

KIC 010285631

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})
010285631-01	OBS	0331.01	18.684035	133.464353	384.6	7.073	37.9	41.8	1.61	5548	3.74	113.61
010285631-02	OBS	0331.02	10.522905	137.787567	116.6	1.173	7.7	8.9	1.61	5548	2.10	244.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010285631-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010285631-02	OBS	PC	0.88	0	0	0	0	NO_COMMENT

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

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

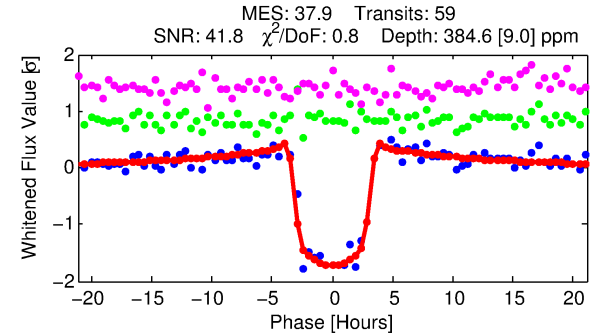
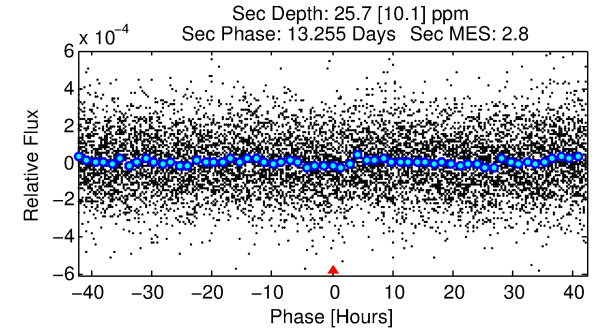
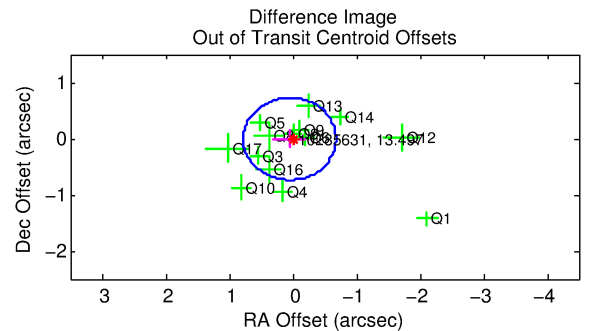
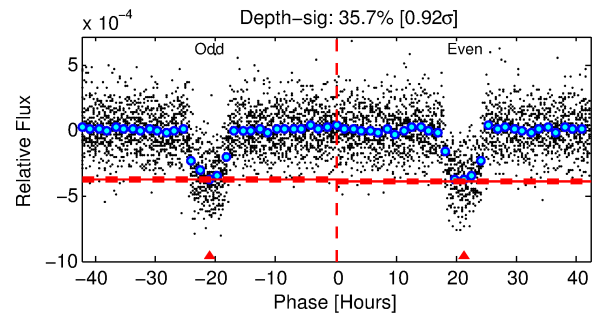
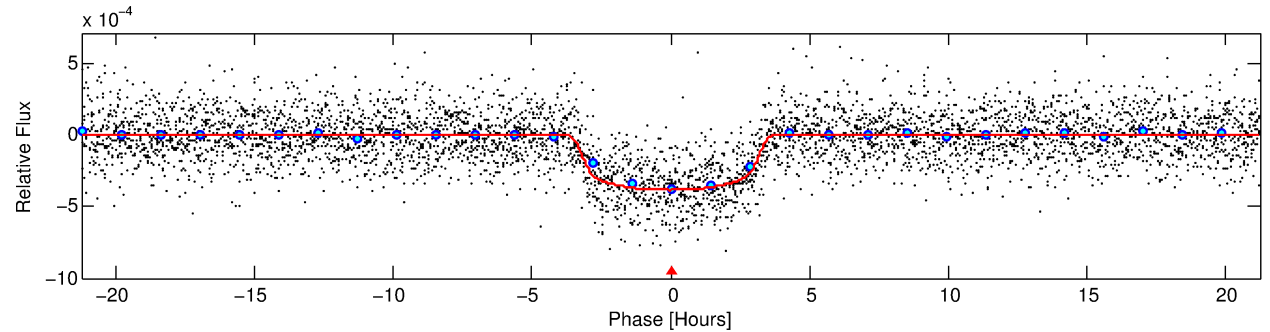
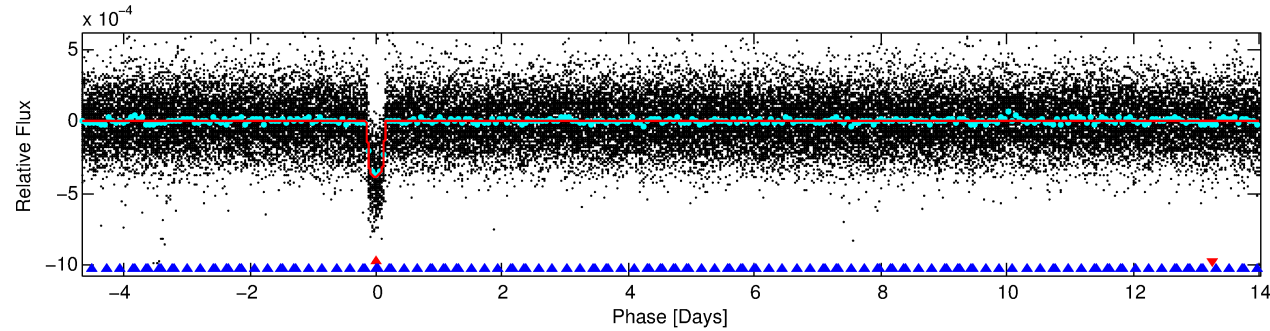
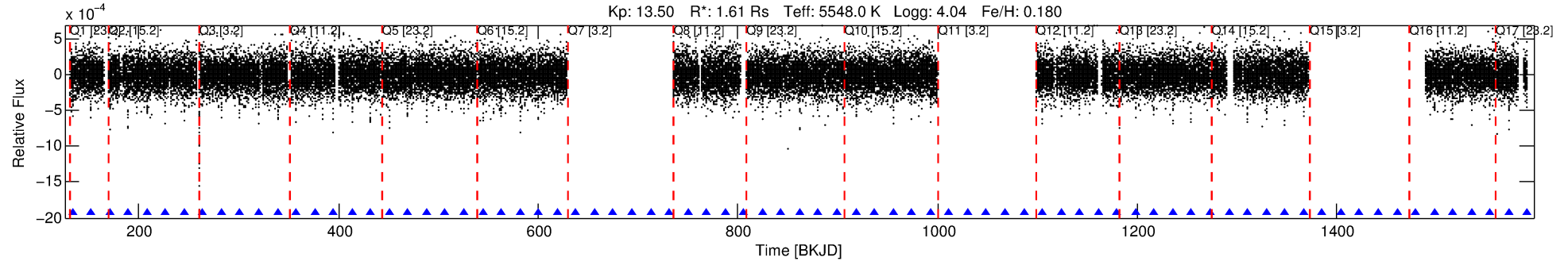
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010285631-01

No Significant Match Found

DV One-Page Summary

KIC: 10285631 Candidate: 1 of 2 Period: 18.684 d
KOI: K00331.01 Corr: 0.988



DV Fit Results:

Period = 18.68404 [0.00006] d
Epoch = 133.4644 [0.0024] BKJD
Rp/R* = 0.0213 [0.0009]
a/R* = 10.28 [1.70]
b = 0.89 [0.04]
Seff = 113.61 [41.74]
Teq = 832 [76] K
Rp = 3.74 [0.90] Re
a = 0.1395 [0.0314] AU
Ag = 19.65 [10.60] [1.76 σ]
Teffp = 2710 [278] K [6.51 σ]

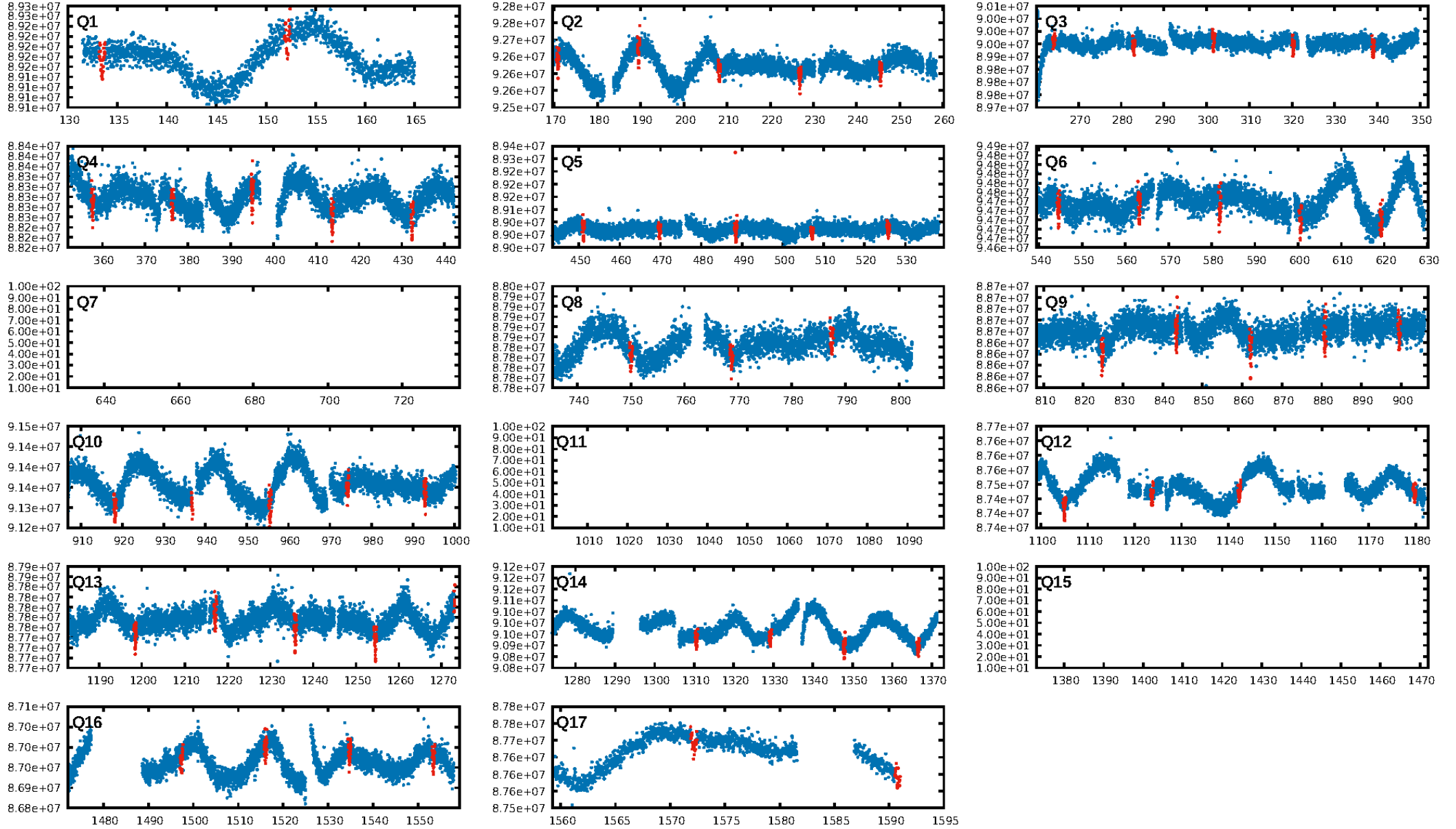
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.32 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 38.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.09e-300
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 10.59
Centroid-sig: 23.6%
Centroid-so: 0.337 arcsec [1.64 σ]
OotOffset-rm: 0.052 arcsec [0.21 σ]
KicOffset-rm: 0.176 arcsec [0.67 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

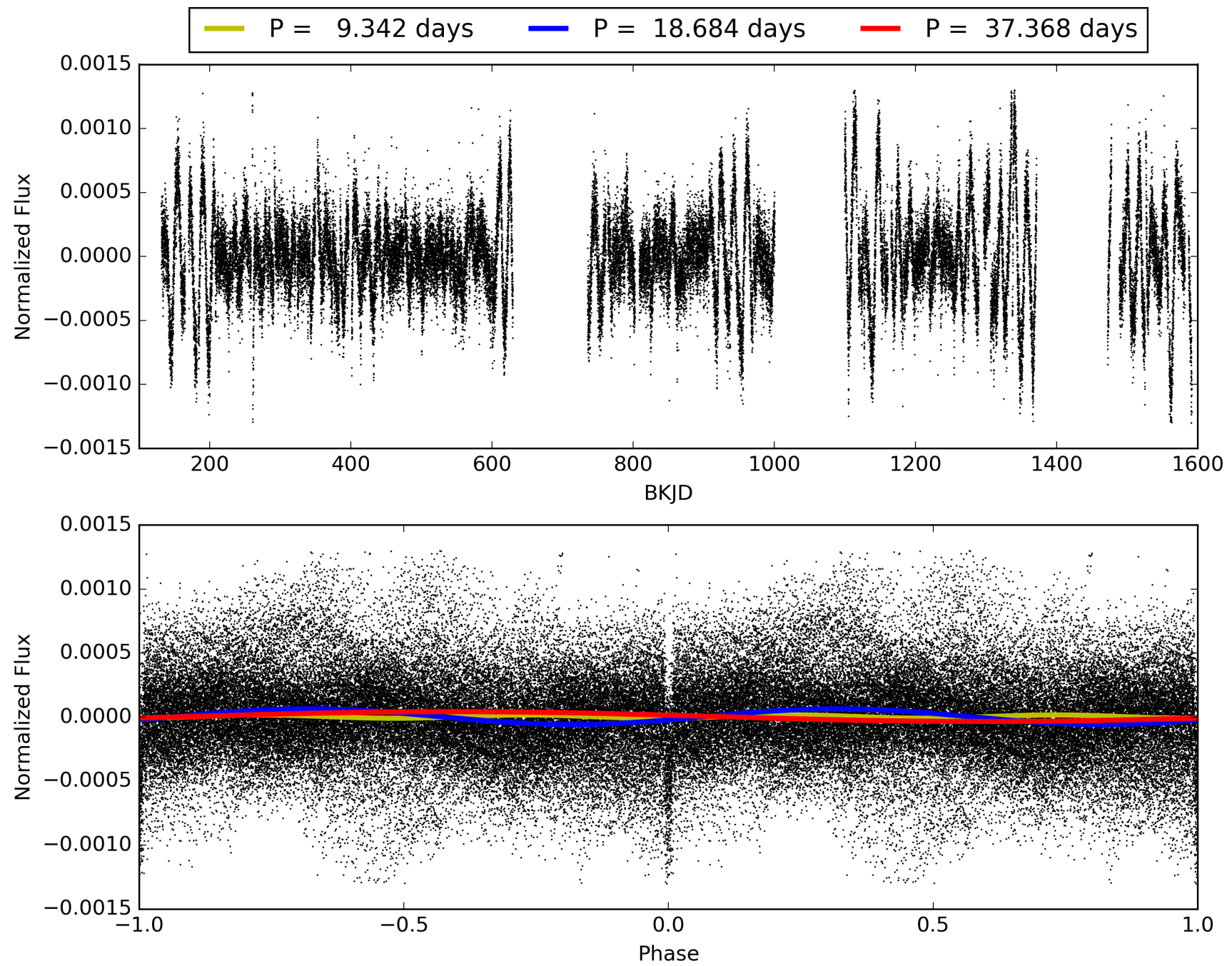
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:39:16 Z

