

KIC 004281068

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})
004281068-01	OBS	7689.01	1.015316	131.511184	11135.3	5.171	2599.7	1055.8	1.44	6428	19.19	6907.24
004281068-02	OBS	No	1.015306	132.021411	3922.2	2.500	267.5	-1.0	1.44	6428	9.06	6907.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004281068-01	OBS	FP	0.00	0	1	1	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
004281068-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—RESIDUAL_TCE—CENT_NOFITS

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

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

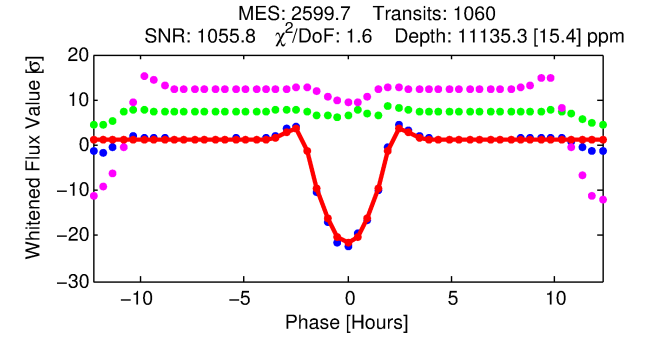
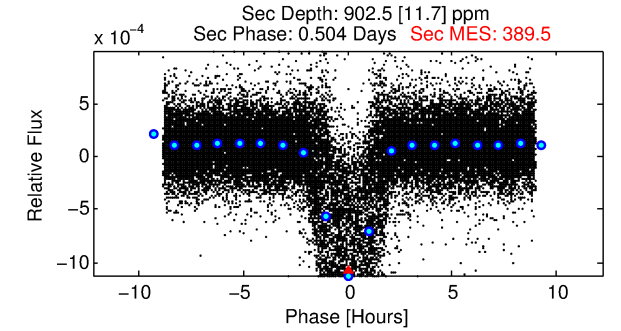
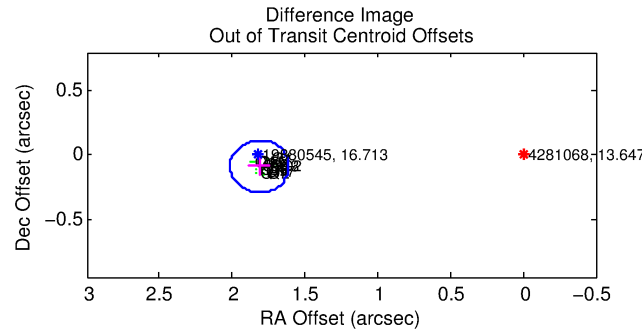
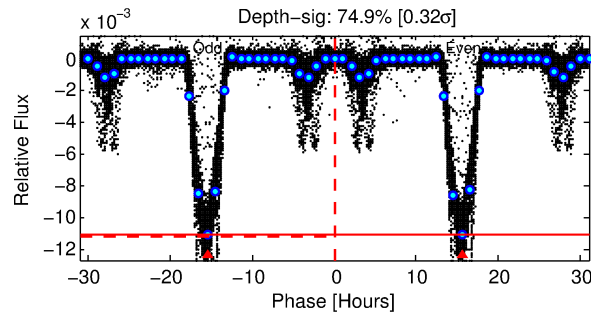
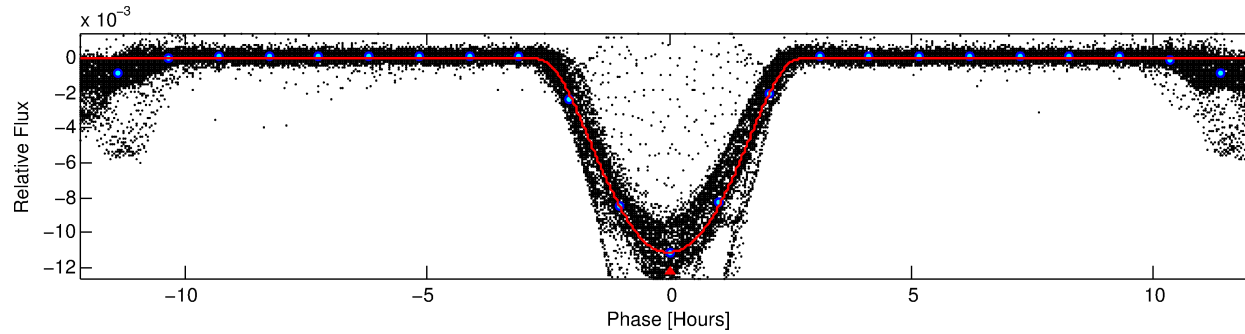
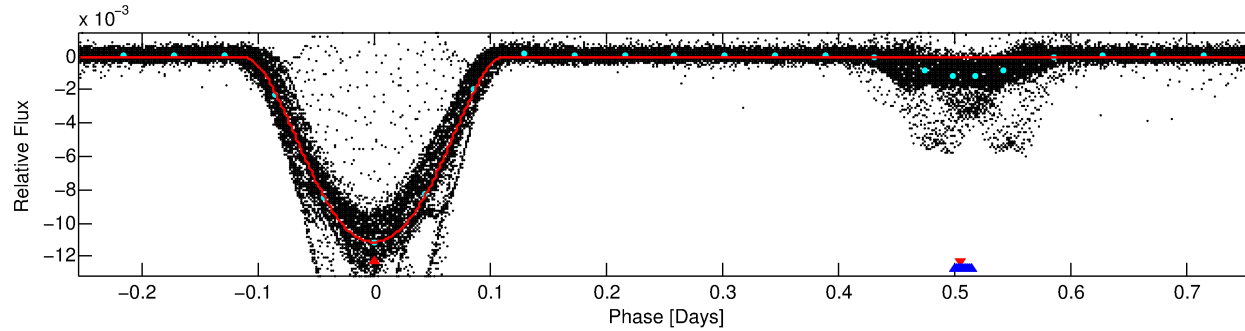
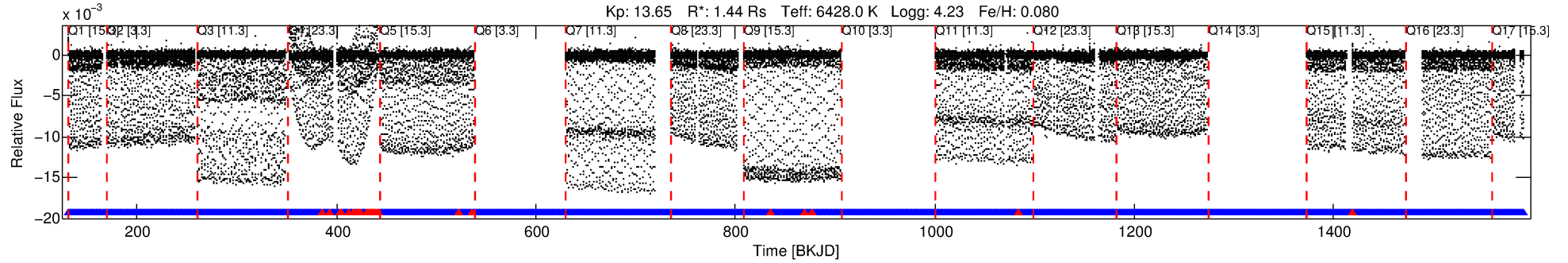
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004281068-01

No Significant Match Found

DV One-Page Summary

KIC: 4281068 Candidate: 1 of 2 Period: 1.015 d



DV Fit Results:

Period = 1.01532 [0.00000] d
Epoch = 131.5112 [0.0001] BKJD
Rp/R* = 0.1221 [0.0005]
a/R* = 1.39 [0.00]
b = 0.91 [0.00]
Seff = 6907.24 [1558.15]
Teq = 2325 [131] K
Rp = 19.19 [3.37] Re
a = 0.0214 [0.0032] AU
Ag = 0.62 [0.14] [-2.80 σ]
Teffp = 3188 [43] K [6.26 σ]

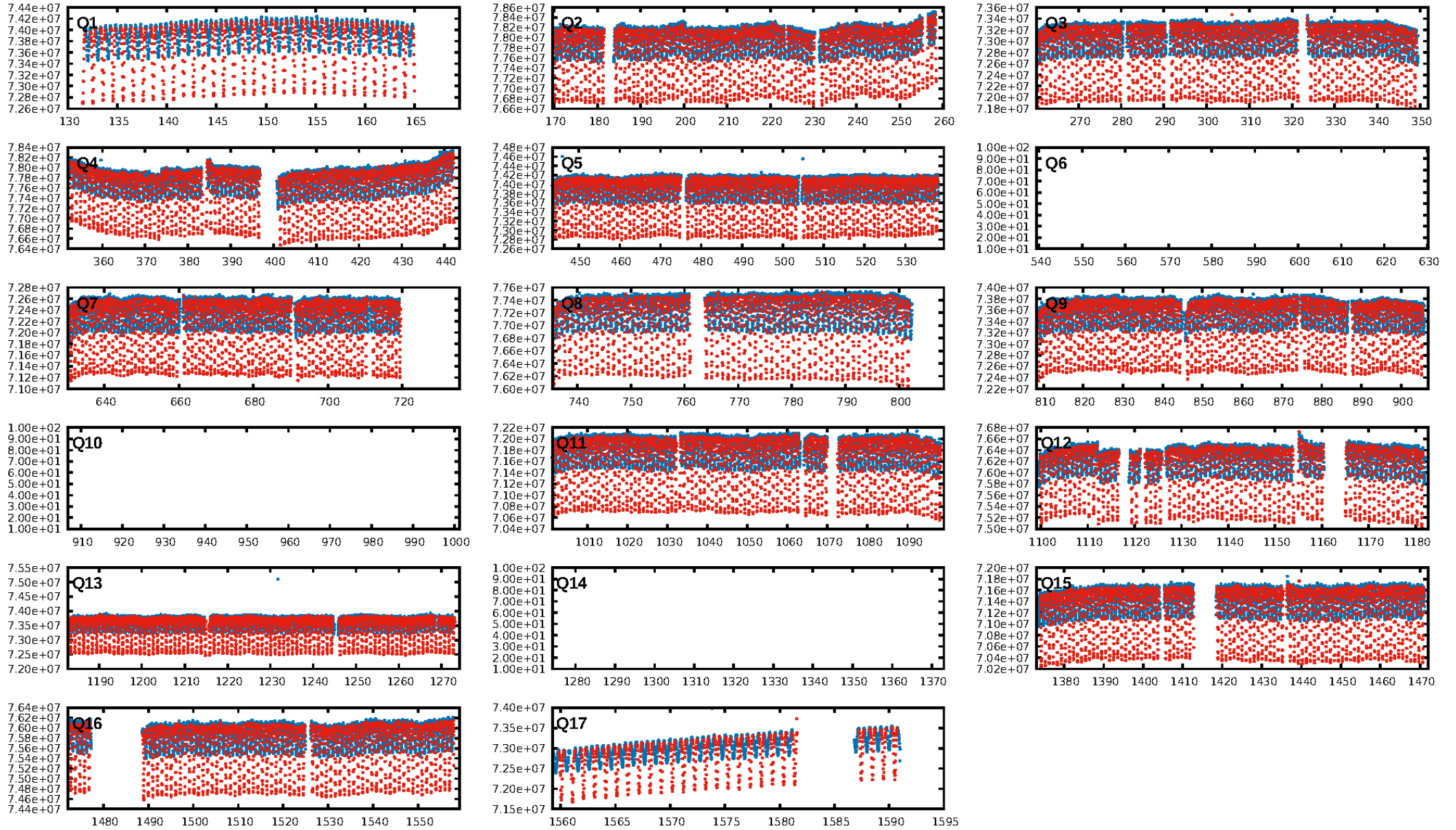
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [971/1000]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.816 arcsec [26.78 σ]
KicOffset-rm: 1.805 arcsec [25.86 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

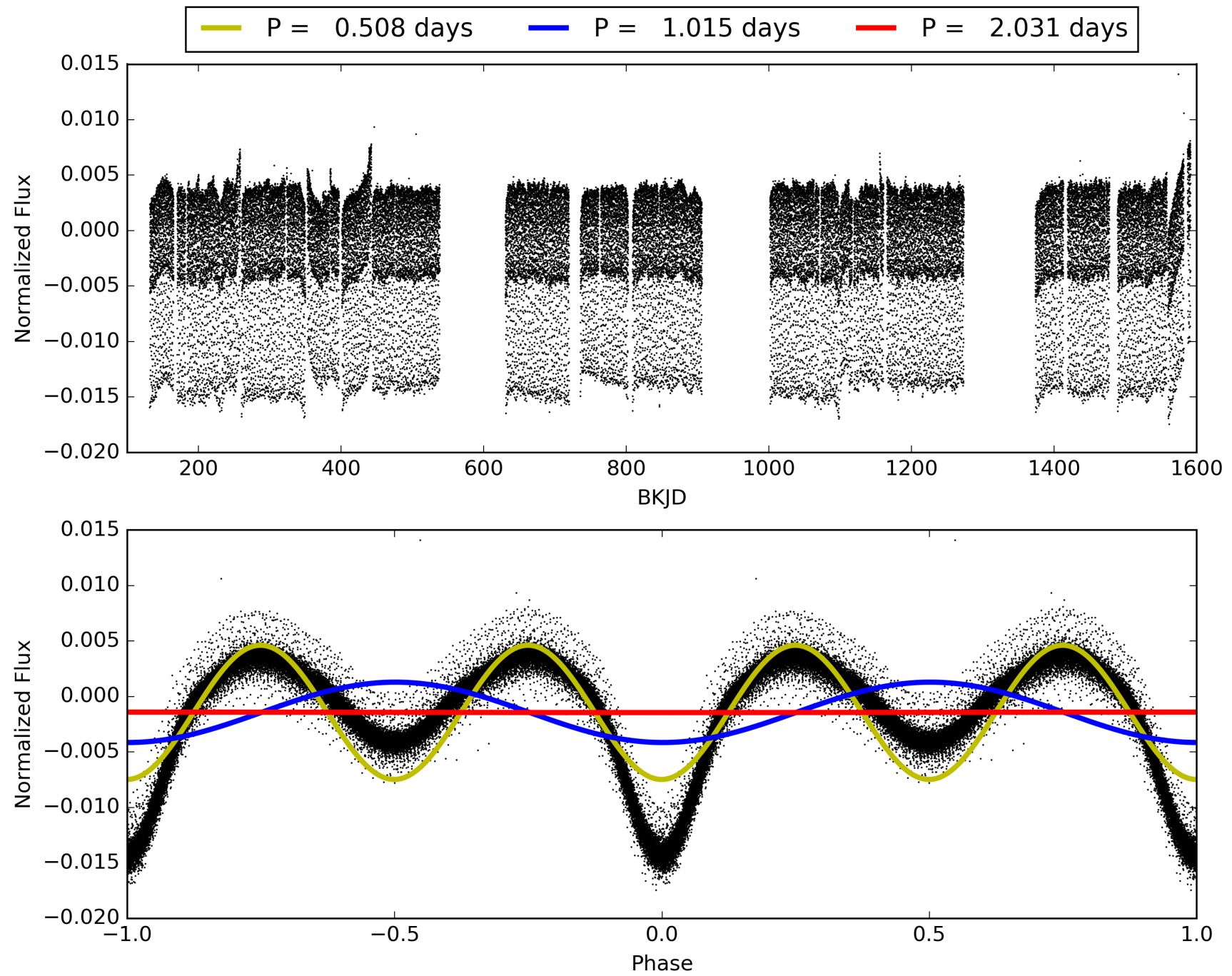
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:05:22 Z

