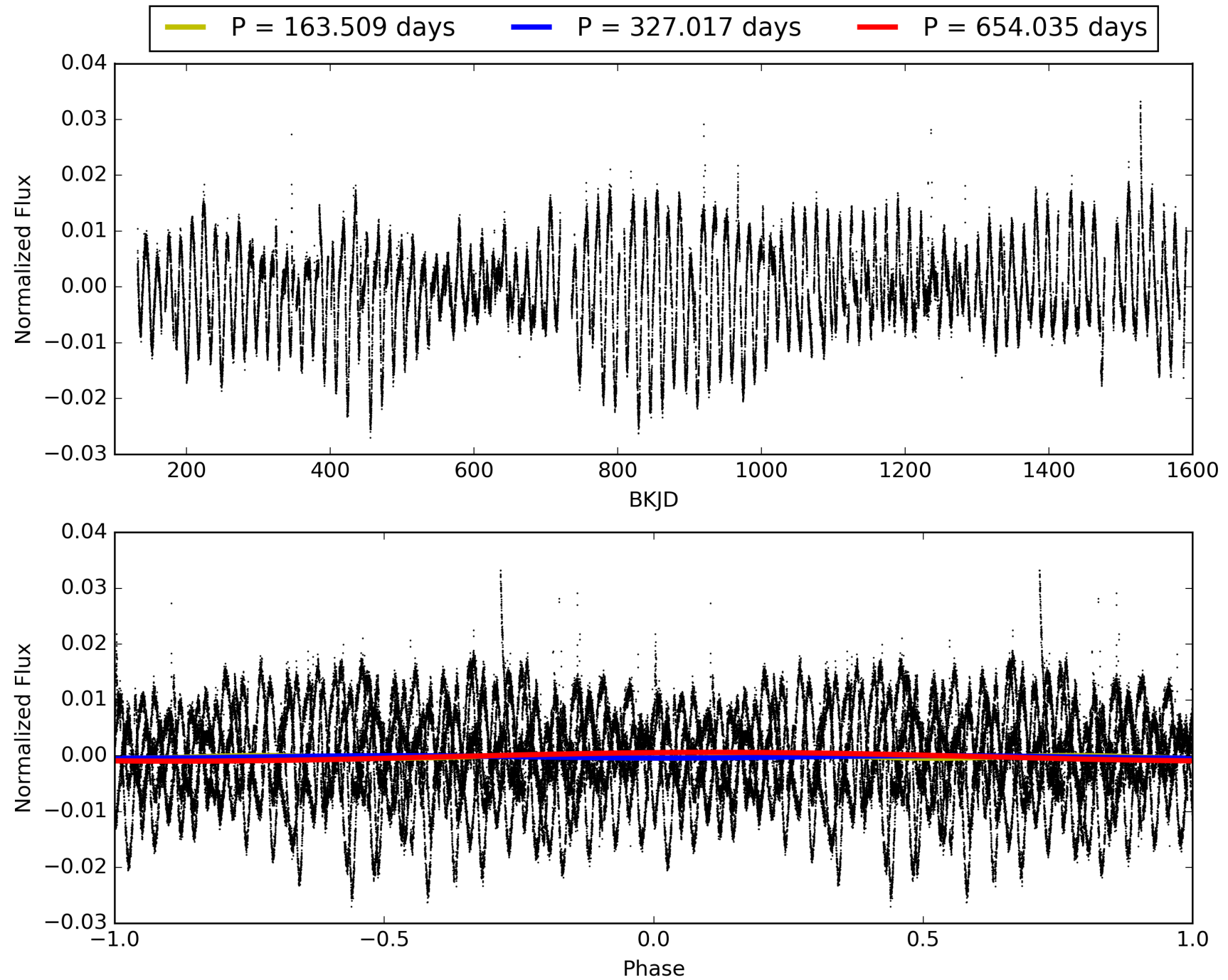
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:30:35 Z