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

TCE 010285631-01, PDC Light Curves

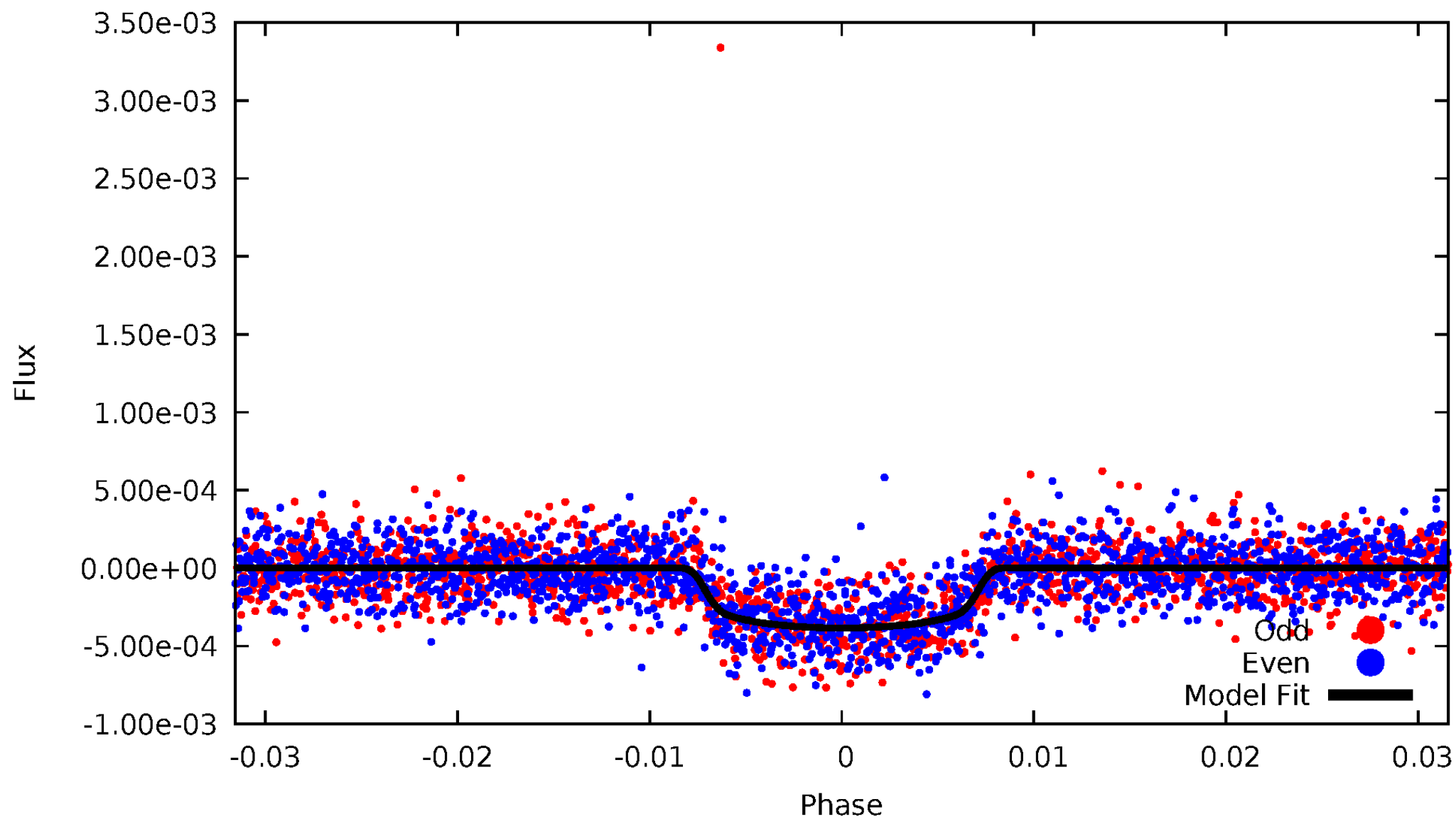


TCE 010285631-01



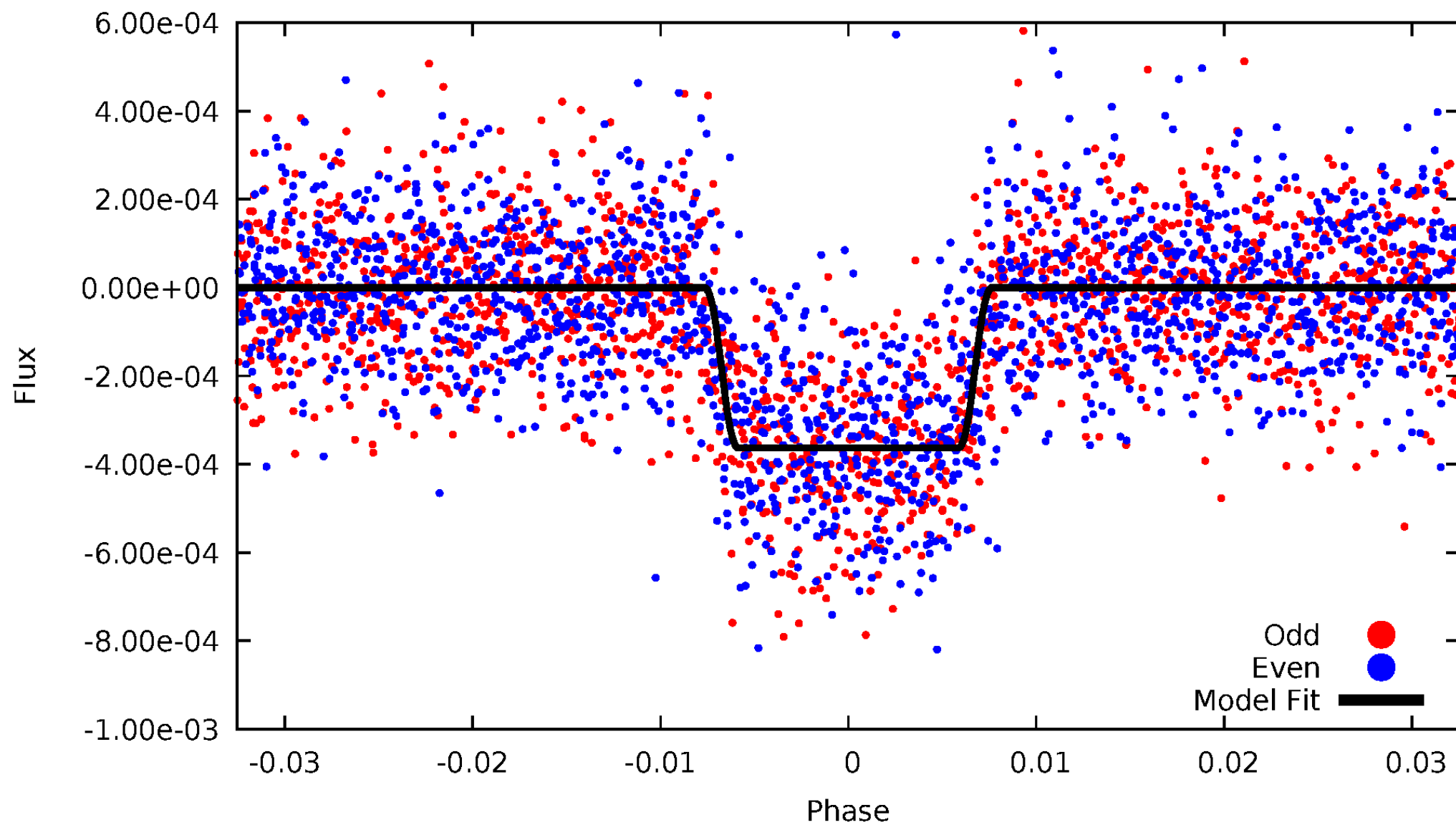
DV Odd/Even

TCE 010285631-01

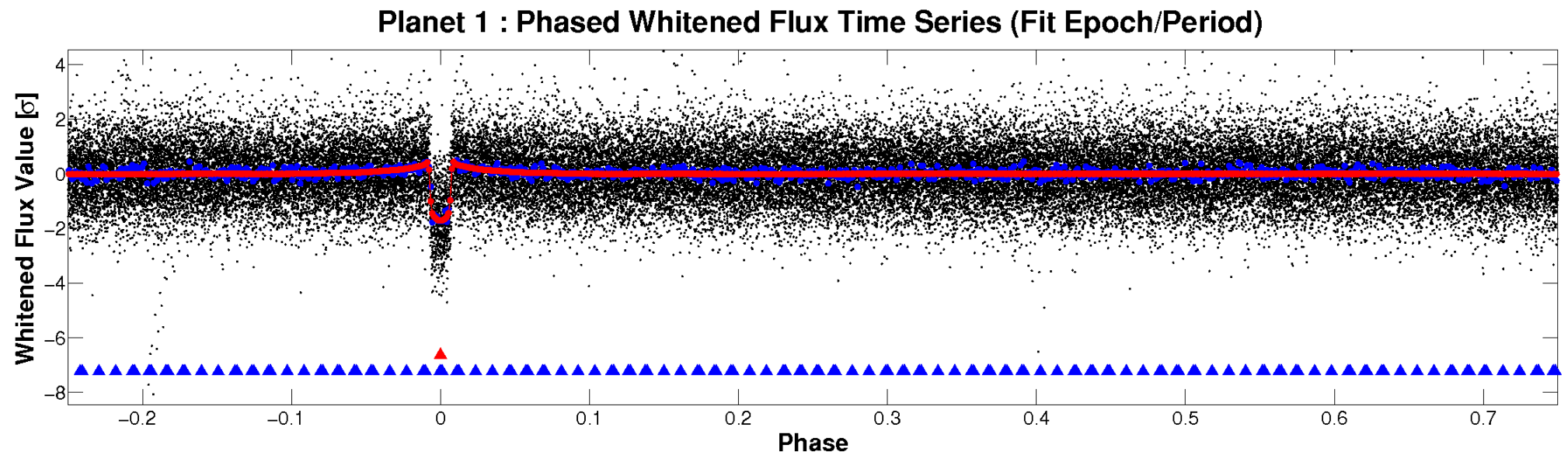
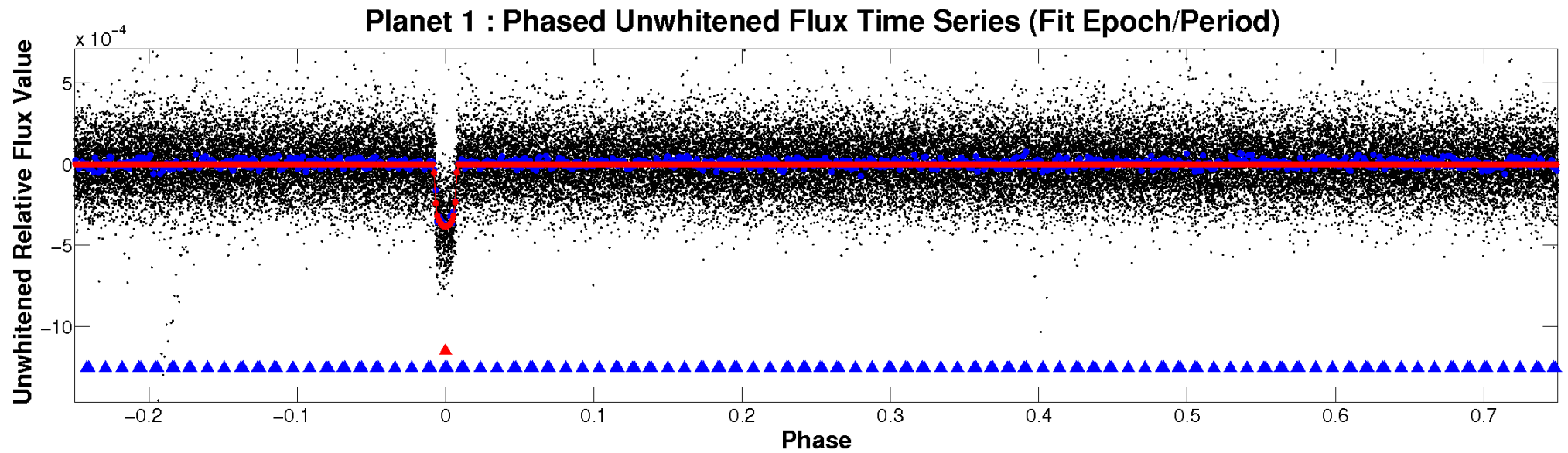


ALT Odd/Even

TCE 010285631-01

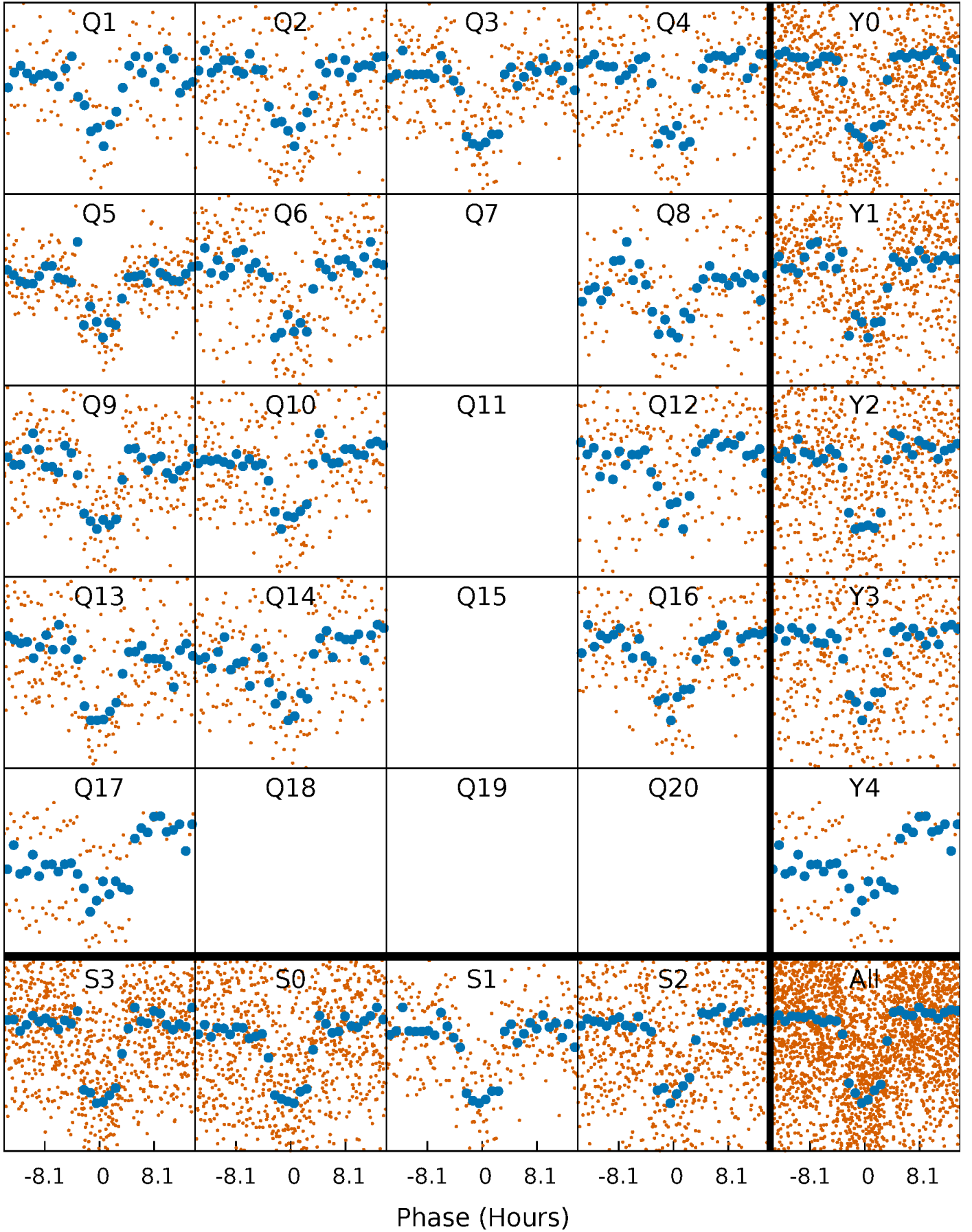


Non-Whitened Vs. Whitened Light Curve



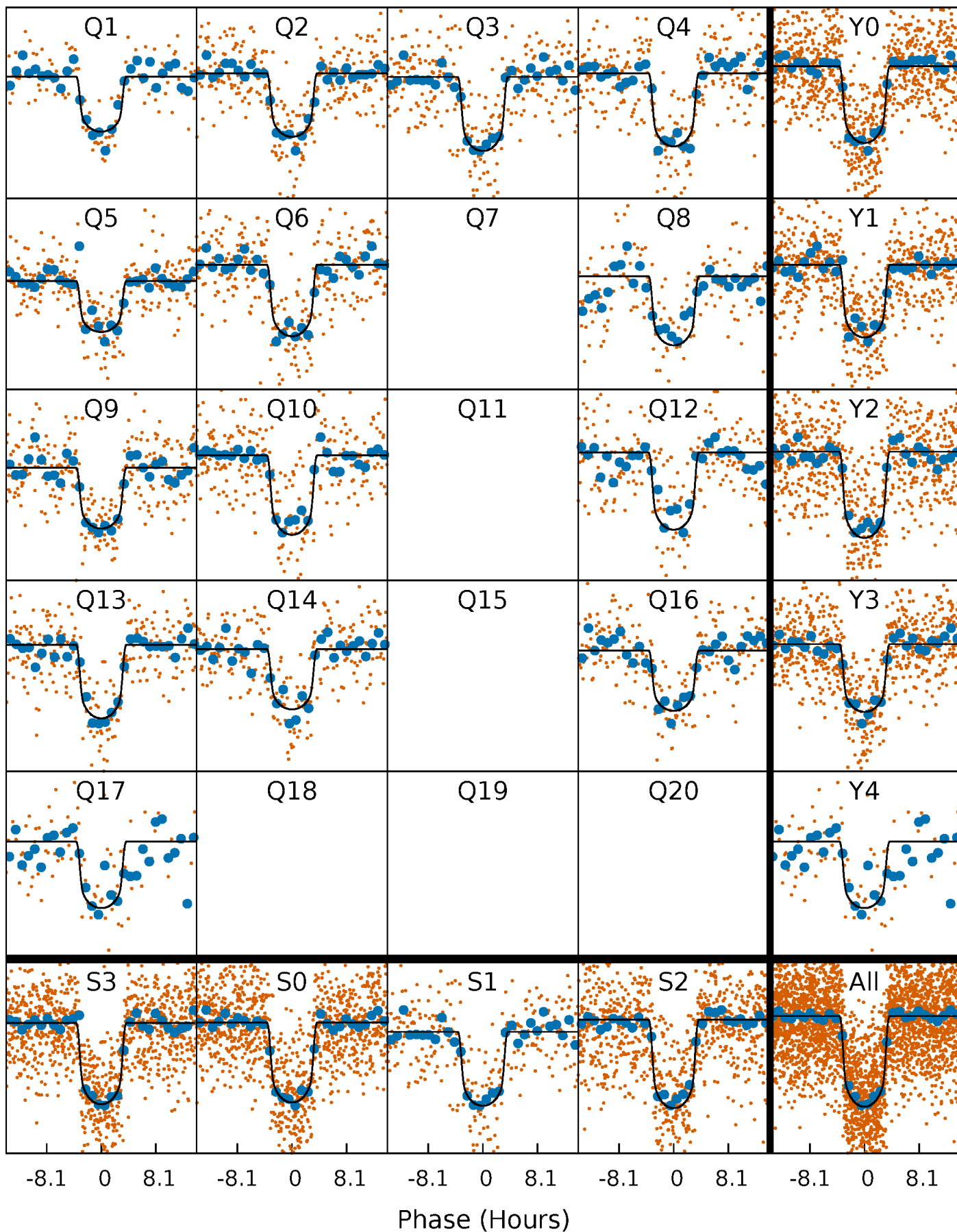
PDC Quarter-Phased Transit Curves

TCE 010285631-01 P= 18.684035 Days $T_0=133.464353$ (BKJD)



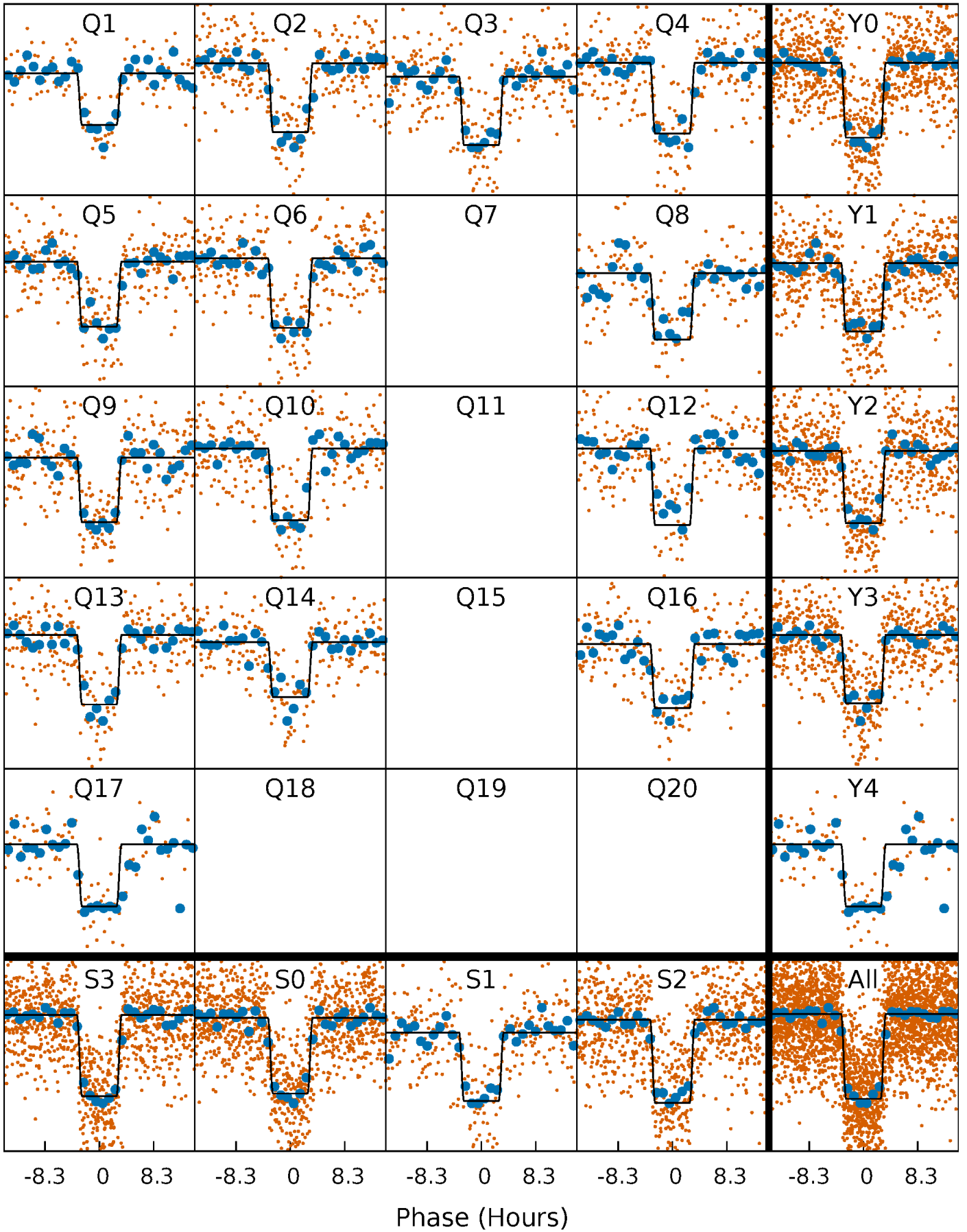
DV Quarter-Phased Transit Curves

TCE 010285631-01 P= 18.684035 Days $T_0=133.464353$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