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

TCE 004281068-01, PDC Light Curves

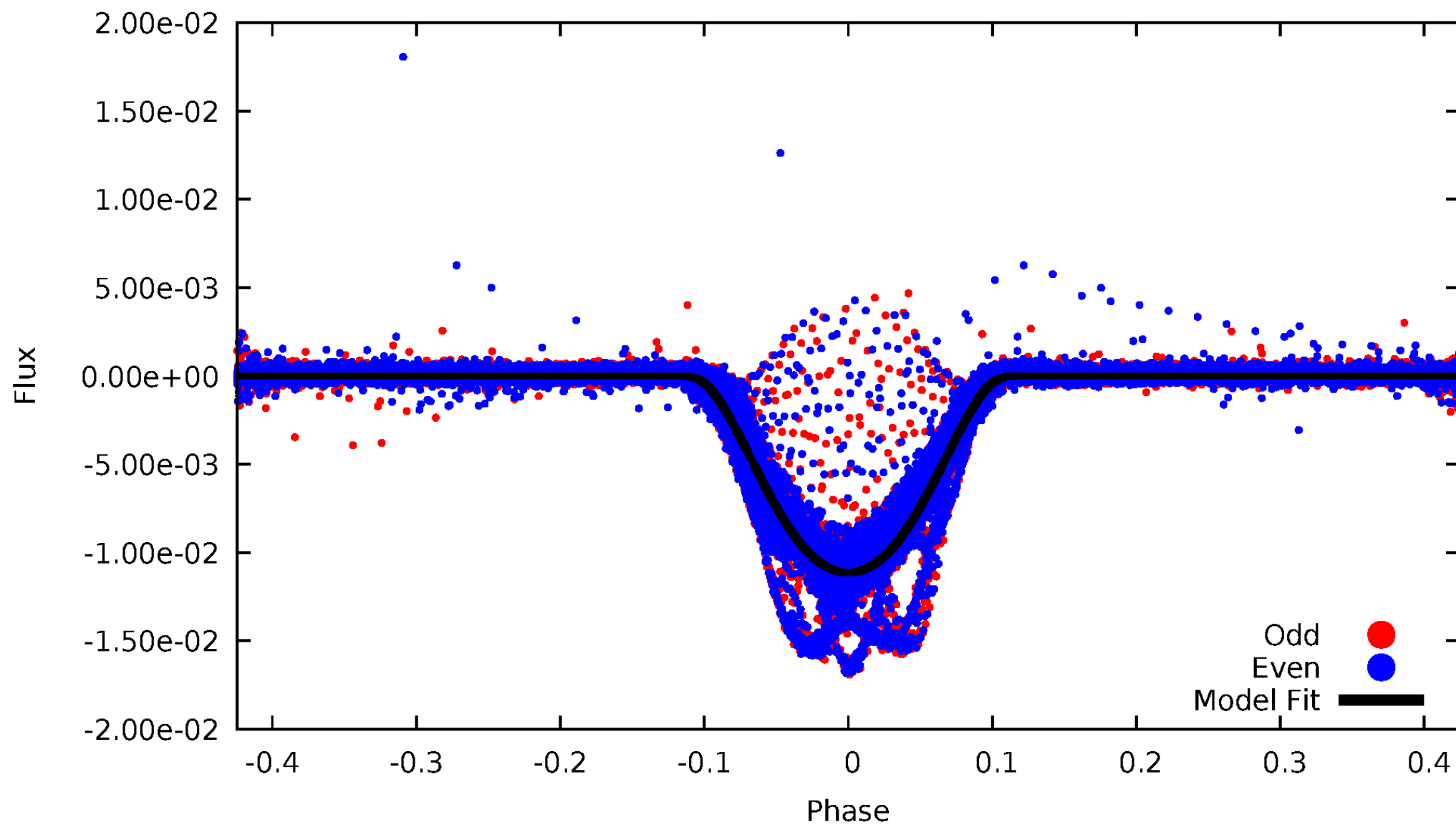


TCE 004281068-01



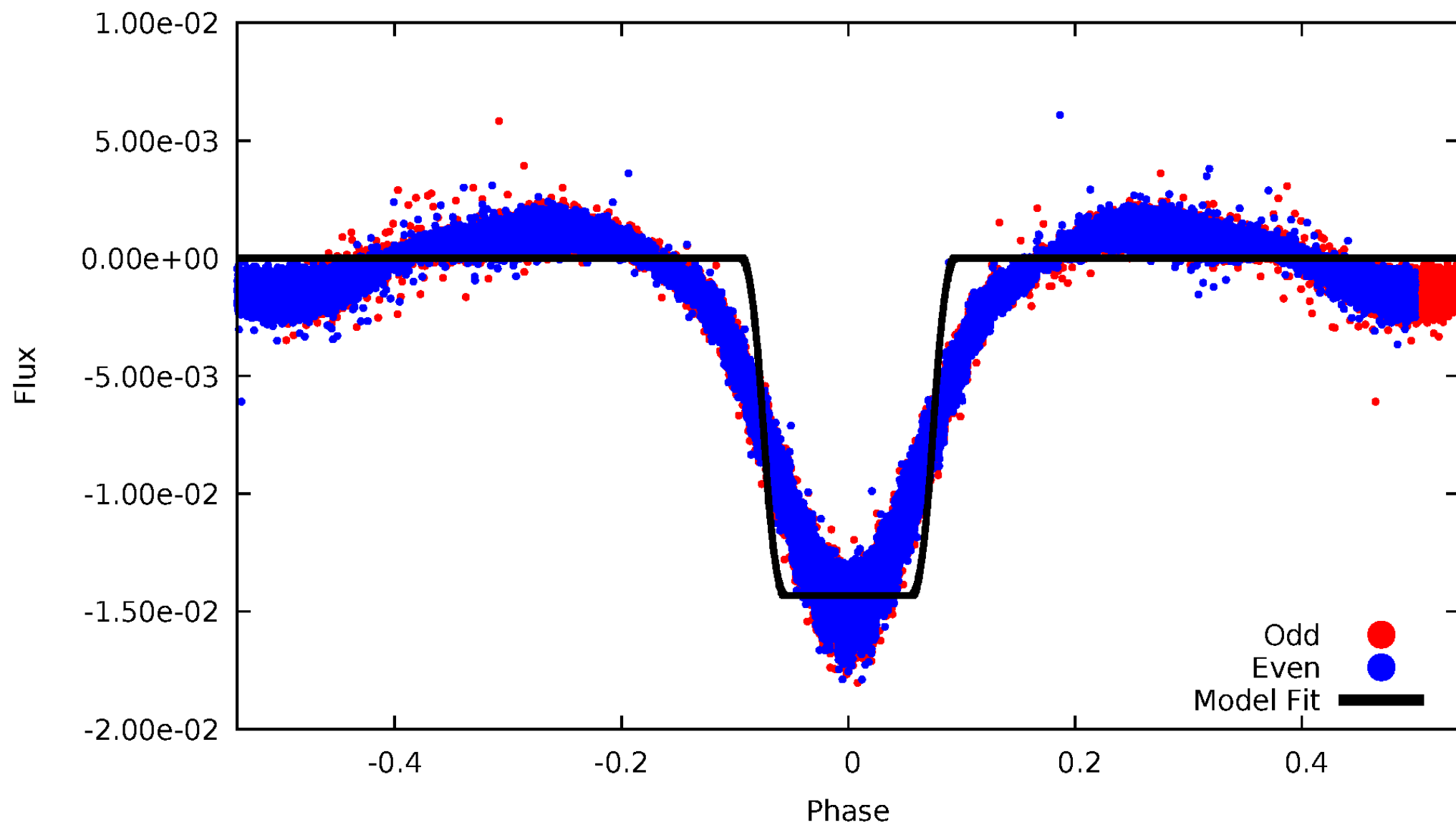
DV Odd/Even

TCE 004281068-01



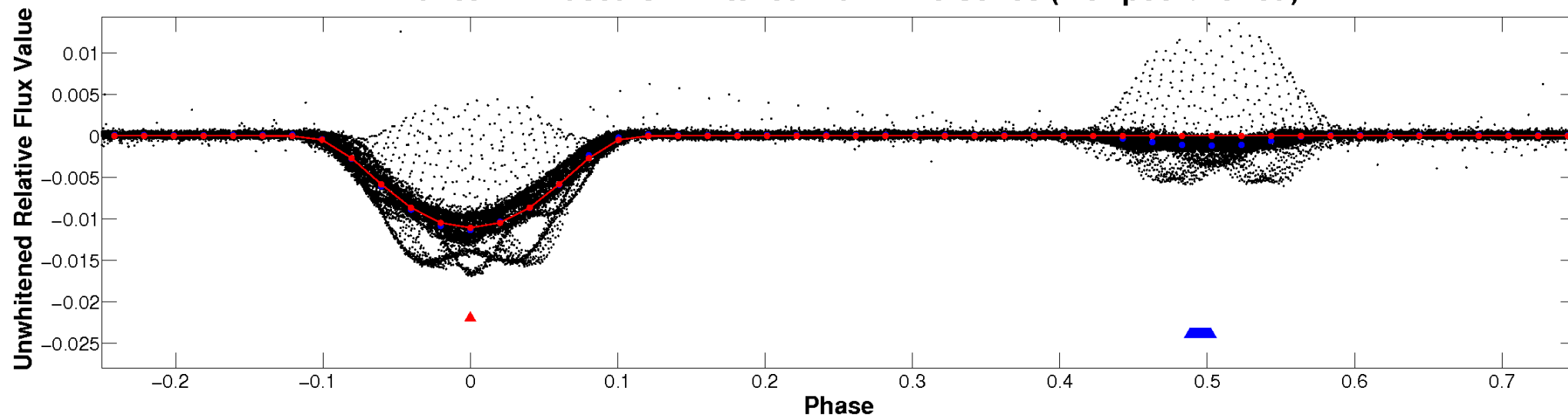
ALT Odd/Even

TCE 004281068-01

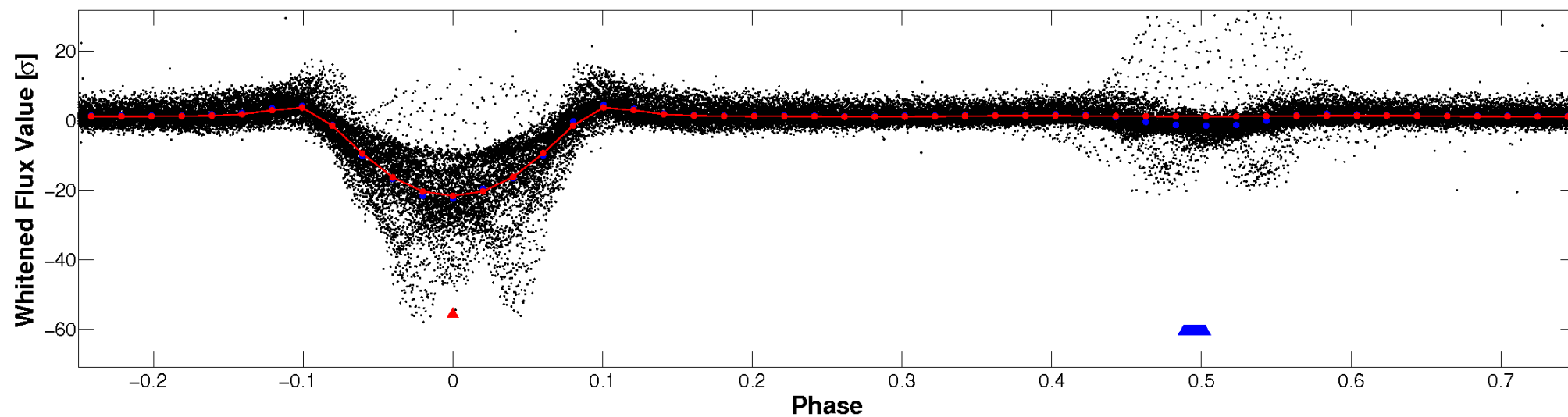


Non-Whitened Vs. Whitened Light Curve

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

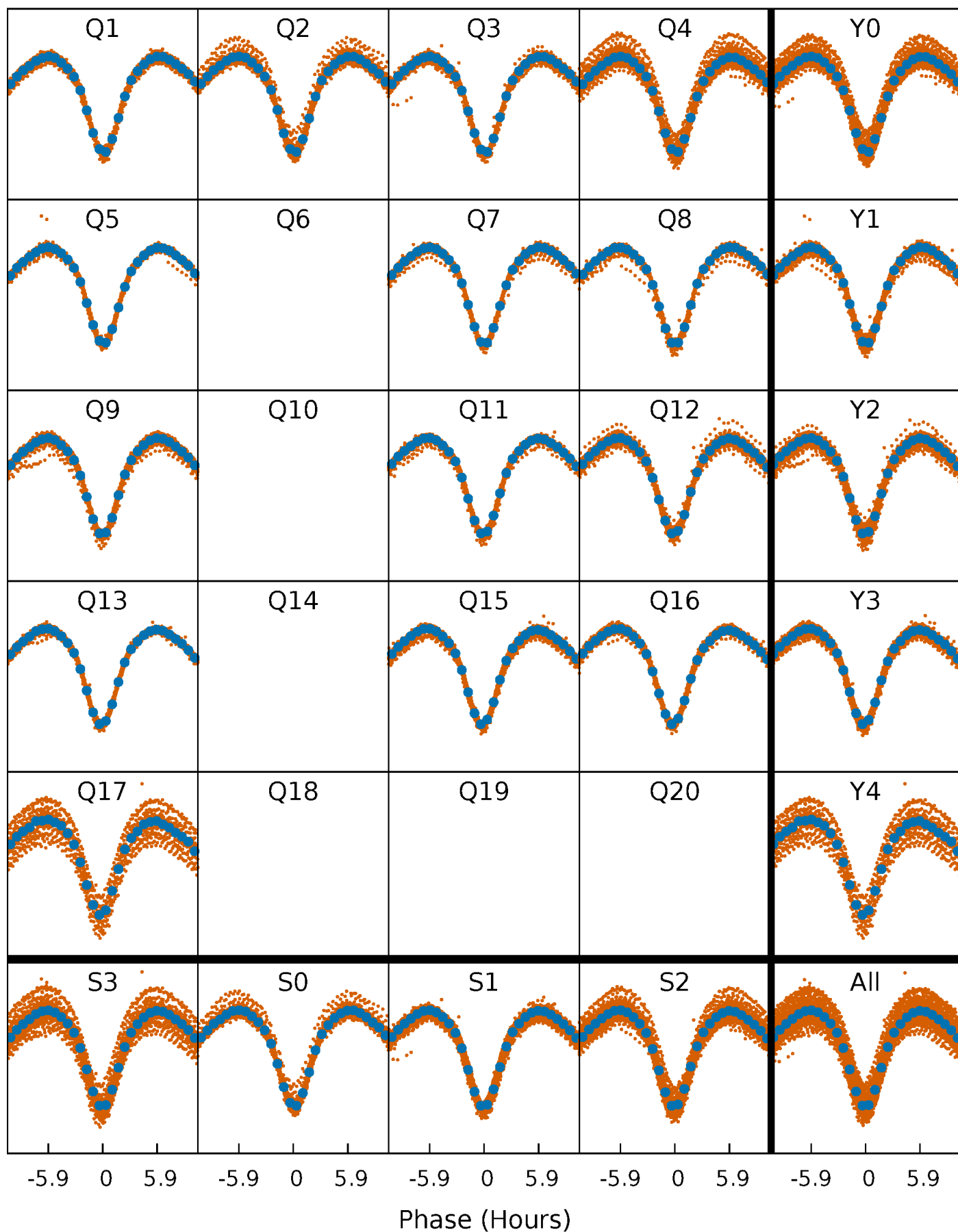


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



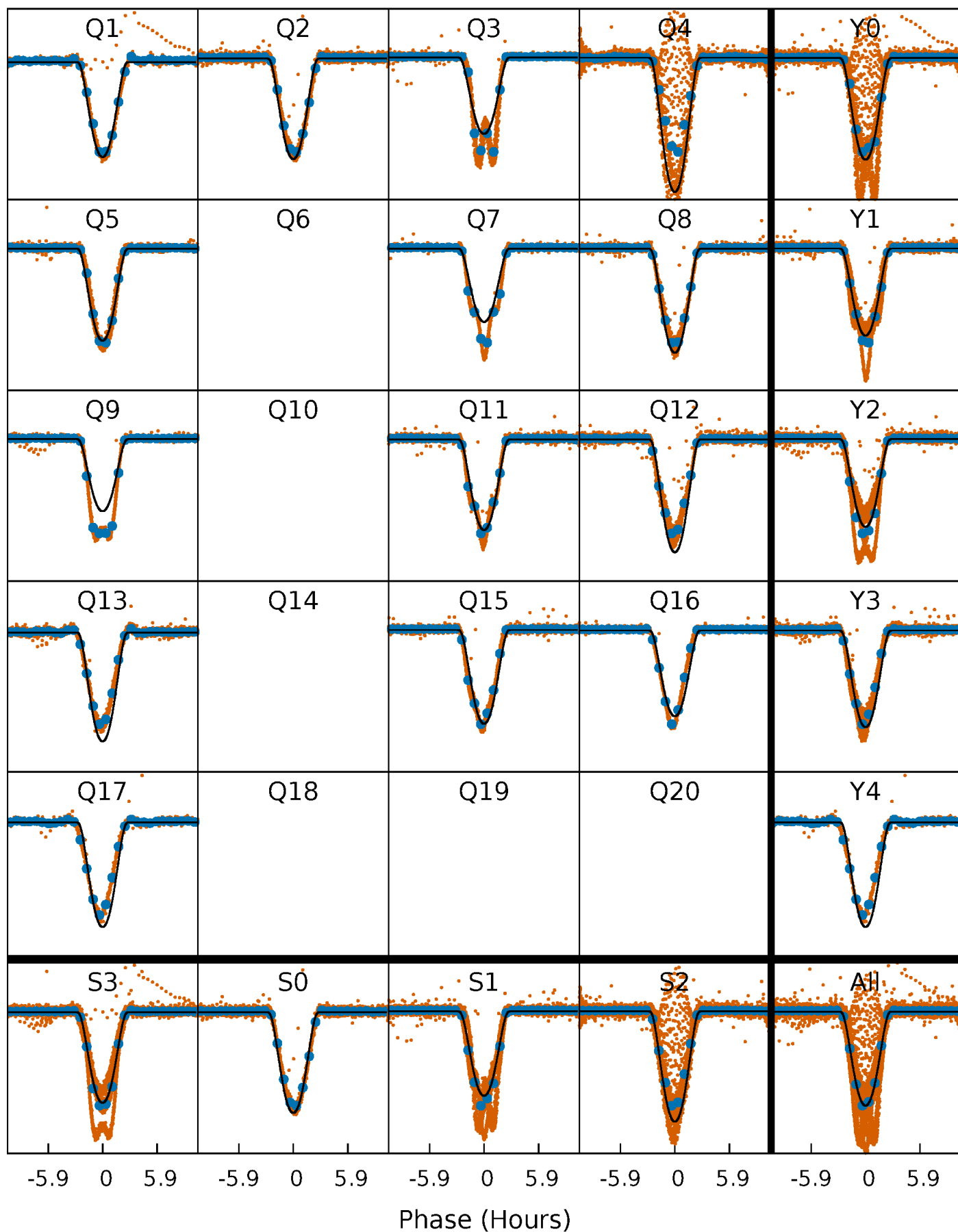
PDC Quarter-Phased Transit Curves

TCE 004281068-01 P= 1.015316 Days $T_0=131.511184$ (BKJD)



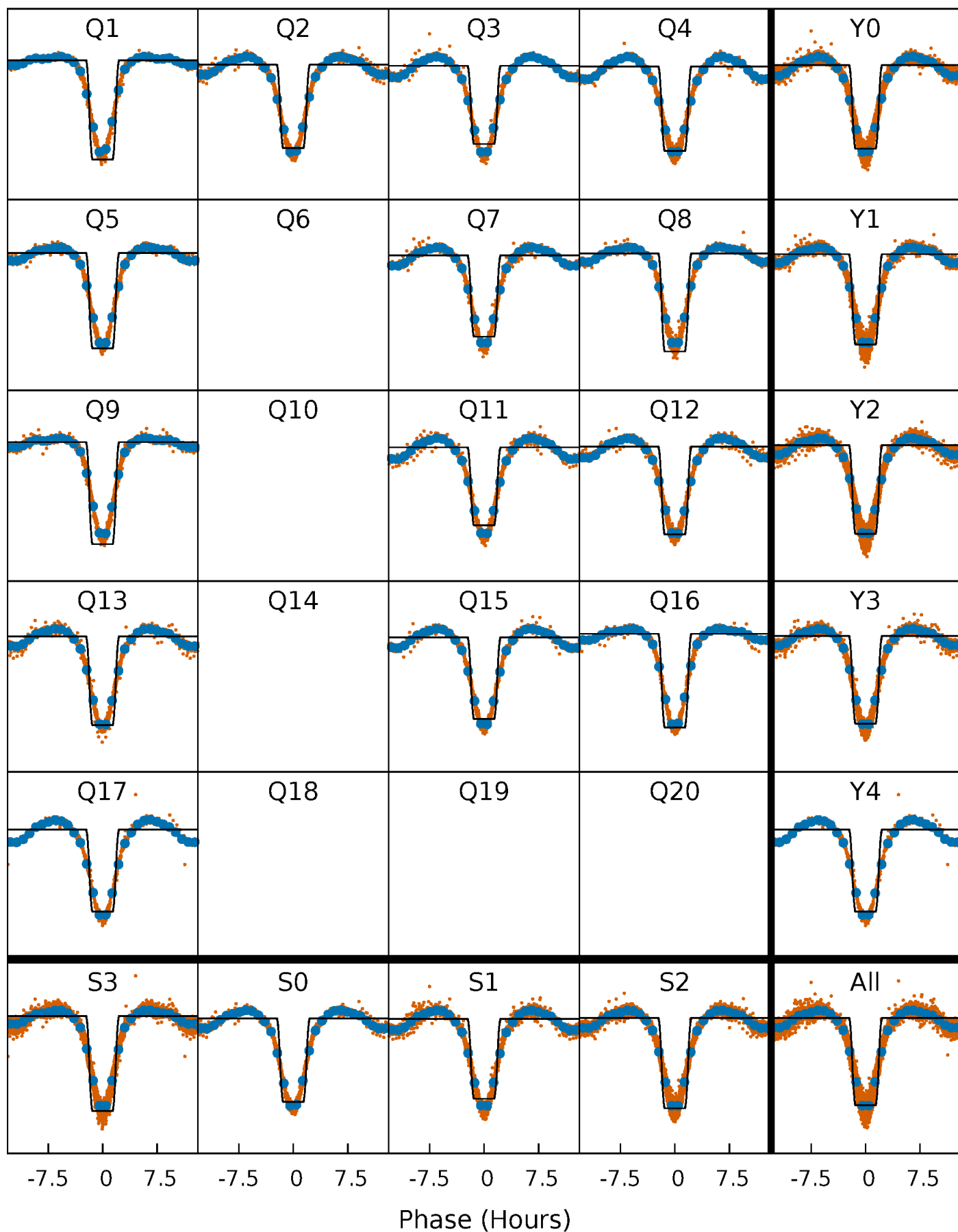
DV Quarter-Phased Transit Curves

TCE 004281068-01 P= 1.015316 Days $T_0=131.511184$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