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

TCE 005621528-01, PDC Light Curves

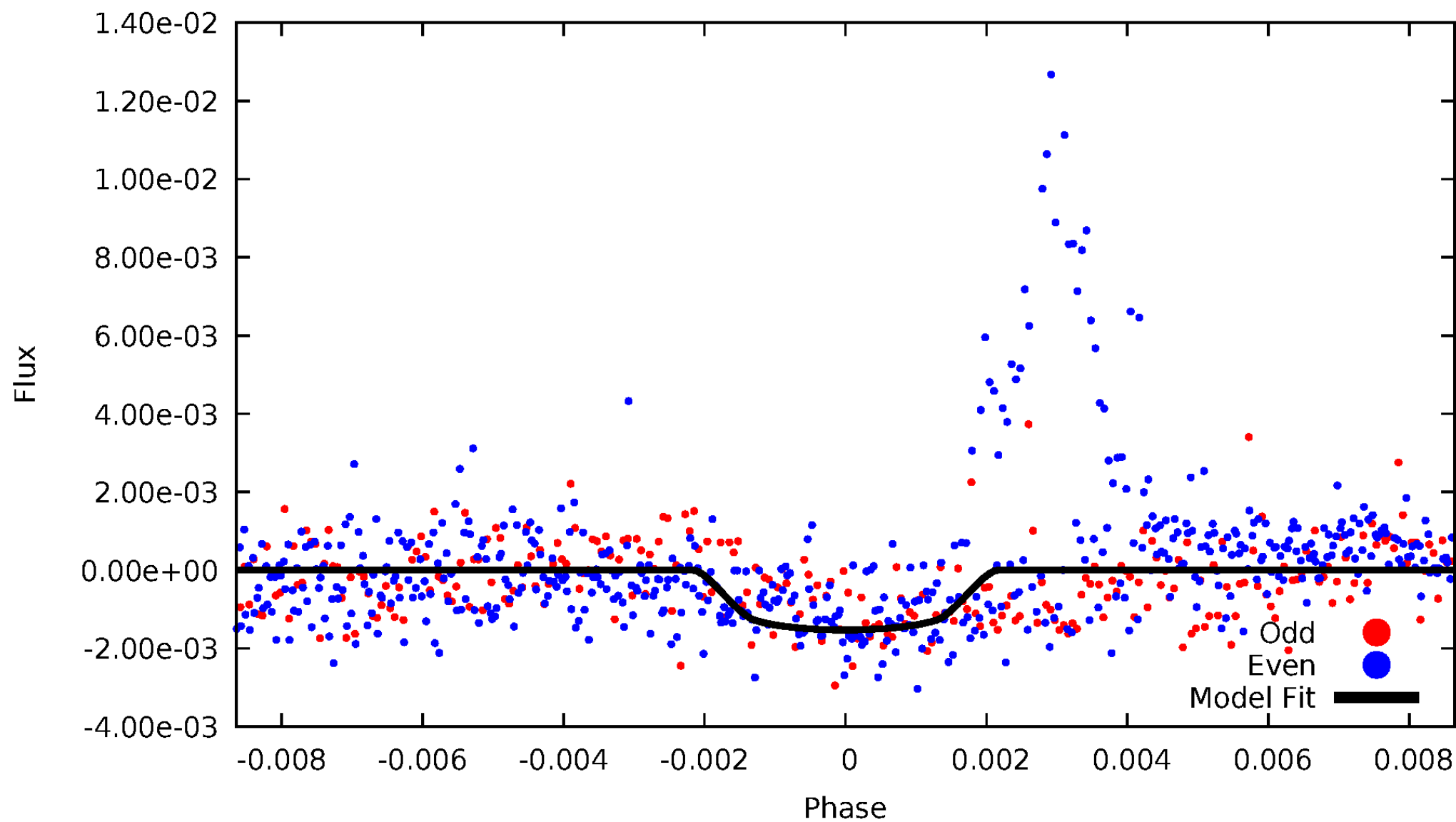


TCE 005621528-01



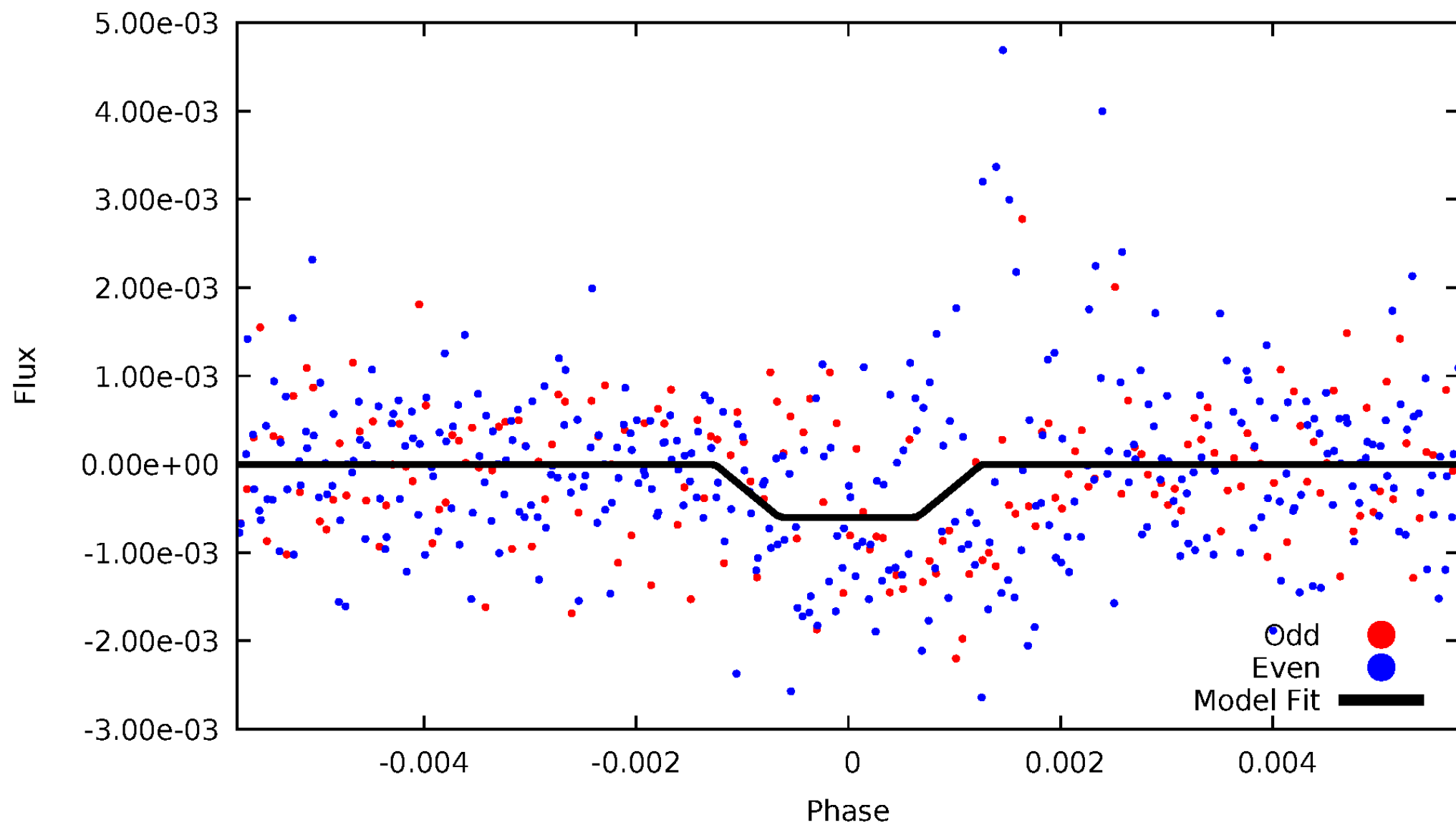
DV Odd/Even

TCE 005621528-01



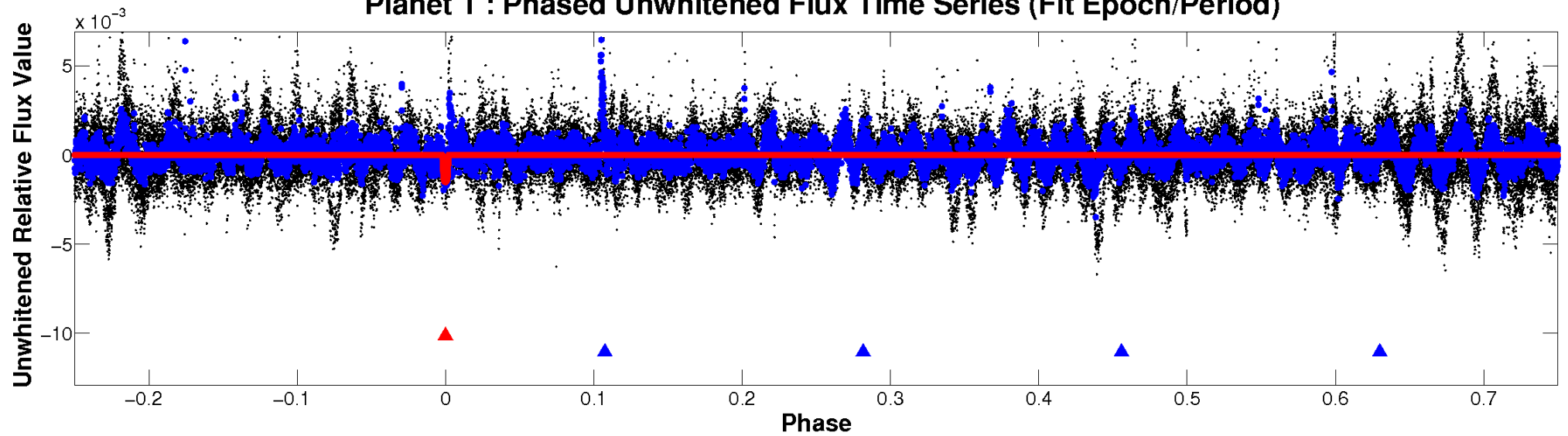
ALT Odd/Even

TCE 005621528-01

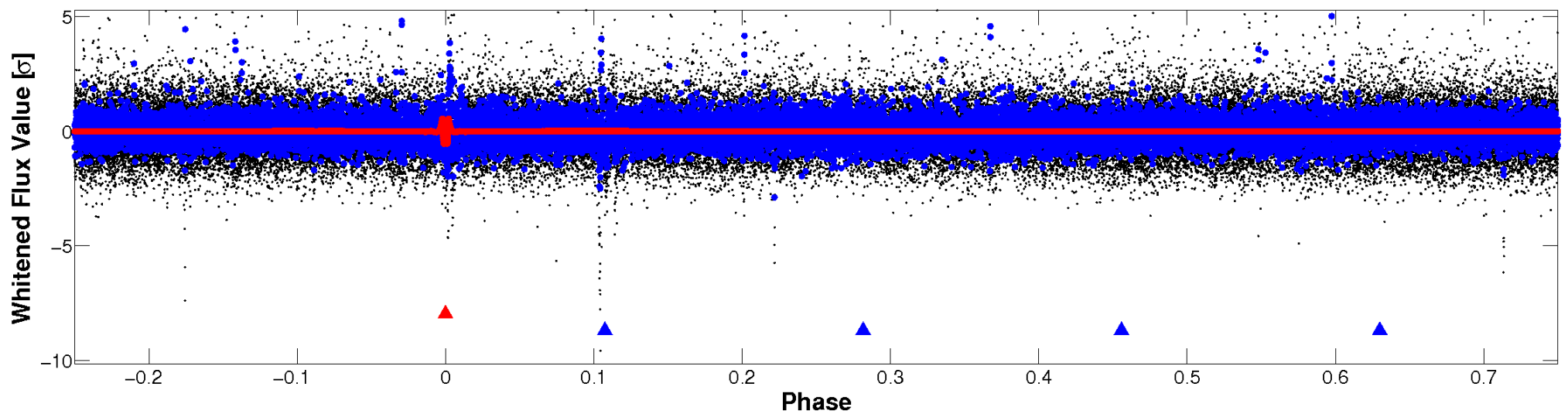


Non-Whitened Vs. Whitened Light Curve

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

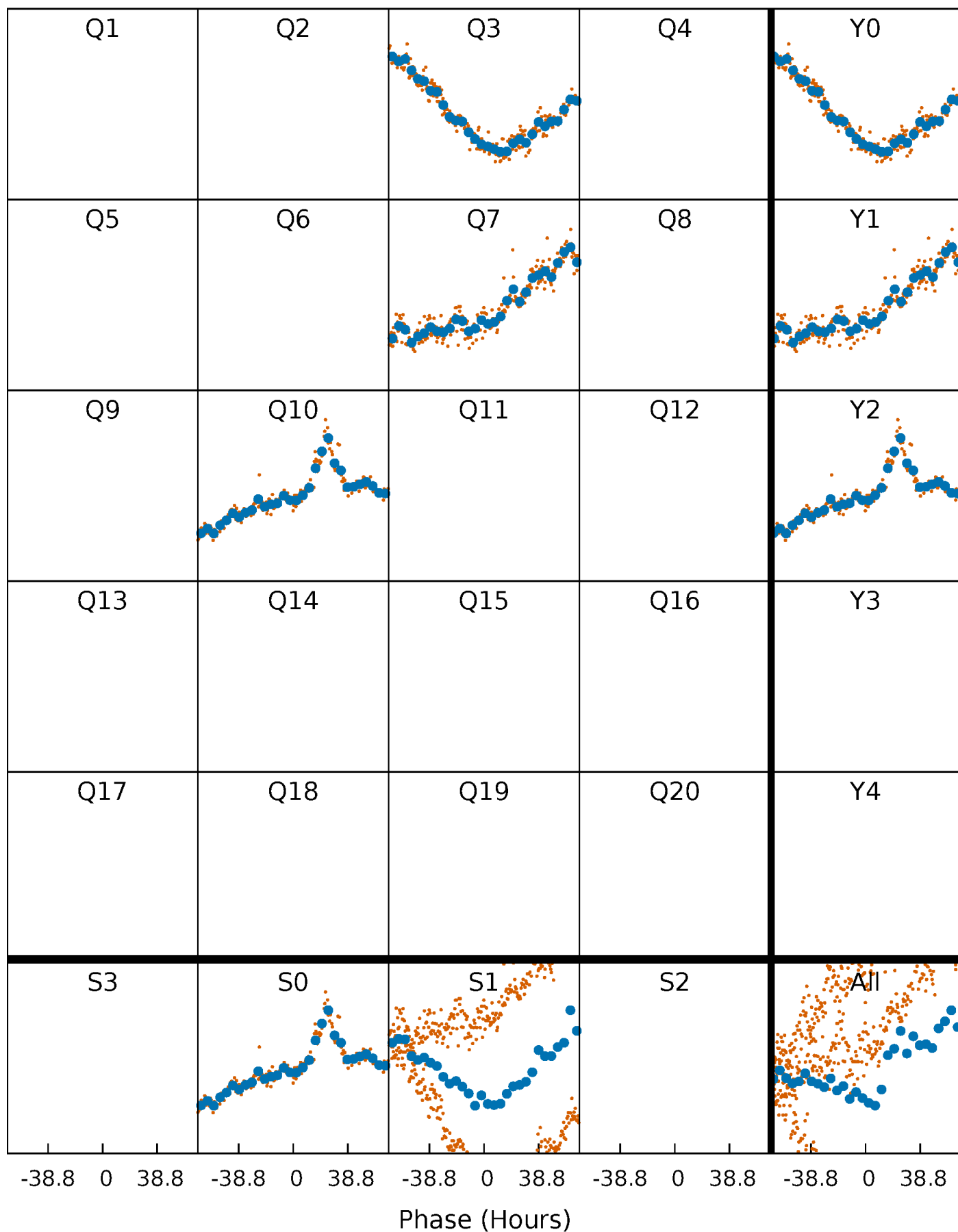


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 005621528-01 P=327.017468 Days $T_0=311.788453$ (BKJD)



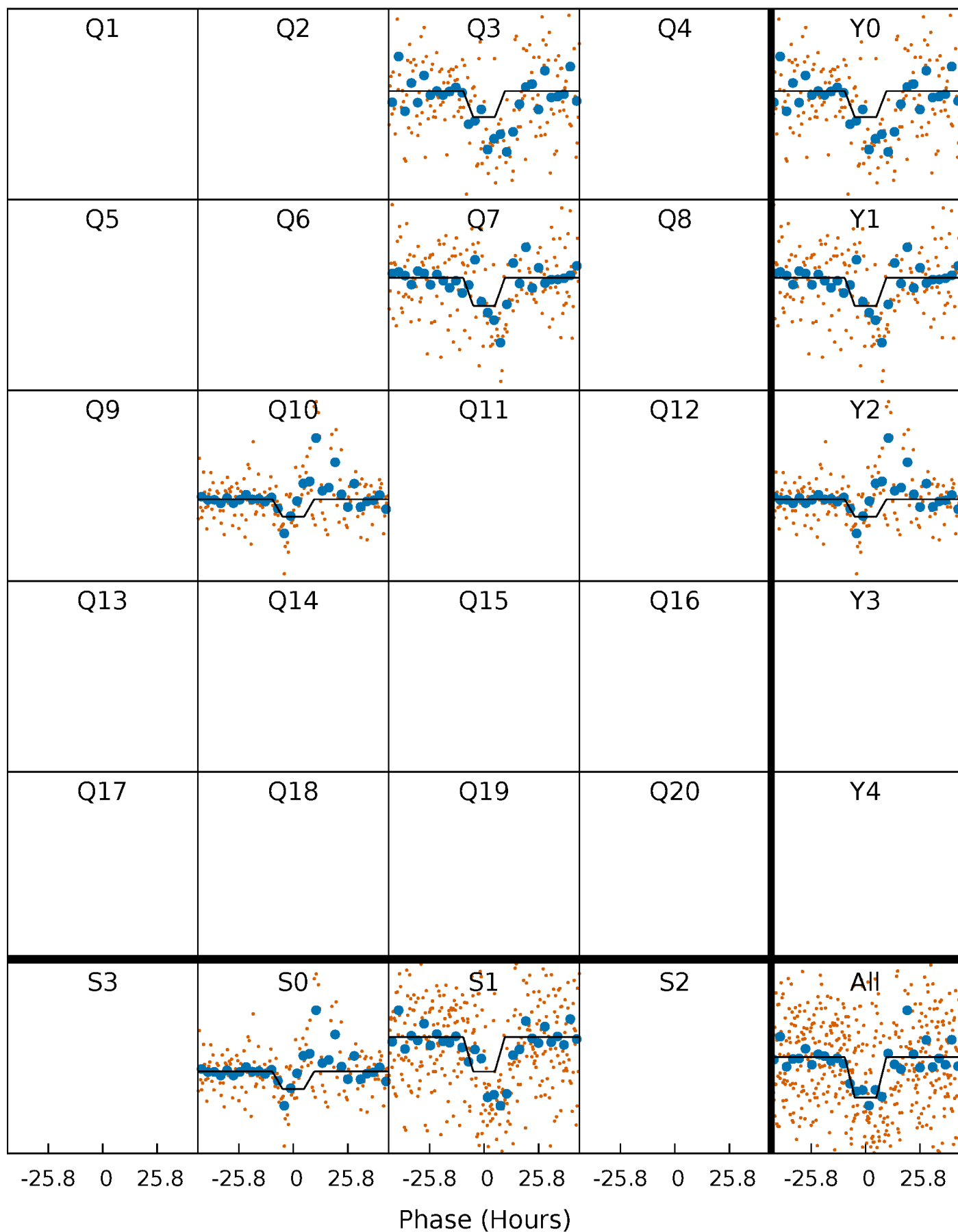
DV Quarter-Phased Transit Curves

TCE 005621528-01 P=327.017468 Days $T_0=311.788453$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

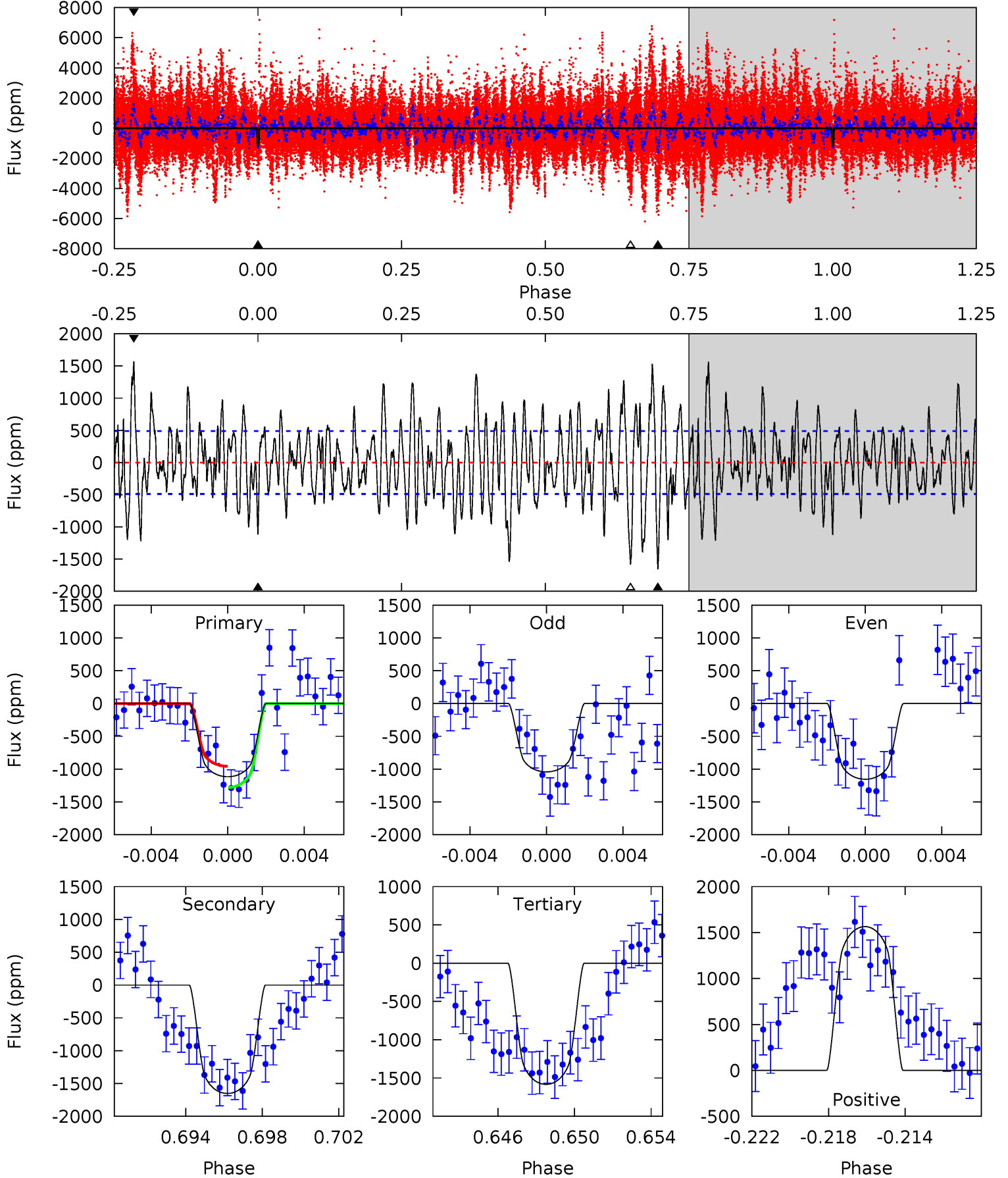
TCE 005621528-01 P=327.141296 Days $T_0=311.713130$ (BKJD)