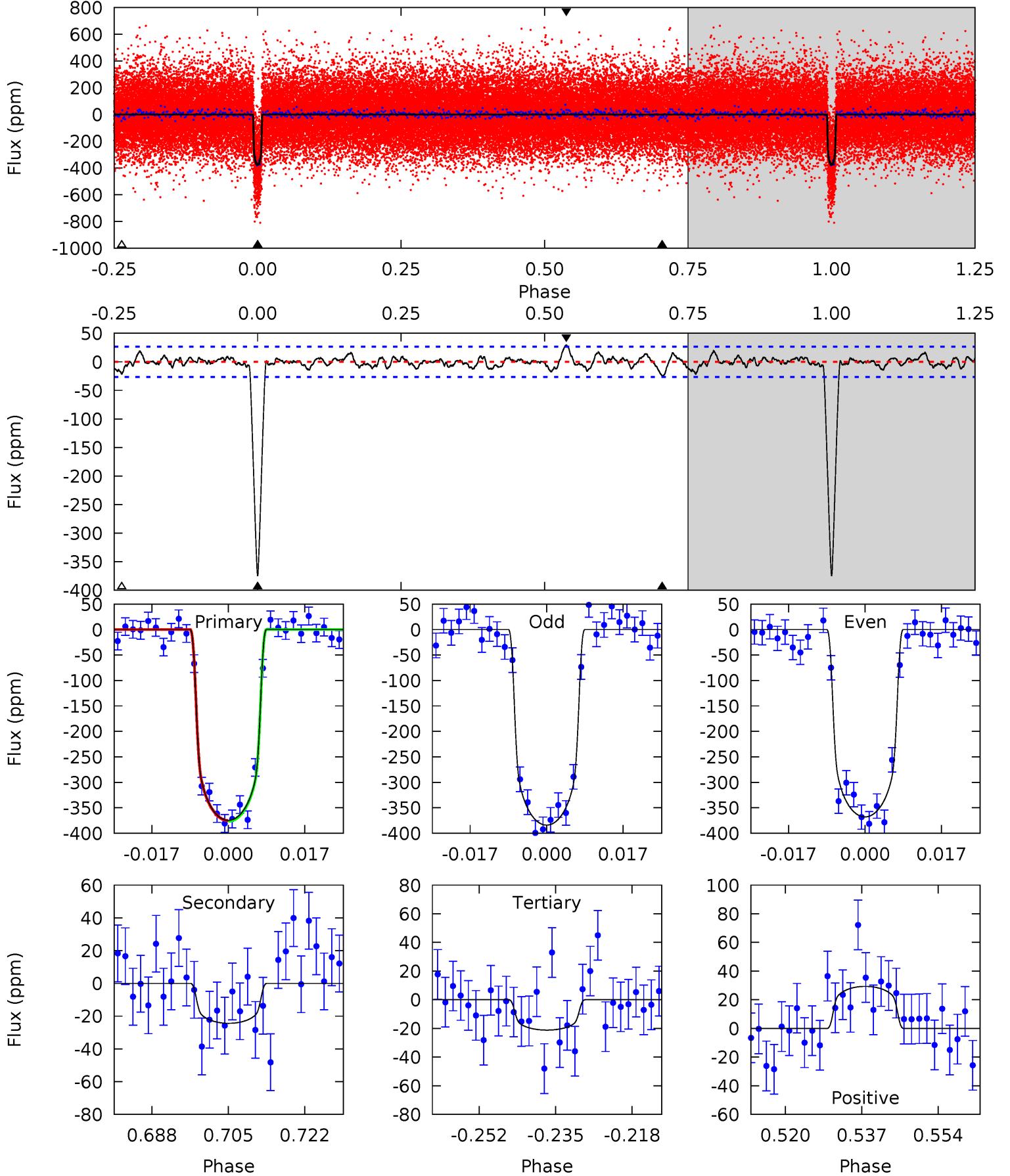
TCE 010285631-01 P= 18.684333 Days $T_0=133.454417$ (BKJD)



DV Model-Shift Uniqueness Test

010285631-01, $P = 18.684035$ Days, $E = 114.780318$ Days

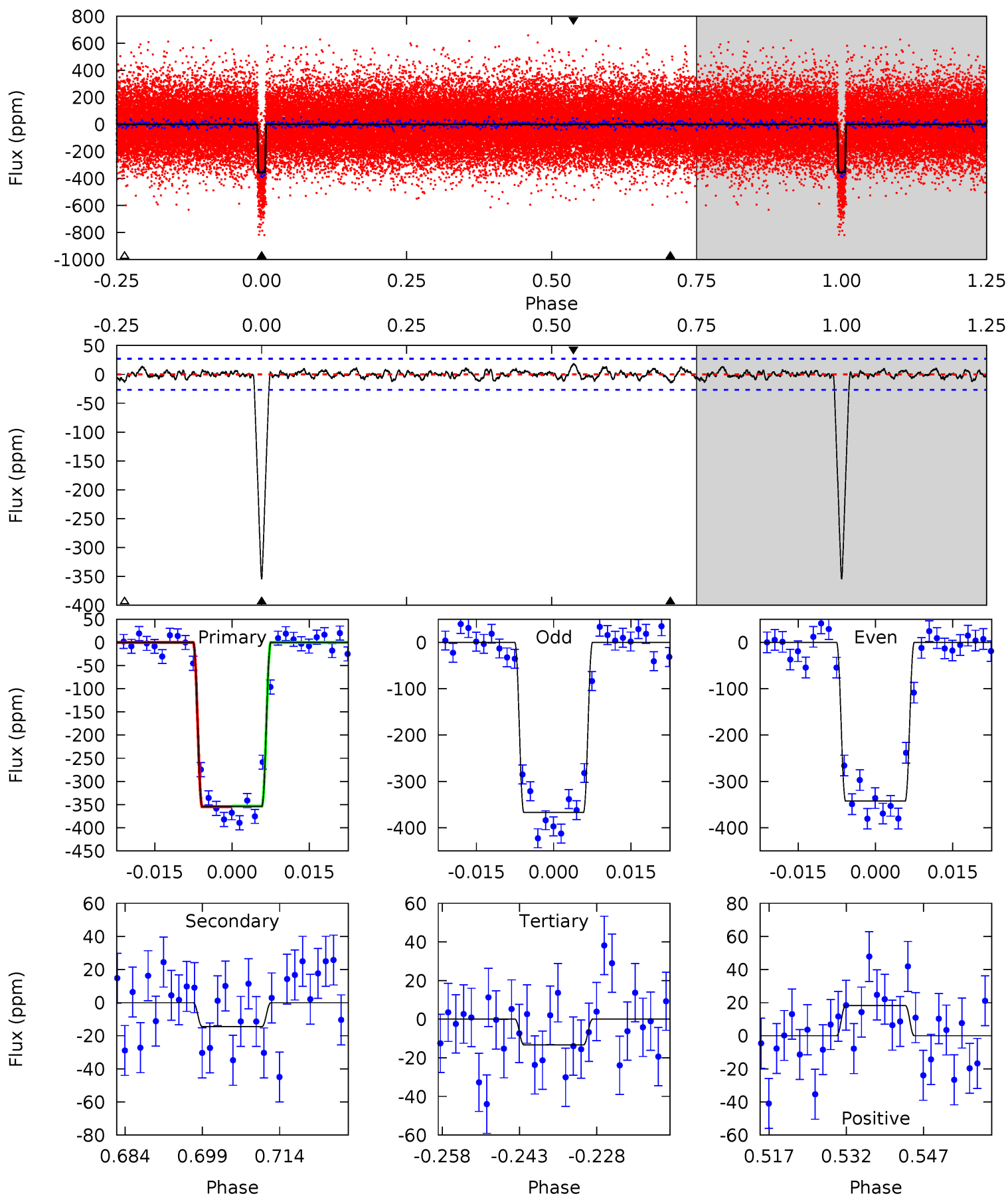
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.9	4.55	3.95	5.48	4.93	2.39	1.38	65.9	64.4	0.60	-0.93	1.51	0.96	0.07	0.11



Alt Model-Shift Uniqueness Test

010285631-01, $P = 18.684333$ Days, $E = 114.770084$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
65.2	2.67	2.45	3.36	4.95	2.43	0.96	62.8	61.9	0.22	-0.69	2.25	0.99	0.05	0.13



Stellar Parameters For KIC 010285631

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5548^{+110}_{-1}	$4.038^{+0.210}_{-0.090}$	$0.180^{+0.150}_{-0.150}$	$1.614^{+0.254}_{-0.381}$	$1.038^{+0.095}_{-0.095}$	$0.348^{+0.411}_{-0.099}$
	+2%/-0%	+5%/-2%	+83%/-83%	+16%/-24%	+9%/-9%	+118%/-29%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010285631-01 / KOI 0331.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-24 ± 5	$3.65^{+0.40}_{-0.53}$	1141^{+69}_{-75}	3225^{+123}_{-139}	20^{+8}_{-6}
Alt.	-14 ± 5	$3.27^{+0.37}_{-0.40}$	1142^{+61}_{-76}	3078^{+161}_{-213}	15^{+7}_{-6}

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

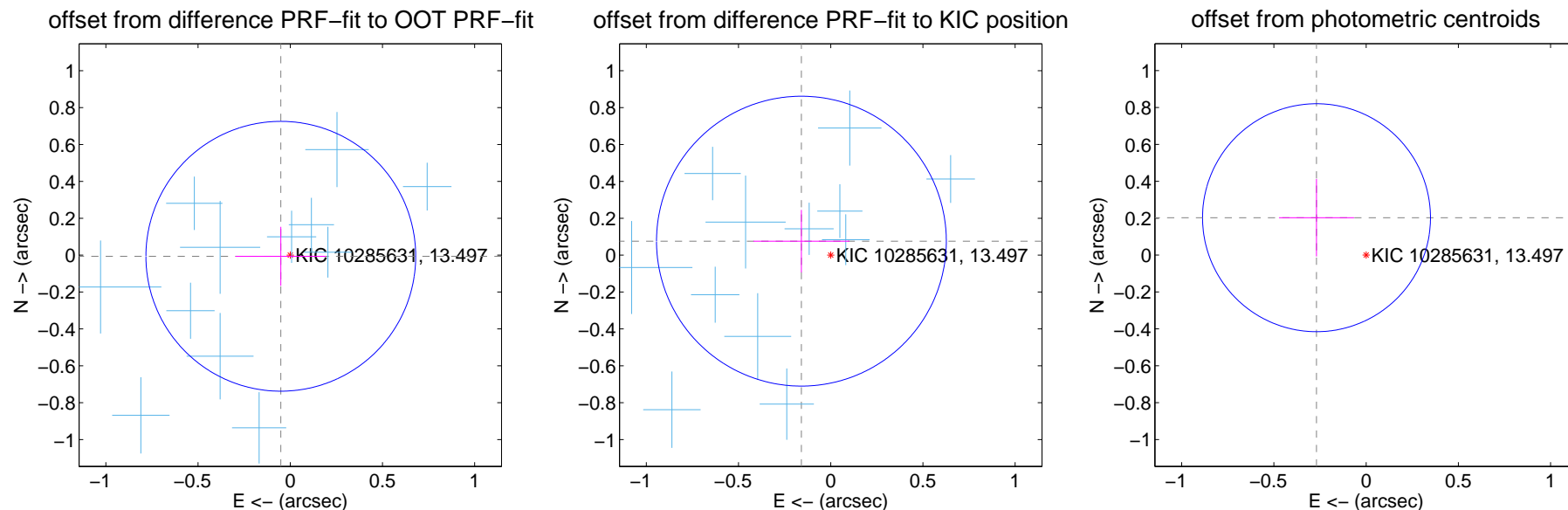
DV Centroid Data

Supplemental centroid analysis for 010285631-01. Kepler magnitude: 13.50. Transit SNR 41.78

There are 14 quarters with good PRF difference image offsets

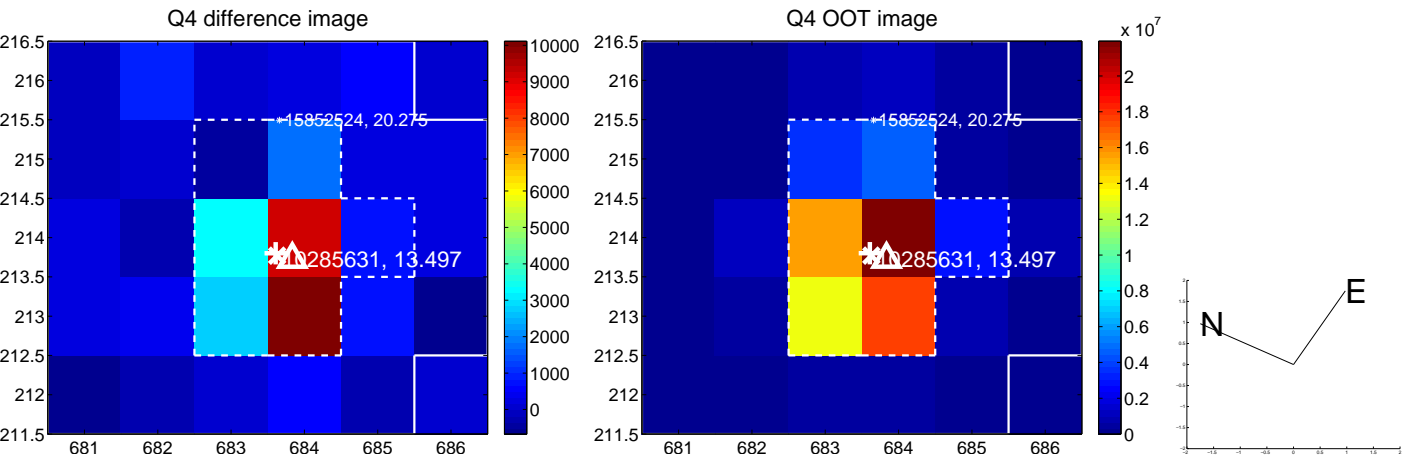
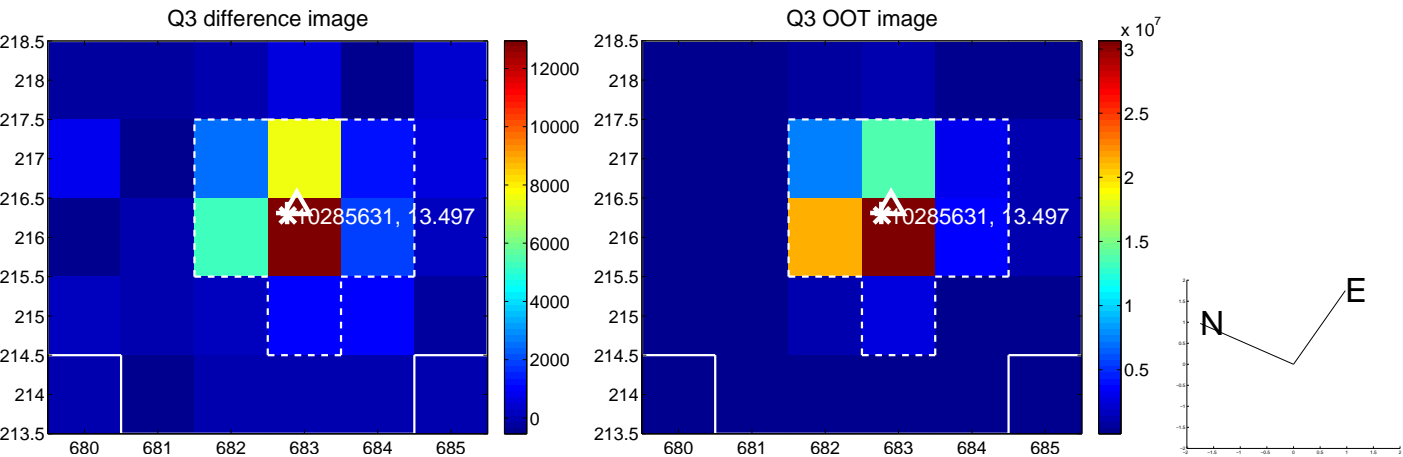
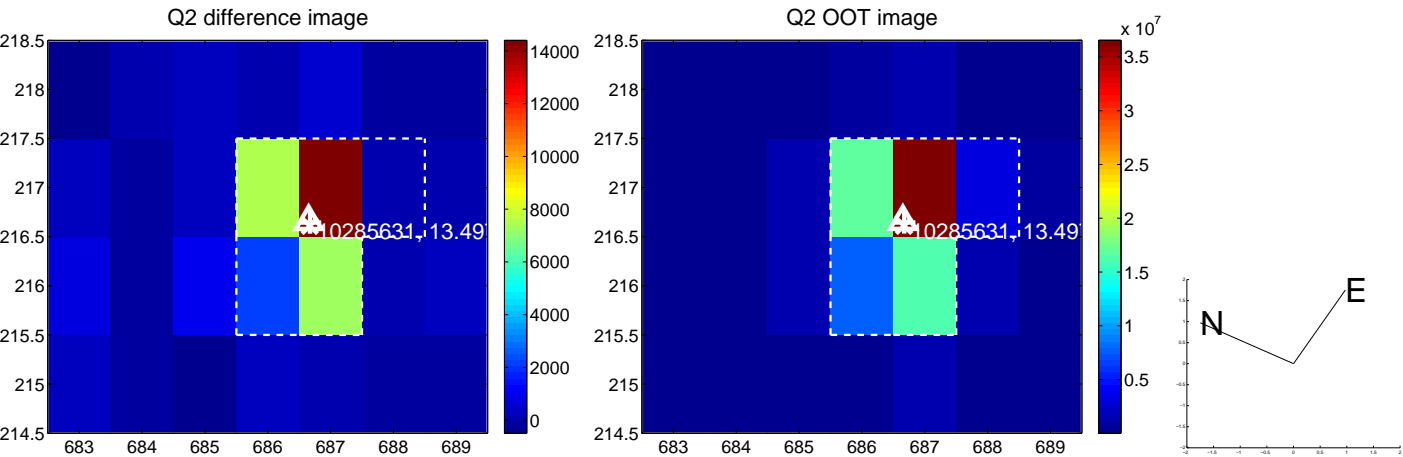
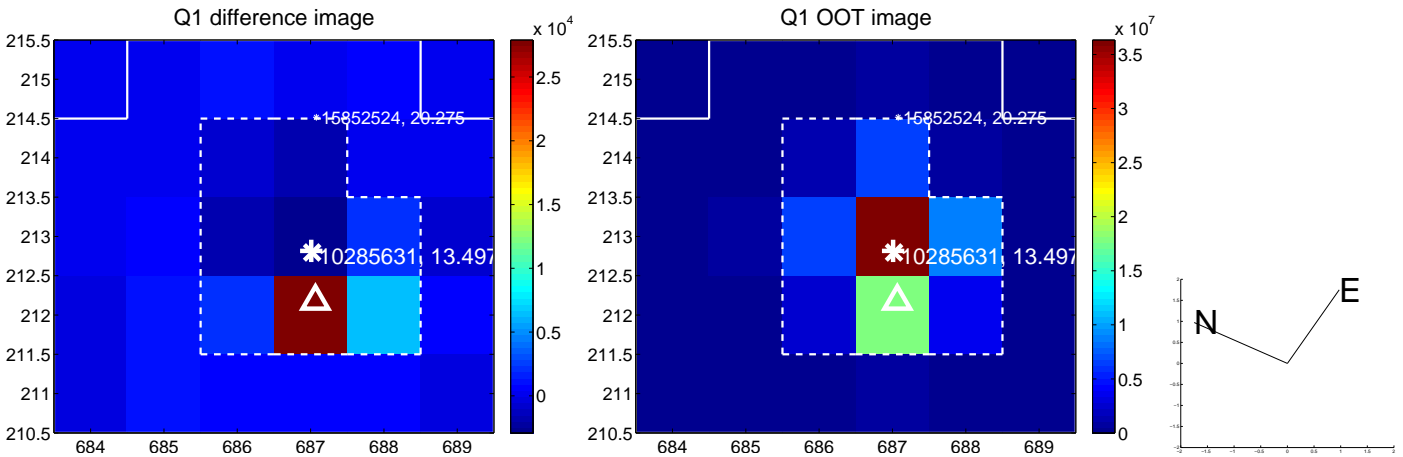
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.244	0.21	0.051 ± 0.245	-0.006 ± 0.160
PRF-fit source offset from KIC position	0.176 ± 0.262	0.67	0.159 ± 0.260	0.076 ± 0.169
photometric centroid source offset	0.34 ± 0.21	1.64	0.27 ± 0.20	0.20 ± 0.21