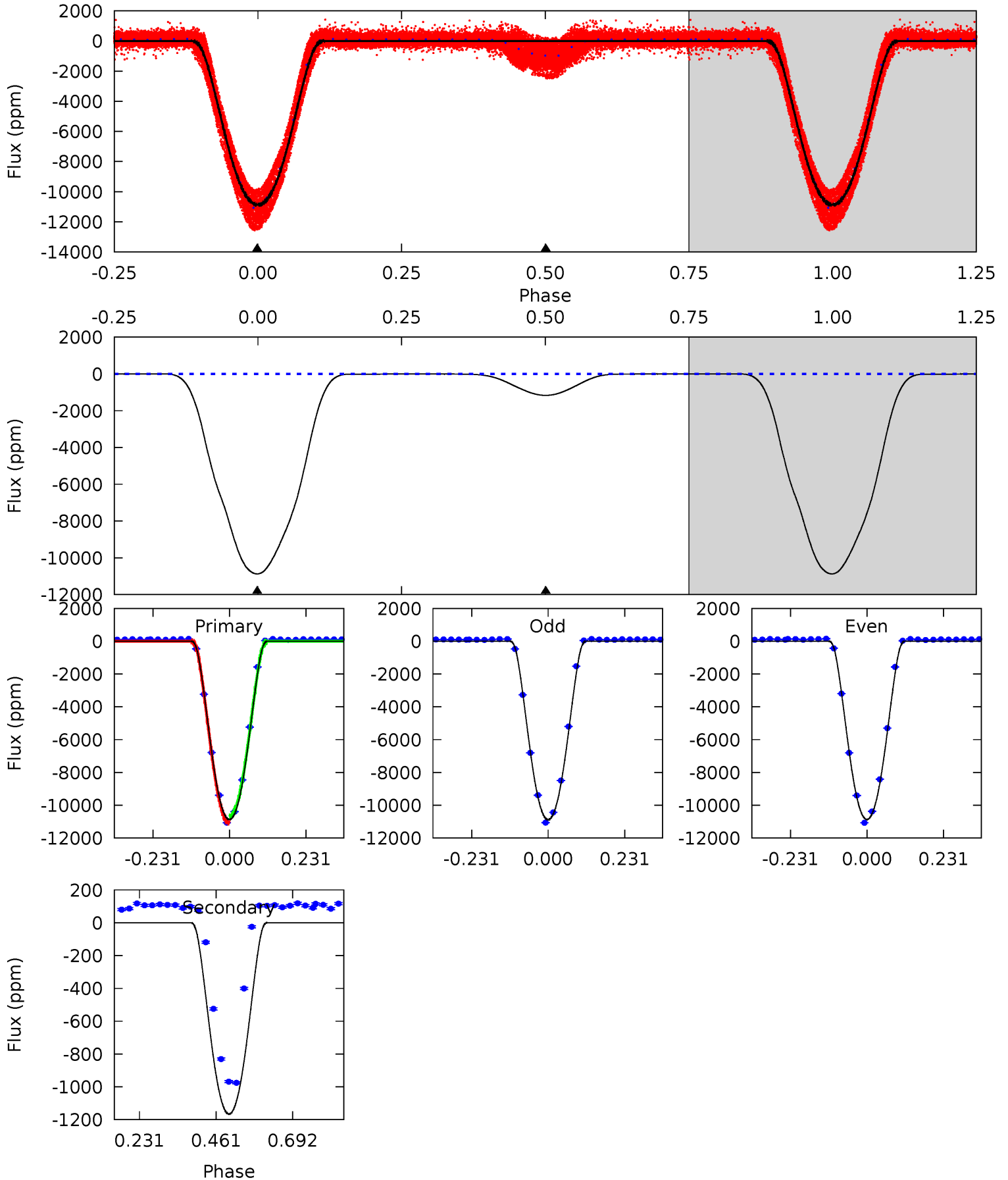
TCE 004281068-01 P= 1.015303 Days $T_0=131.518305$ (BKJD)



DV Model-Shift Uniqueness Test

004281068-01, P = 1.015316 Days, E = 131.511184 Days

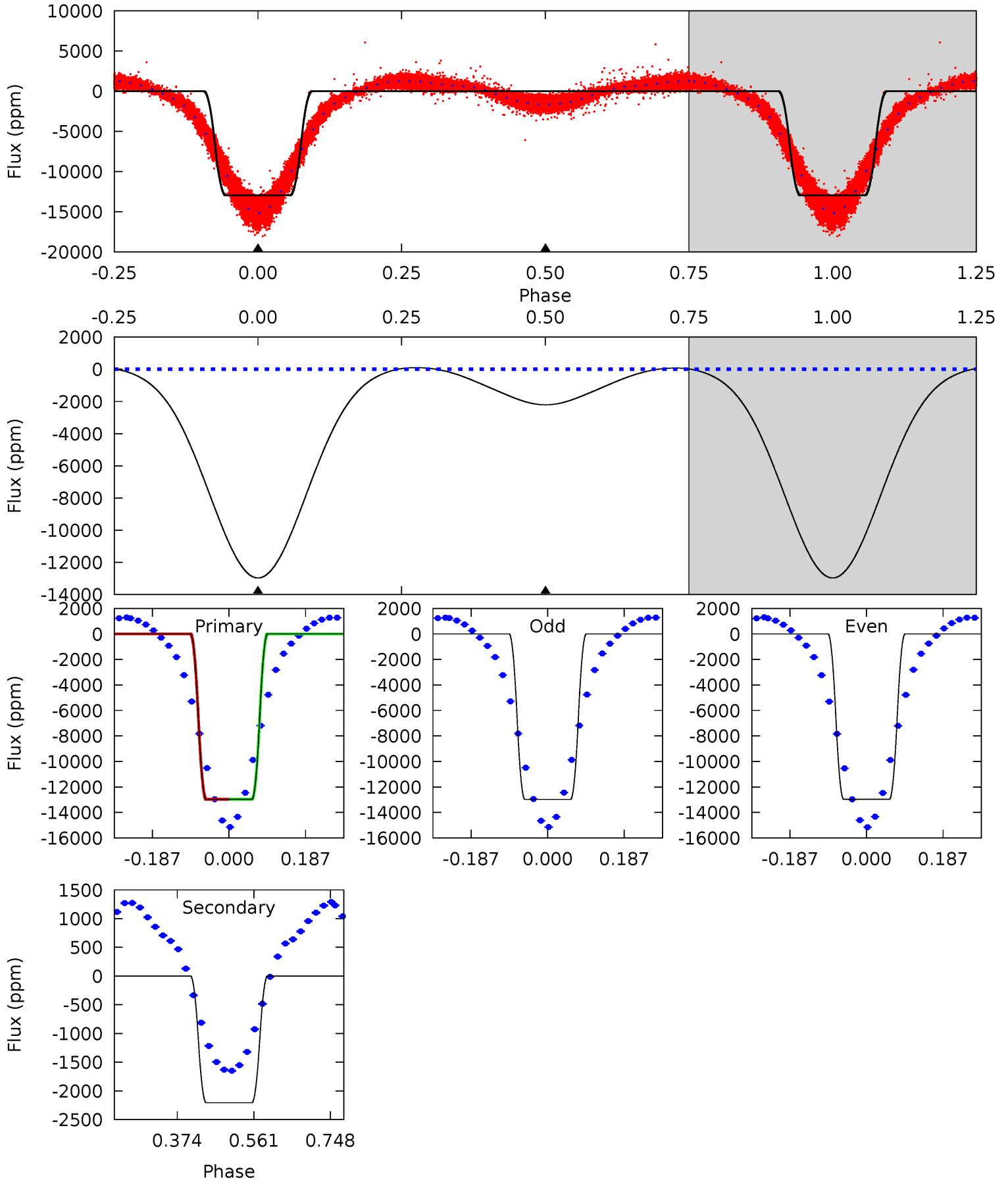
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4073	436.8	0	0	4.39	1.20	0.73	4073	4073	436.8	436.8	2.22	1.02	0.00	73.3



Alt Model-Shift Uniqueness Test

004281068-01, P = 1.015303 Days, E = 130.503002 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1106	188.2	0	0	4.43	1.32	23.5	1106	1106	188.2	188.2	0.24	1.00	0.01	0.09



Stellar Parameters For KIC 004281068

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6428^{+70}_{-83}	$4.226^{+0.099}_{-0.121}$	$0.080^{+0.150}_{-0.200}$	$1.440^{+0.253}_{-0.184}$	$1.273^{+0.095}_{-0.105}$	$0.601^{+0.264}_{-0.216}$
	+1%/-1%	+2%/-3%	+188%/-250%	+18%/-13%	+7%/-8%	+44%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 004281068-01 / KOI 7689.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1166 ± 3	$19.33^{+2.06}_{-1.48}$	3261^{+158}_{-124}	3496^{+60}_{-77}	$0.788^{+0.127}_{-0.138}$
Alt.	-2206 ± 12	$18.79^{+1.73}_{-1.38}$	3251^{+131}_{-127}	4104^{+43}_{-52}	$1.571^{+0.242}_{-0.229}$

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 $A_{obs} \gg 1.0$

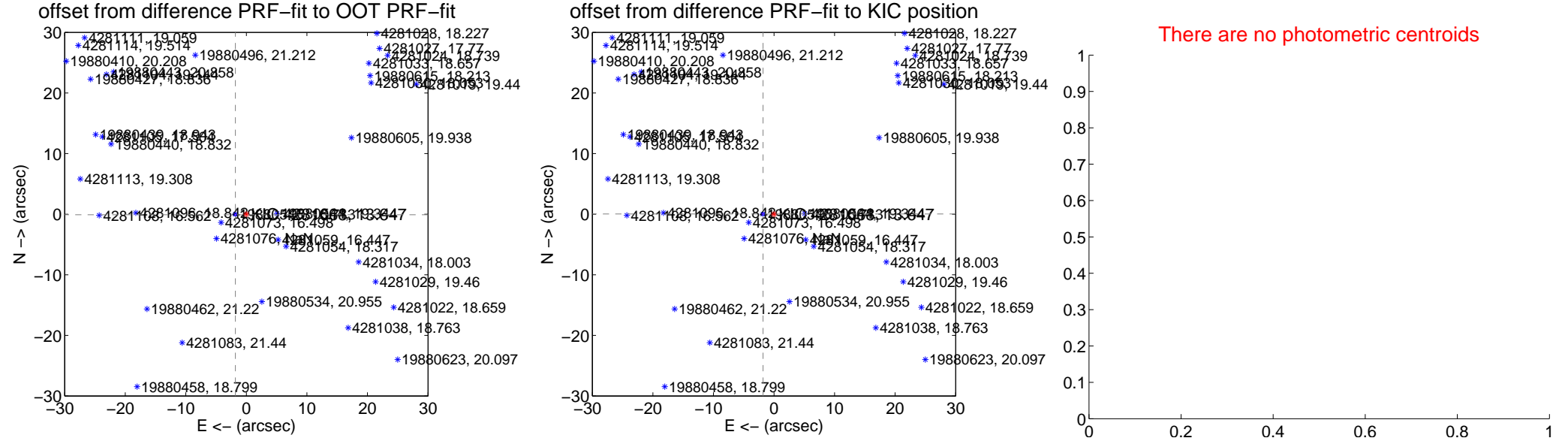
DV Centroid Data

Supplemental centroid analysis for 004281068-01. Kepler magnitude: 13.65. Transit SNR 1055.78

There are 14 quarters with good PRF difference image offsets

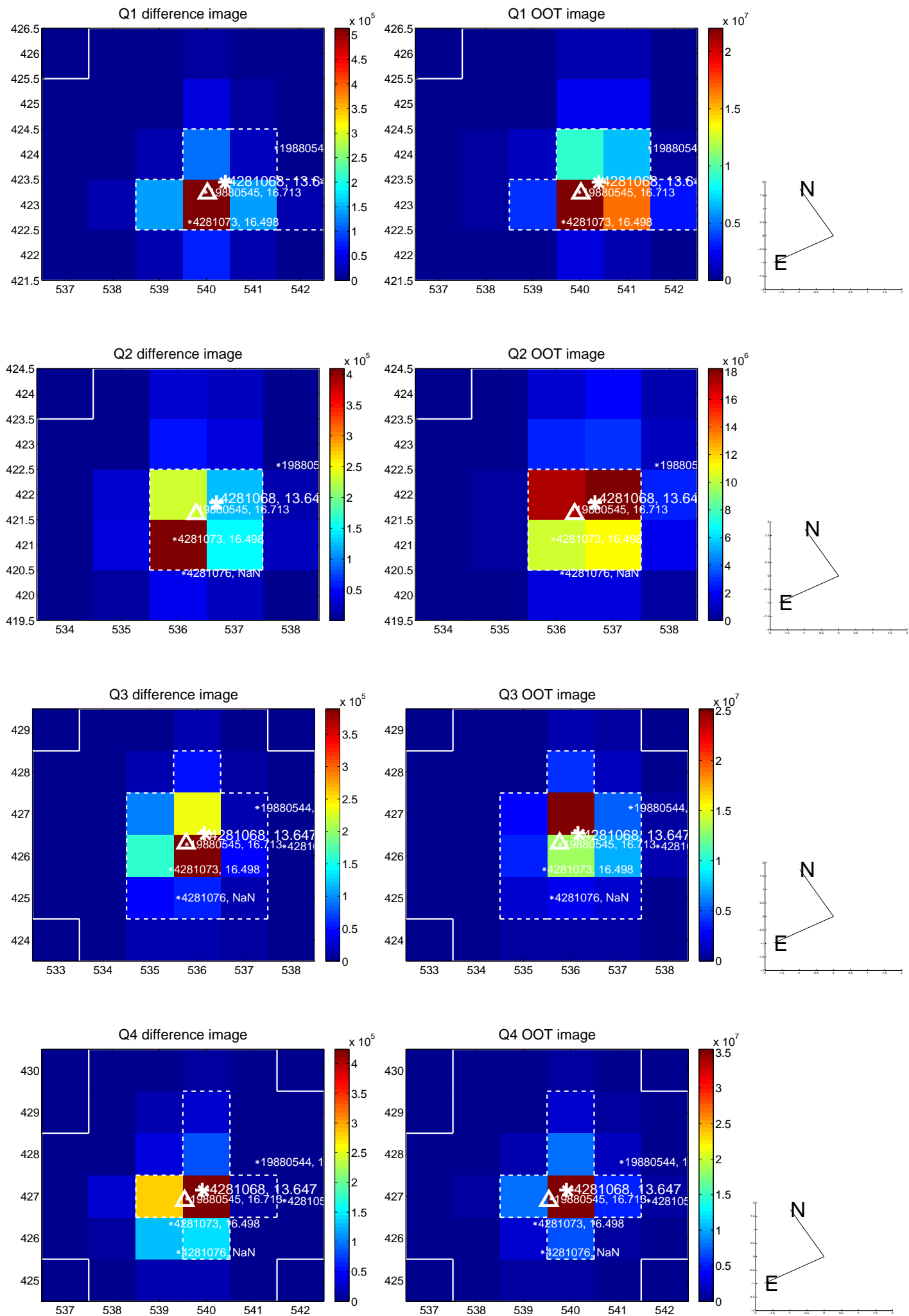
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.816 \pm 0.068	26.78	1.814 \pm 0.068	-0.089 \pm 0.067
PRF-fit source offset from KIC position	1.805 \pm 0.070	25.86	1.804 \pm 0.070	0.031 \pm 0.068
photometric centroid source offset	—	—	—	—

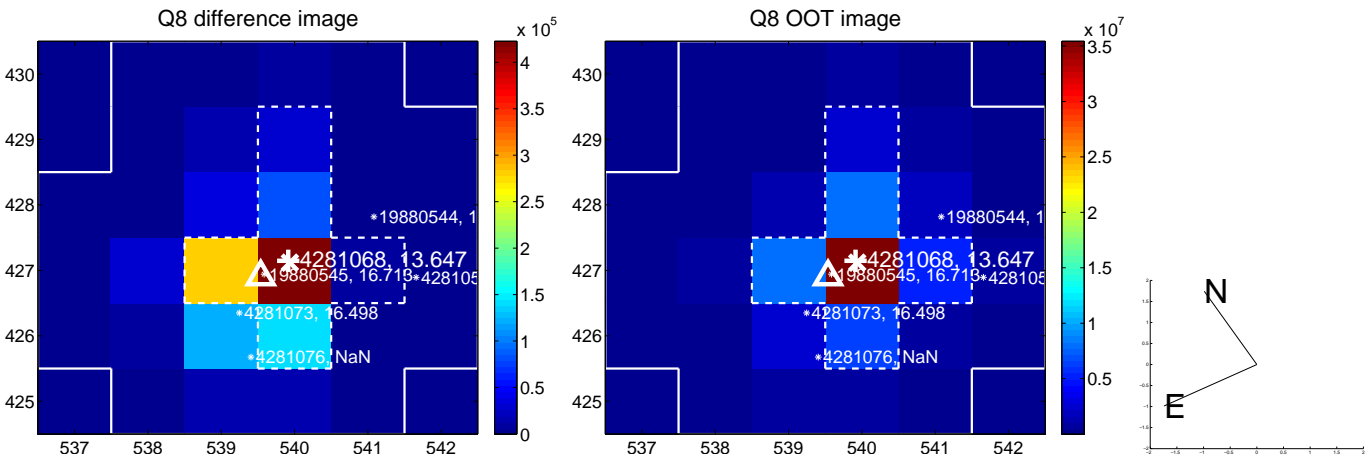
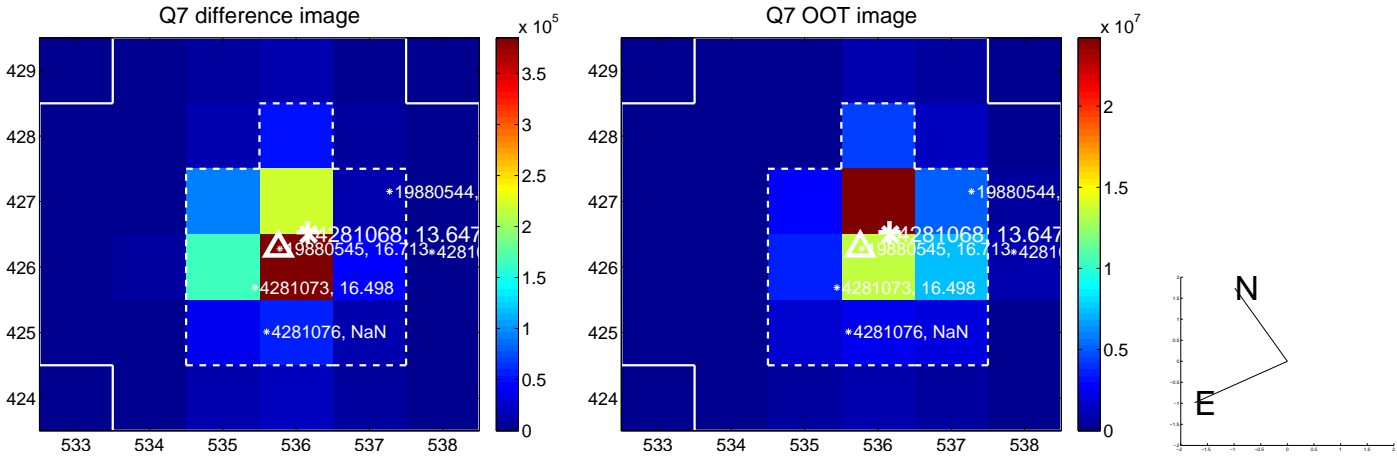
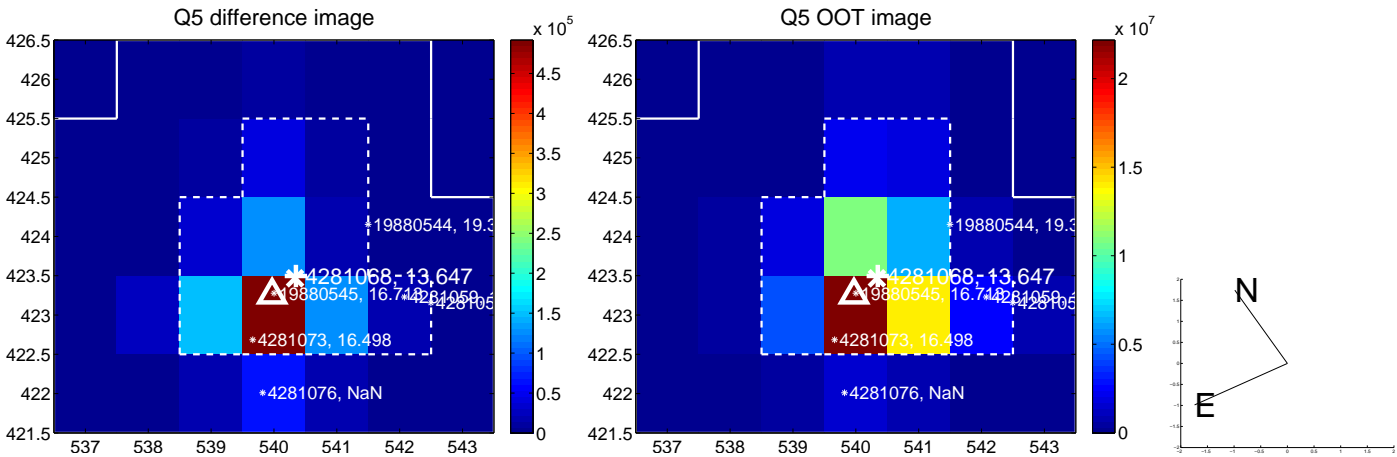