DV Model-Shift Uniqueness Test

005621528-01, P = 327.017468 Days, E = 311.788453 Days

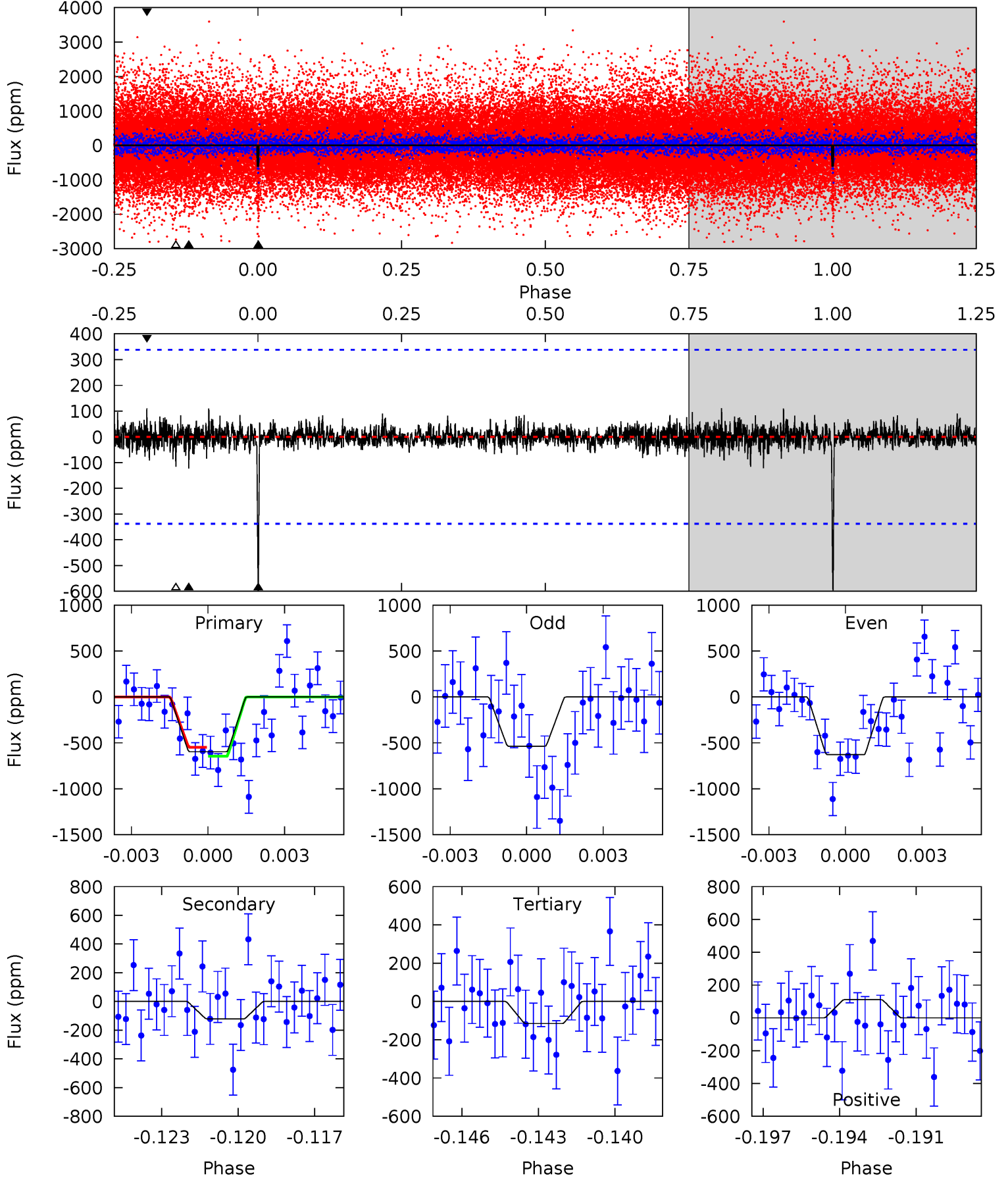
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	17.5	16.7	16.6	5.18	2.85	5.69	-4.93	-4.74	0.73	0.93	0.52	1.07	0.49	1.72



Alt Model-Shift Uniqueness Test

005621528-01, P = 327.141296 Days, E = 311.713130 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.35	1.90	1.80	1.74	5.28	3.02	0.39	7.54	7.61	0.09	0.16	0.68	1.12	0.16	0.77



Stellar Parameters For KIC 005621528

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3537^{+47}_{-52}	$4.878^{+0.040}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.376^{+0.034}_{-0.038}$	$0.392^{+0.036}_{-0.044}$	$10.400^{+2.118}_{-1.762}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-10%	+9%/-11%	+20%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005621528-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1652 ± 95	$1.77^{+0.18}_{-0.21}$	162^{+3}_{-4}	3471^{+131}_{-107}	134170^{+32977}_{-24403}
Alt.	-121 ± 64	$1.00^{+0.20}_{-0.18}$	162^{+4}_{-4}	2807^{+223}_{-260}	30741^{+23814}_{-16326}

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

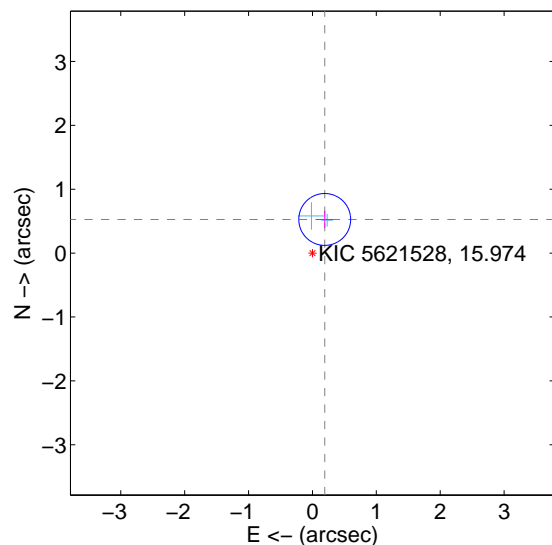
Supplemental centroid analysis for 005621528-01. Kepler magnitude: 15.97. Transit SNR 7.38

There are 2 quarters with good PRF difference image offsets

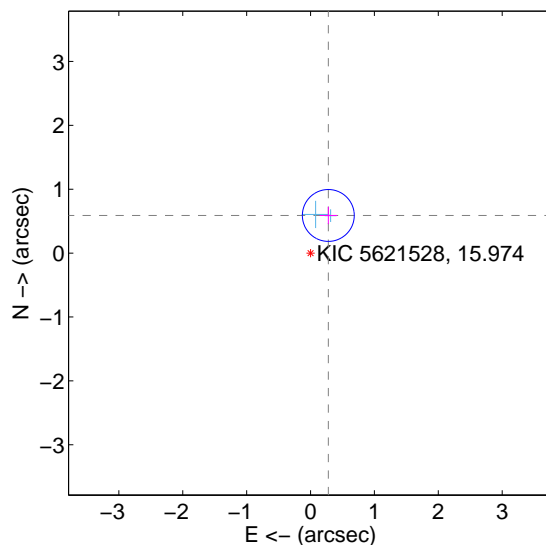
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.561 ± 0.135	4.14	-0.192 ± 0.135	0.527 ± 0.135
PRF-fit source offset from KIC position	0.652 ± 0.135	4.82	-0.278 ± 0.135	0.589 ± 0.135
photometric centroid source offset	0.94 ± 0.74	1.27	0.76 ± 0.77	0.55 ± 0.68

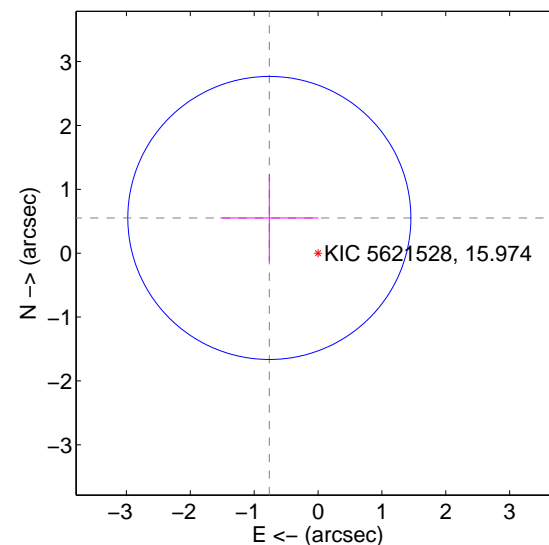
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