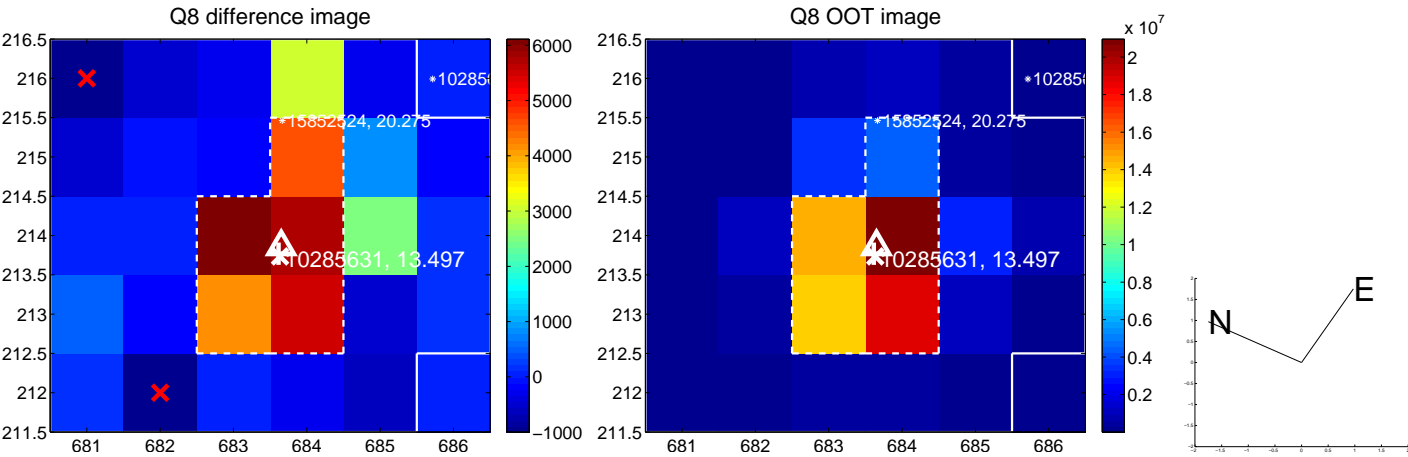
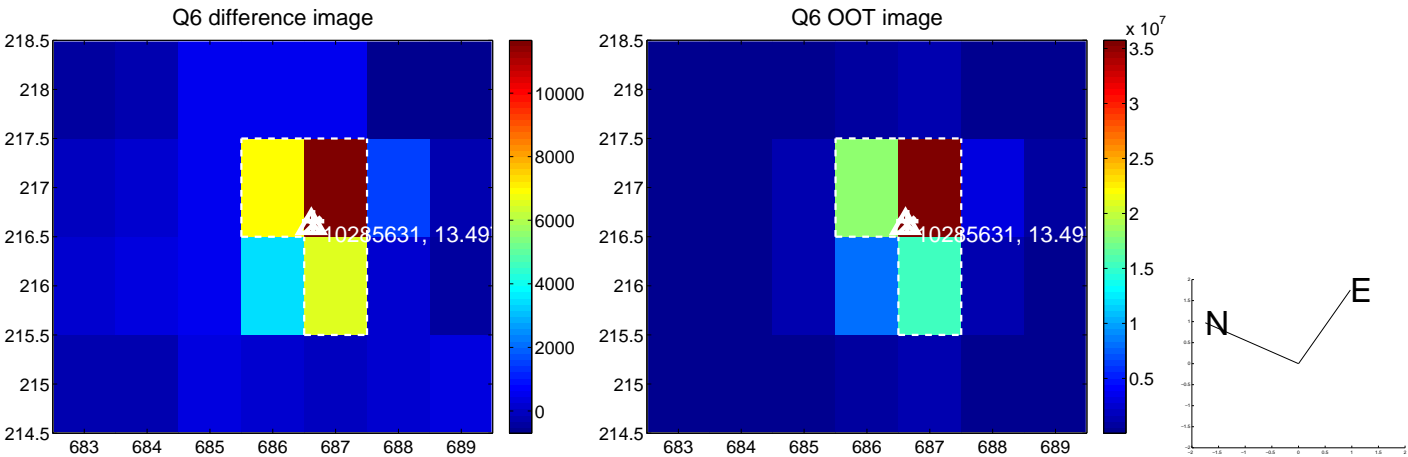
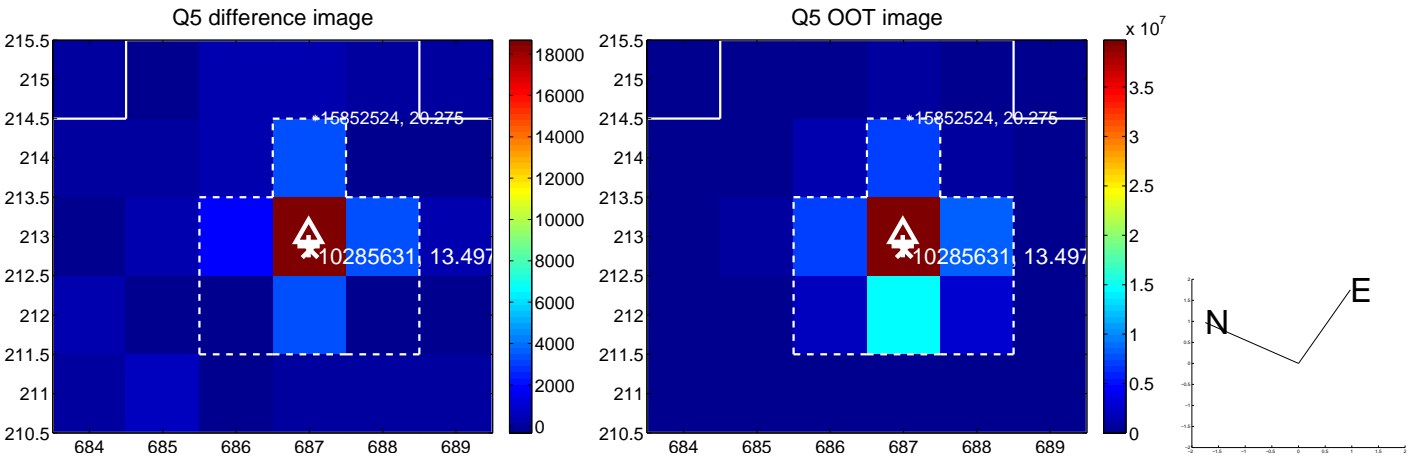


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

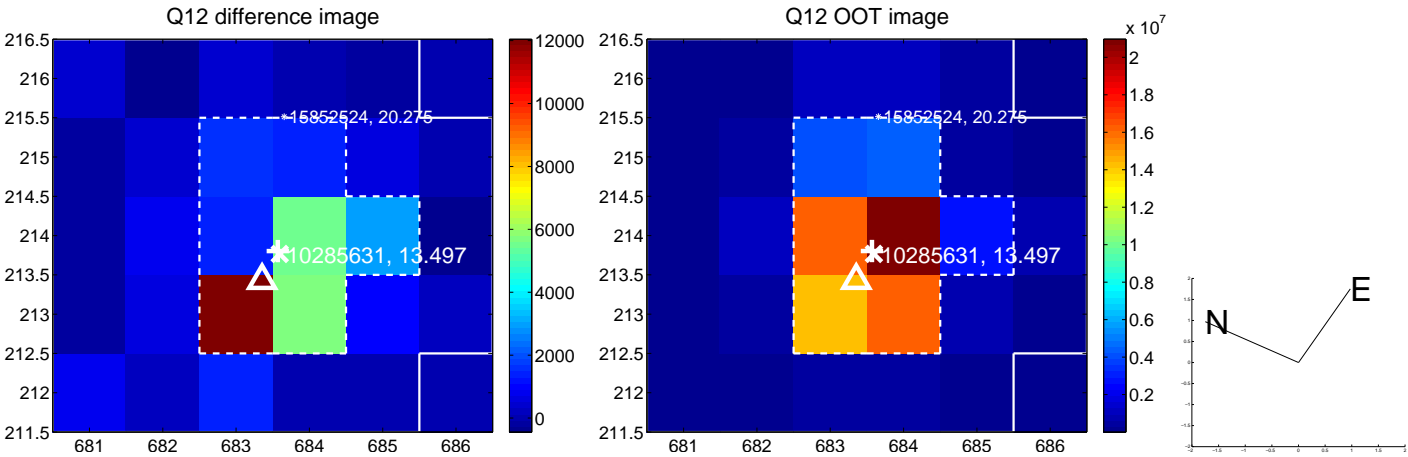
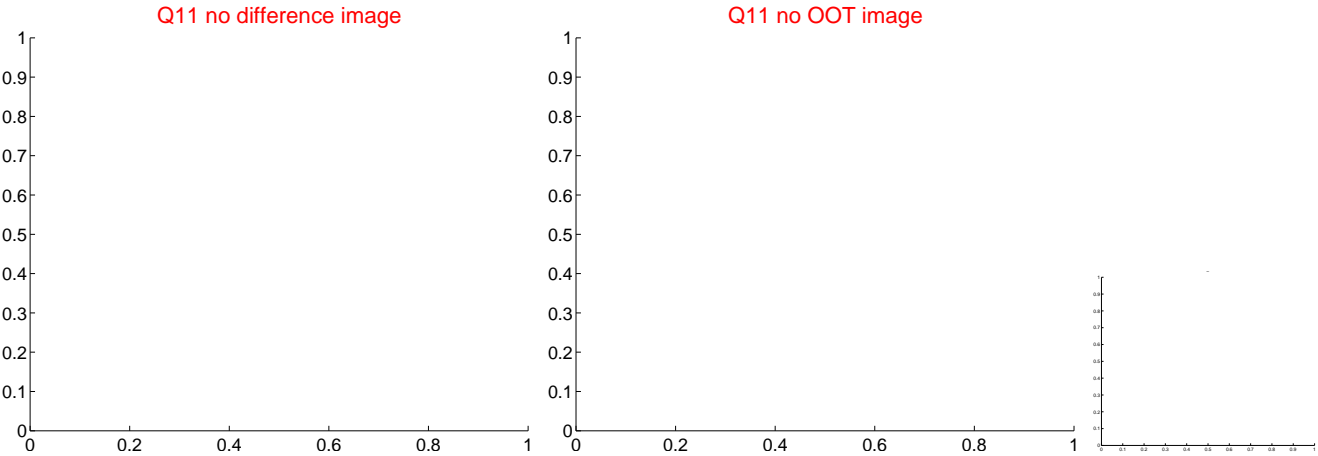
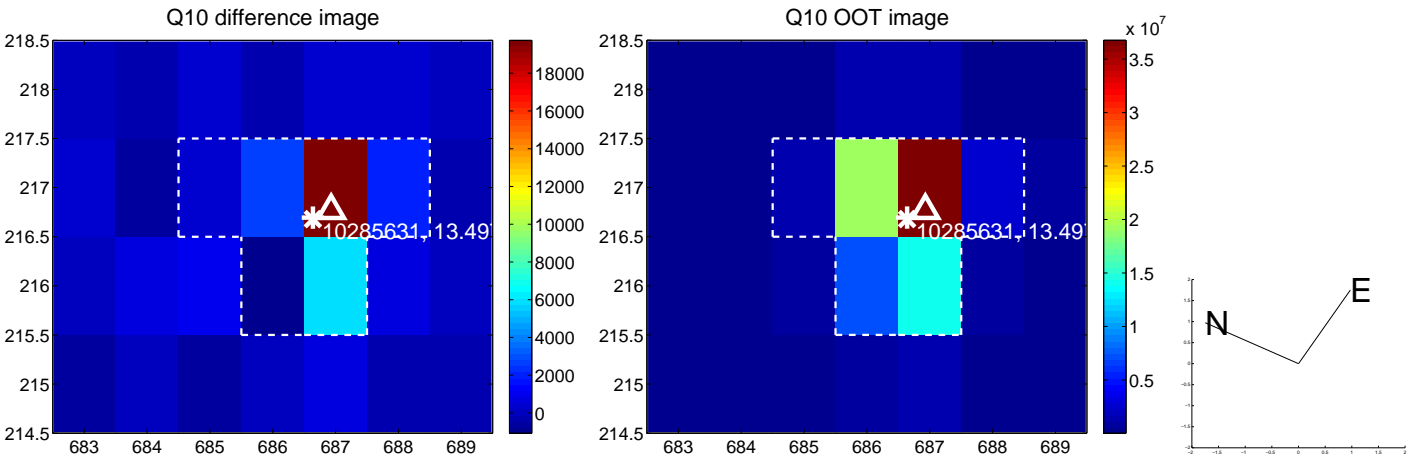
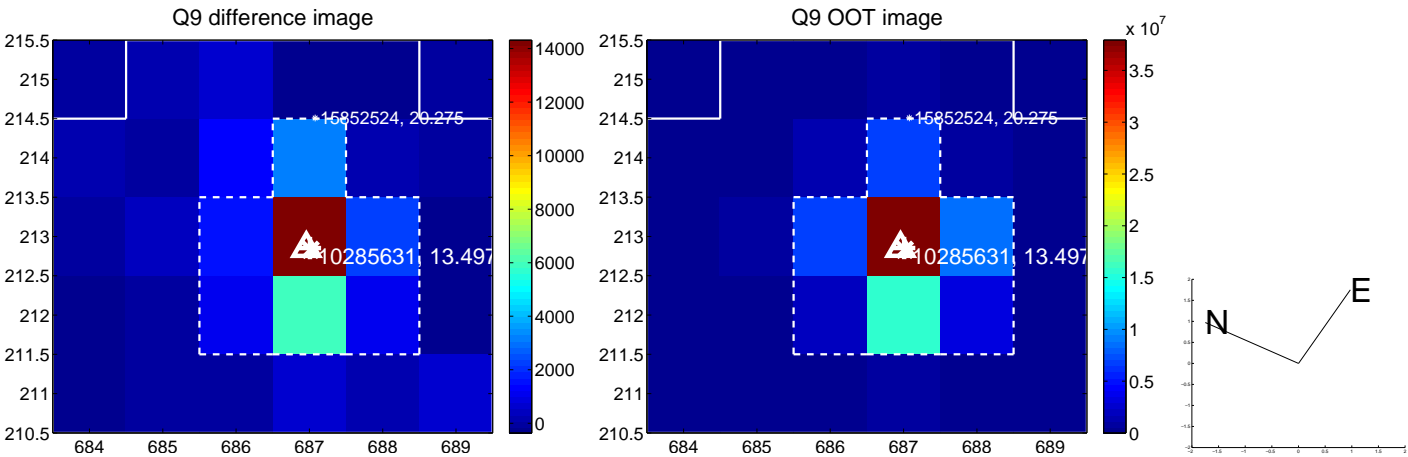
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