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

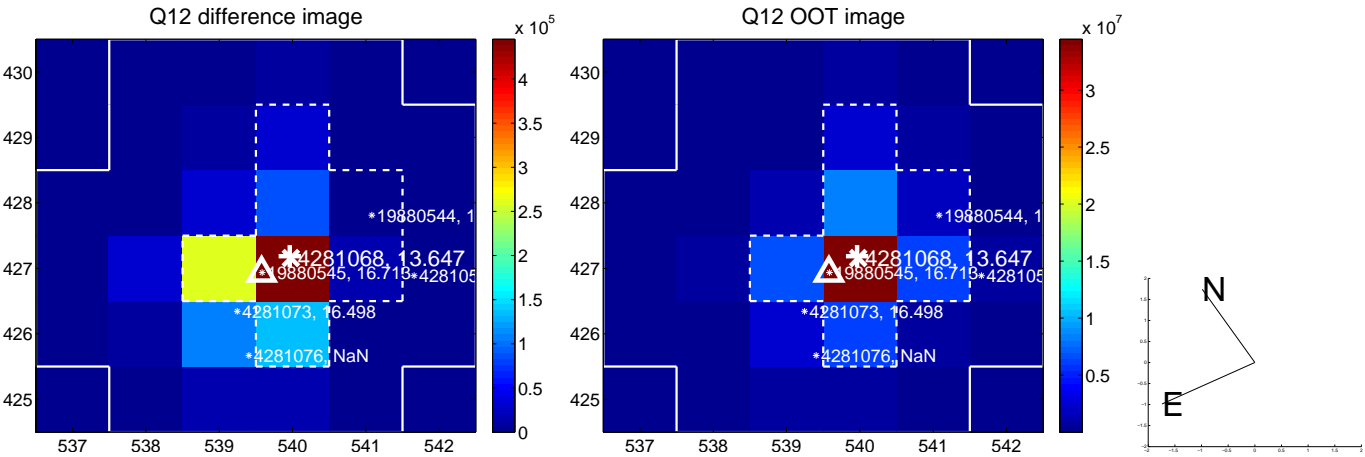
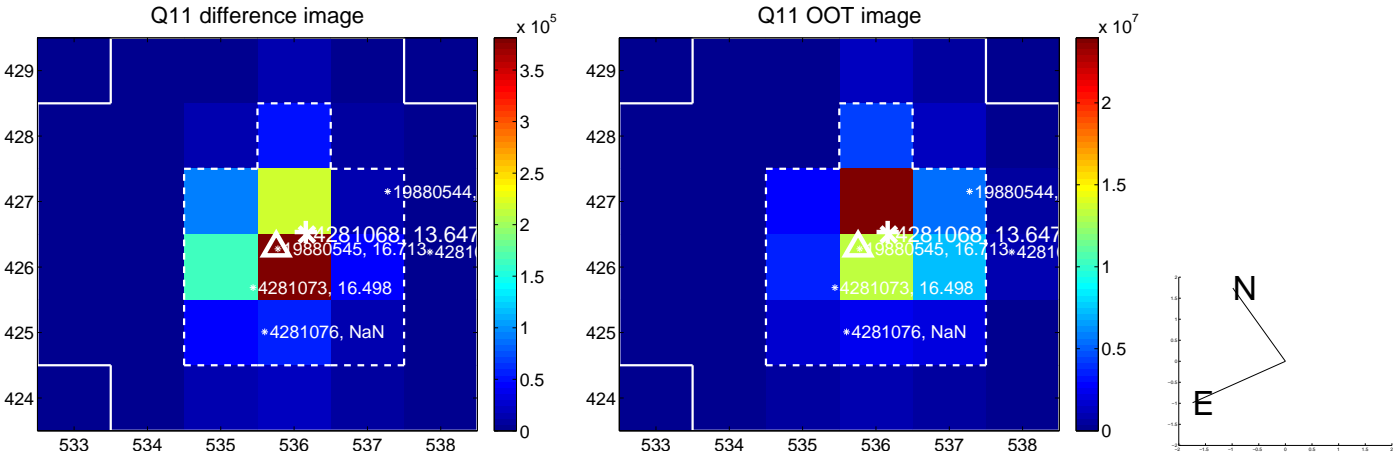
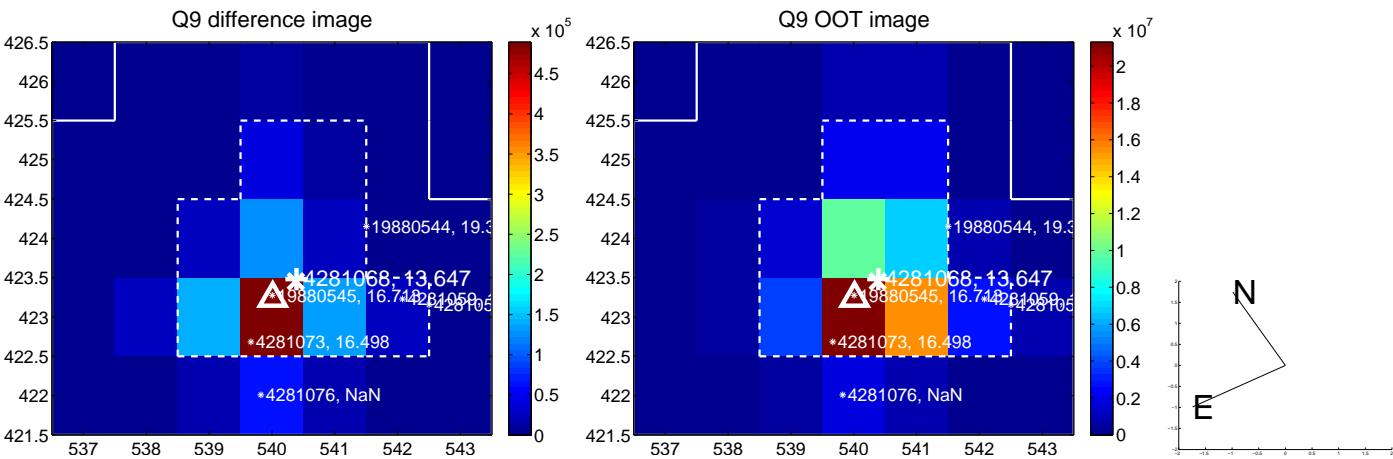
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



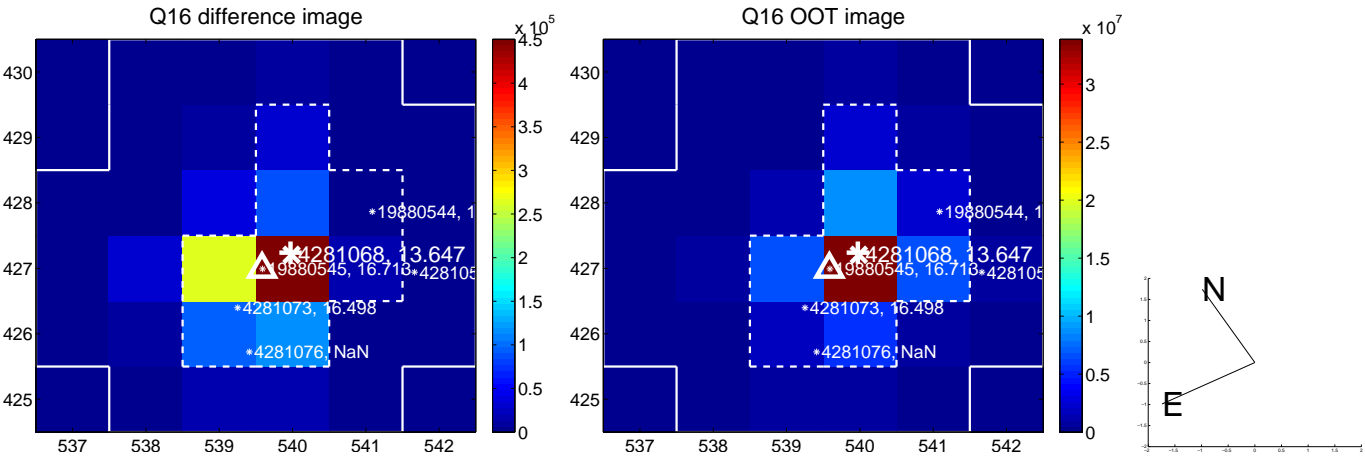
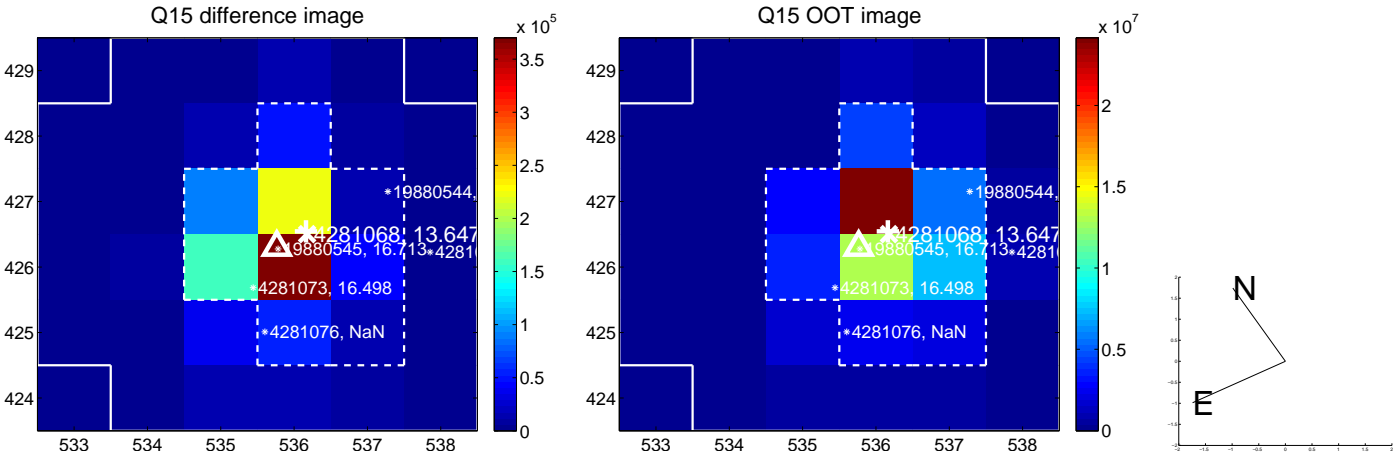
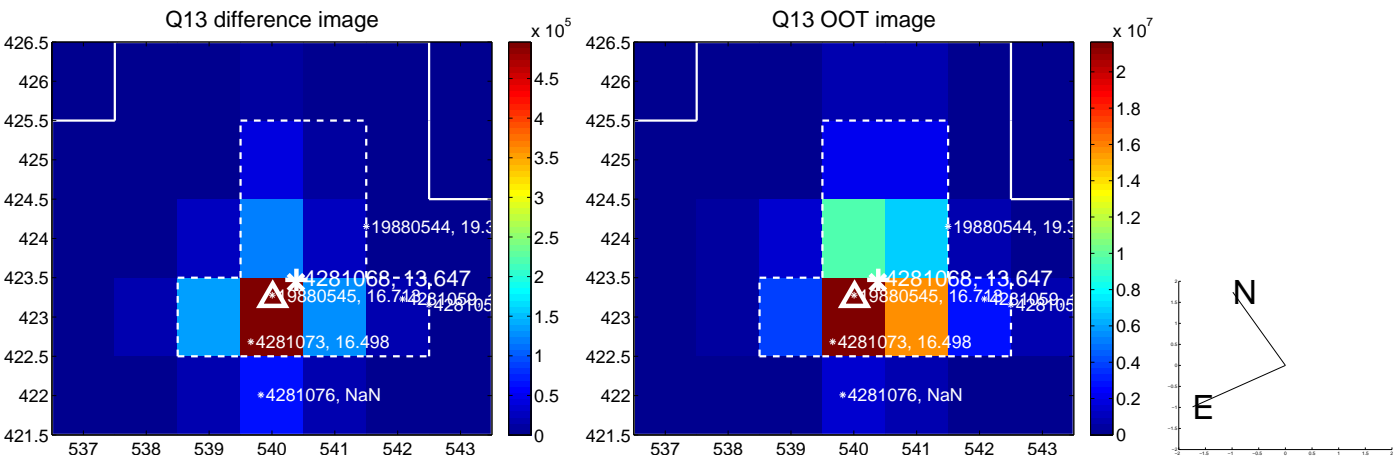
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



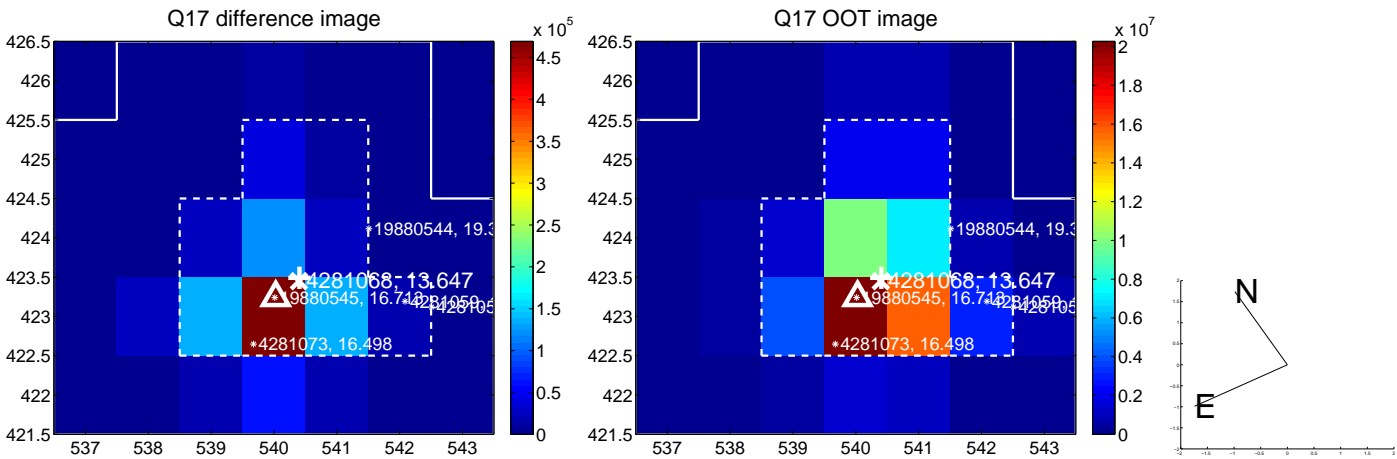
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



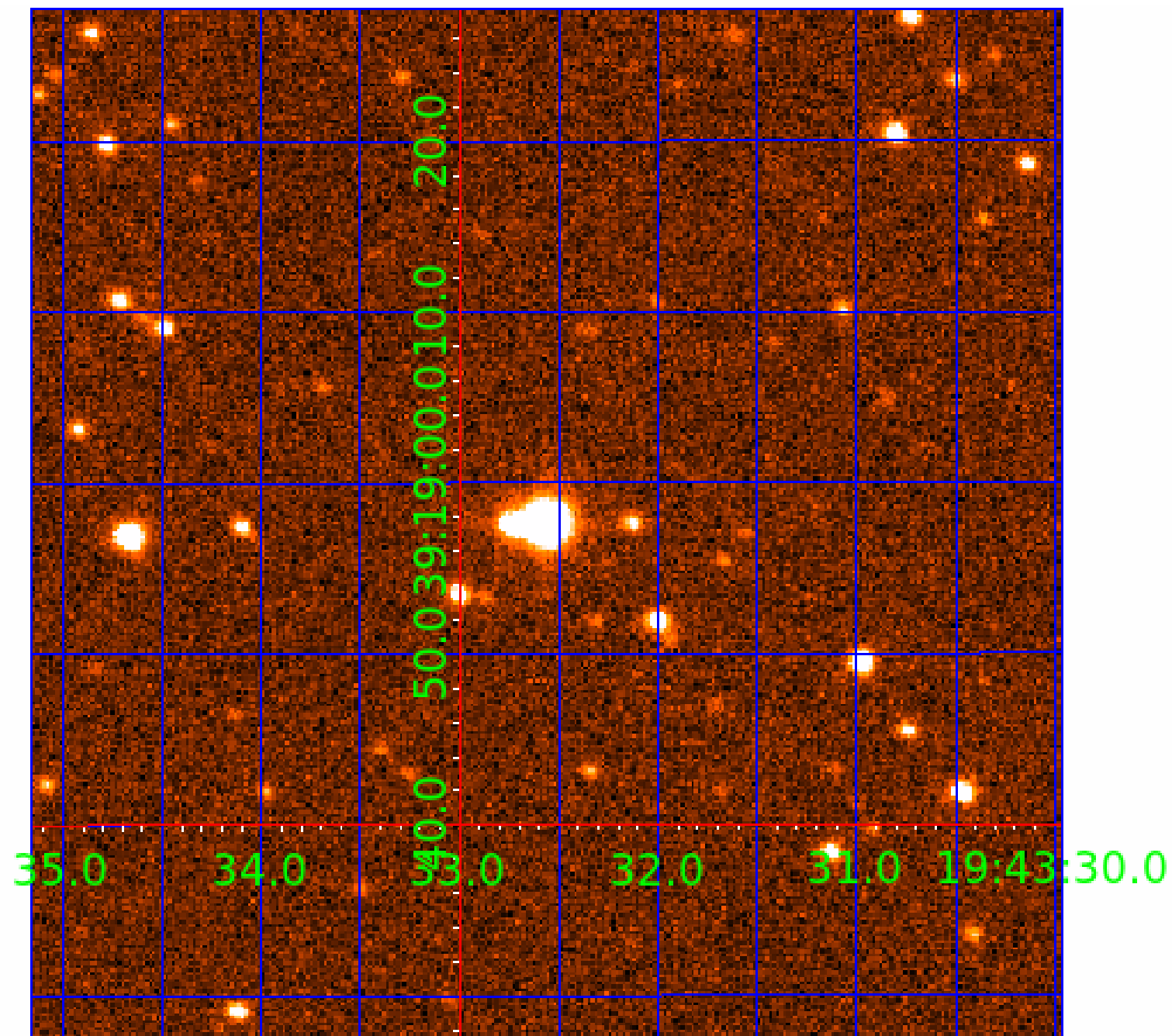
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 004281068

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})
004281068-01	OBS	7689.01	1.015316	131.511184	11135.3	5.171	2599.7	1055.8	1.44	6428	19.19	6907.24
004281068-02	OBS	No	1.015306	132.021411	3922.2	2.500	267.5	-1.0	1.44	6428	9.06	6907.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004281068-01	OBS	FP	0.00	0	1	1	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
004281068-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—RESIDUAL_TCE—CENT_NOFITS