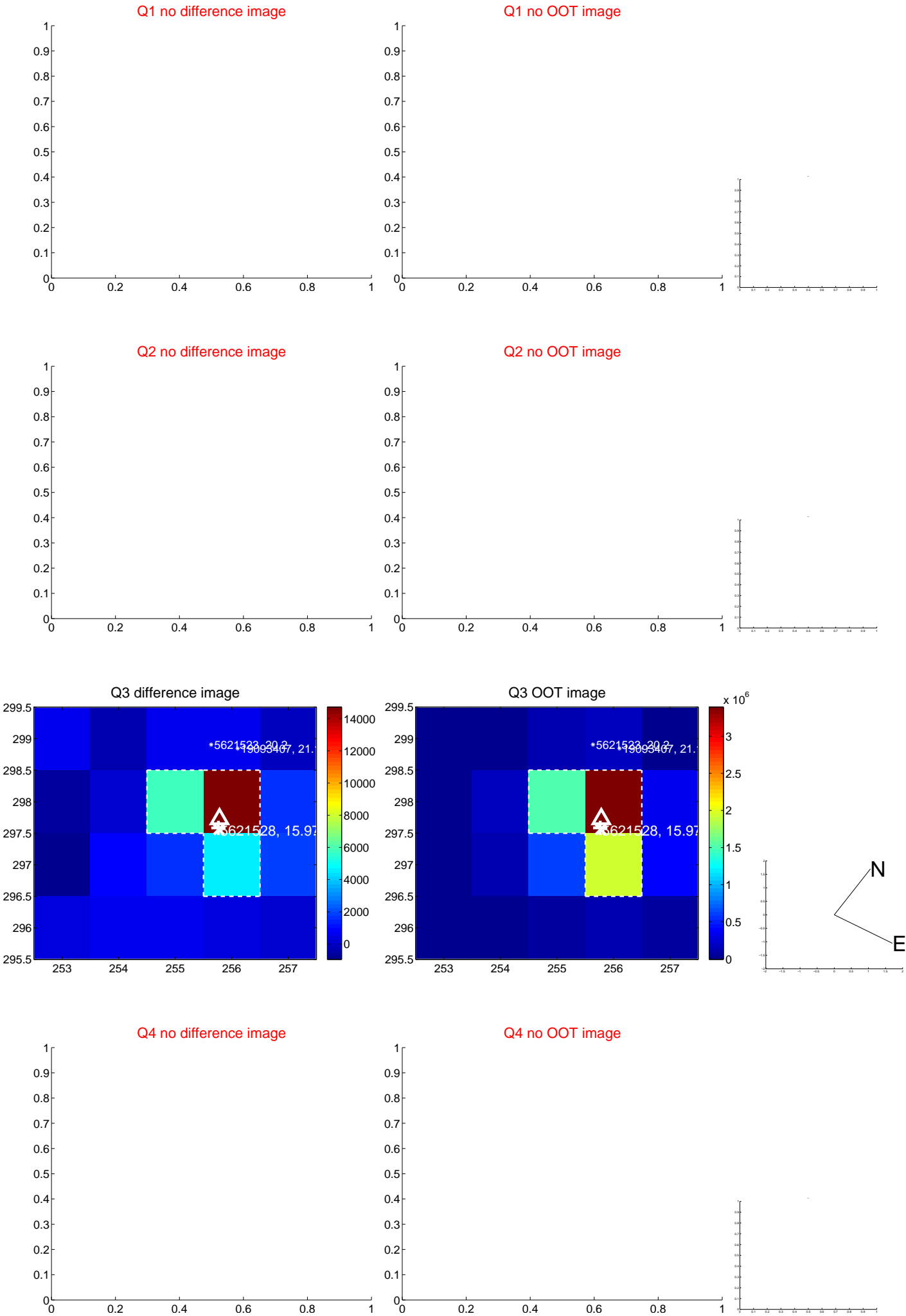


offset from photometric centroids

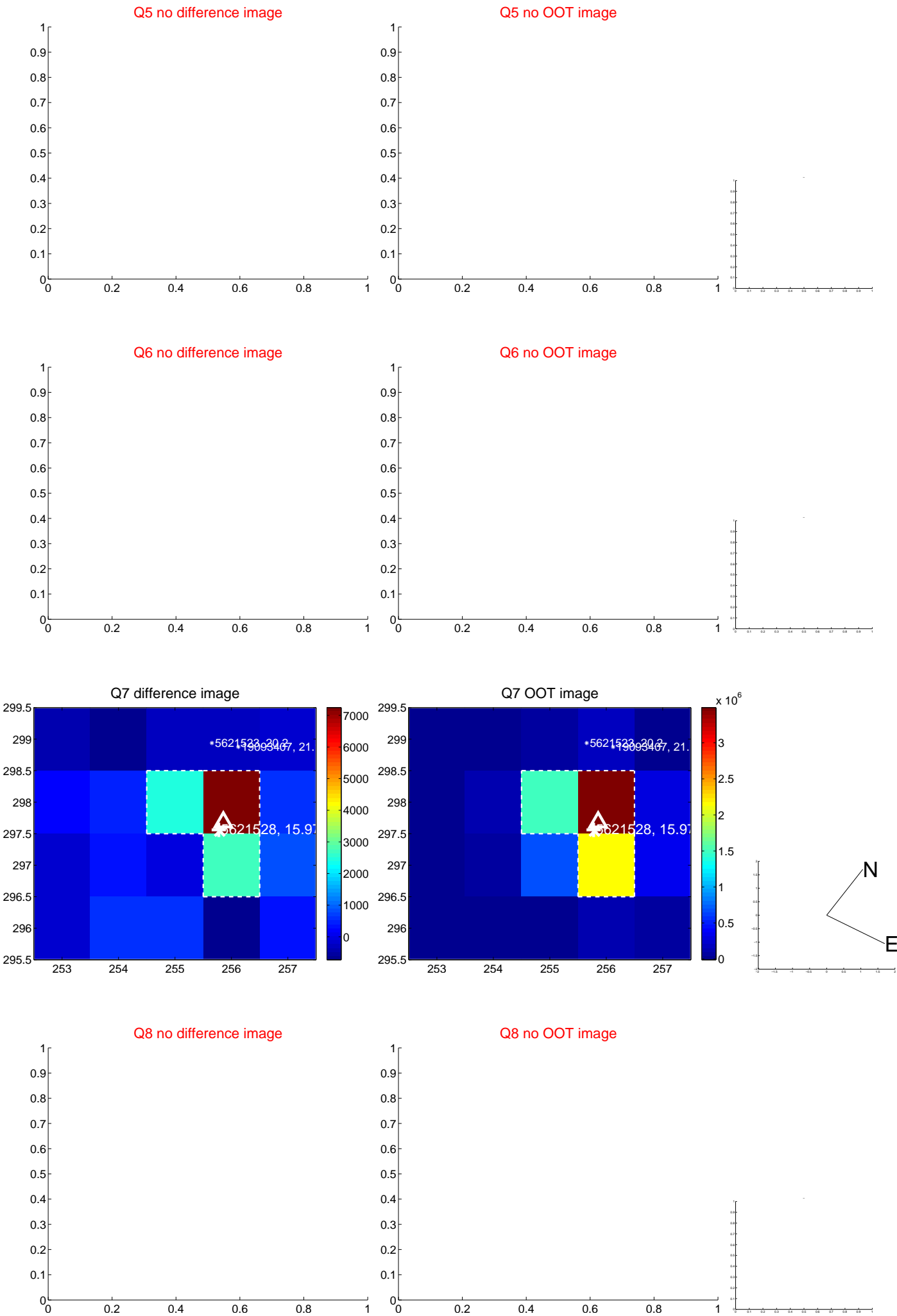


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



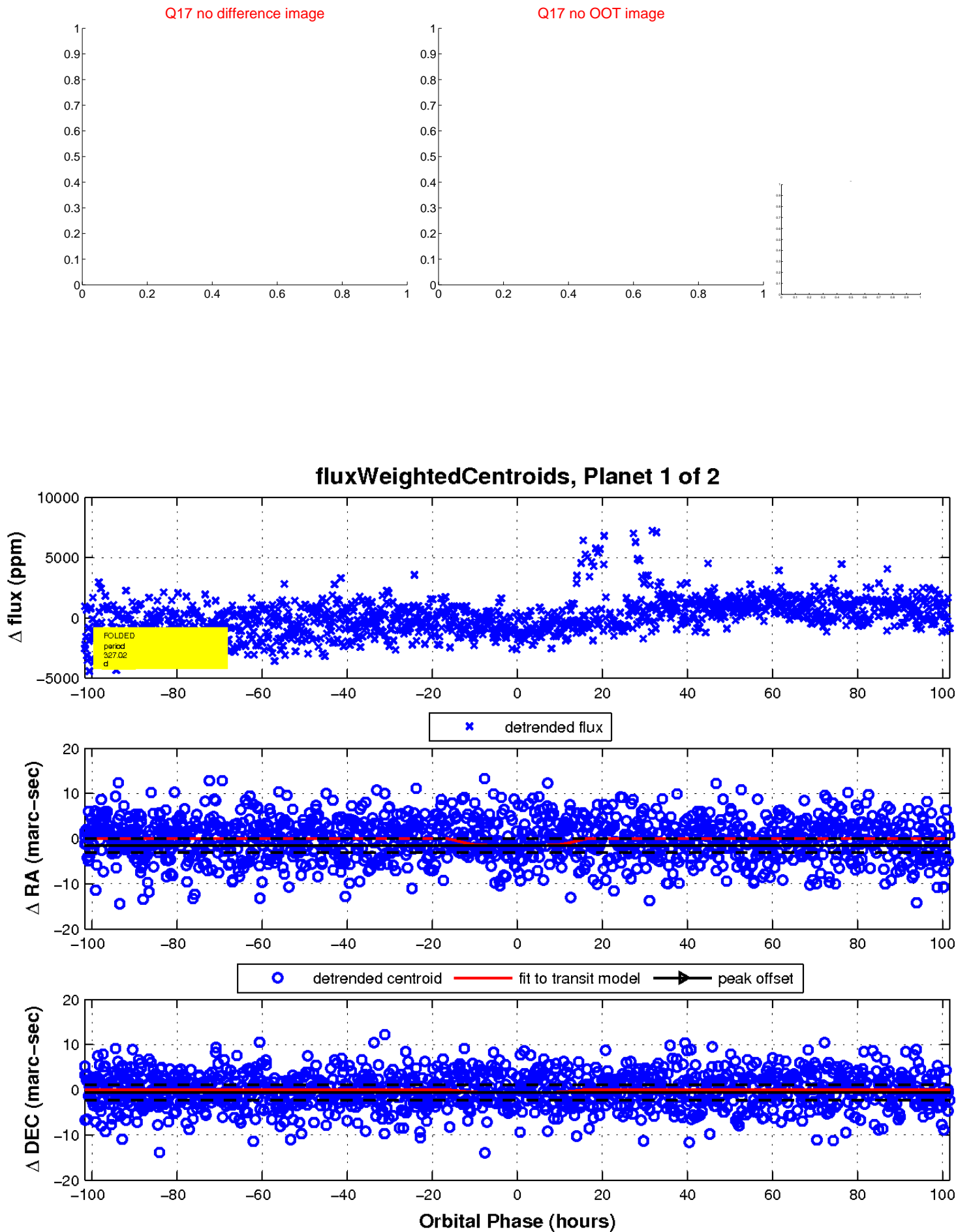
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

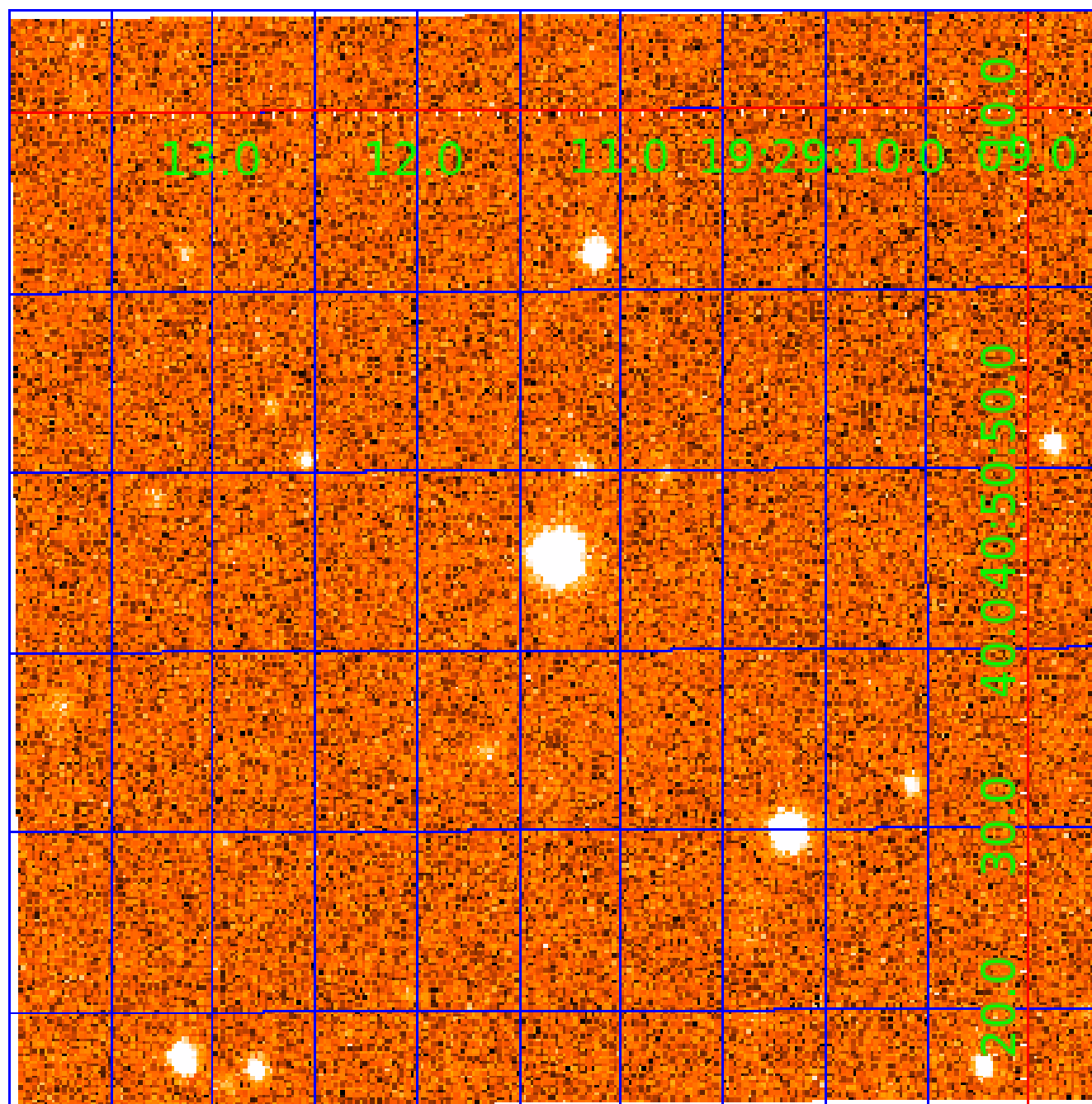


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005621528

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})
005621528-01	OBS	No	327.017468	311.788453	1529.2	33.913	12.5	7.4	0.38	3537	1.76	0.04
005621528-02	OBS	No	383.967077	346.940490	1458.4	19.793	8.9	5.9	0.38	3537	1.80	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005621528-01	OBS	FP	0.00	1	0	1	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005621528-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

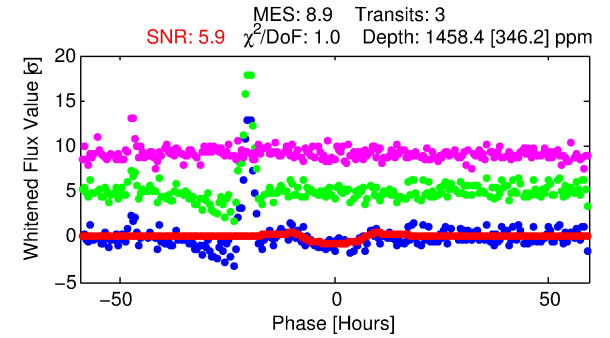
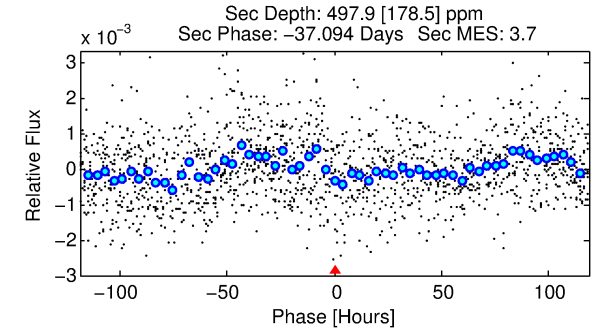
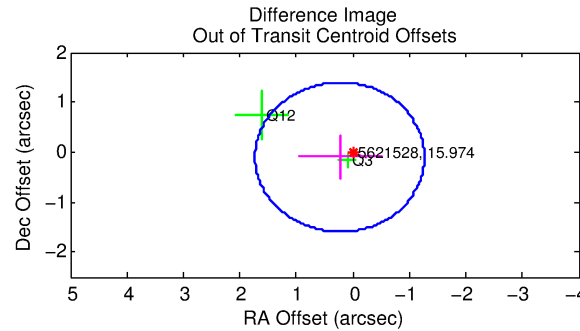
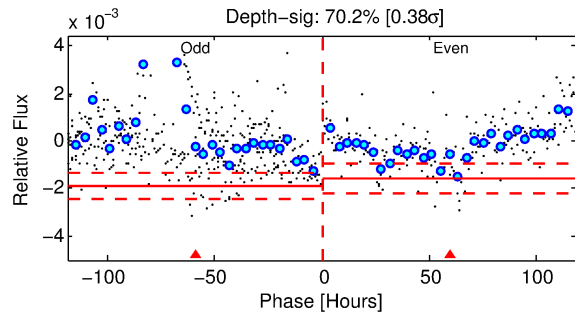
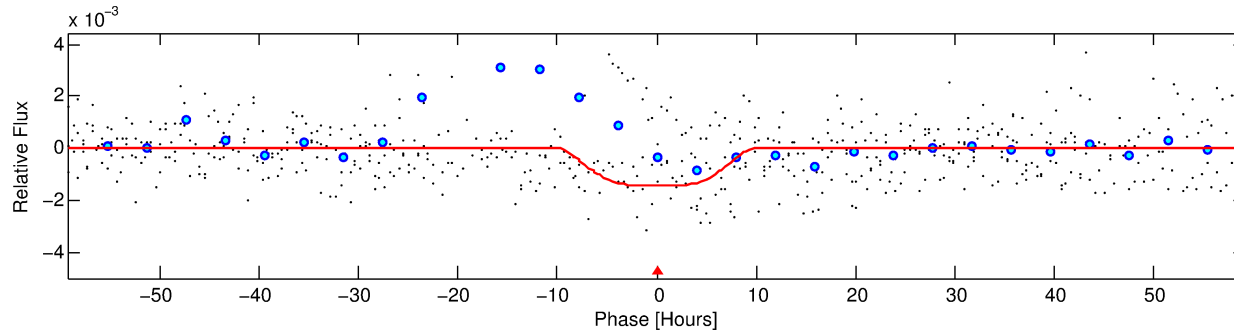
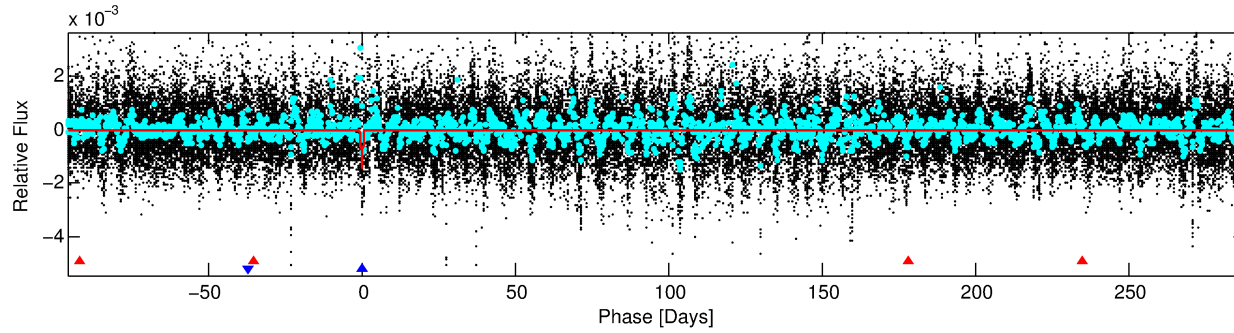
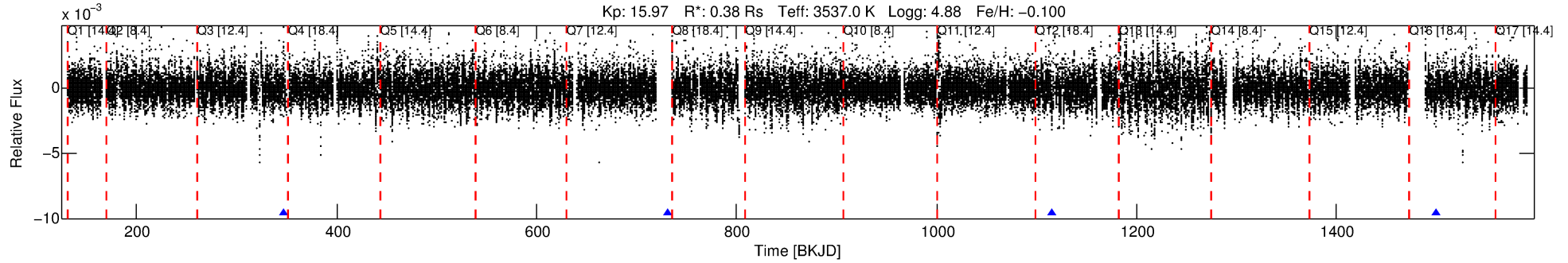
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005621528-02