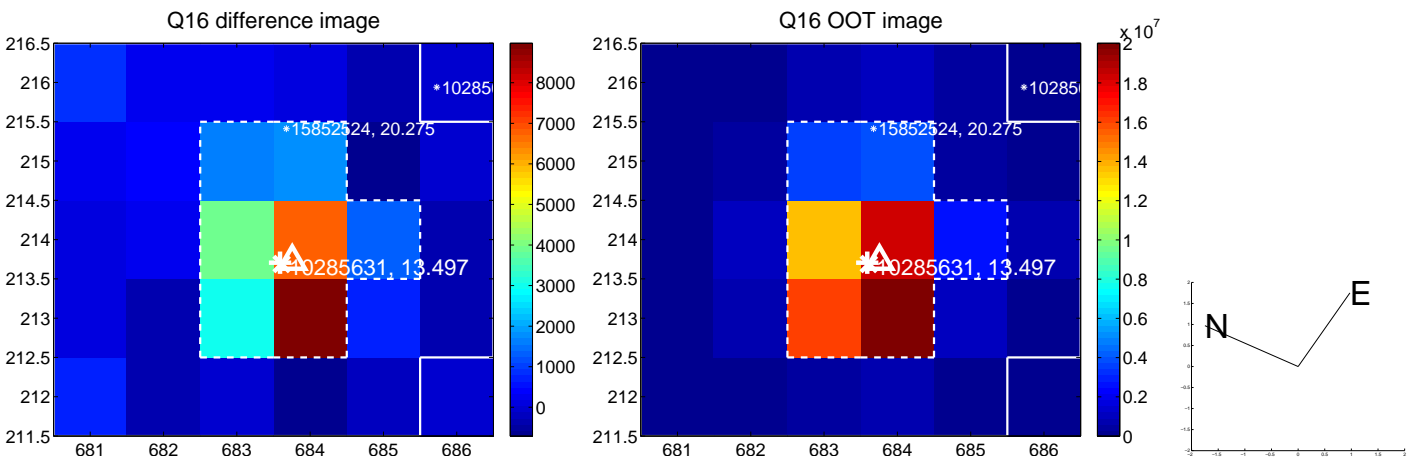
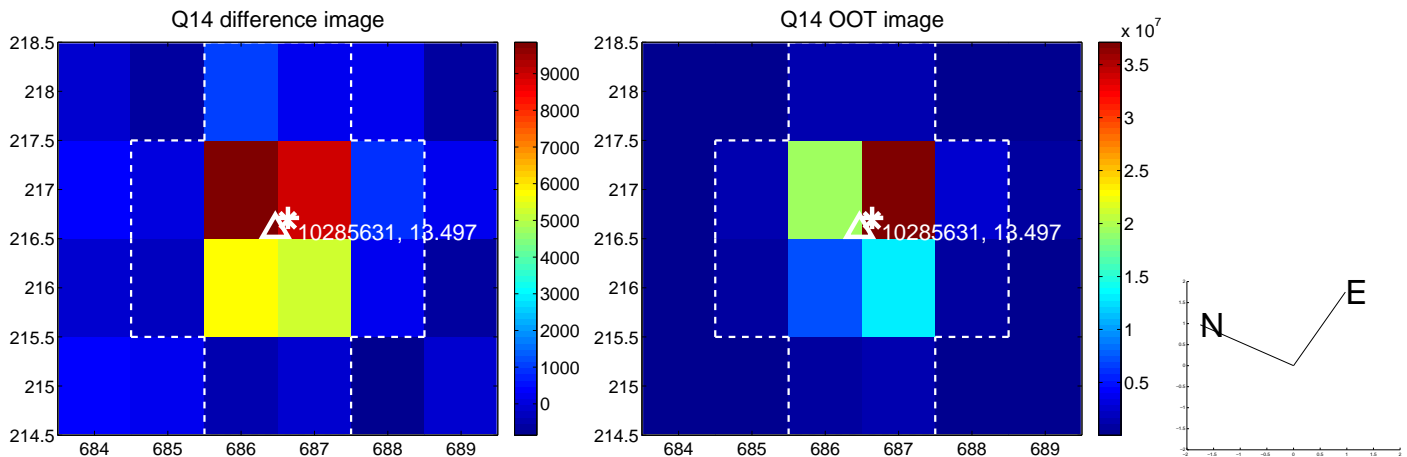
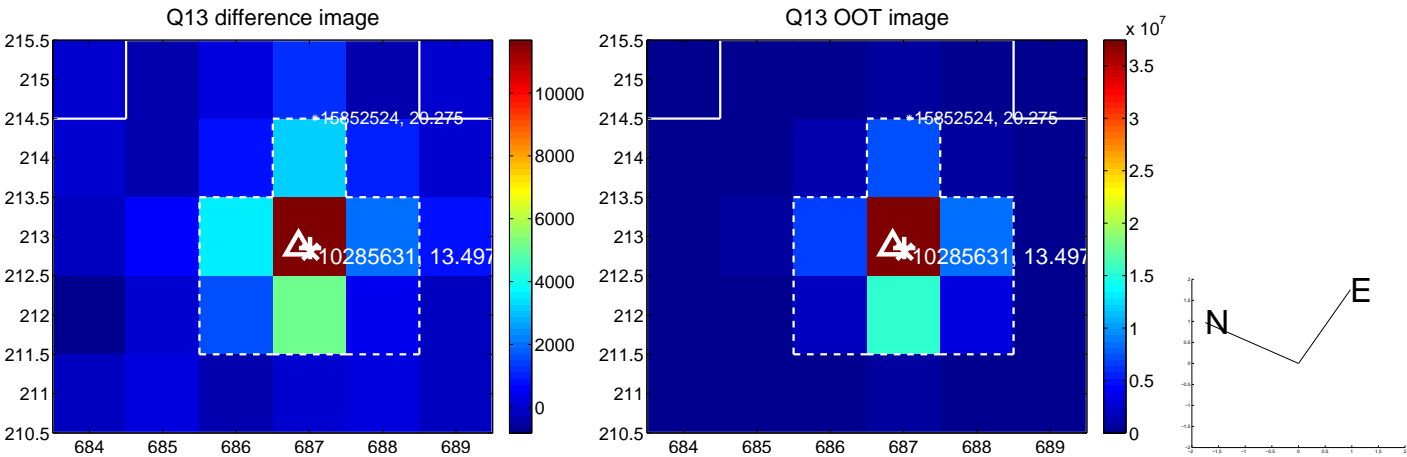
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



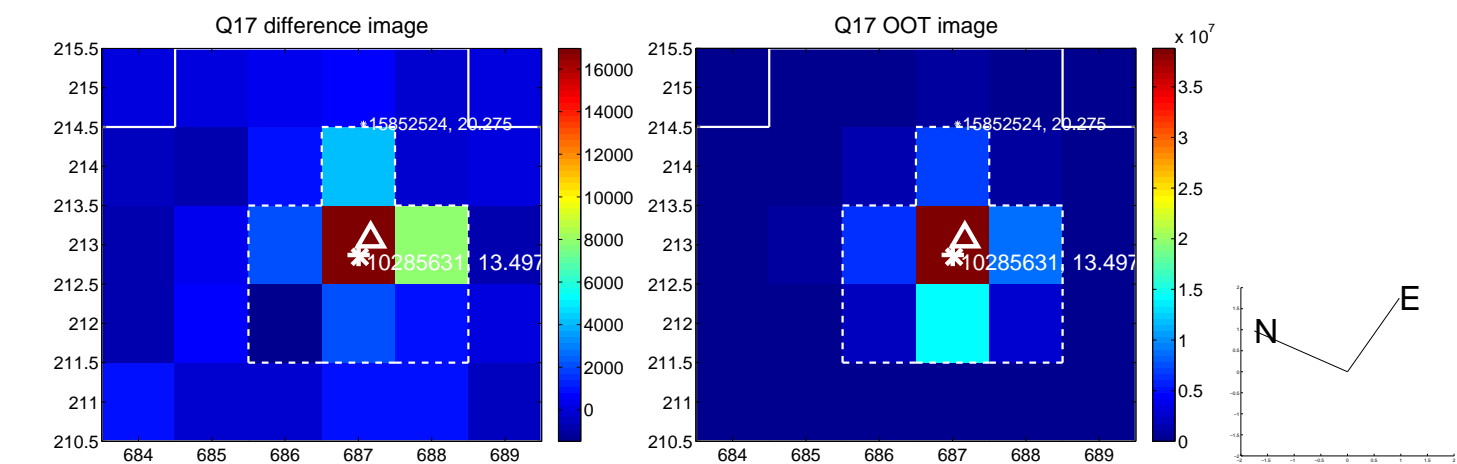
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



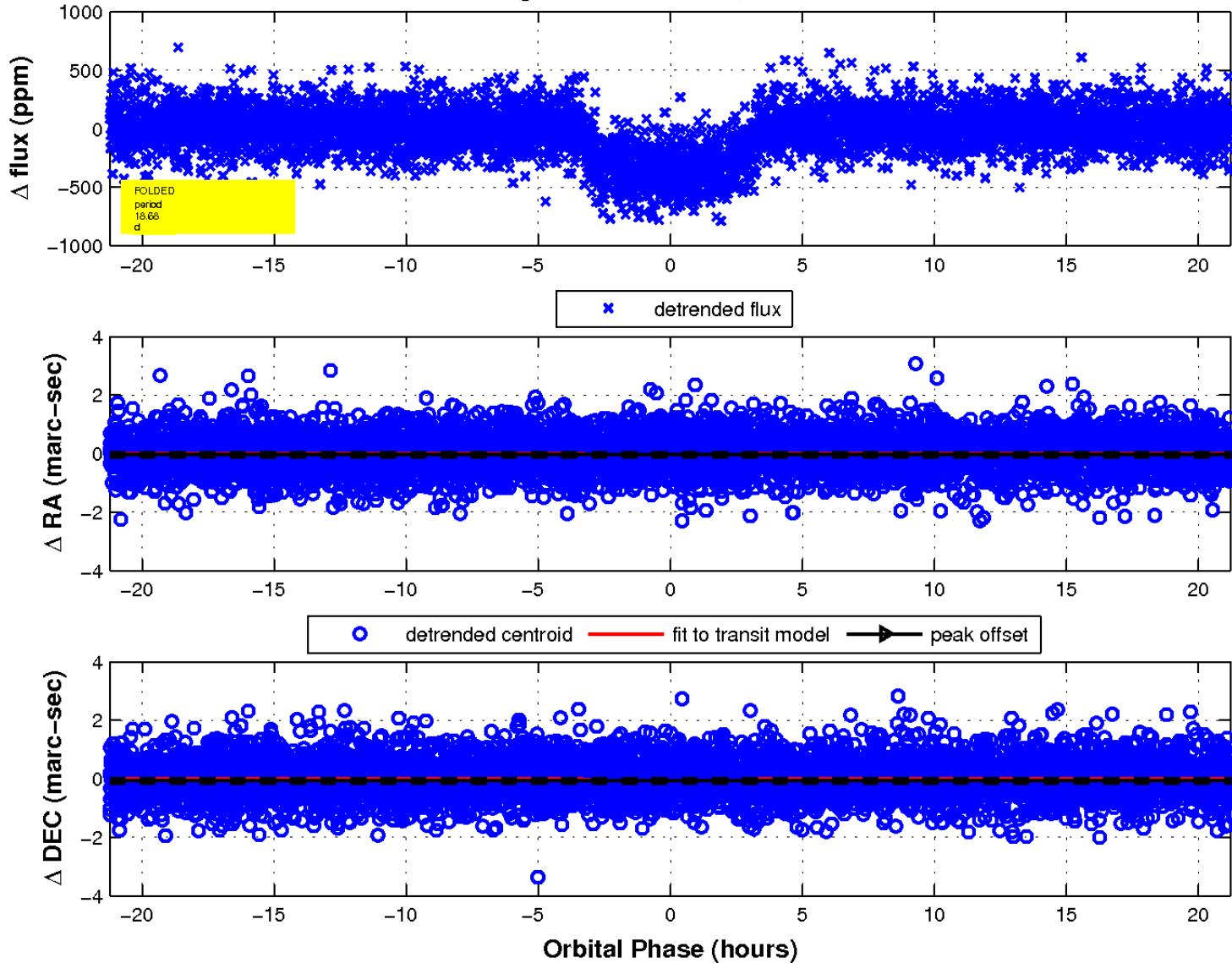
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



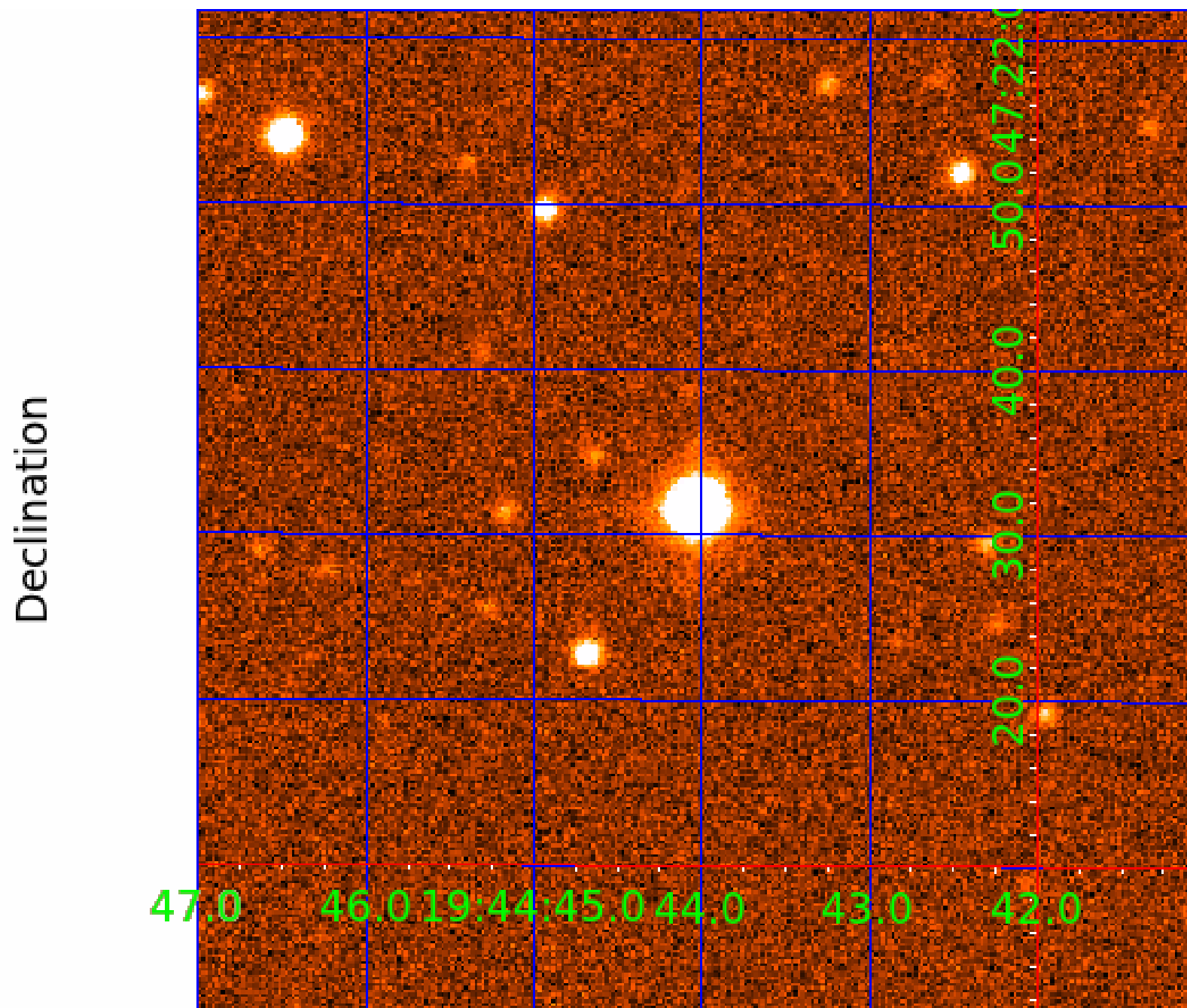
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 010285631

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})
010285631-01	OBS	0331.01	18.684035	133.464353	384.6	7.073	37.9	41.8	1.61	5548	3.74	113.61
010285631-02	OBS	0331.02	10.522905	137.787567	116.6	1.173	7.7	8.9	1.61	5548	2.10	244.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010285631-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010285631-02	OBS	PC	0.88	0	0	0	0	NO_COMMENT

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

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

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

Ephemeris Match Information For 010285631-02

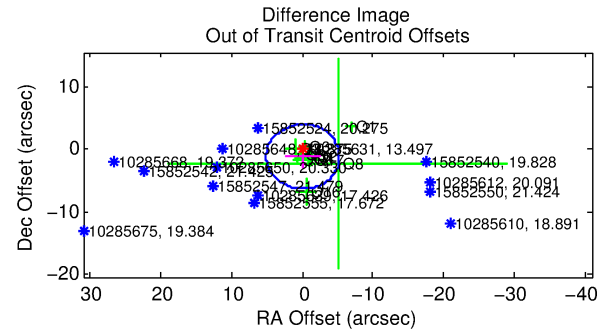
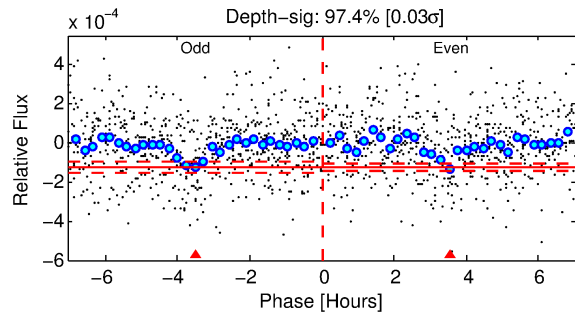
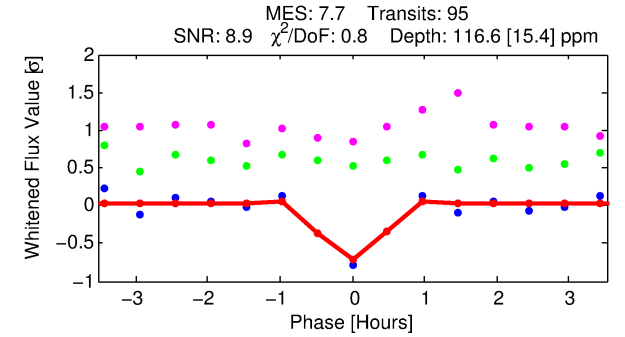
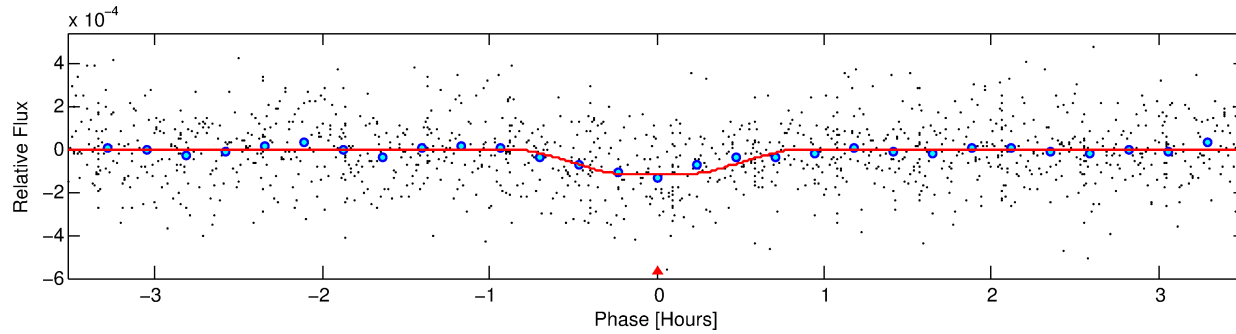
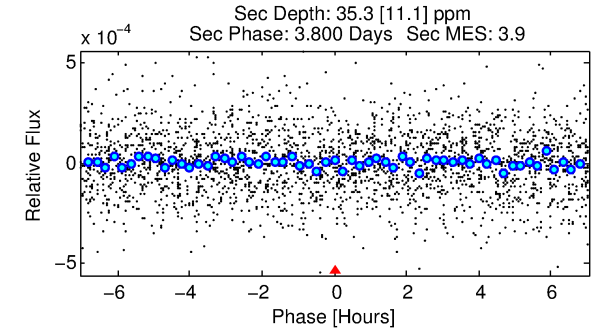
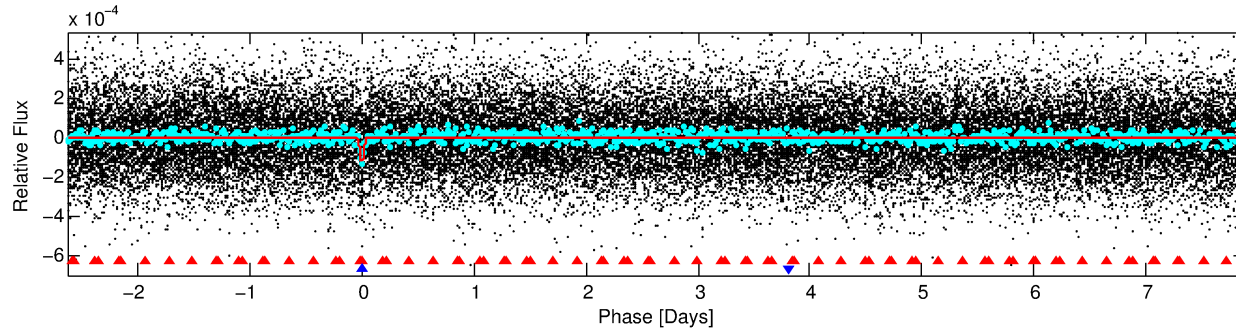
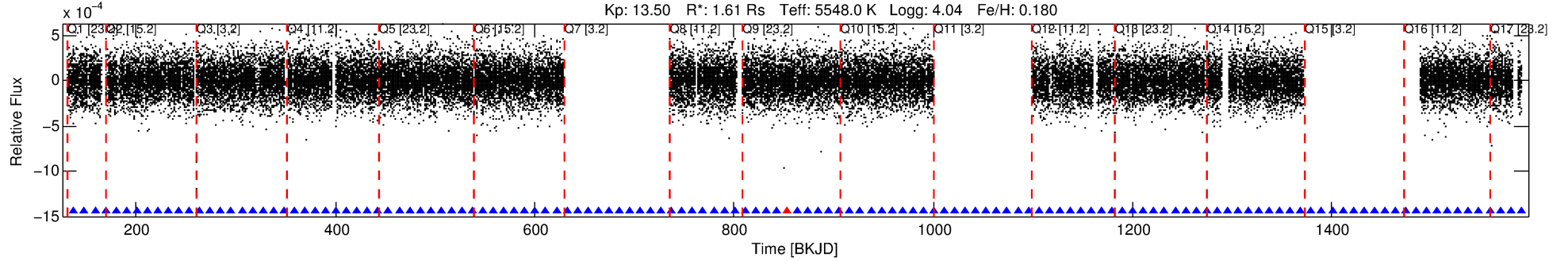
No Significant Match Found