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

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

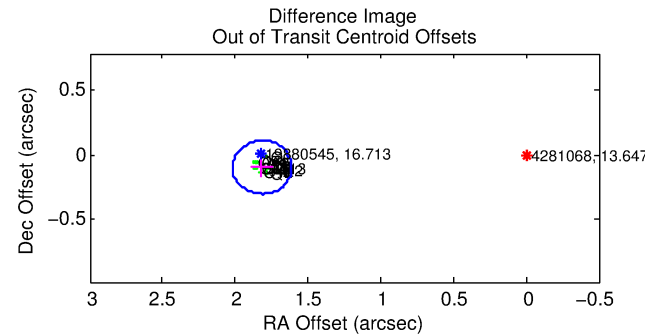
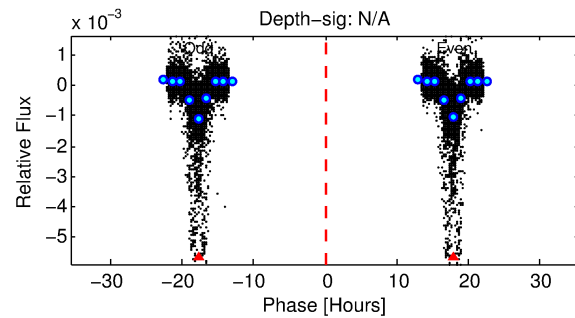
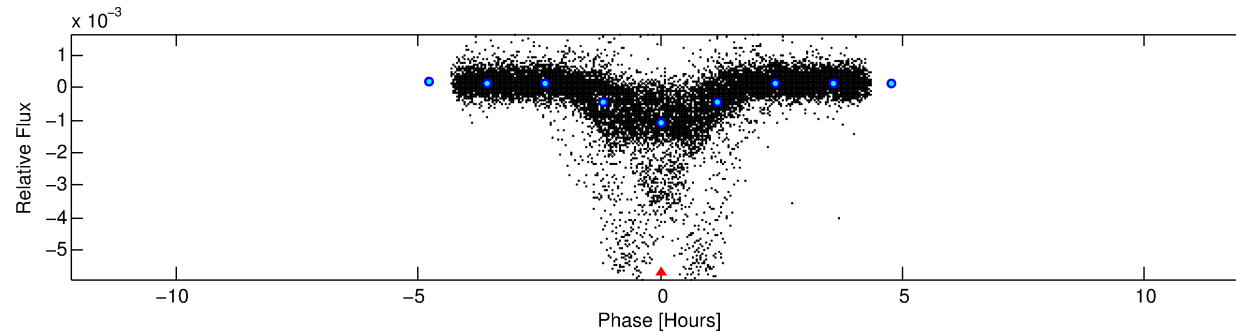
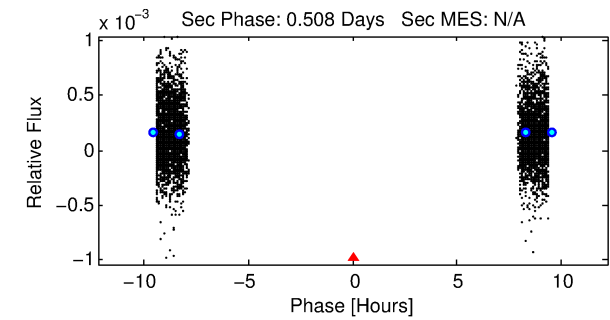
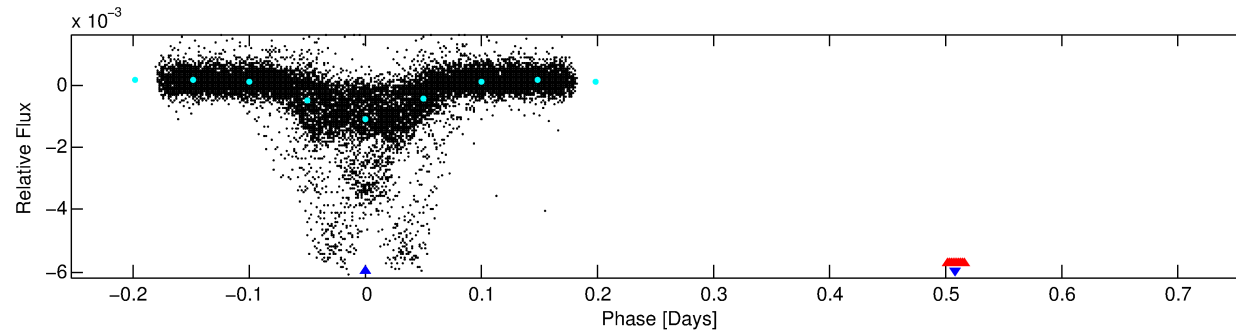
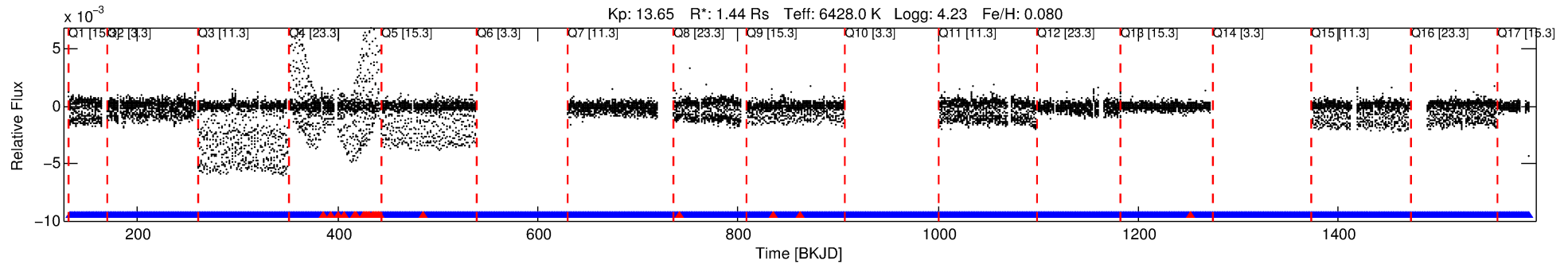
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004281068-02

No Significant Match Found

DV One-Page Summary

KIC: 4281068 Candidate: 2 of 2 Period: 1.015 d



TPS TCE Results:

Period = 1.01531 d
Epoch = 132.0214 BKJD

DV fit results are unavailable

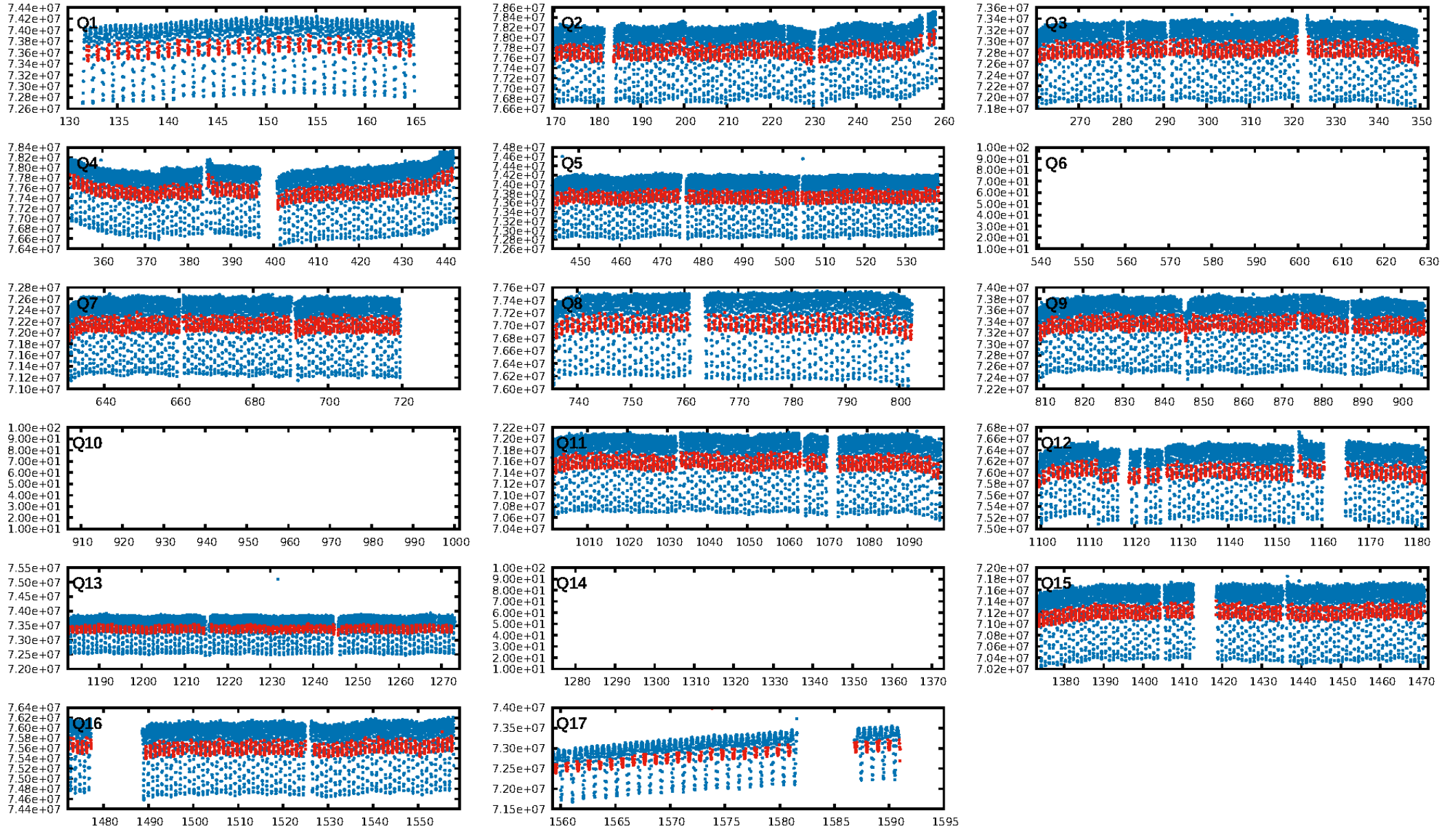
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [979/1003]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: 0.066 arcsec [7.60σ]
OotOffset-rm: 1.819 arcsec [26.72σ]
KicOffset-rm: 1.812 arcsec [26.03σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

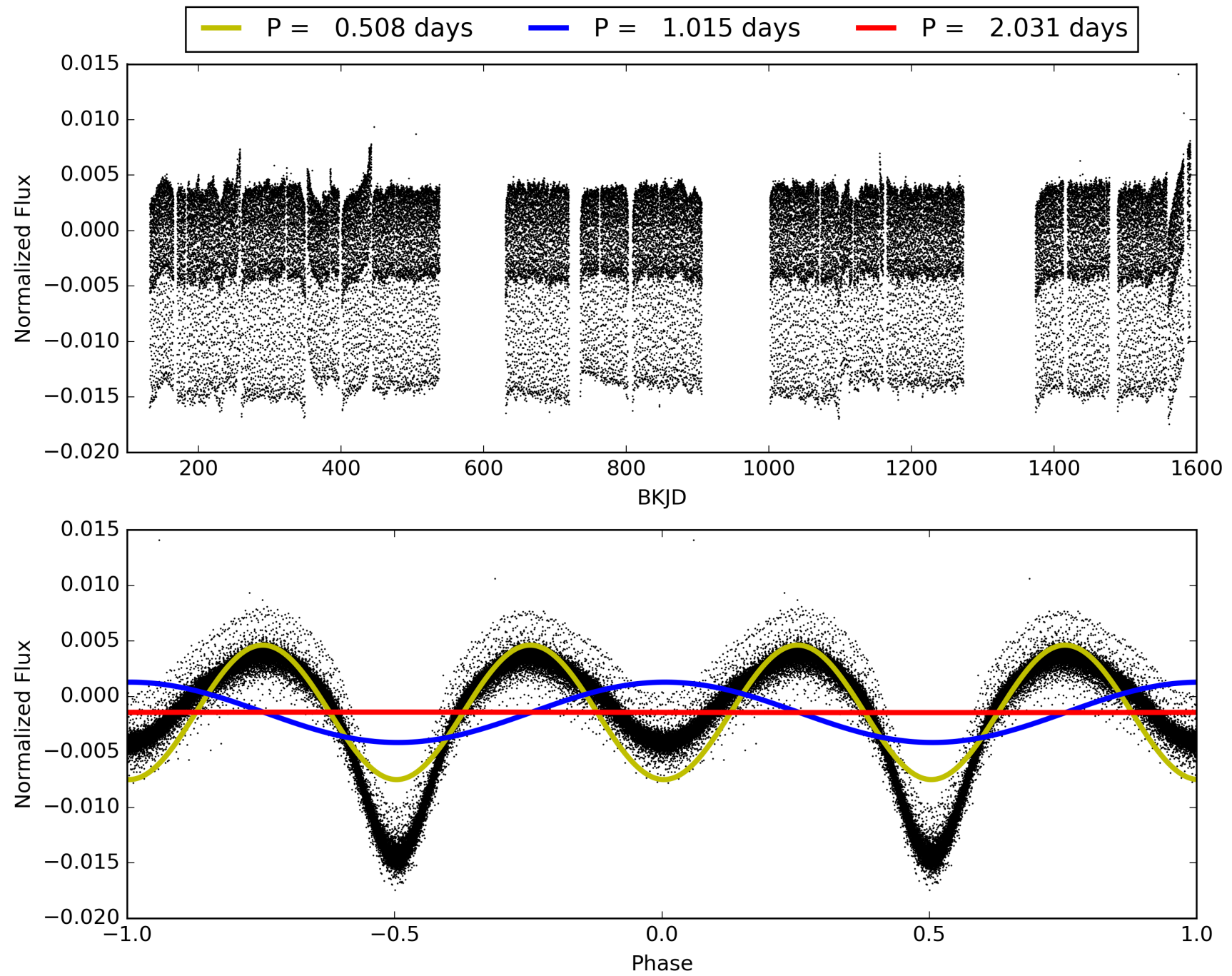
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:05:32 Z