No Significant Match Found

DV One-Page Summary

KIC: 5621528 Candidate: 2 of 2 Period: 383.967 d



DV Fit Results:

Period = 383.96708 [0.02428] d
Epoch = 346.9405 [0.0500] BKJD
Rp/R* = 0.0439 [0.0069]
a/R* = 68.19 [19.04]
b = 0.94 [0.04]
Seff = 0.03 [0.00]
Teq = 110 [3] K
Rp = 1.80 [0.34] Re
a = 0.7551 [0.0559] AU
Ag = 48063.92 [23309.39] [2.06σ]
Teffp = 2521 [302] K [7.97σ]

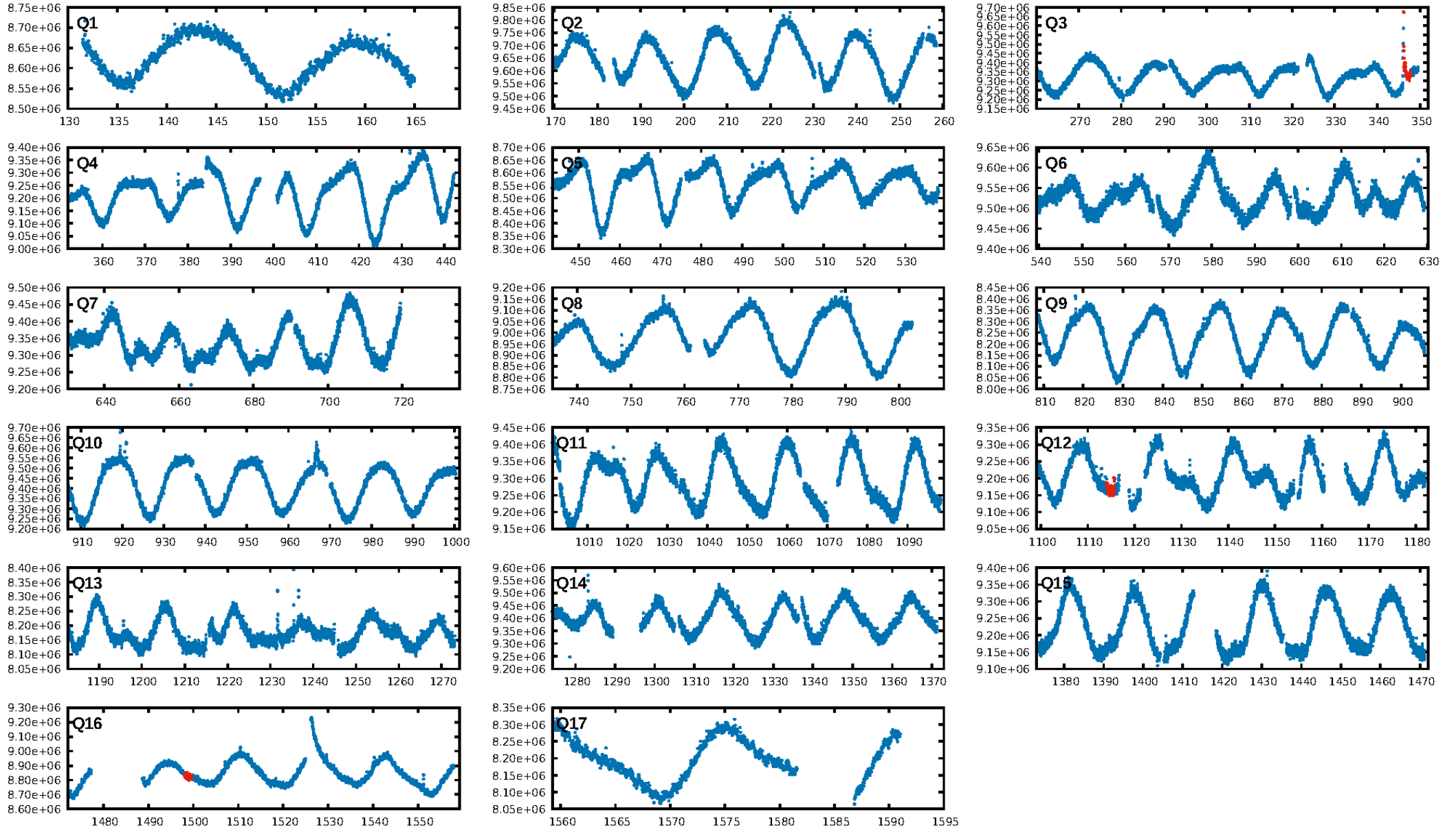
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.81σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.90e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.817
Centroid-sig: 3.4%
Centroid-so: 0.923 arcsec [1.17σ]
OotOffset-rm: 0.252 arcsec [0.51σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: 0.126 arcsec [0.29σ]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

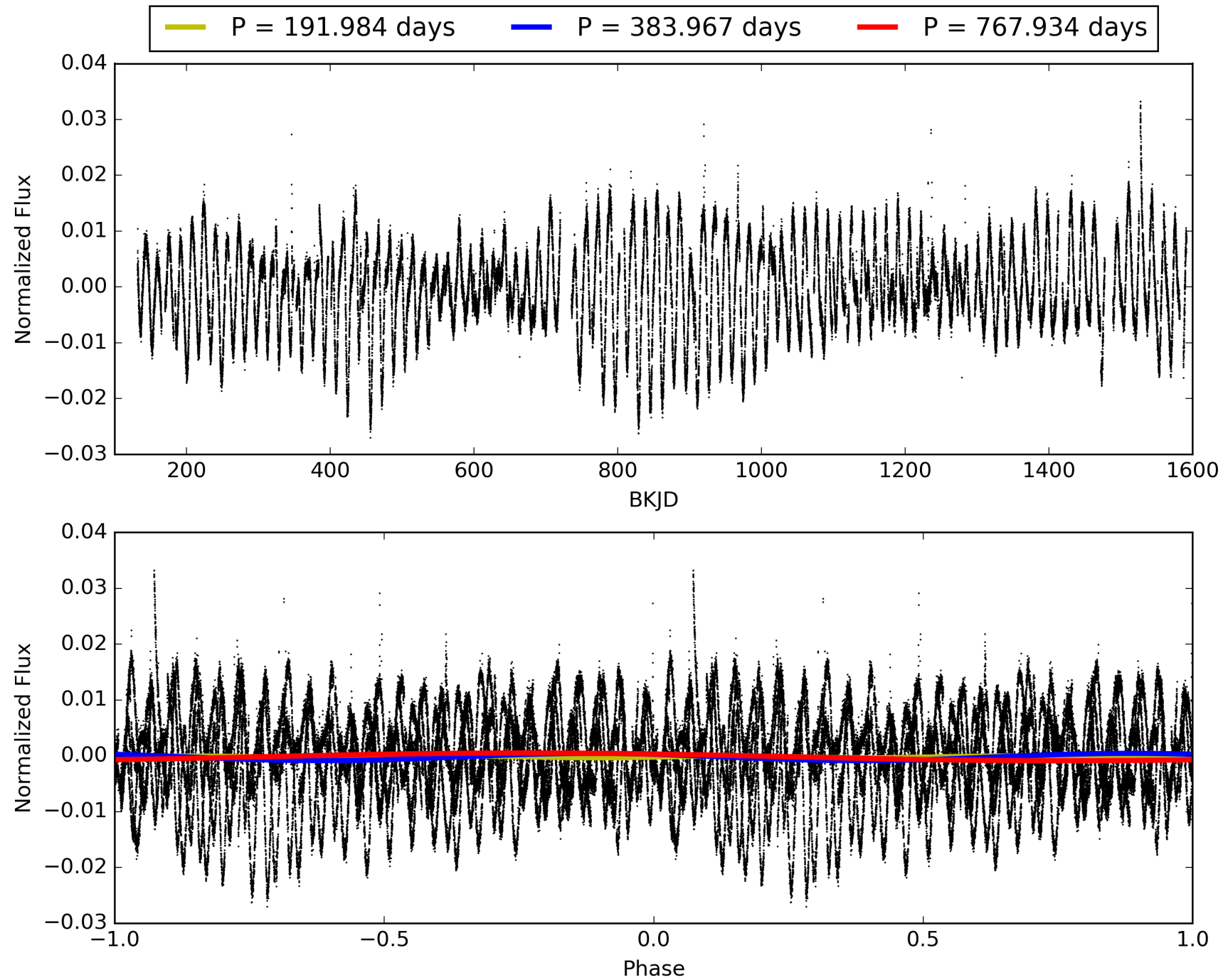
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:30:43 Z