DV One-Page Summary

KIC: 10285631 Candidate: 2 of 2 Period: 10.523 d

KOI: K00331 Corr: No Ephemeris Match

Kp: 13.50 R*: 1.61 Rs Teff: 5548.0 K Logg: 4.04 Fe/H: 0.180



DV Fit Results:

Period = 10.52290 [0.00005] d
Epoch = 137.7876 [0.0033] BKJD
Rp/R* = 0.0119 [0.0137]
a/R* = 31.70 [162.75]
b = 0.90 [1.11]
Seff = 244.27 [89.74]
Teq = 1008 [93] K
Rp = 2.10 [2.46] Re
a = 0.0951 [0.0214] AU
Ag = 39.71 [93.07] [0.42σ]
Teffp = 3912 [2267] K [1.28σ]

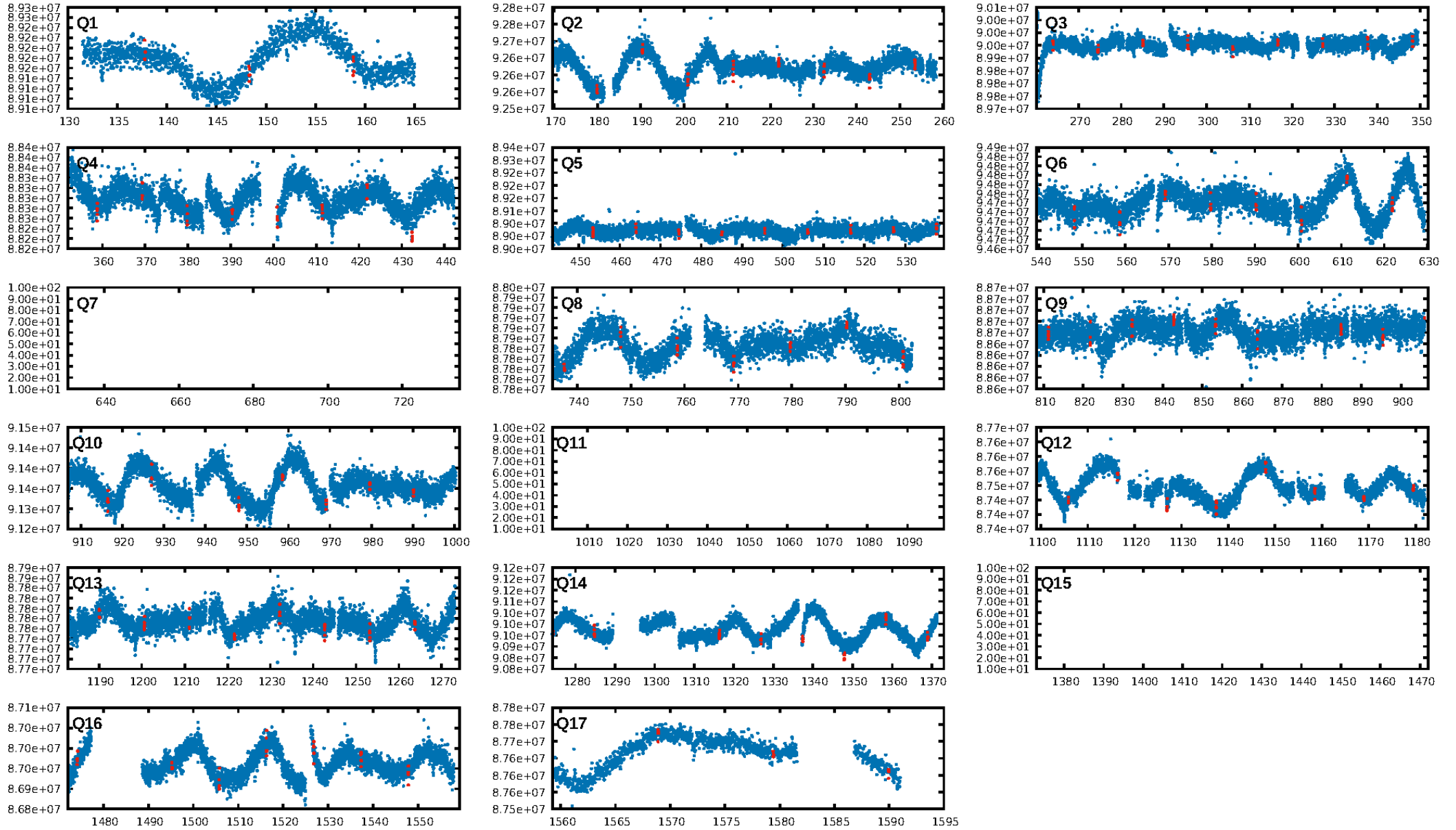
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.32σ]
ModelChiSquare2-sig: 93.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.43e-14
RollingBand-fgt: 0.99 [88/89]
GhostDiagnostic-chr: -6.408
Centroid-sig: 82.0%
Centroid-so: 0.721 arcsec [0.63σ]
OotOffset-rm: 1.205 arcsec [0.70σ]
OotOffset-st: 2/1/4/3 [10]
KicOffset-rm: 1.131 arcsec [0.66σ]
KicOffset-st: 2/1/4/3 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [14/14]

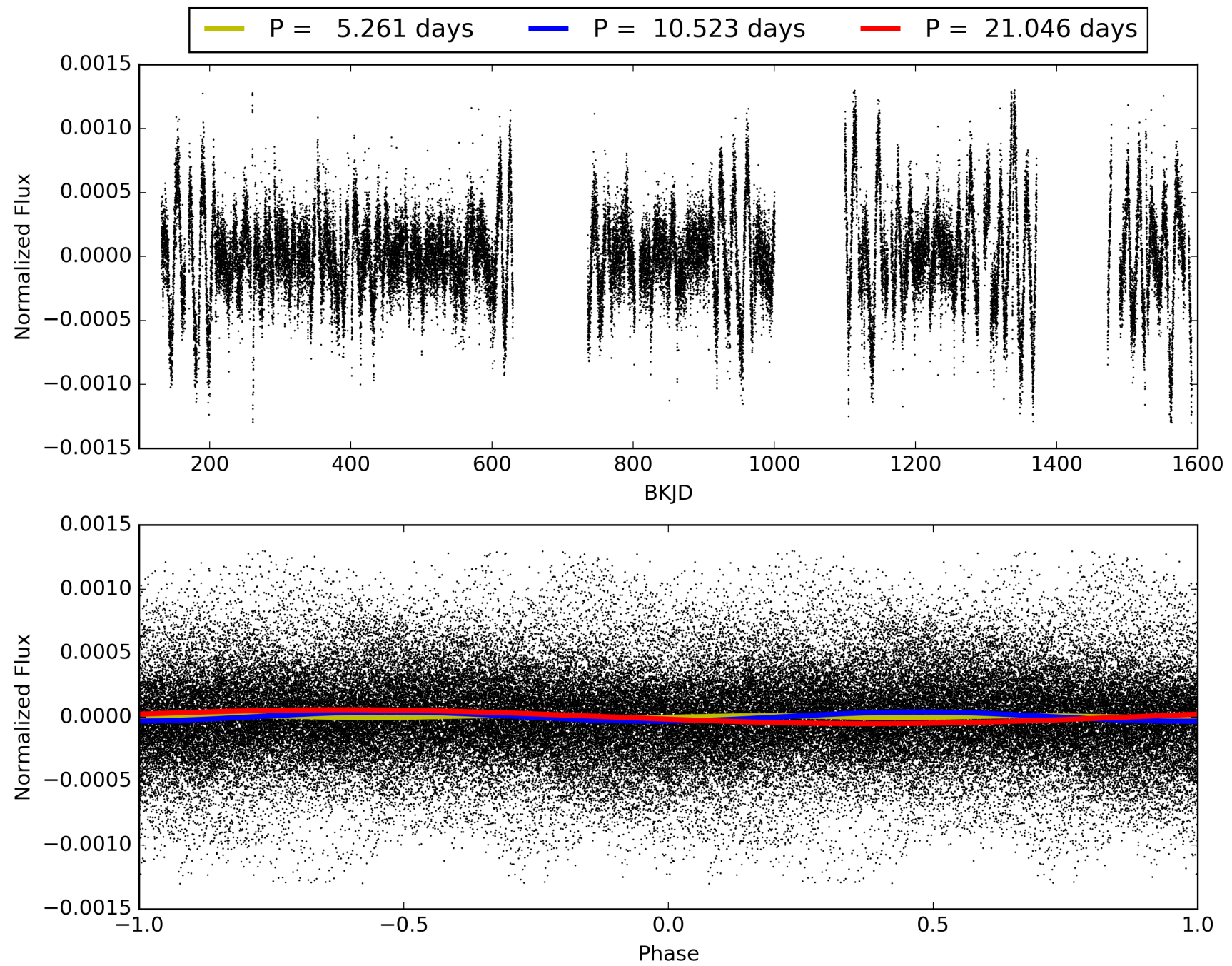
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:39:22 Z