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

TCE 004281068-02, PDC Light Curves

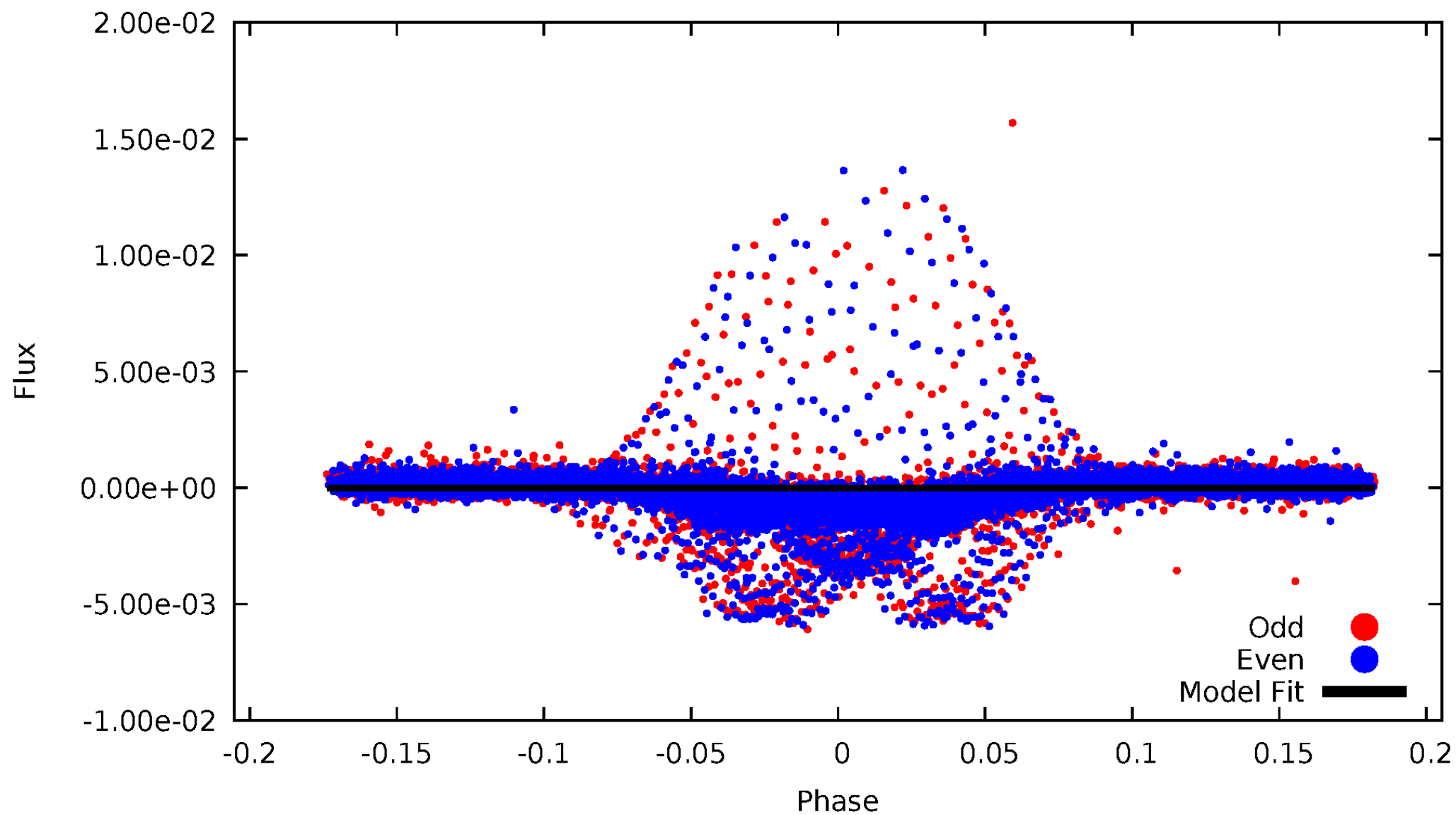


TCE 004281068-02



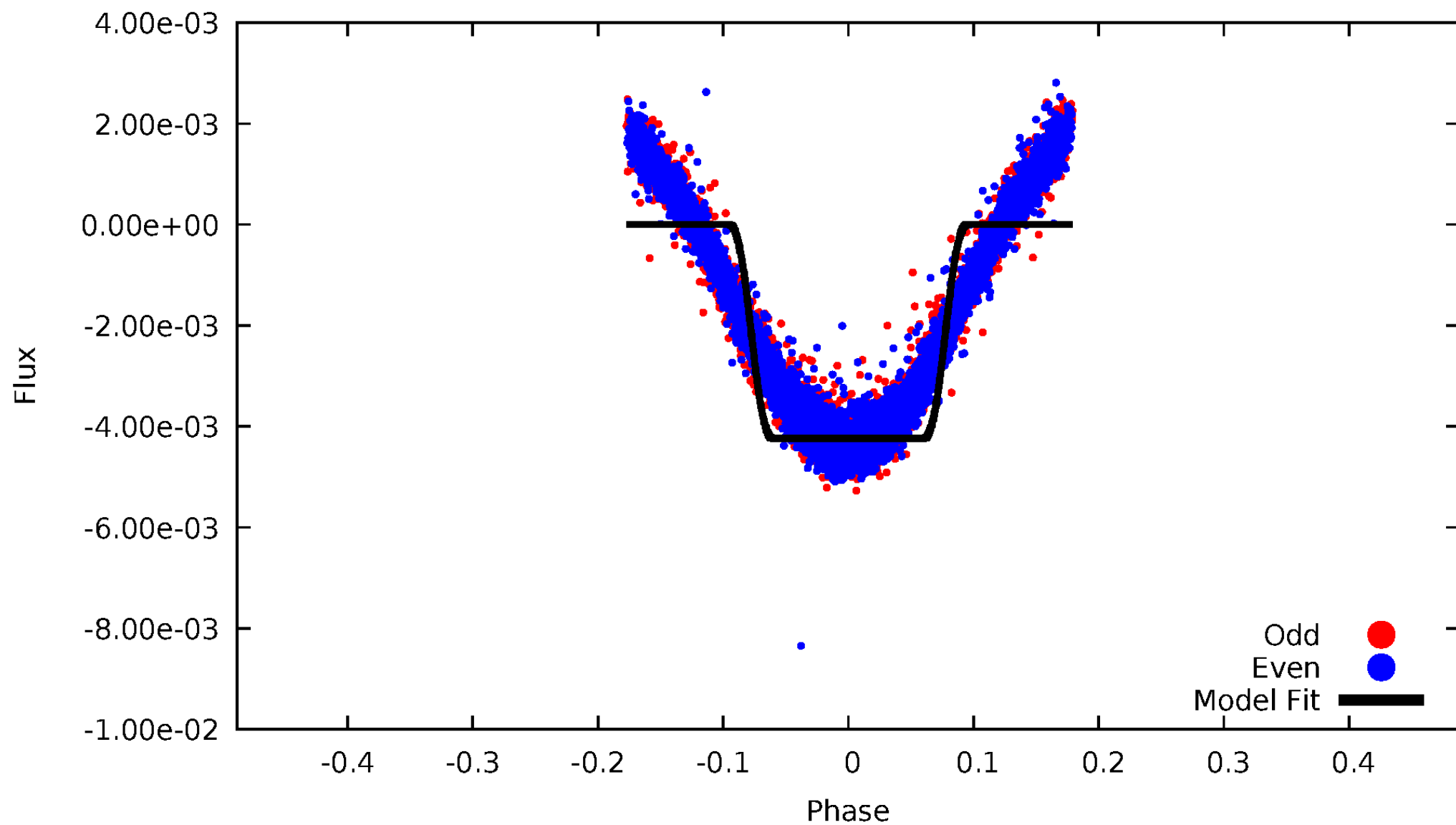
DV Odd/Even

TCE 004281068-02



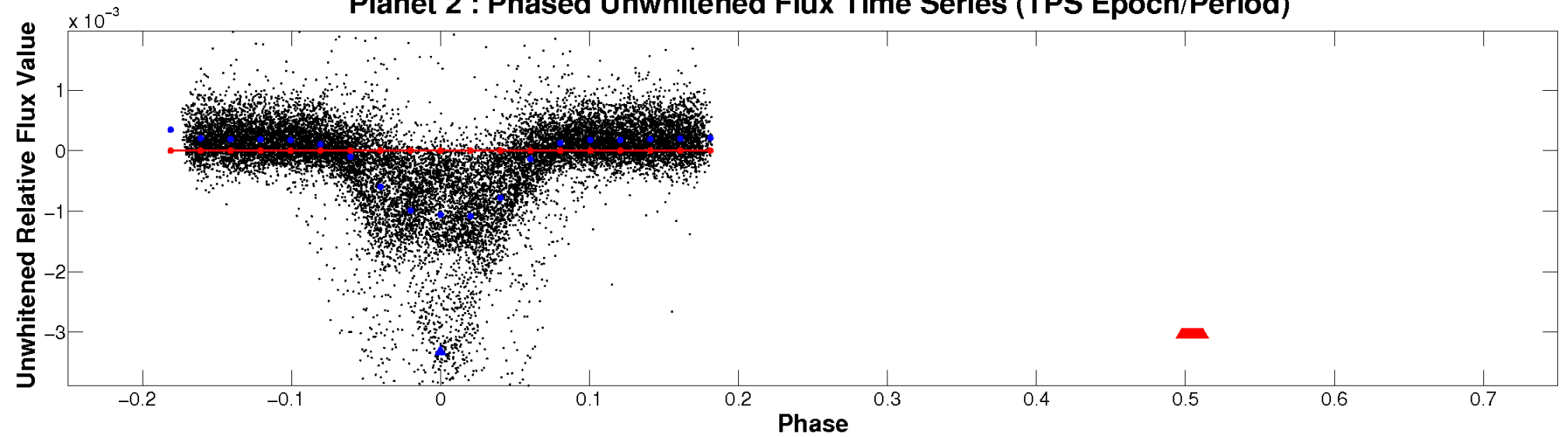
ALT Odd/Even

TCE 004281068-02

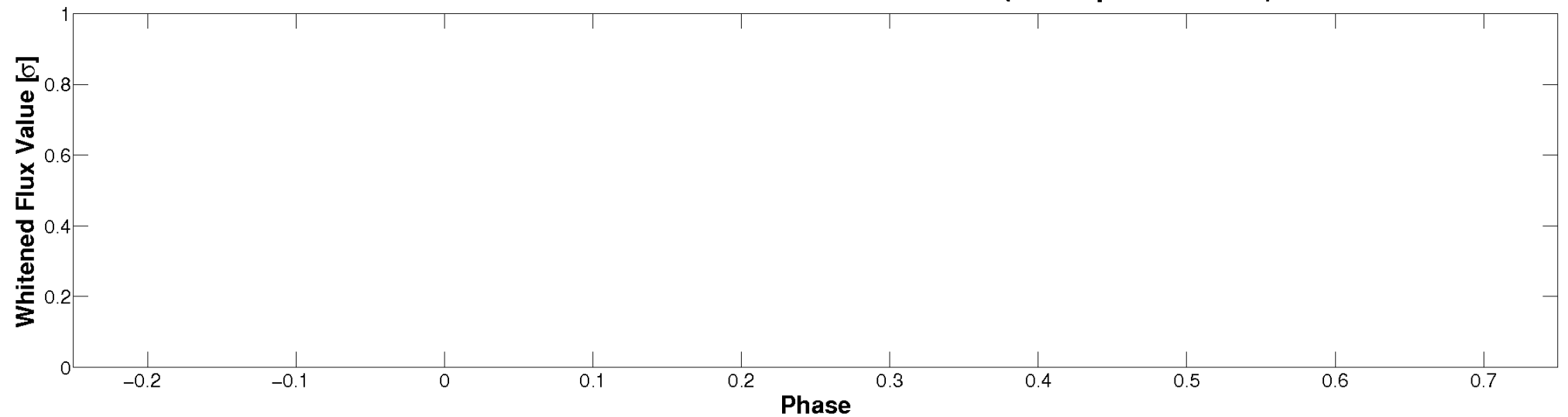


Non-Whitened Vs. Whitened Light Curve

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

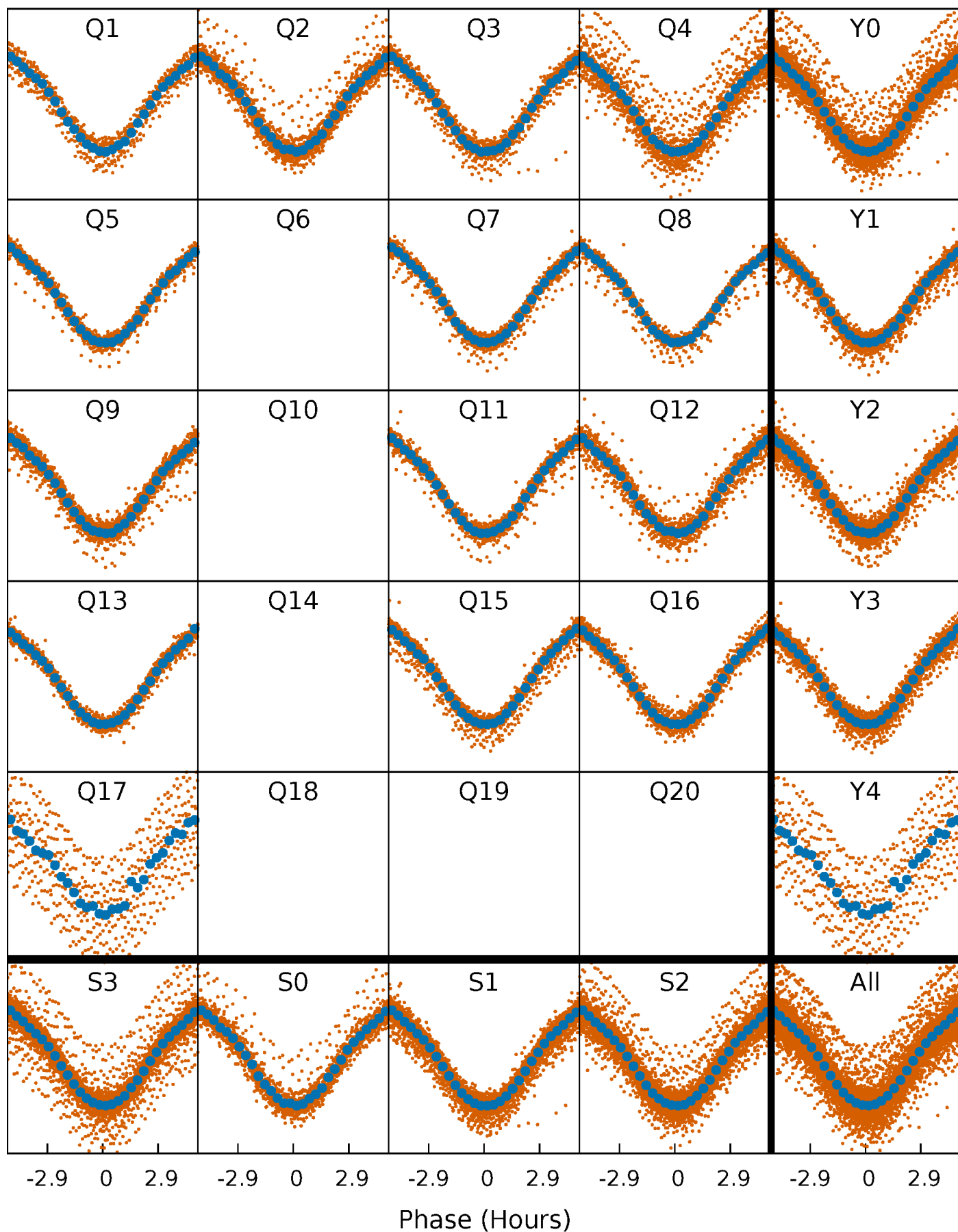


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



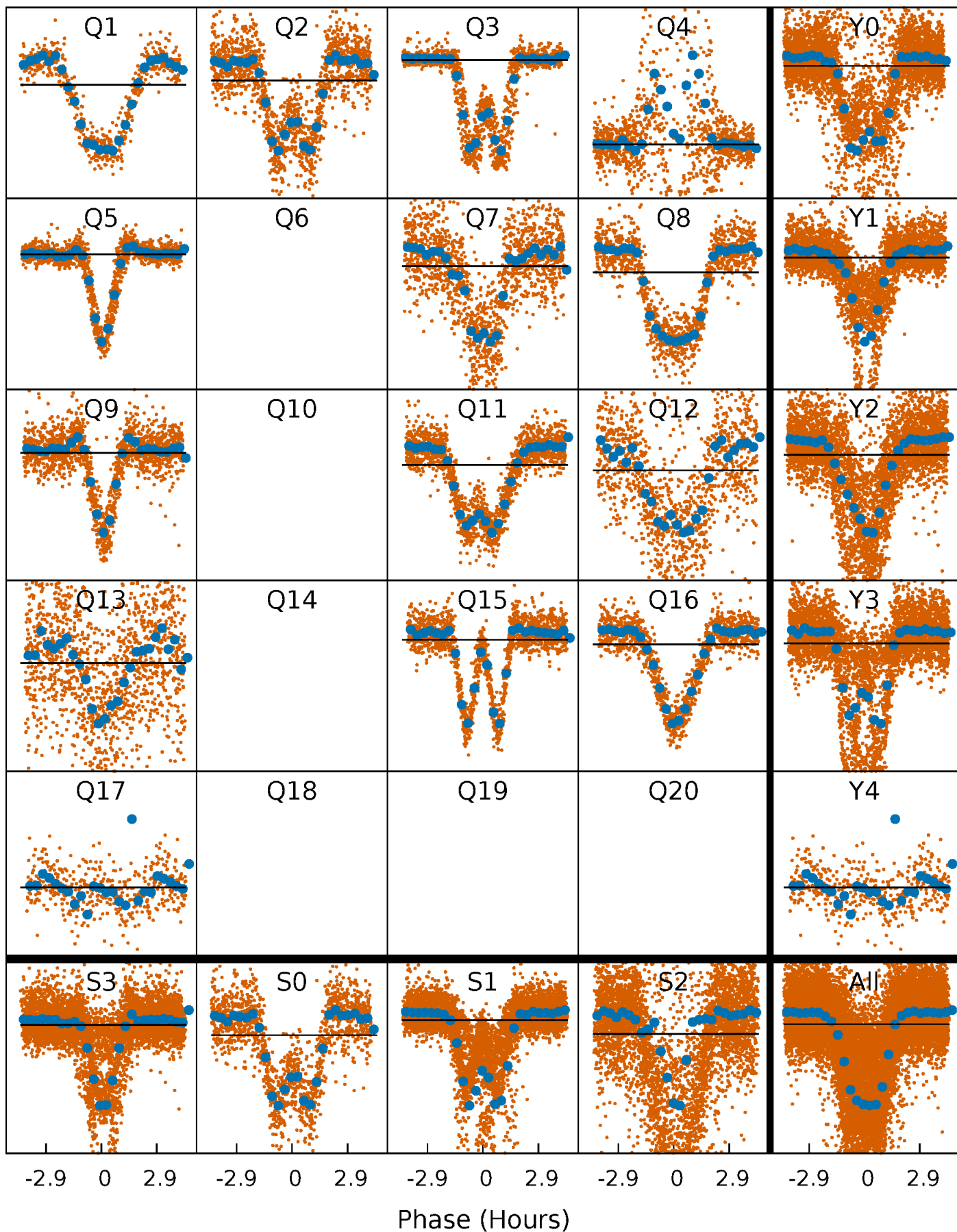
PDC Quarter-Phased Transit Curves

TCE 004281068-02 P= 1.015306 Days $T_0=132.021411$ (BKJD)



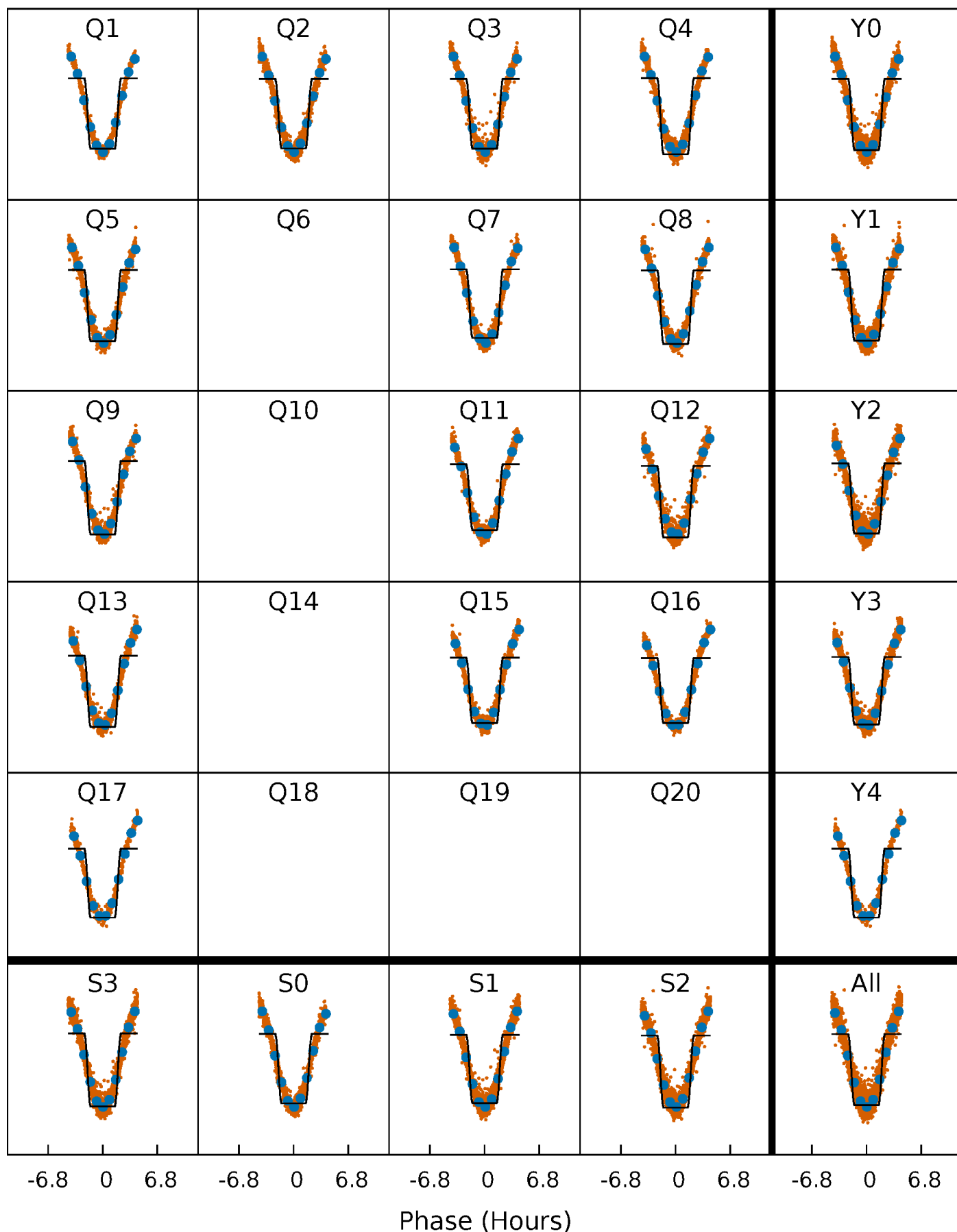
DV Quarter-Phased Transit Curves

TCE 004281068-02 P= 1.015306 Days $T_0=132.021411$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

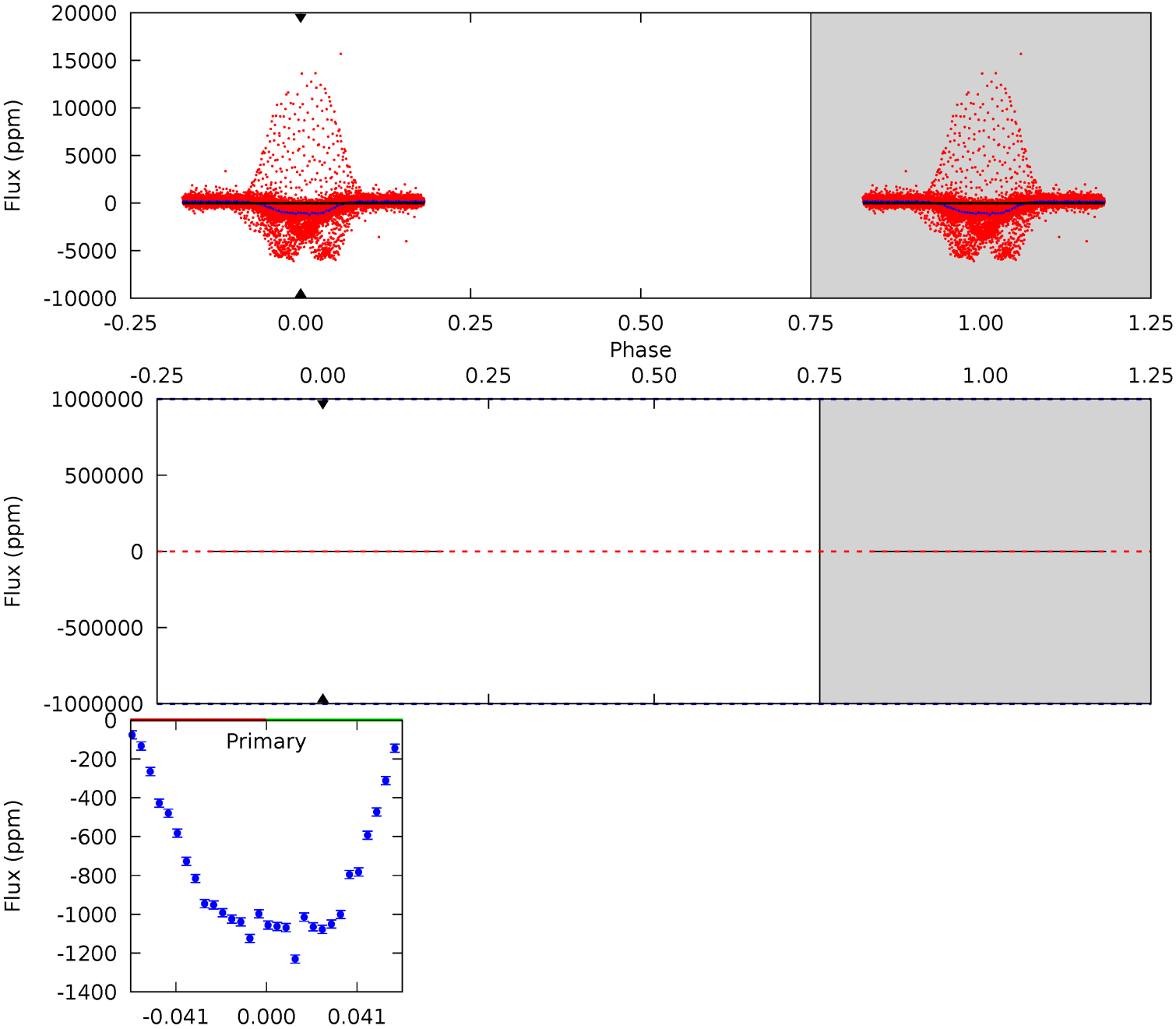
TCE 004281068-02 $P = 1.015306$ Days $T_0 = 132.024863$ (BKJD)