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

TCE 005621528-02, PDC Light Curves

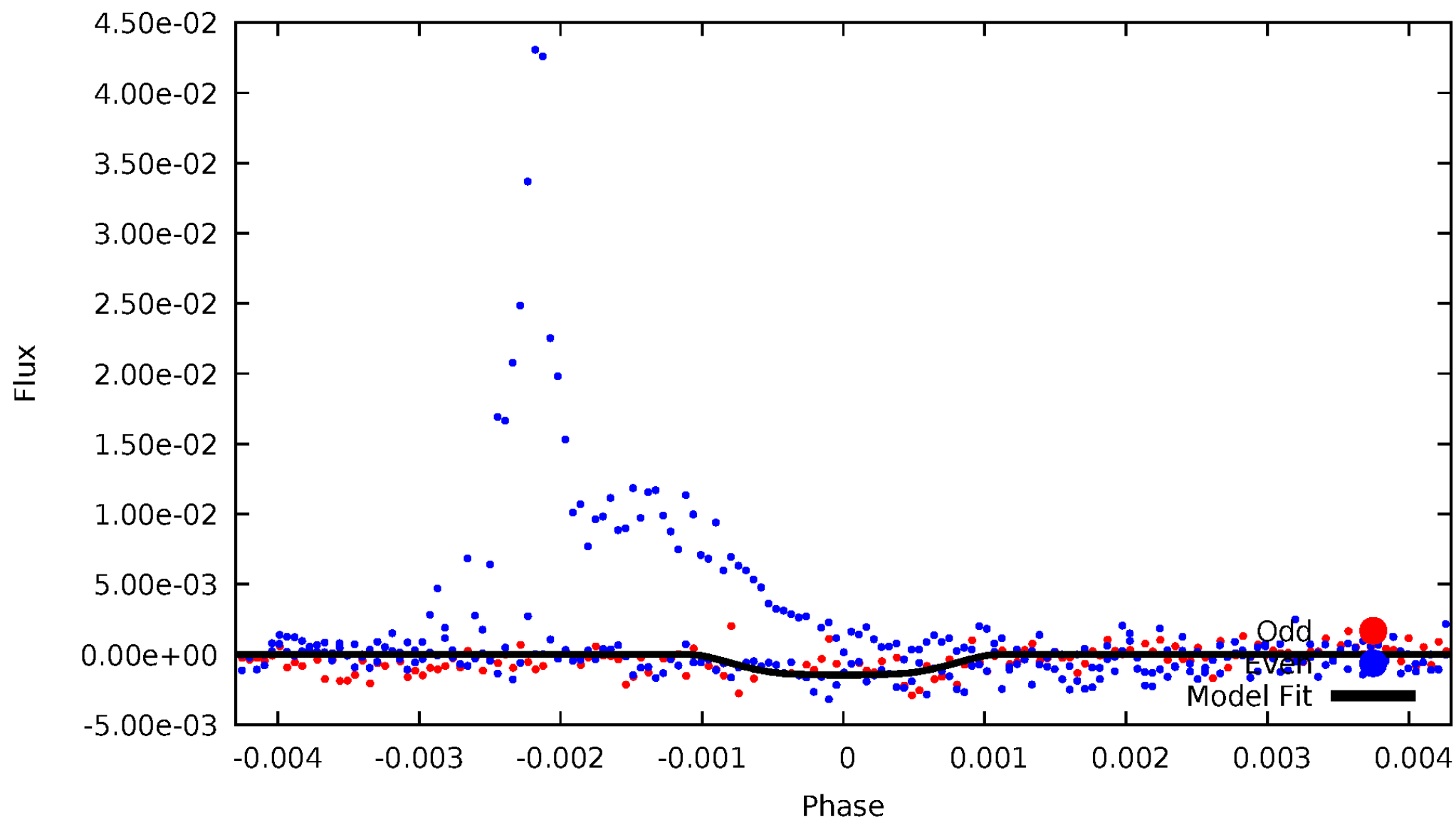


TCE 005621528-02



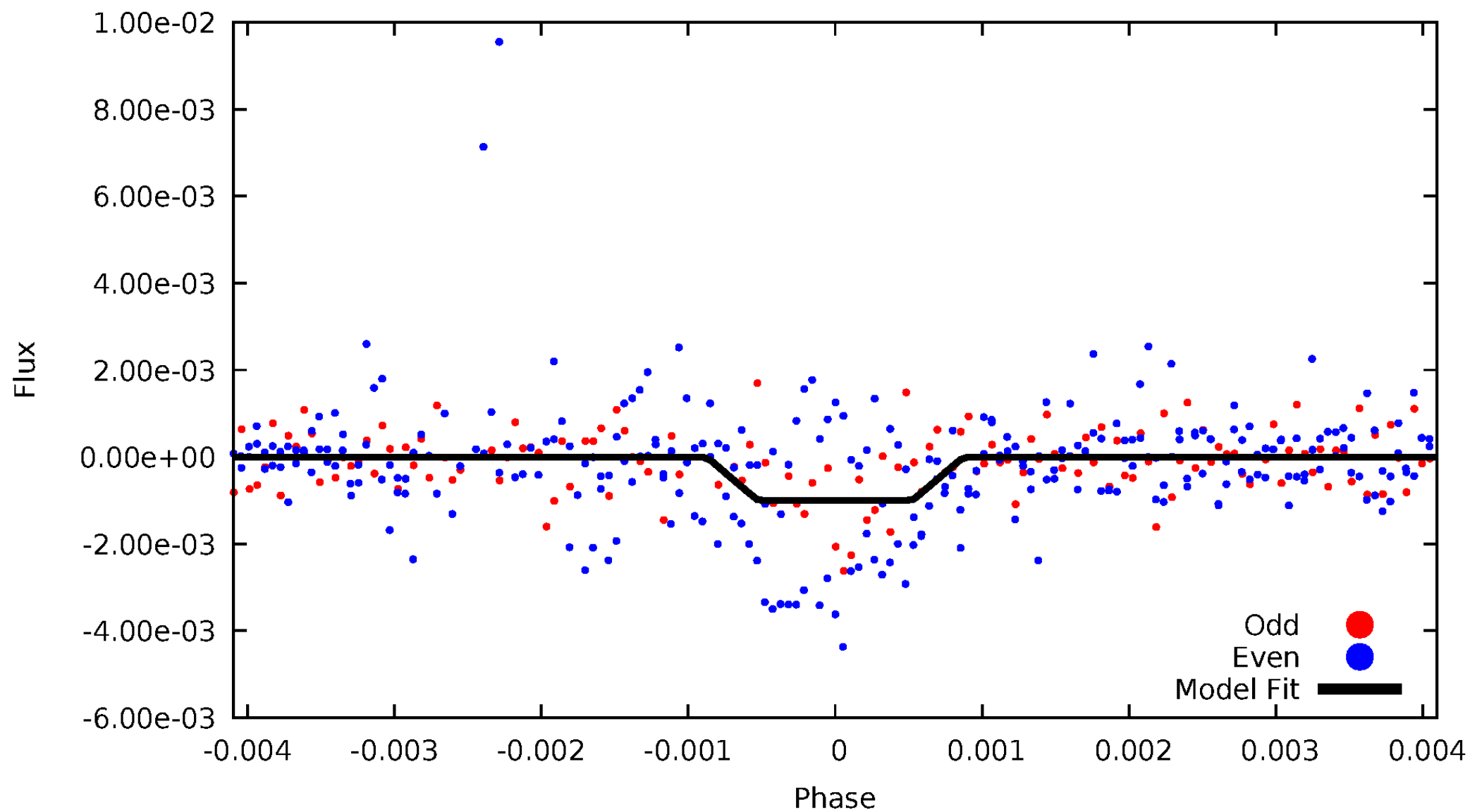
DV Odd/Even

TCE 005621528-02



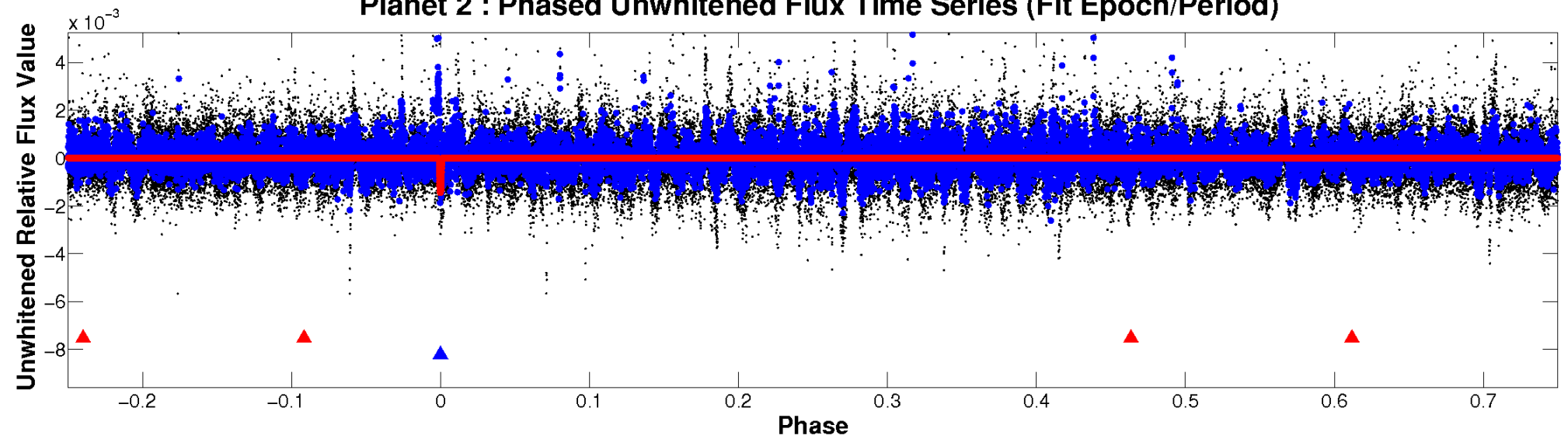
ALT Odd/Even

TCE 005621528-02

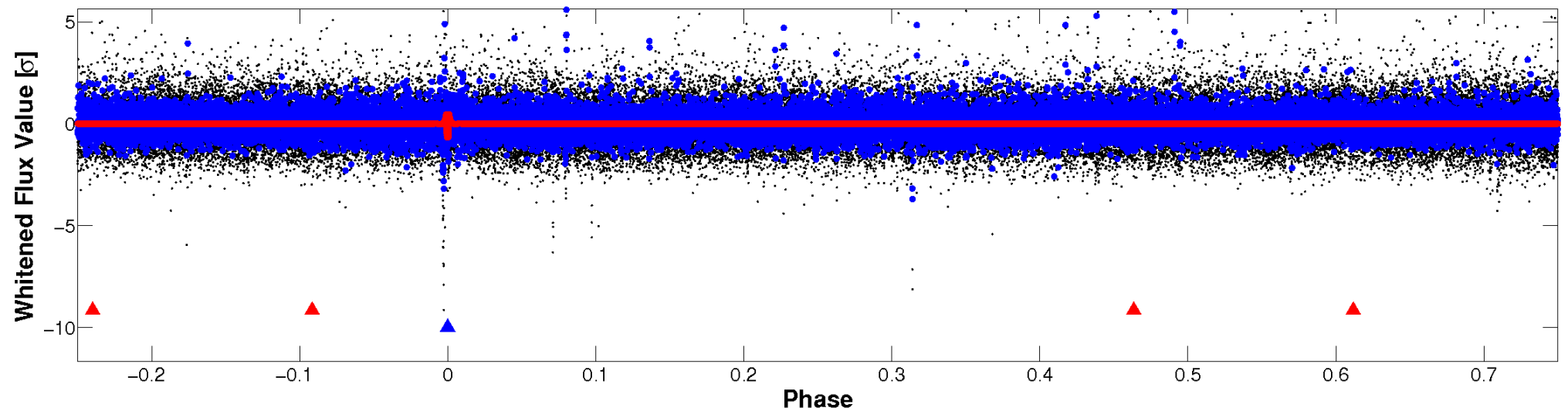


Non-Whitened Vs. Whitened Light Curve

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

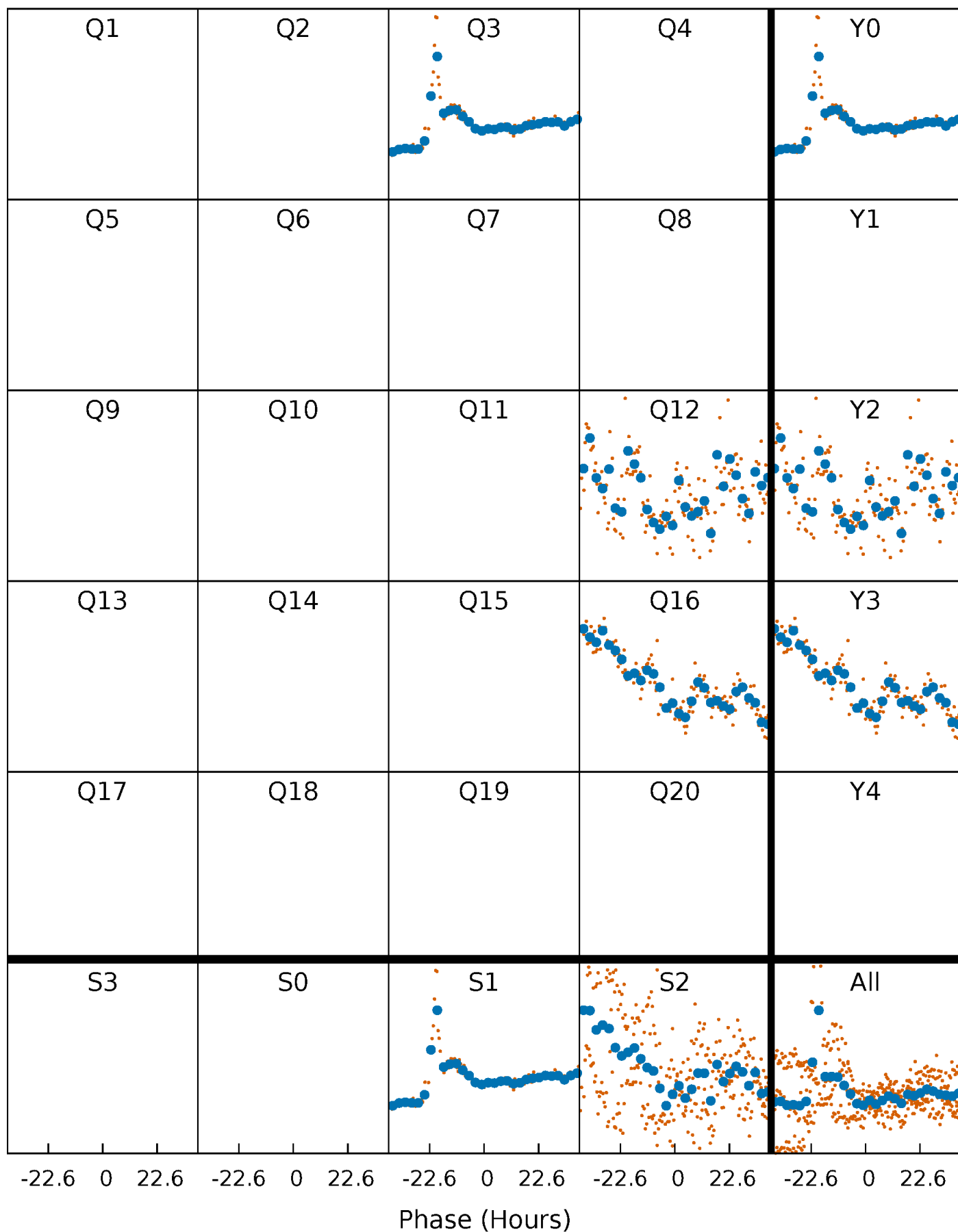


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



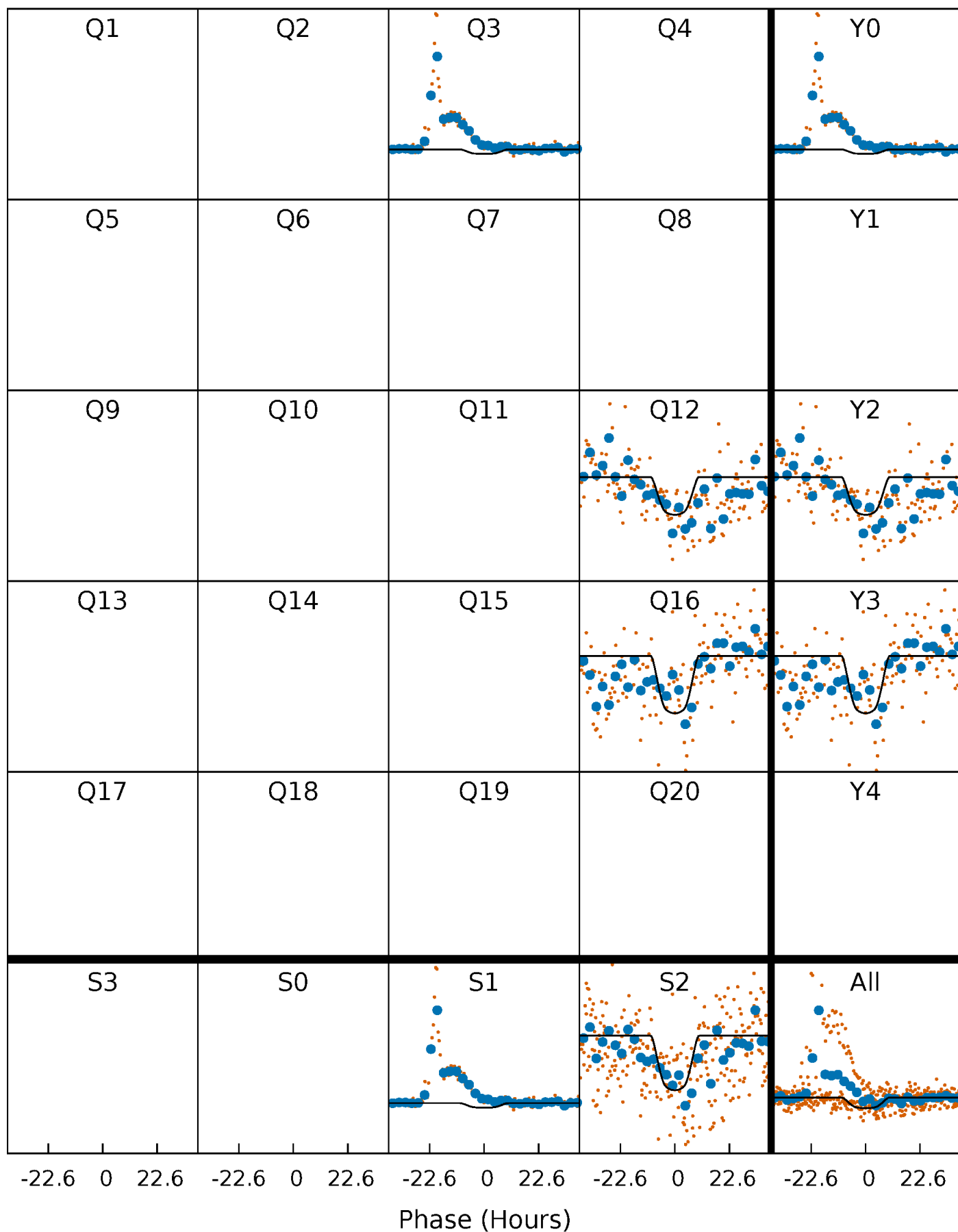
PDC Quarter-Phased Transit Curves

TCE 005621528-02 P=383.967077 Days $T_0=346.940490$ (BKJD)