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

TCE 010285631-02, PDC Light Curves

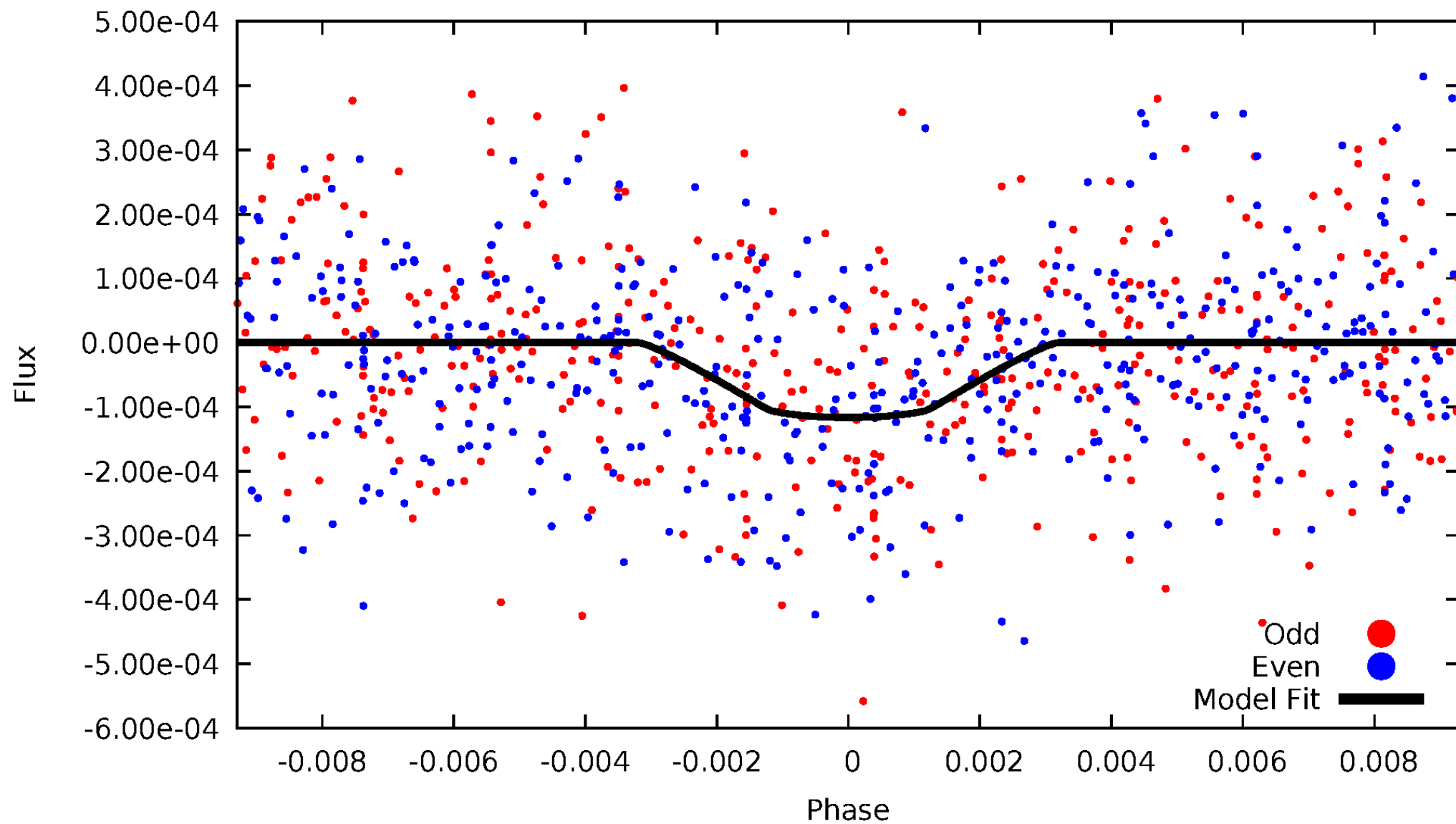


TCE 010285631-02



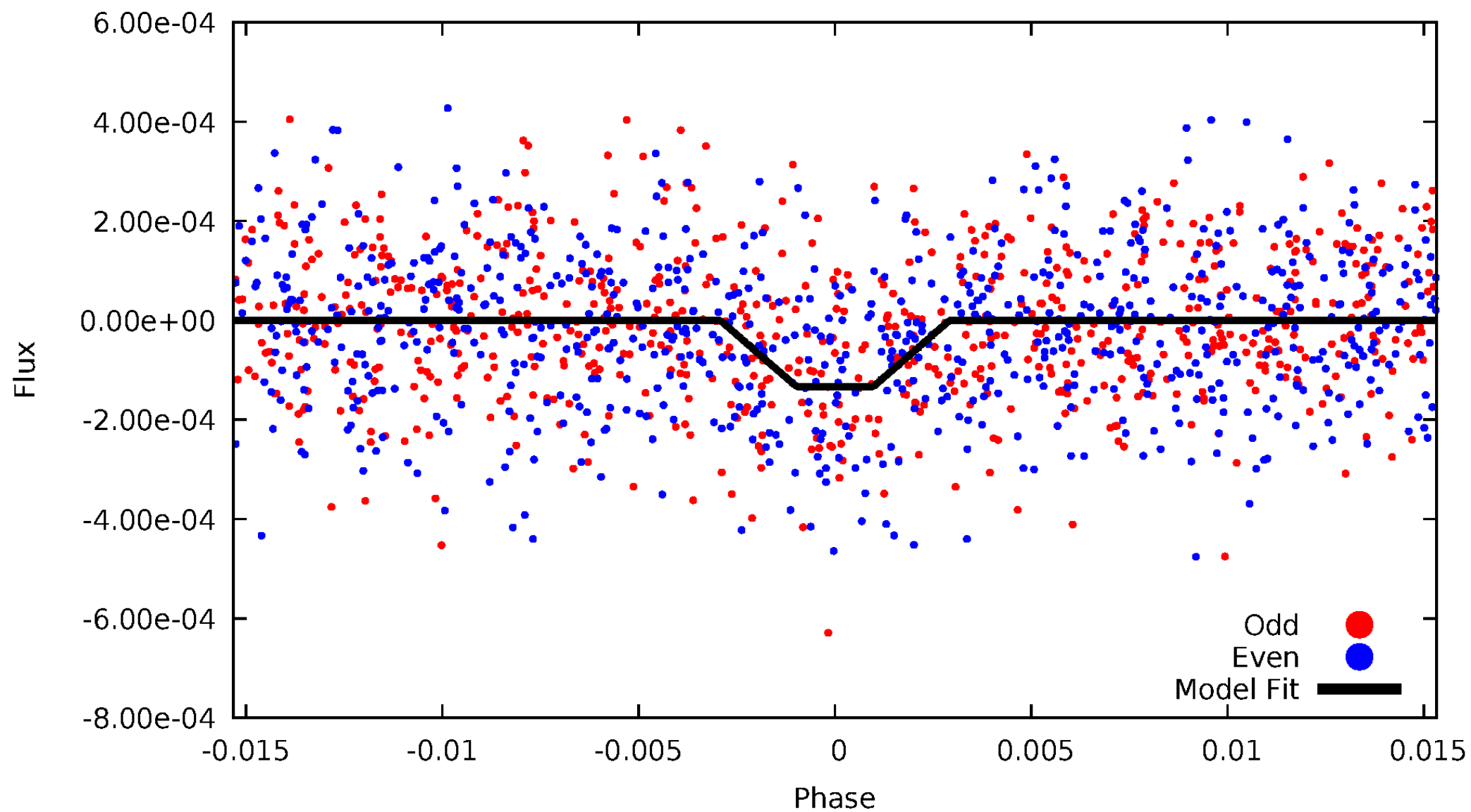
DV Odd/Even

TCE 010285631-02



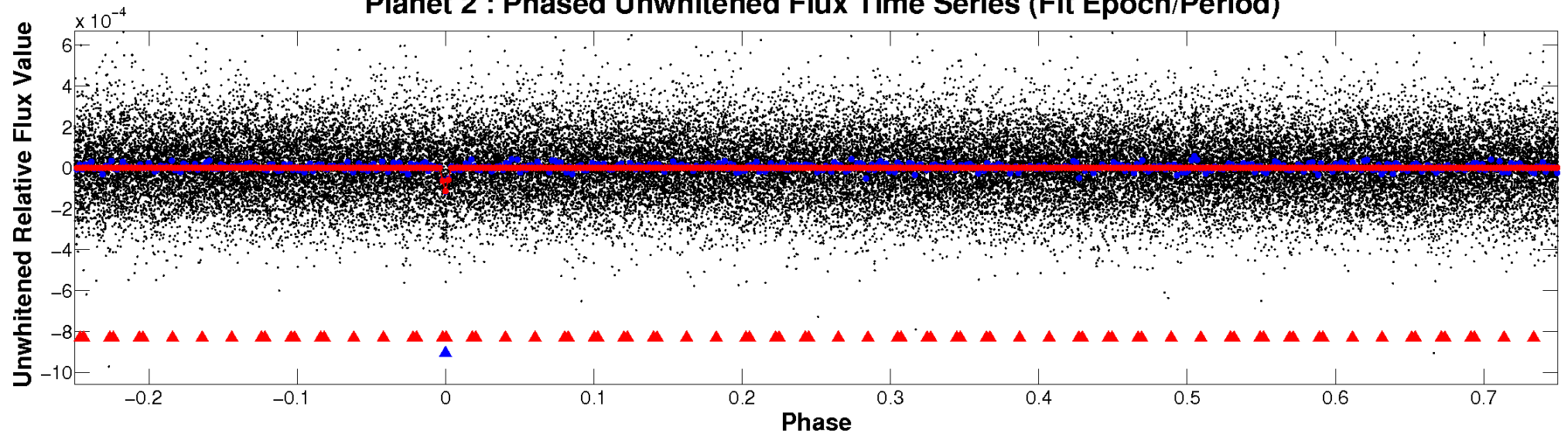
ALT Odd/Even

TCE 010285631-02

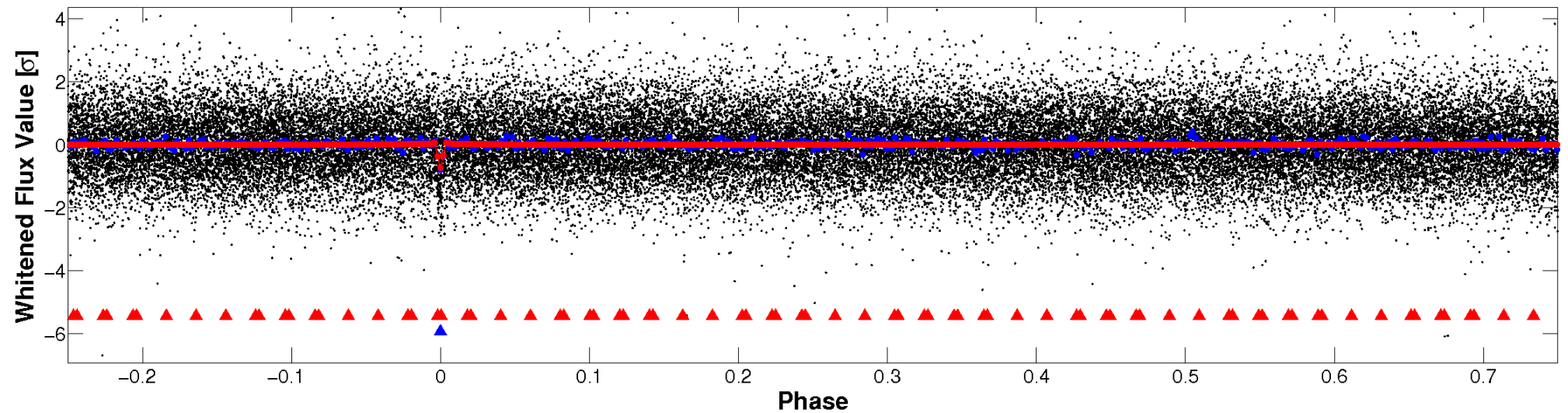


Non-Whitened Vs. Whitened Light Curve

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

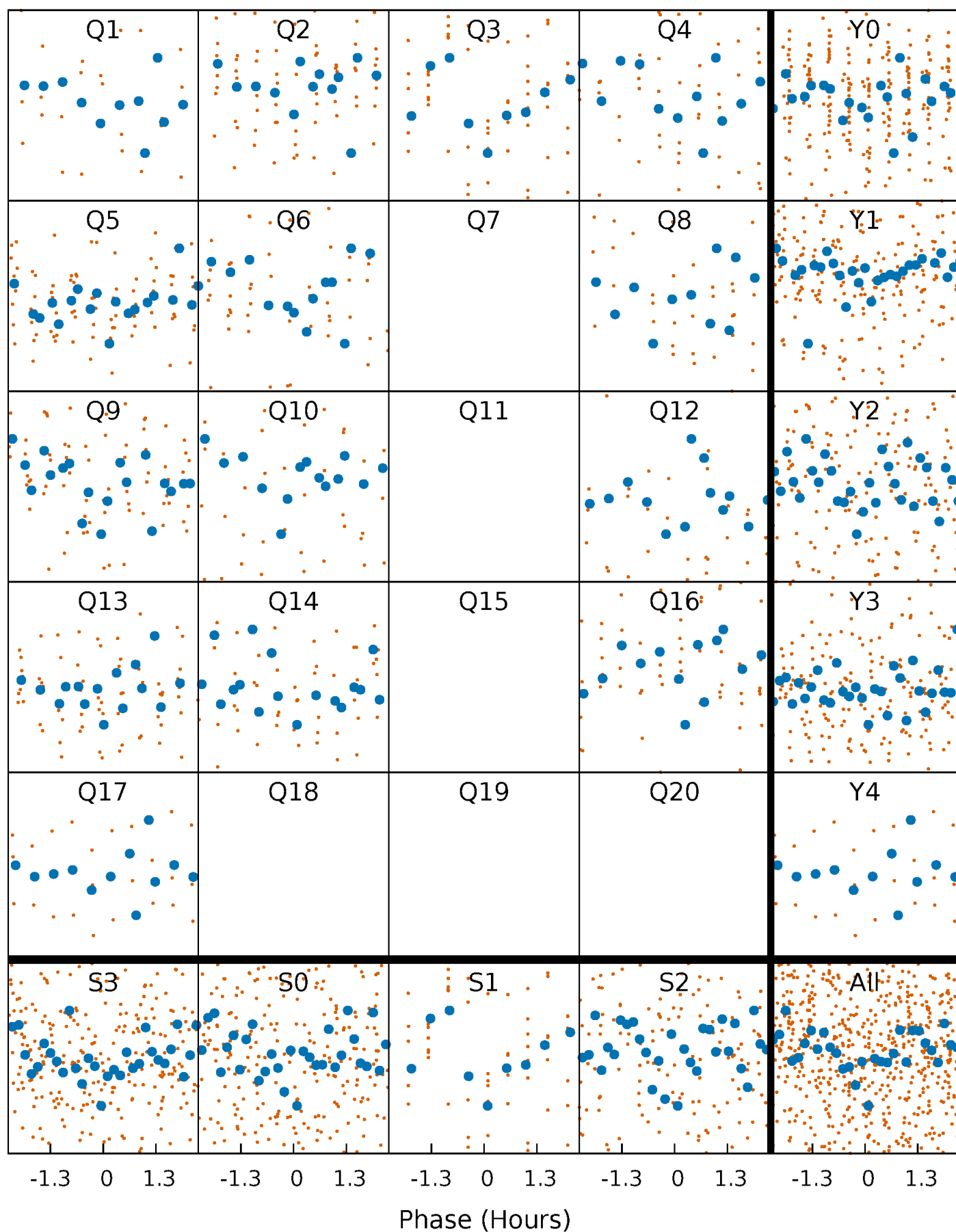


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



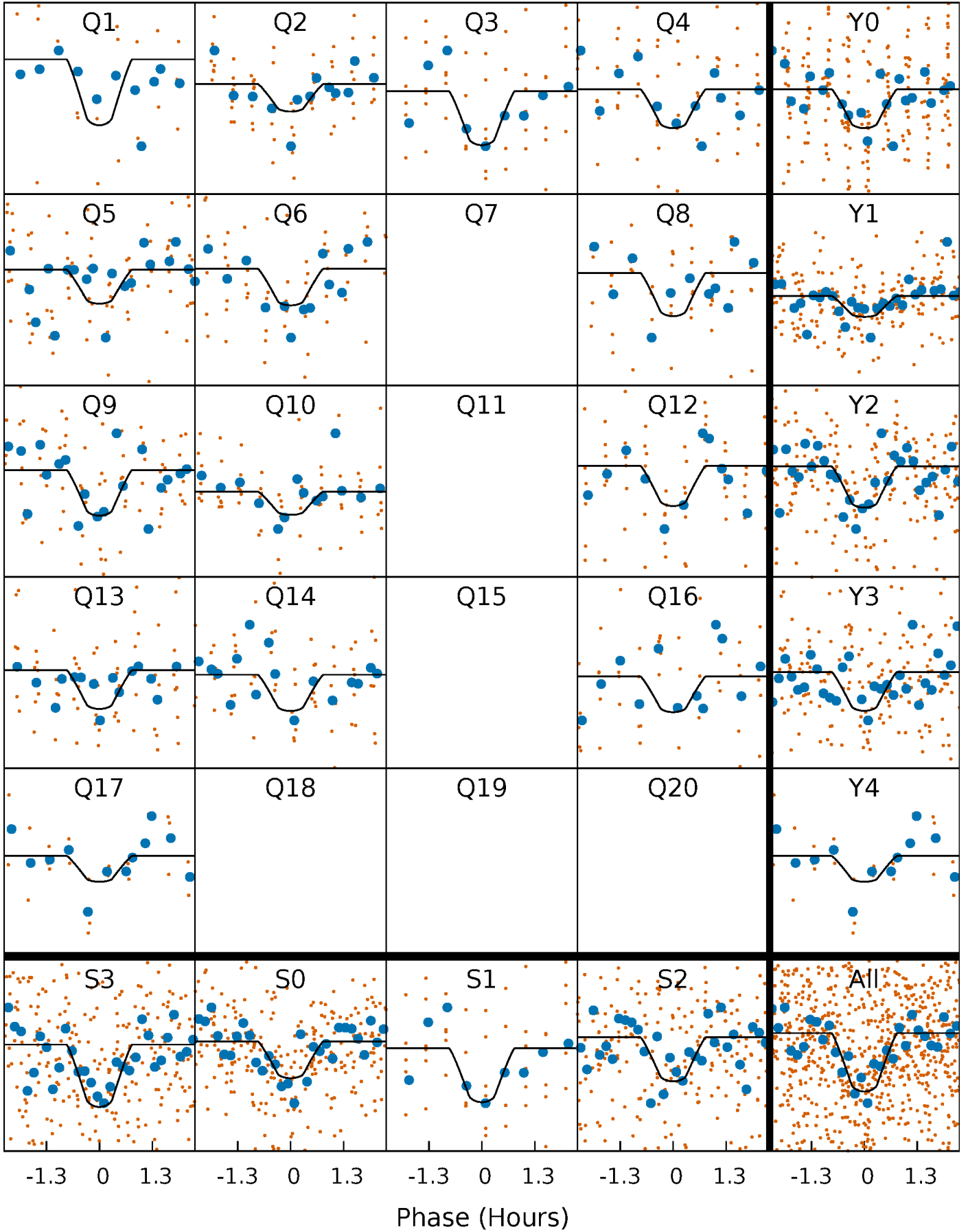
PDC Quarter-Phased Transit Curves

TCE 010285631-02 P= 10.522905 Days $T_0=137.787567$ (BKJD)



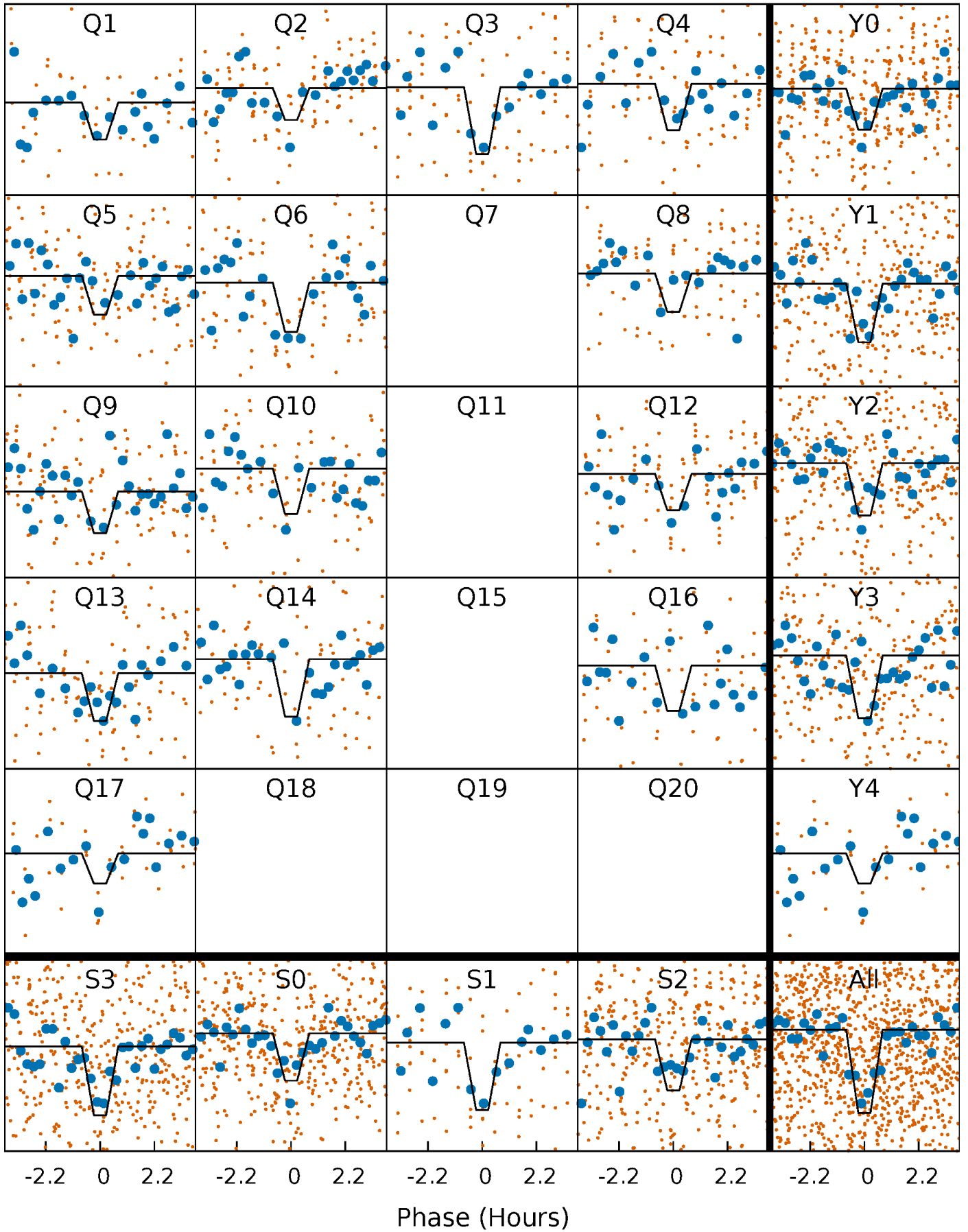
DV Quarter-Phased Transit Curves

TCE 010285631-02 P= 10.522905 Days $T_0=137.787567$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

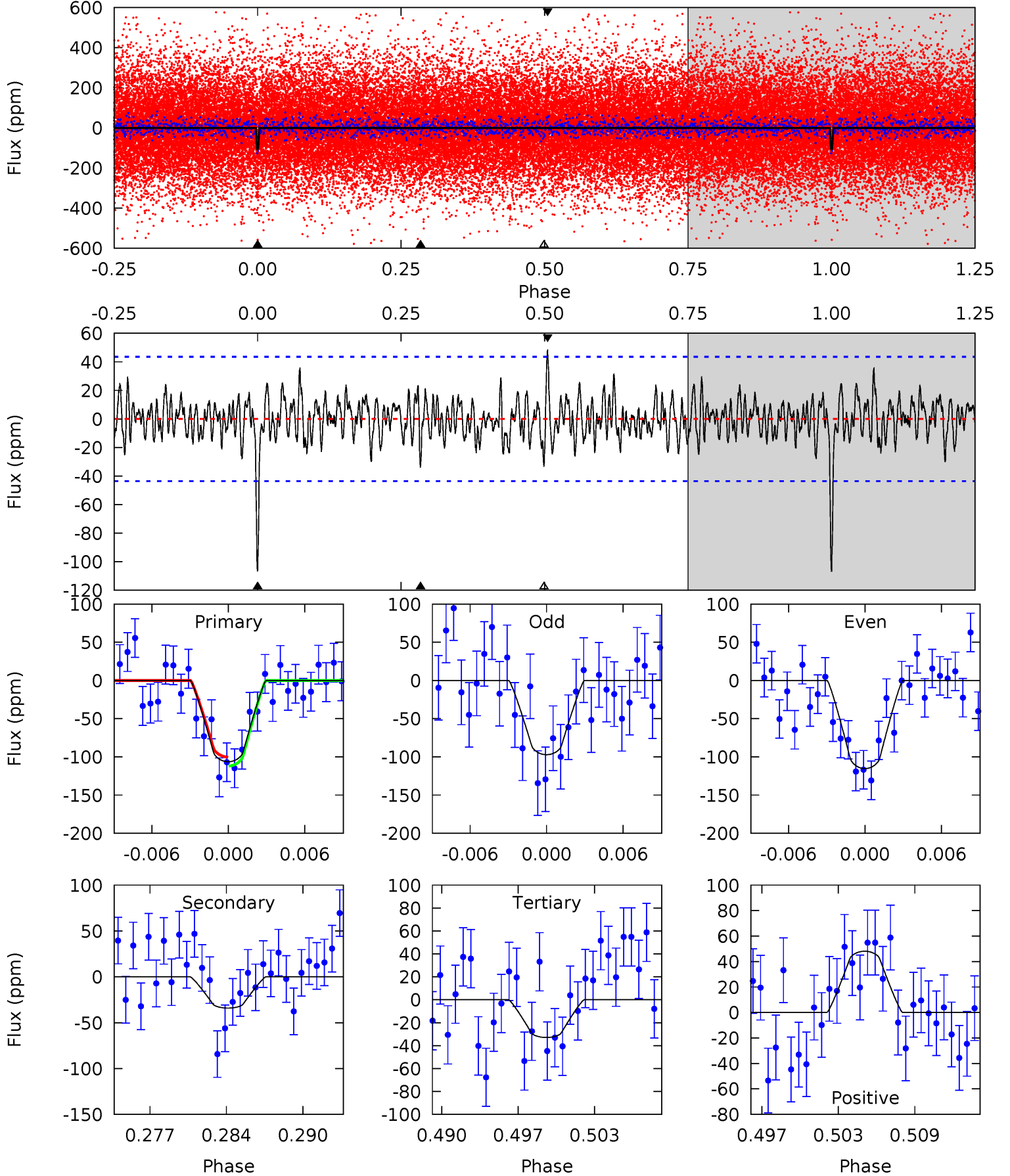
TCE 010285631-02 P= 10.522815 Days $T_0=137.792341$ (BKJD)