DV Model-Shift Uniqueness Test

004281068-02, P = 1.015306 Days, E = 131.006105 Days

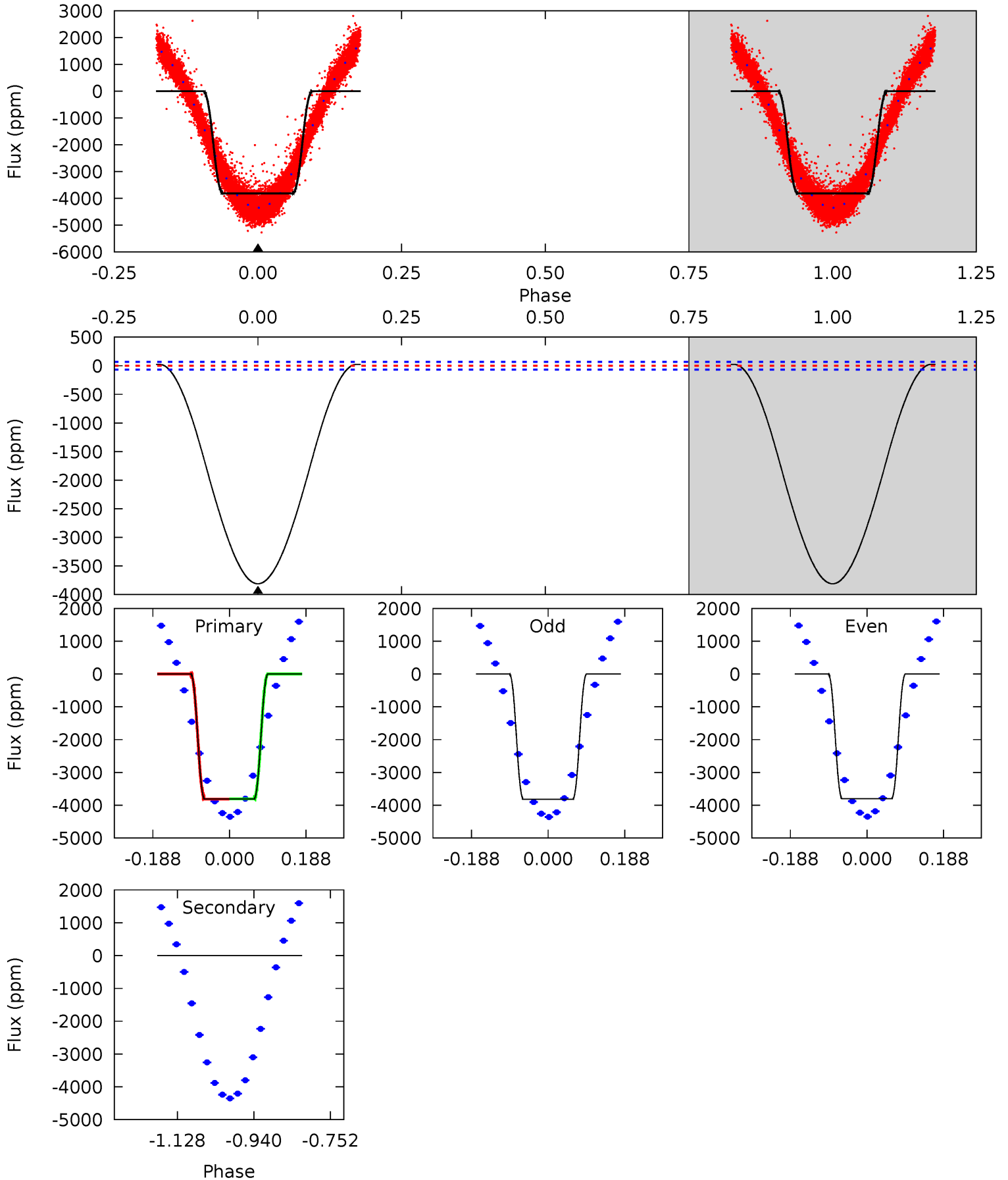
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004281068-02, P = 1.015306 Days, E = 131.009557 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
253.5	0	0	0	4.43	1.32	1.95	253.5	253.5	0	0	0.69	0.99	0.01	0.38



Stellar Parameters For KIC 004281068

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6428^{+70}_{-83}	$4.226^{+0.099}_{-0.121}$	$0.080^{+0.150}_{-0.200}$	$1.440^{+0.253}_{-0.184}$	$1.273^{+0.095}_{-0.105}$	$0.601^{+0.264}_{-0.216}$
	+1%/-1%	+2%/-3%	+188%/-250%	+18%/-13%	+7%/-8%	+44%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 004281068-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$15.00^{+12.31}_{-10.00}$	3256^{+143}_{-125}	-5553^{+25132}_{-14339}	$-5.831^{+203.096}_{-206.261}$
Alt.	0 ± 15	$14.58^{+14.77}_{-9.14}$	3254^{+146}_{-137}	-3244^{+121}_{-121}	$0.000^{+0.028}_{-0.030}$

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

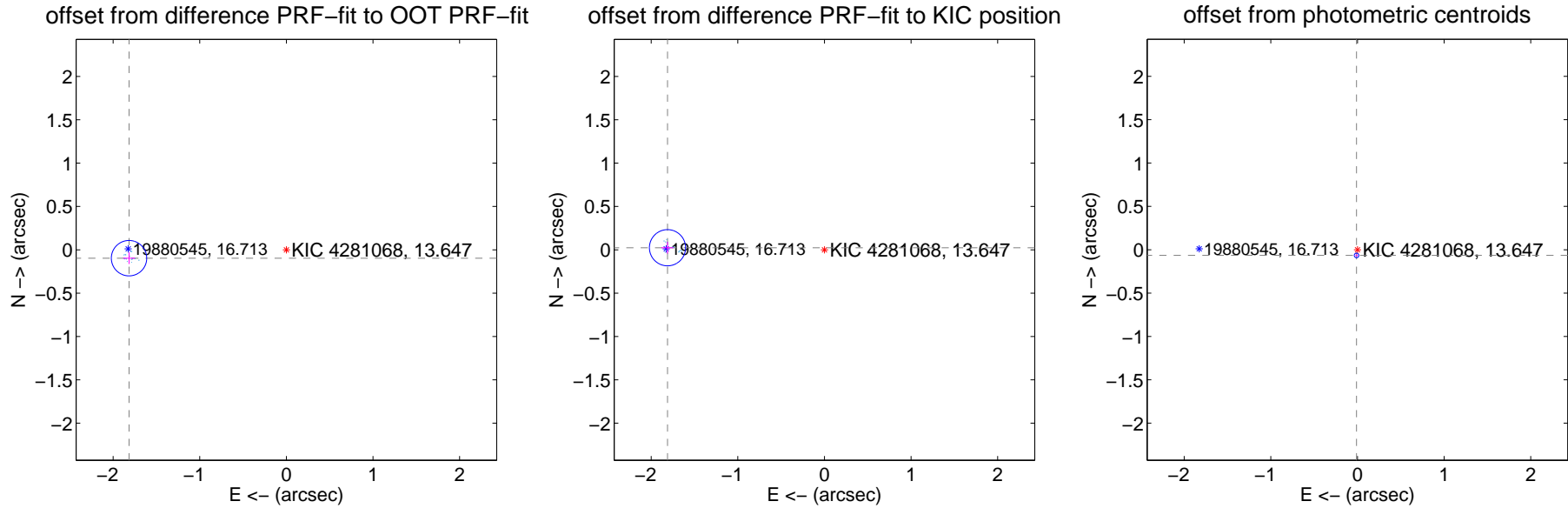
DV Centroid Data

Supplemental centroid analysis for 004281068-02. Kepler magnitude: 13.65. Transit SNR -1.00

There are 14 quarters with good PRF difference image offsets

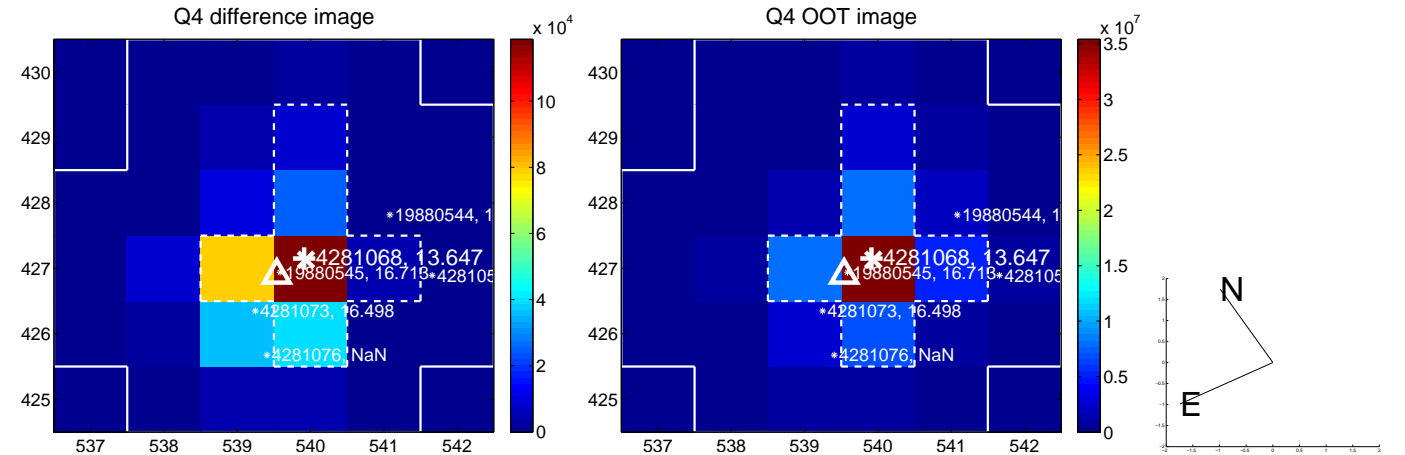
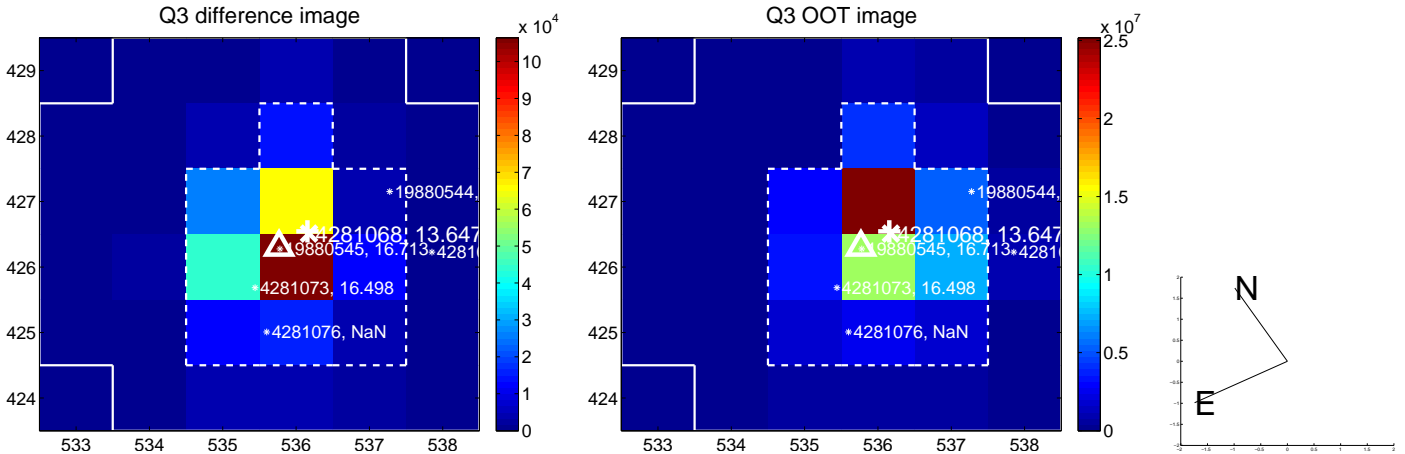
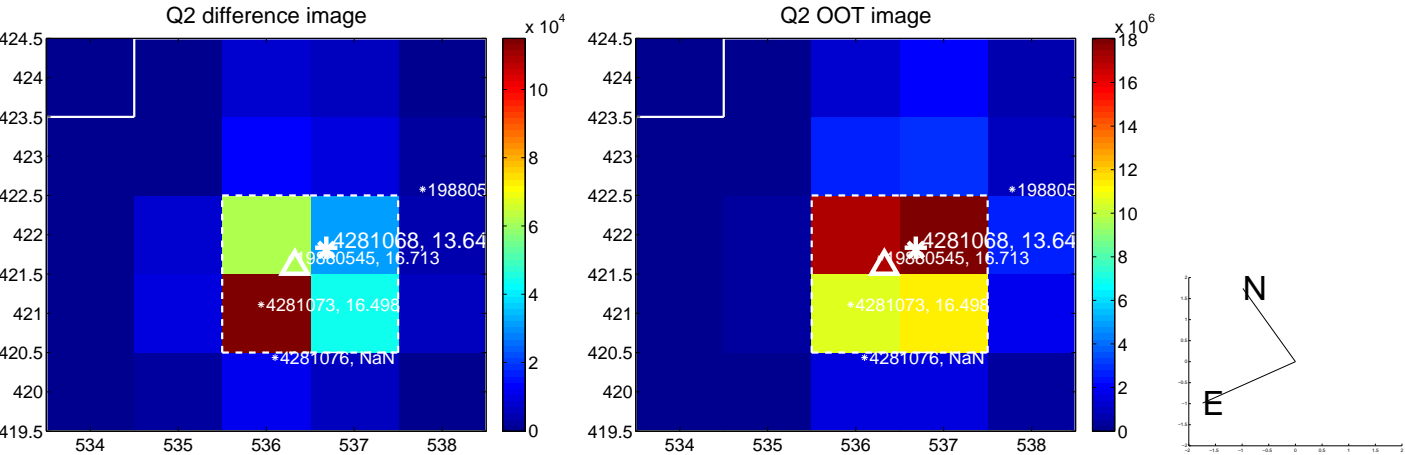
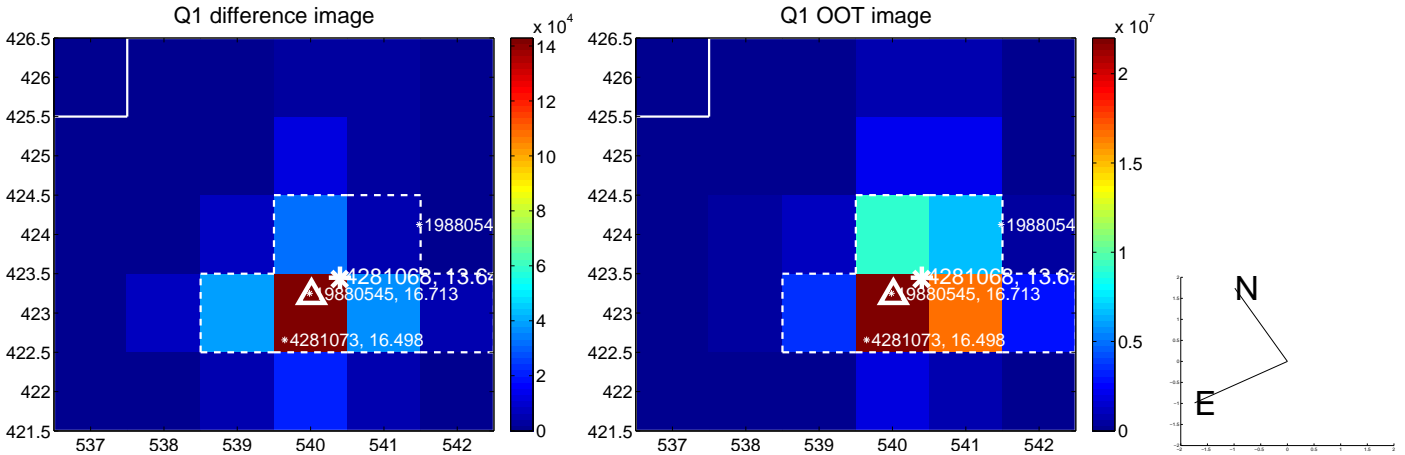
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.819 ± 0.068	26.72	1.816 ± 0.068	-0.097 ± 0.067
PRF-fit source offset from KIC position	1.812 ± 0.070	26.03	1.812 ± 0.070	0.024 ± 0.068
photometric centroid source offset	0.07 ± 0.01	7.60	0.01 ± 0.01	-0.07 ± 0.01

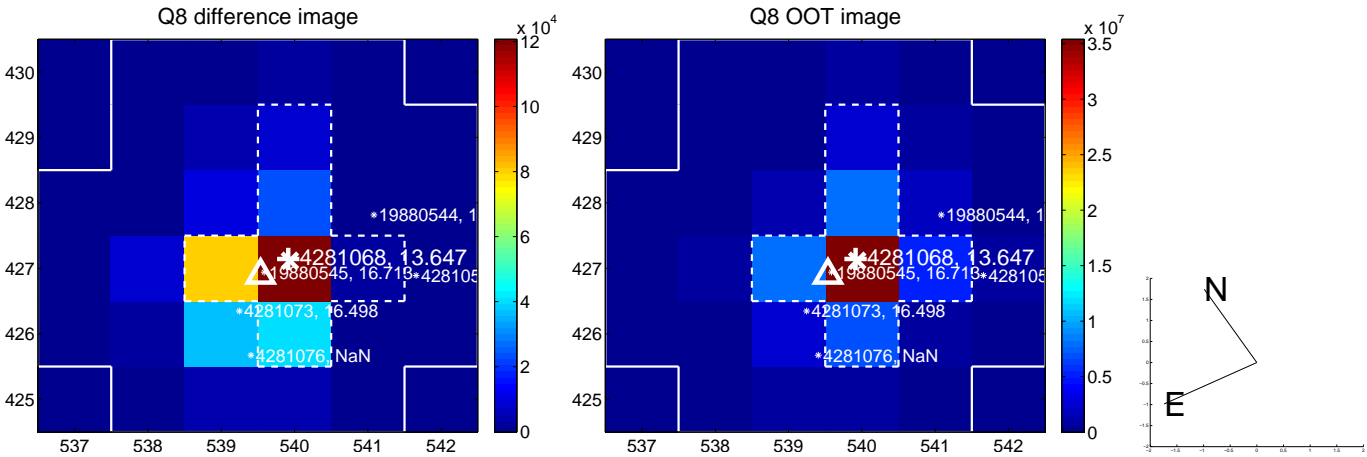
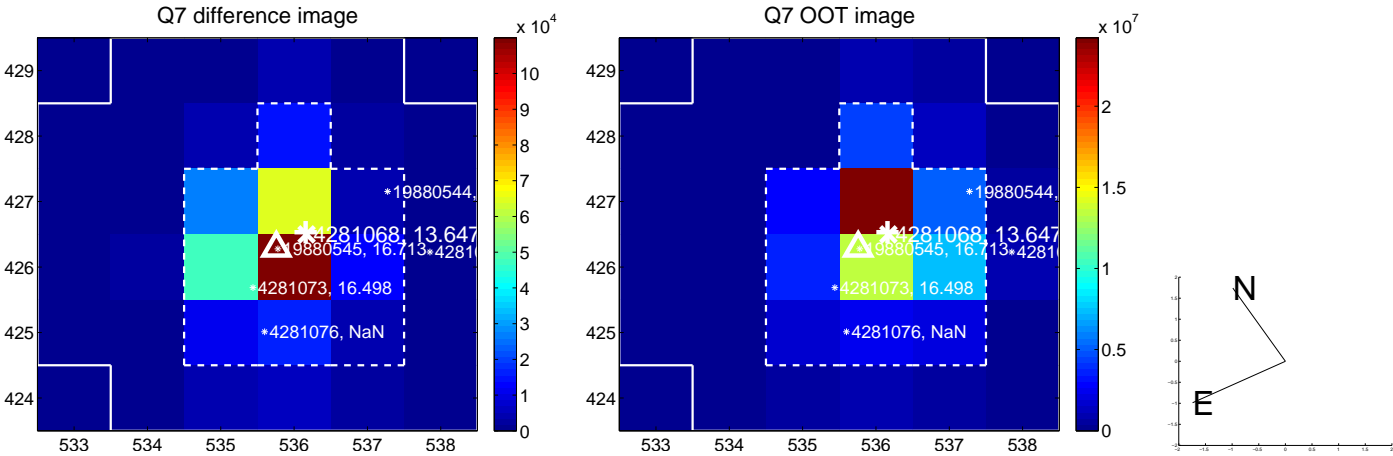
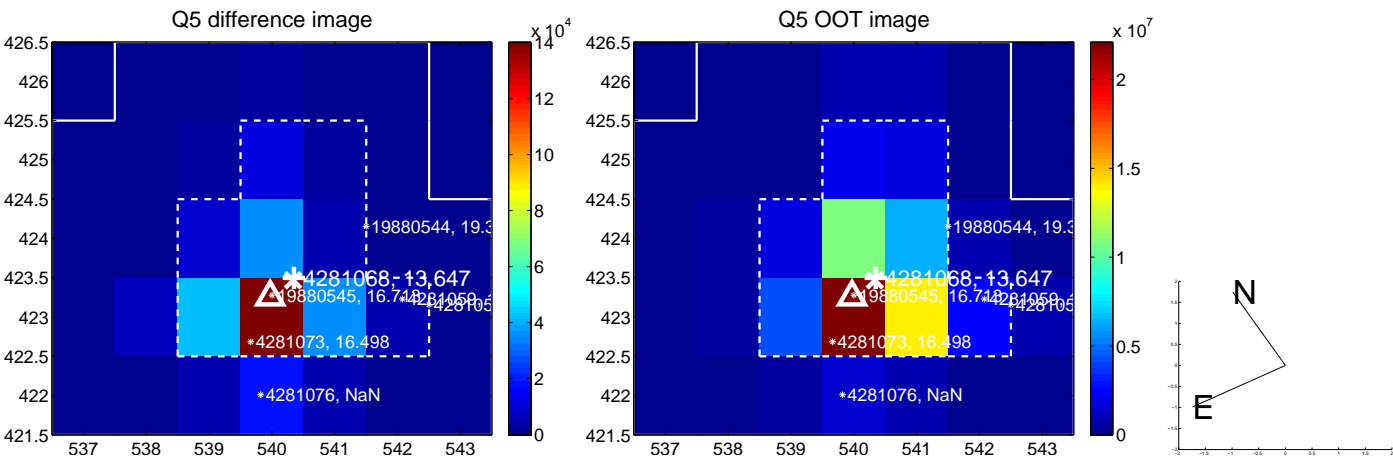