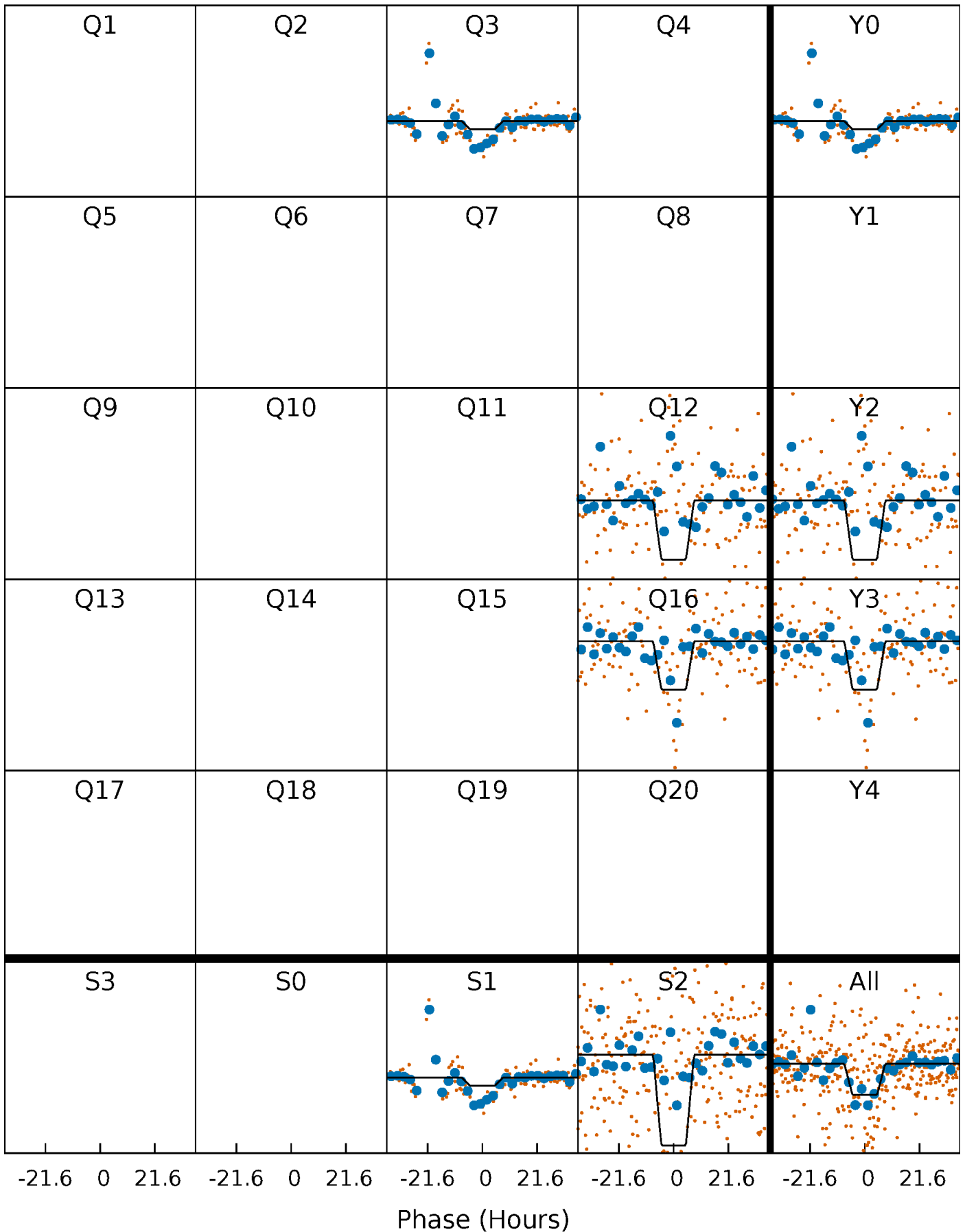
DV Quarter-Phased Transit Curves

TCE 005621528-02 $P=383.967077$ Days $T_0=346.940490$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

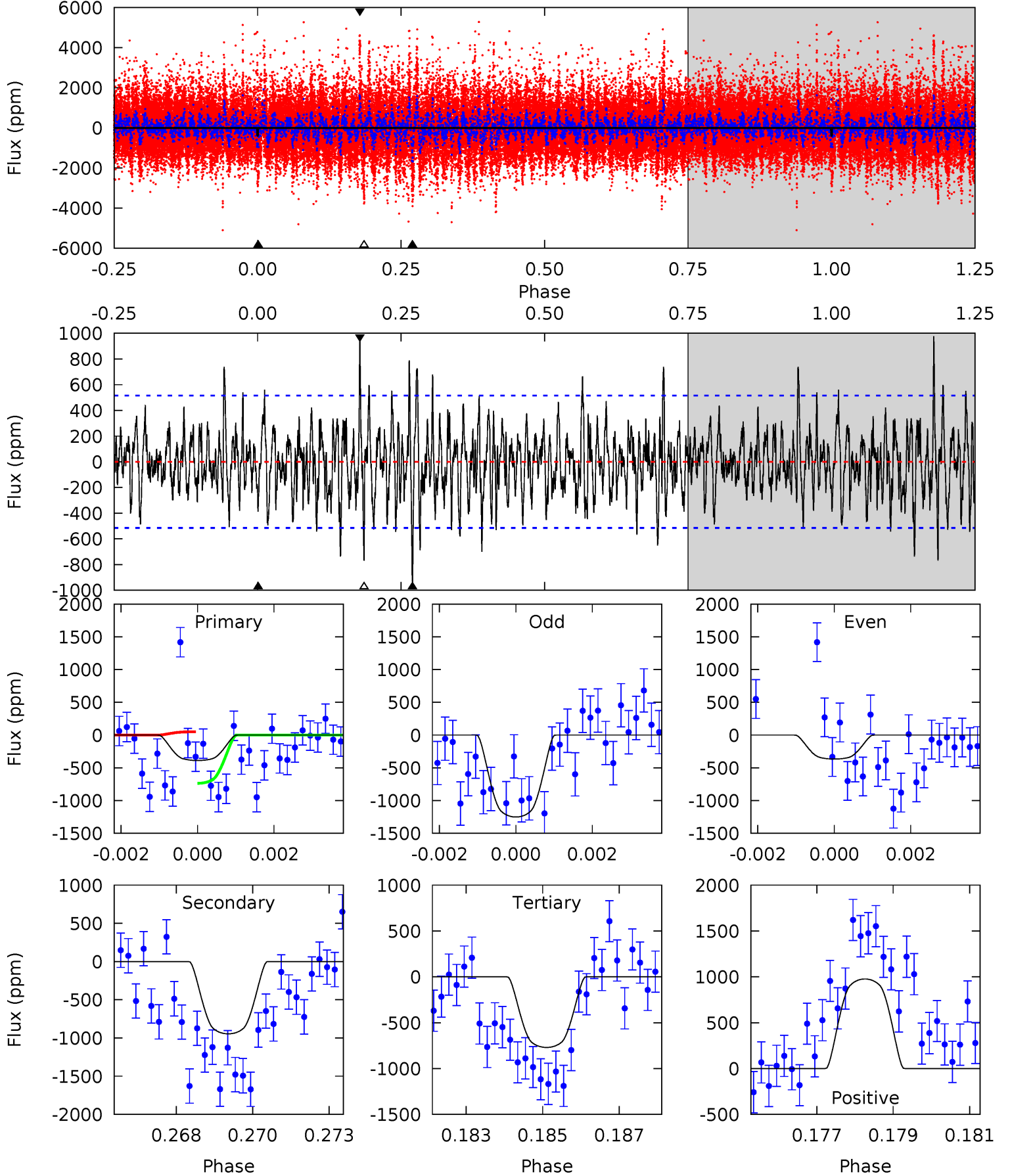
TCE 005621528-02 P=384.028327 Days $T_0=346.920642$ (BKJD)



DV Model-Shift Uniqueness Test

005621528-02, P = 383.967077 Days, E = 346.940490 Days

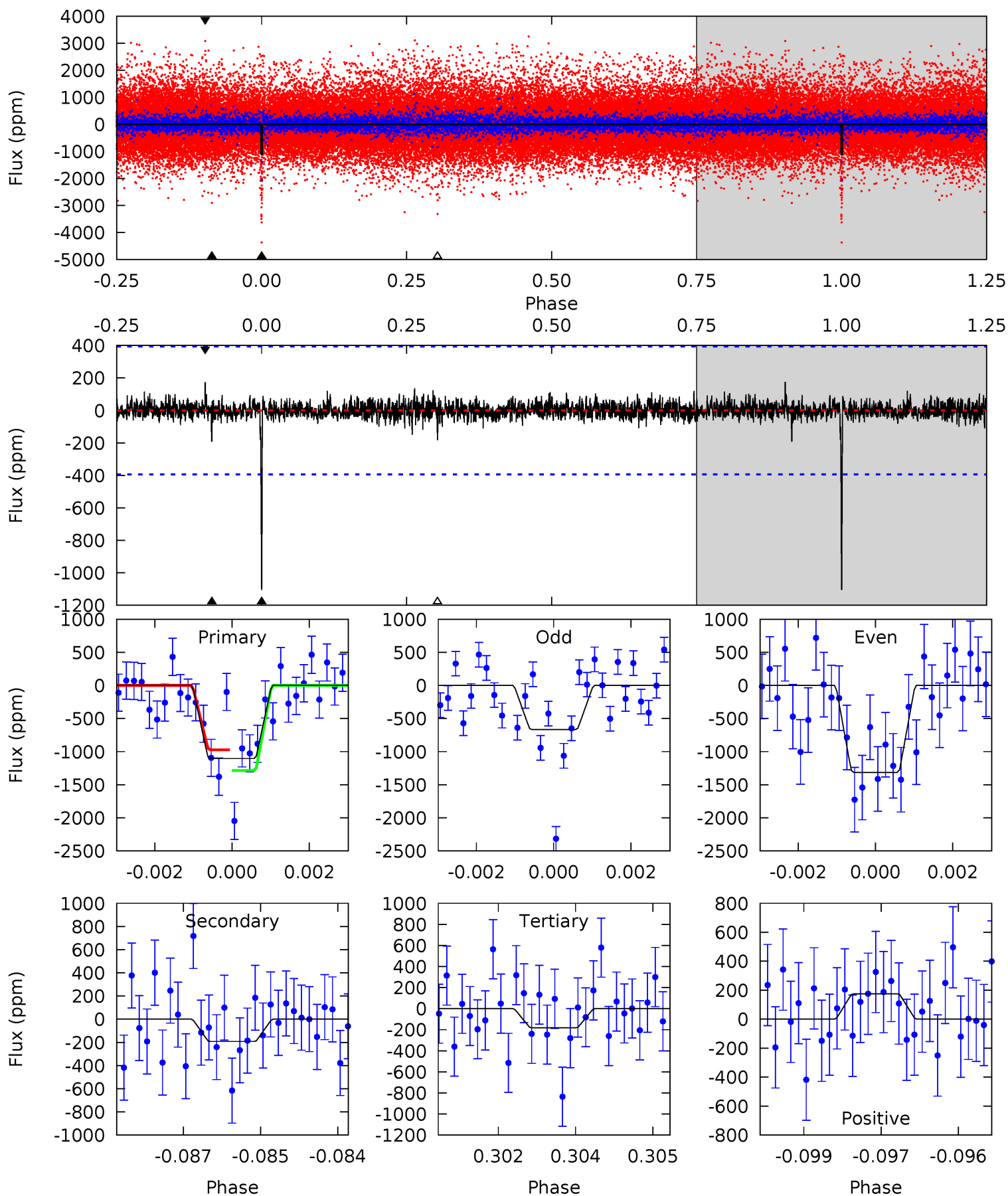
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.01	9.76	7.95	10.1	5.32	3.07	2.30	-3.94	-6.07	1.82	-0.32	4.30	0.11	0.51	3.55



Alt Model-Shift Uniqueness Test

005621528-02, P = 384.028327 Days, E = 346.920642 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	2.61	2.48	2.38	5.36	3.14	0.45	12.5	12.6	0.13	0.23	4.12	1.68	0.14	2.12



Stellar Parameters For KIC 005621528

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3537^{+47}_{-52}	$4.878^{+0.040}_{-0.036}$	$-0.100^{+0.100}_{-0.100}$	$0.376^{+0.034}_{-0.038}$	$0.392^{+0.036}_{-0.044}$	$10.400^{+2.118}_{-1.762}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-10%	+9%/-11%	+20%/-17%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 005621528-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-946 ± 97	$1.79^{+0.29}_{-0.28}$	154^{+3}_{-4}	3173^{+188}_{-137}	91656^{+39820}_{-23353}
Alt.	-192 ± 74	$1.31^{+0.29}_{-0.31}$	153^{+4}_{-3}	2769^{+248}_{-191}	35162^{+31093}_{-14884}

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

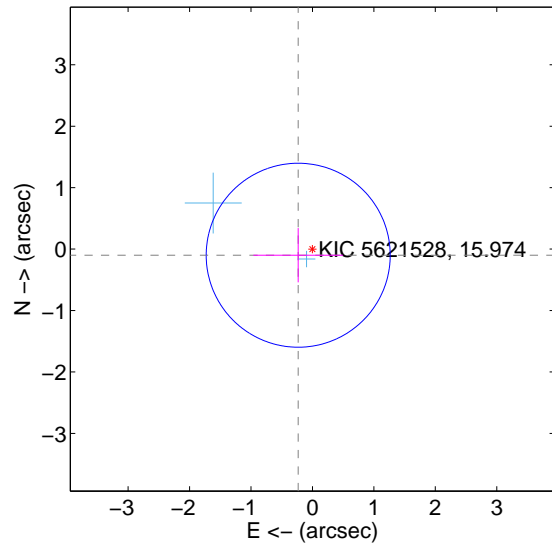
Supplemental centroid analysis for 005621528-02. Kepler magnitude: 15.97. Transit SNR 5.88