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

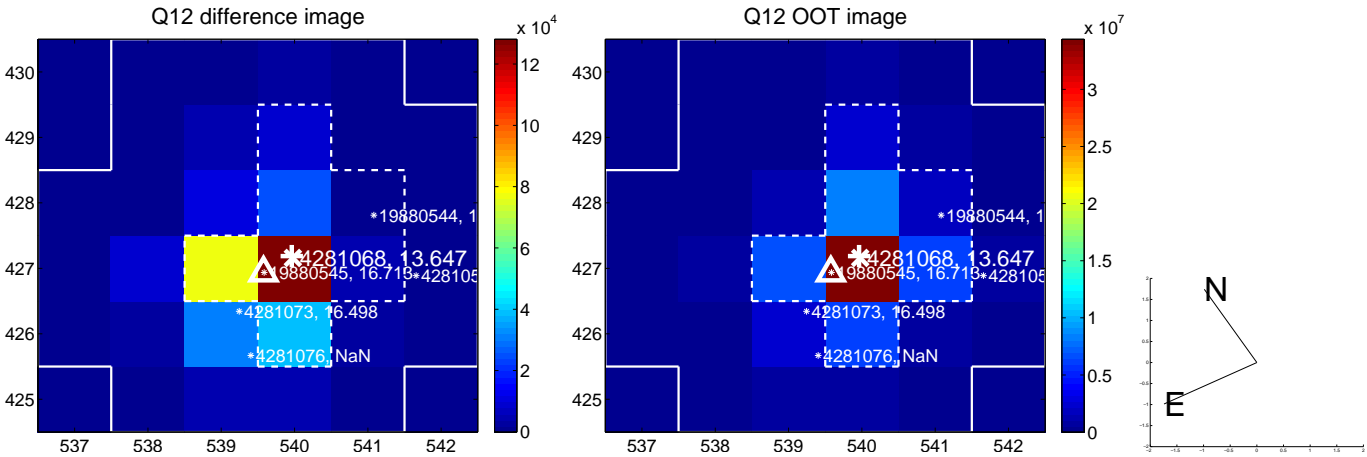
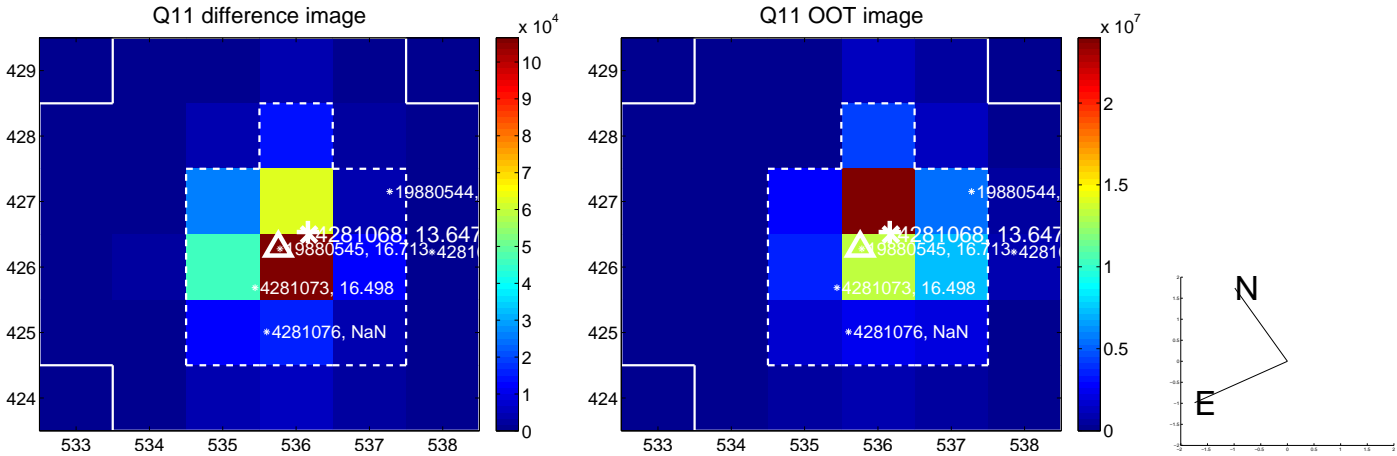
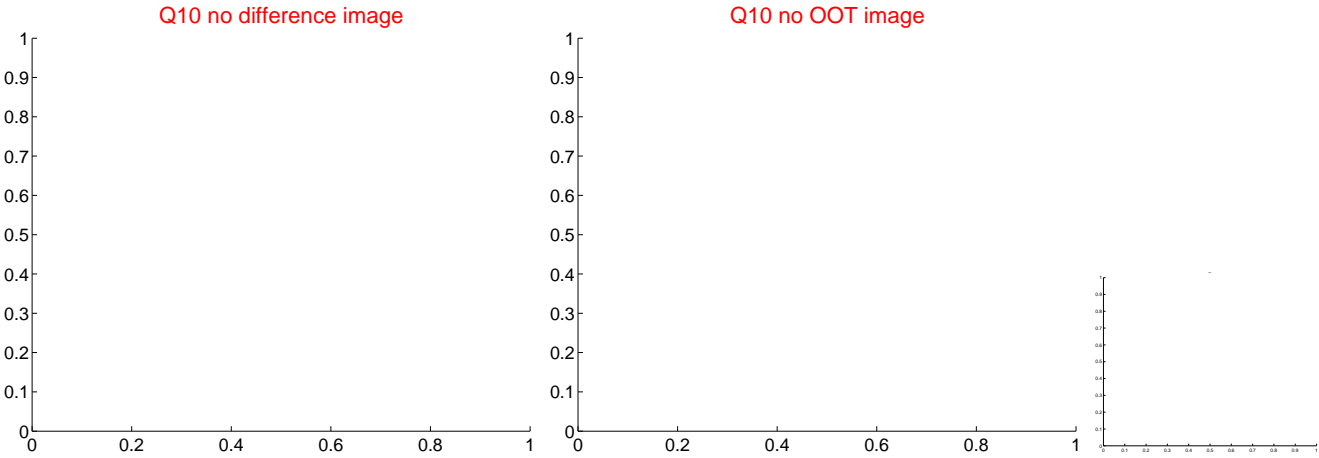
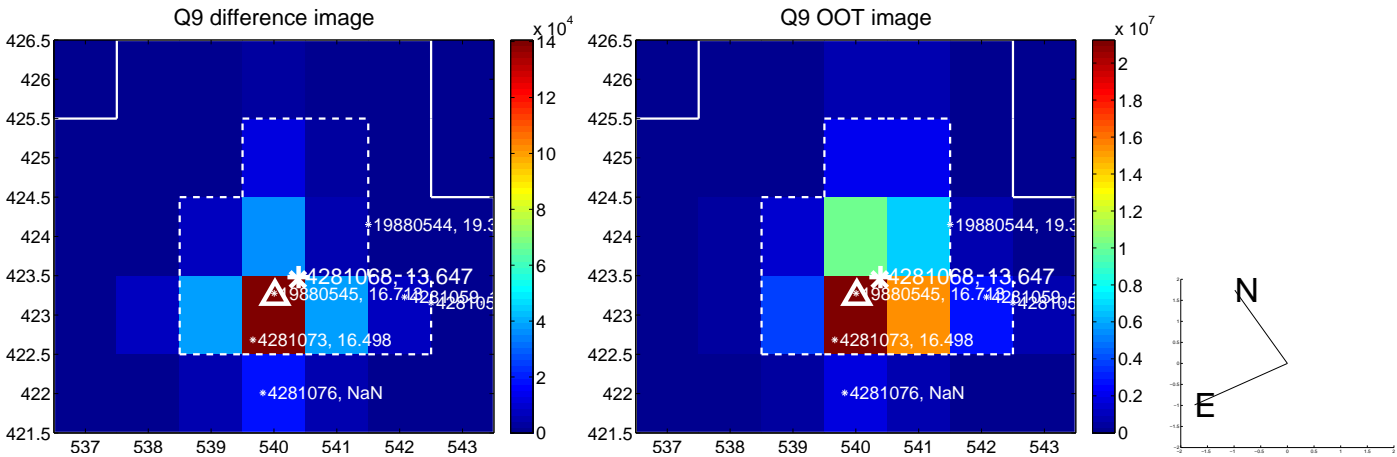
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



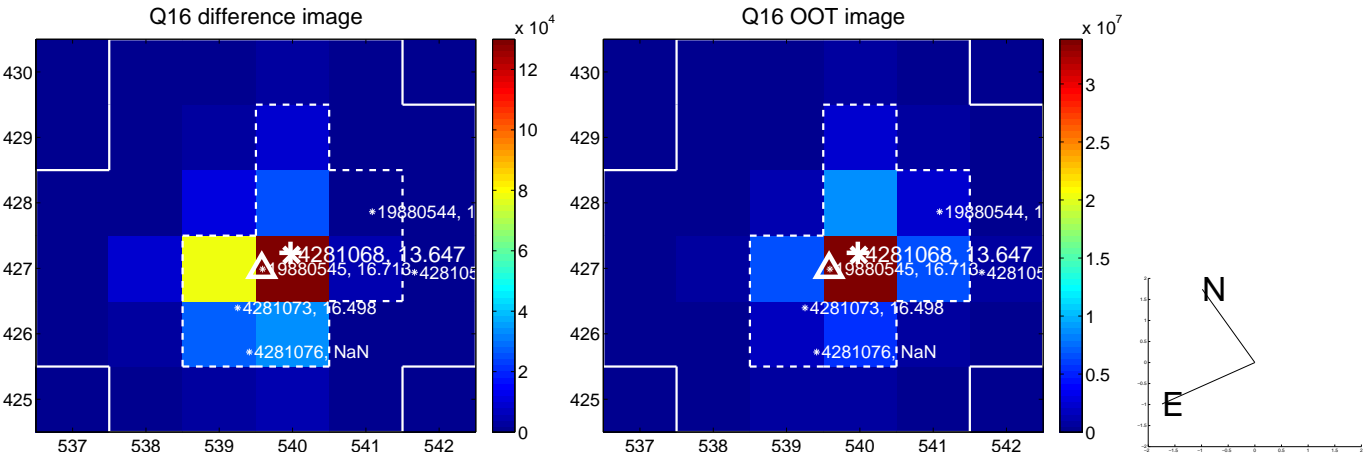
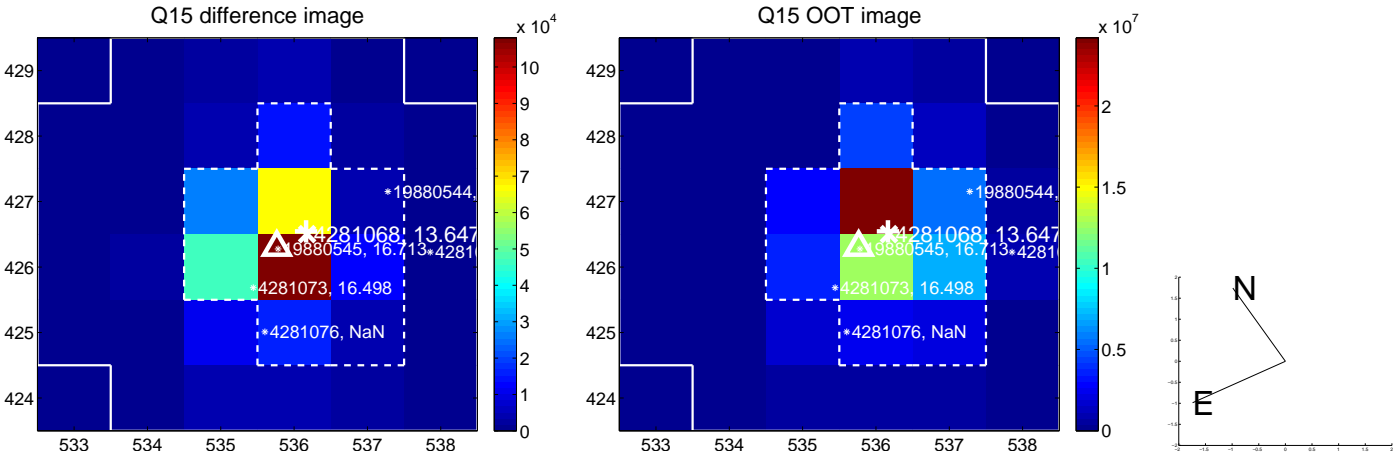
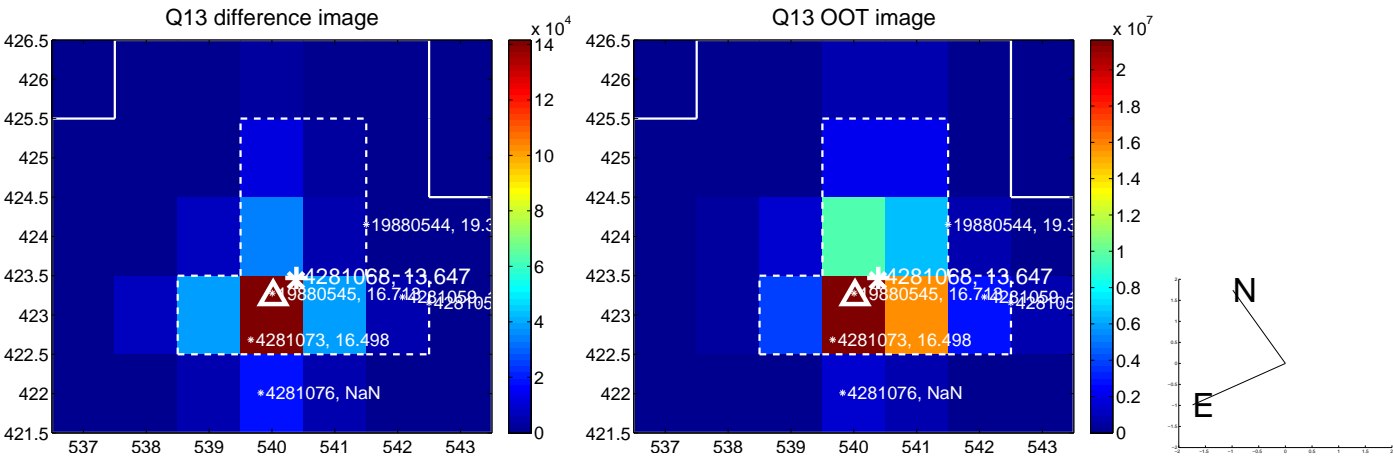
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



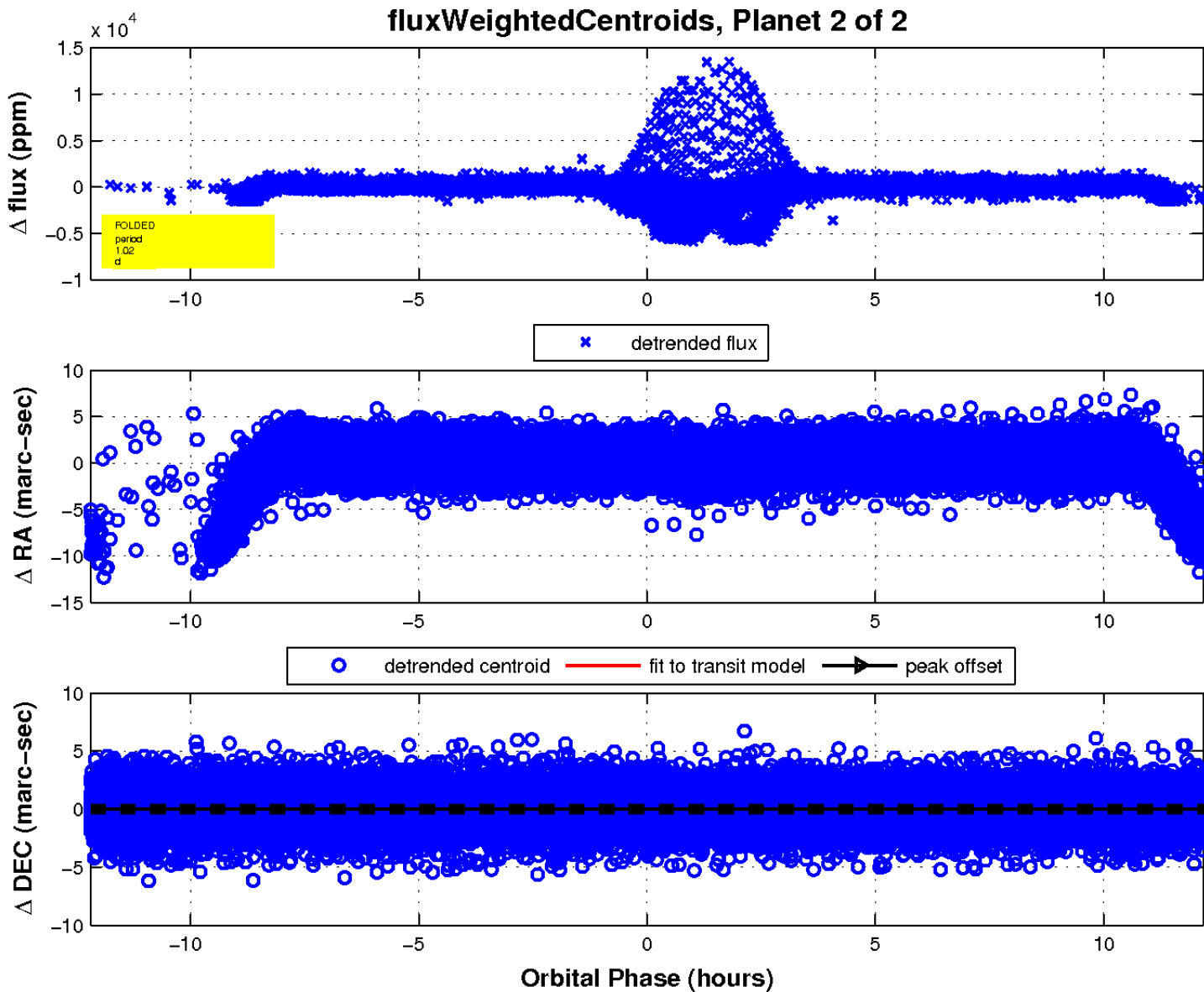
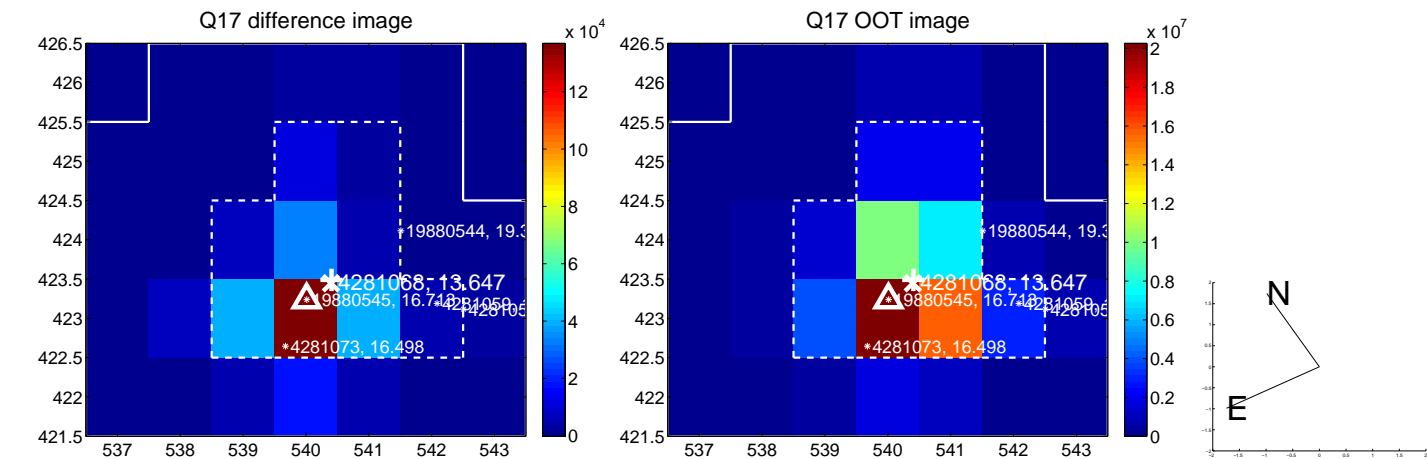
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