There are 2 quarters with good PRF difference image offsets

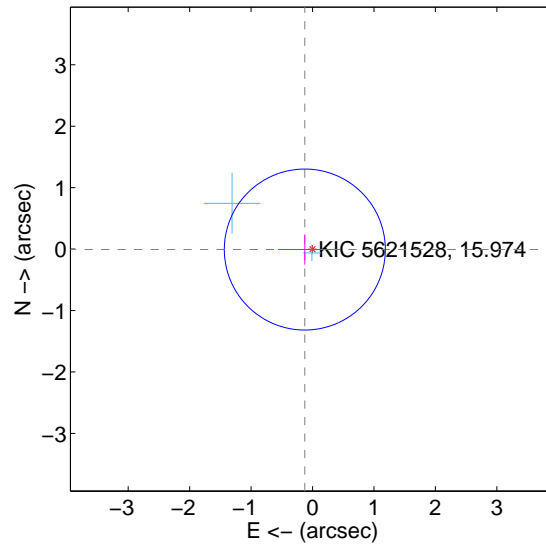
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.252 ± 0.499	0.51	0.232 ± 0.730	-0.100 ± 0.441
PRF-fit source offset from KIC position	0.126 ± 0.437	0.29	0.125 ± 0.437	-0.007 ± 0.246
photometric centroid source offset	0.92 ± 0.79	1.17	0.15 ± 0.89	-0.91 ± 0.78

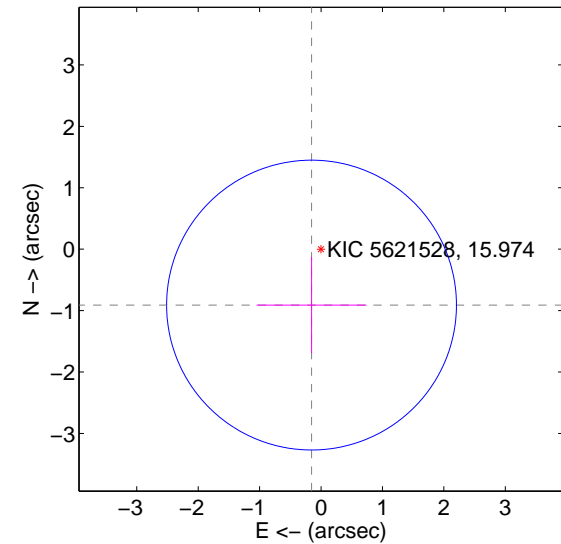
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

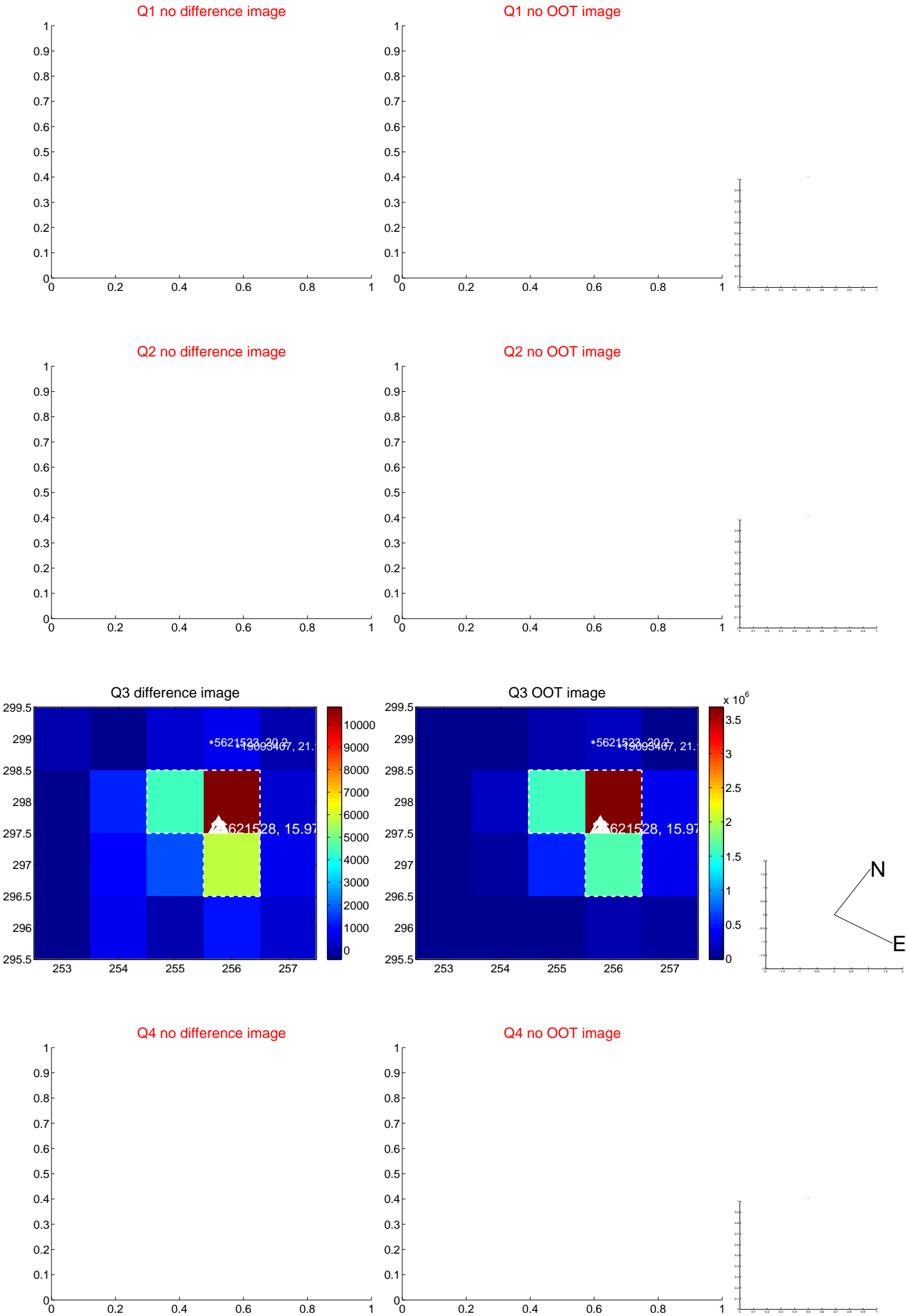


offset from photometric centroids



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.

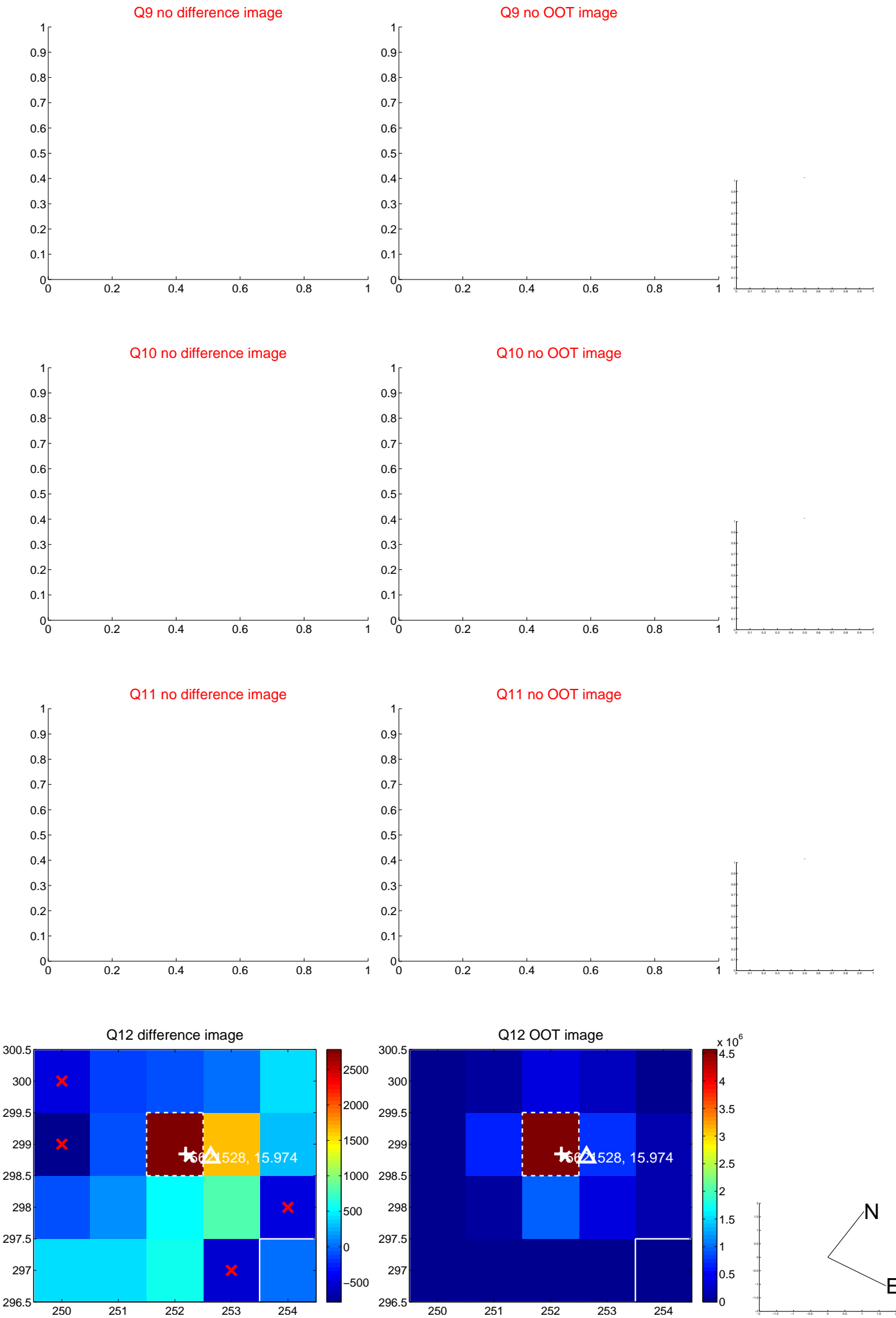
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



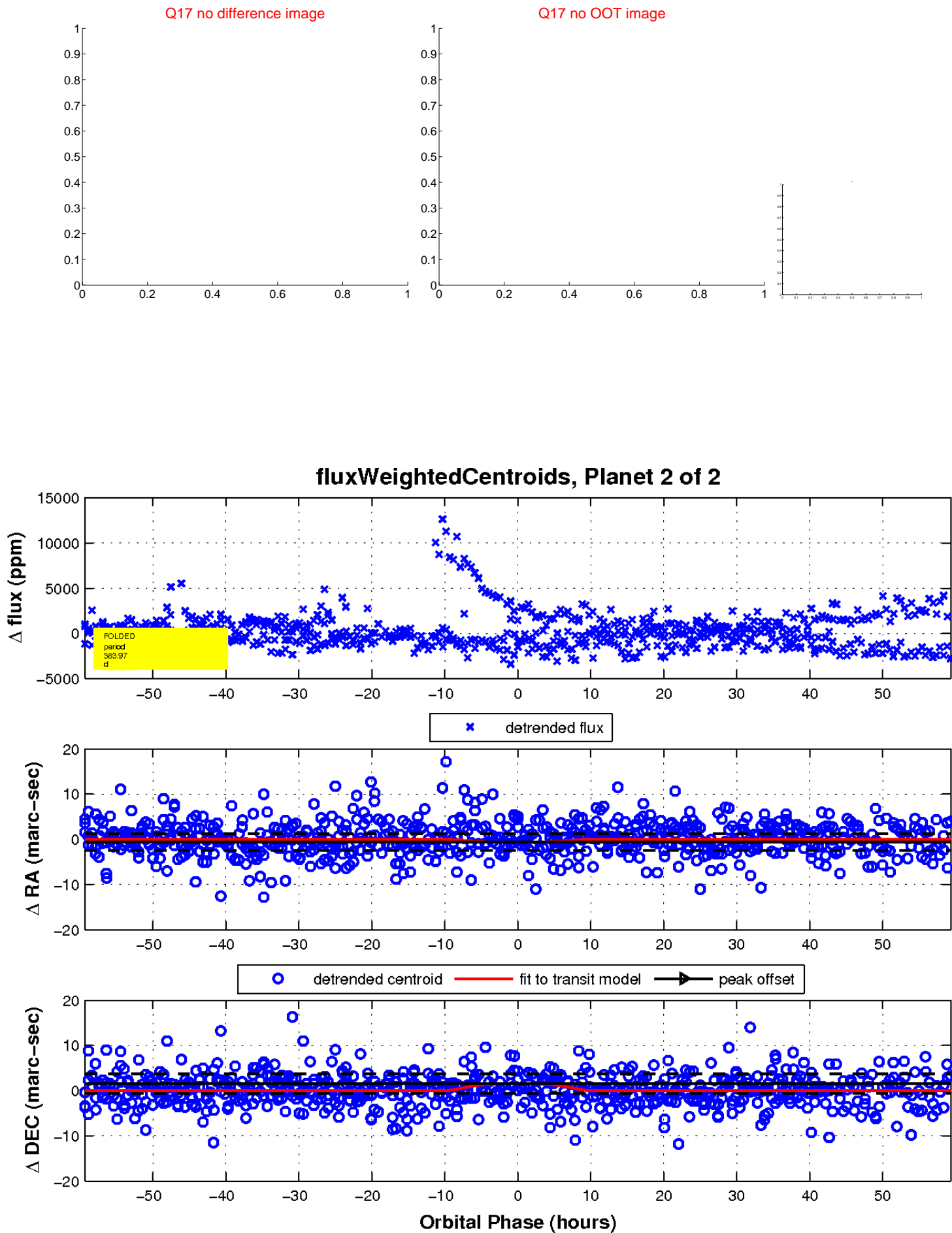
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