DV Model-Shift Uniqueness Test

010285631-02, P = 10.522905 Days, E = 127.264662 Days

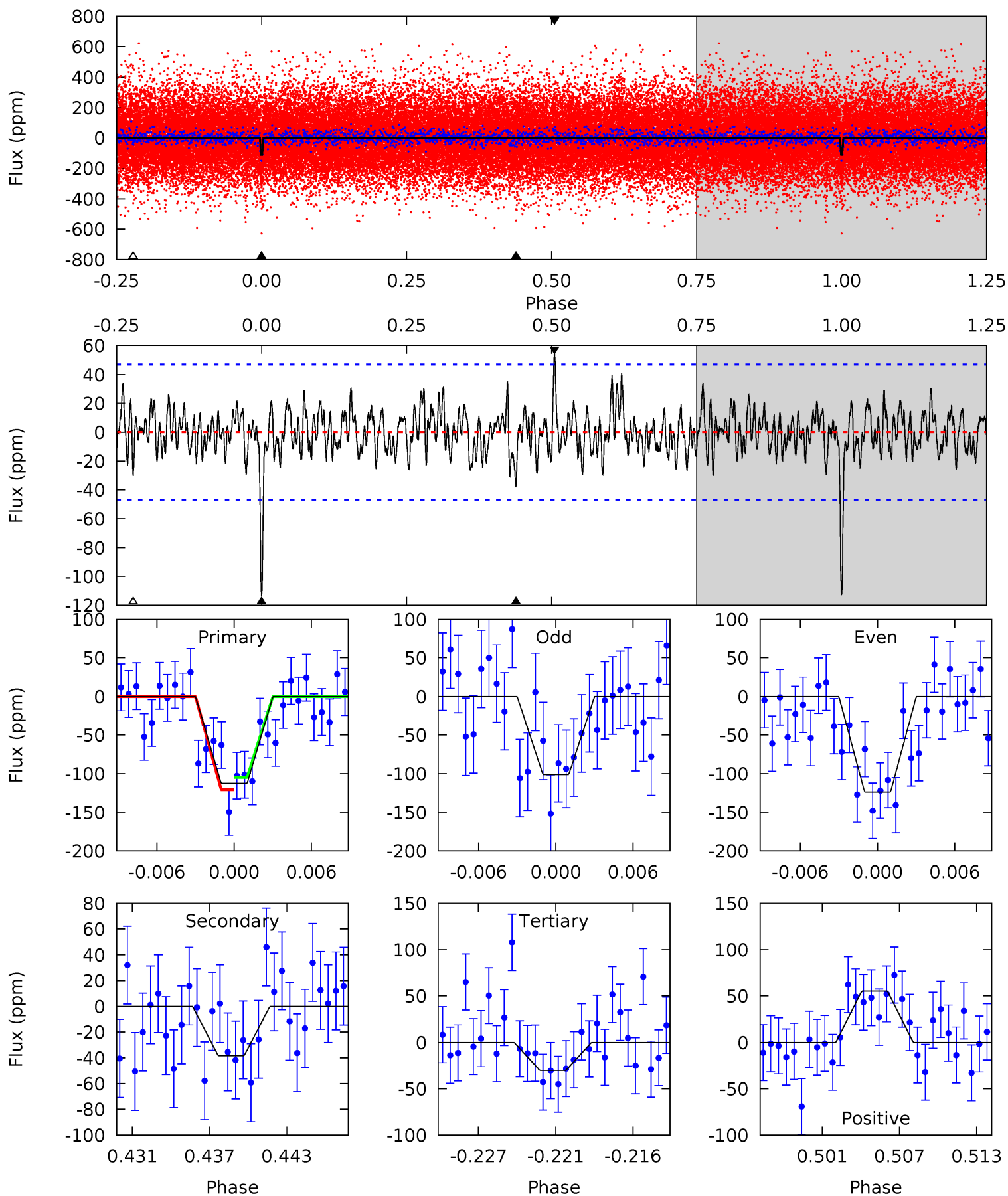
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	4.00	3.87	5.65	5.11	2.72	1.35	8.62	6.84	0.14	-1.64	1.07	0.95	0.31	0.69



Alt Model-Shift Uniqueness Test

010285631-02, P = 10.522815 Days, E = 127.269526 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	4.19	3.32	6.03	5.13	2.76	1.39	9.00	6.29	0.87	-1.84	1.25	0.96	0.33	0.86



Stellar Parameters For KIC 010285631

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5548_{-1}^{+110}	$4.038_{-0.090}^{+0.210}$	$0.180_{-0.150}^{+0.150}$	$1.614_{-0.381}^{+0.254}$	$1.038_{-0.095}^{+0.095}$	$0.348_{-0.099}^{+0.411}$
	+2%/-0%	+5%/-2%	+83%/-83%	+16%/-24%	+9%/-9%	+118%/-29%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 010285631-02 / KOI 0331.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-34 ± 9	$2.46_{-1.61}^{+2.14}$	1386_{-98}^{+73}	3830_{-696}^{+2007}	28_{-21}^{+201}
Alt.	-38 ± 9	$2.69_{-1.81}^{+1.94}$	1386_{-97}^{+73}	3799_{-625}^{+2181}	27_{-19}^{+227}

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

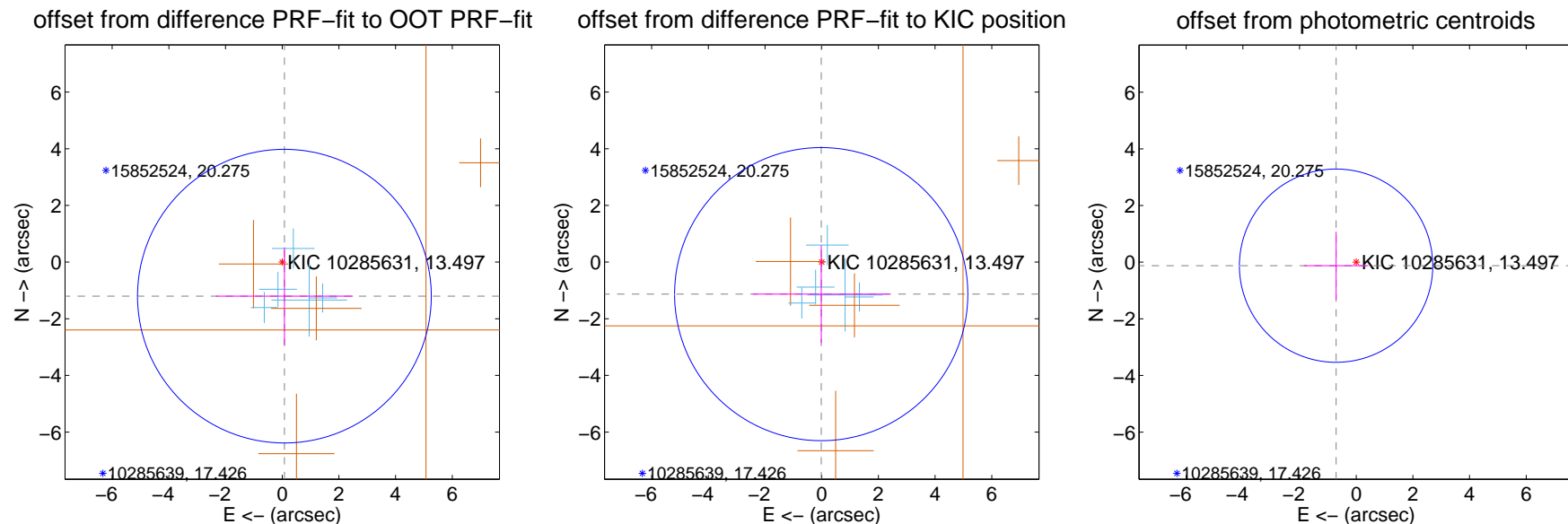
DV Centroid Data

Supplemental centroid analysis for 010285631-02. Kepler magnitude: 13.50. Transit SNR 8.86

There are 5 quarters with good PRF difference image offsets

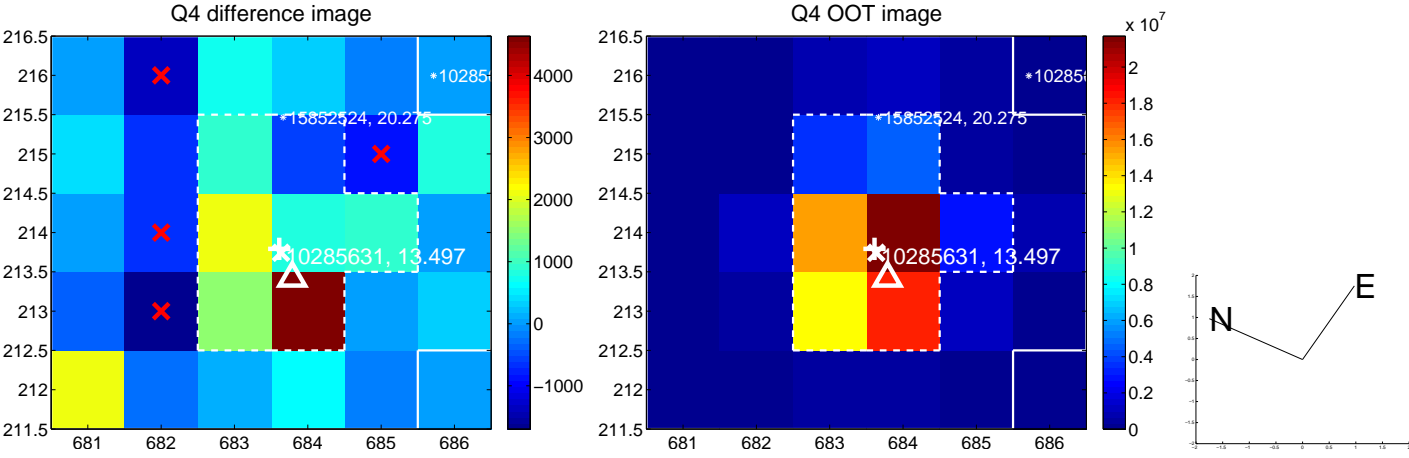
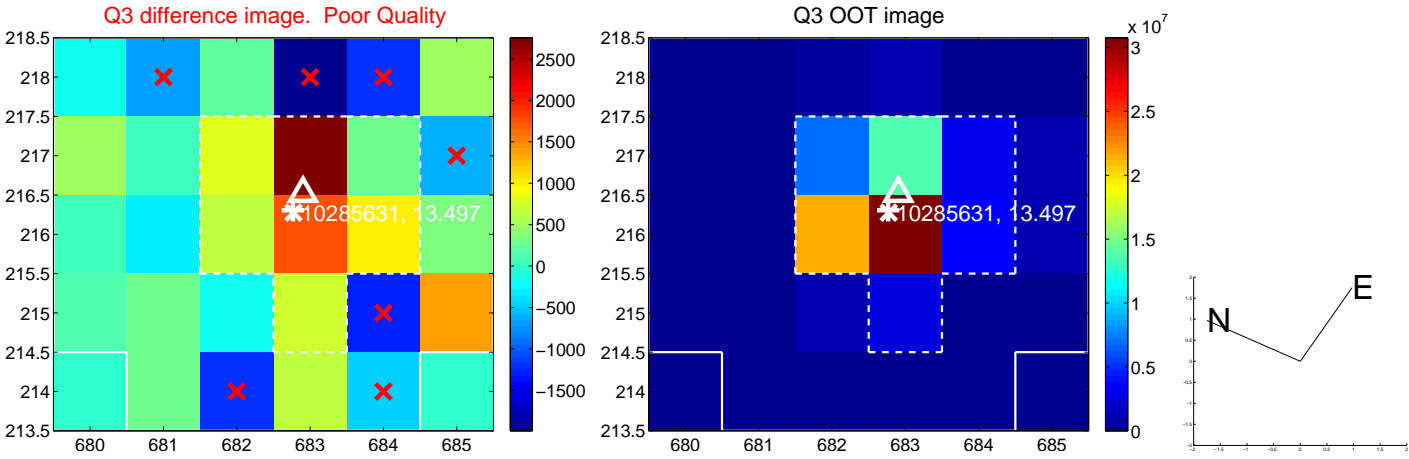
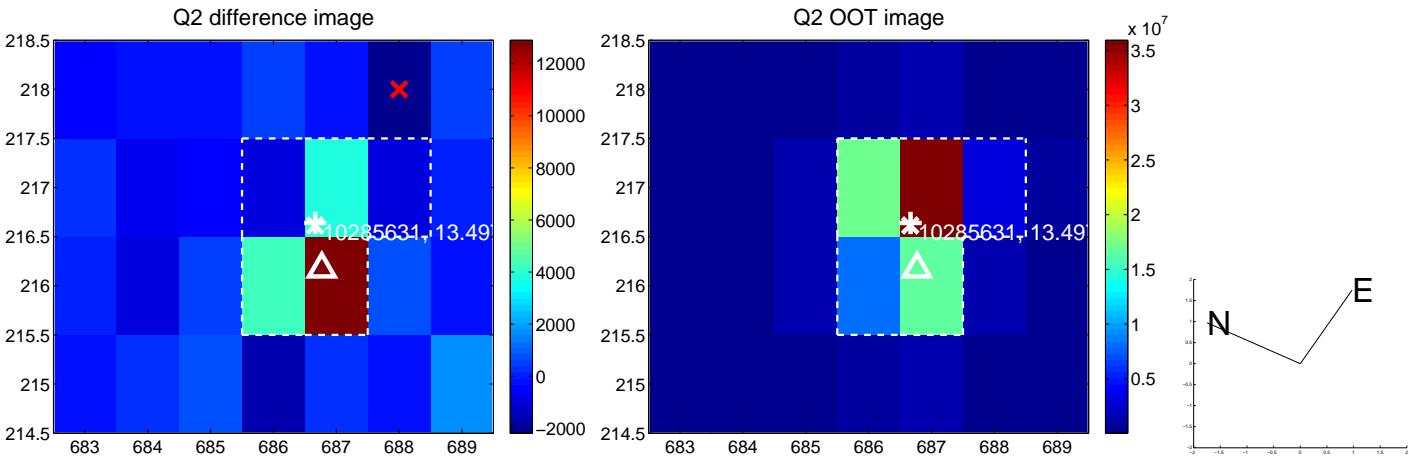
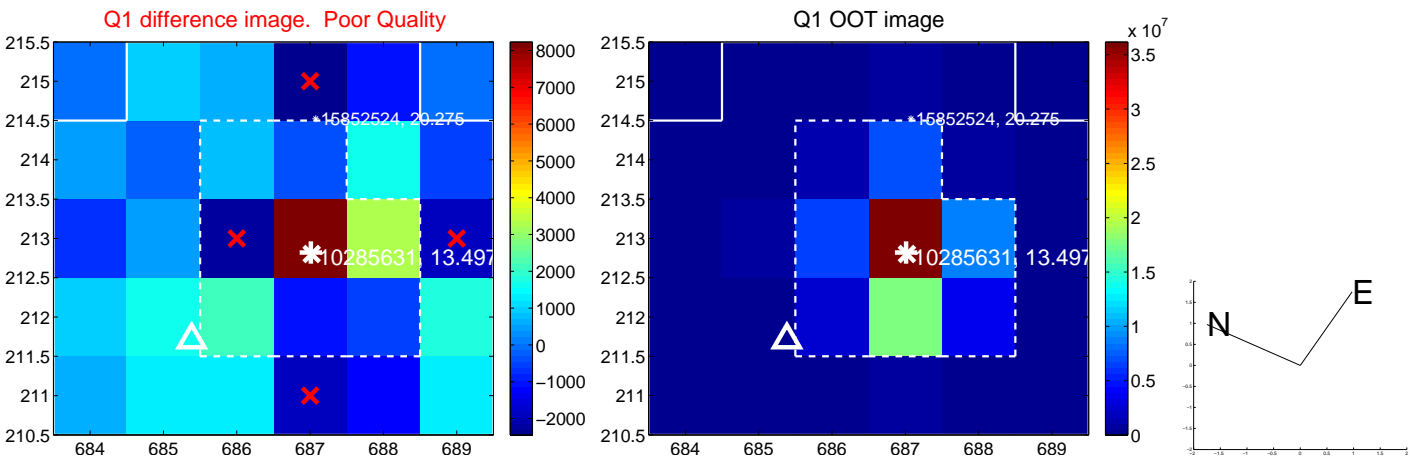
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.205 ± 1.728	0.70	-0.077 ± 2.416	-1.202 ± 1.724
PRF-fit source offset from KIC position	1.131 ± 1.724	0.66	0.018 ± 2.416	-1.131 ± 1.724
photometric centroid source offset	0.72 ± 1.14	0.63	0.71 ± 1.14	-0.12 ± 1.20

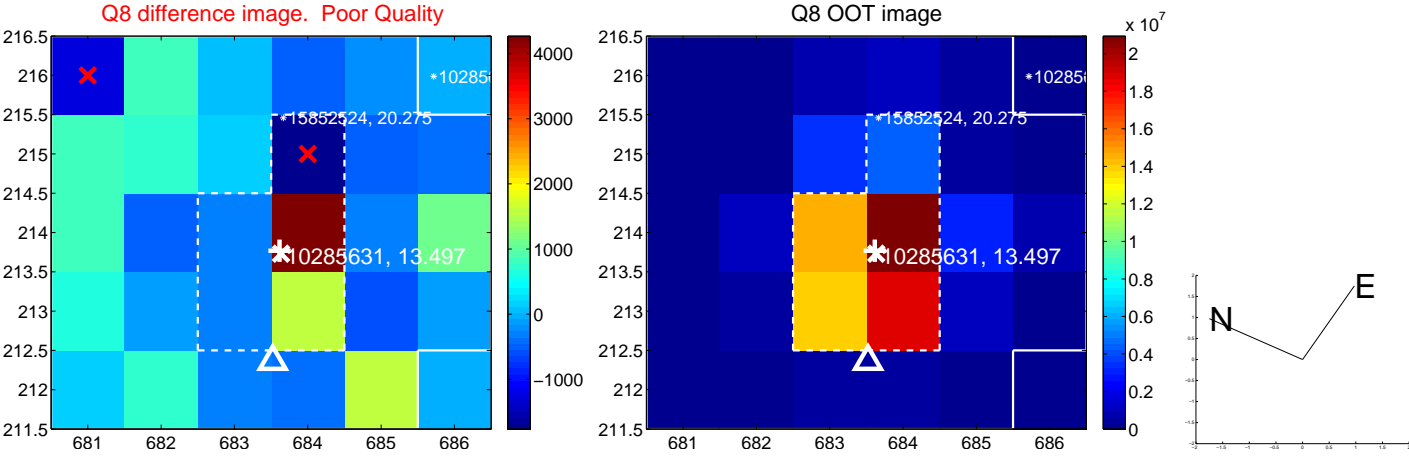
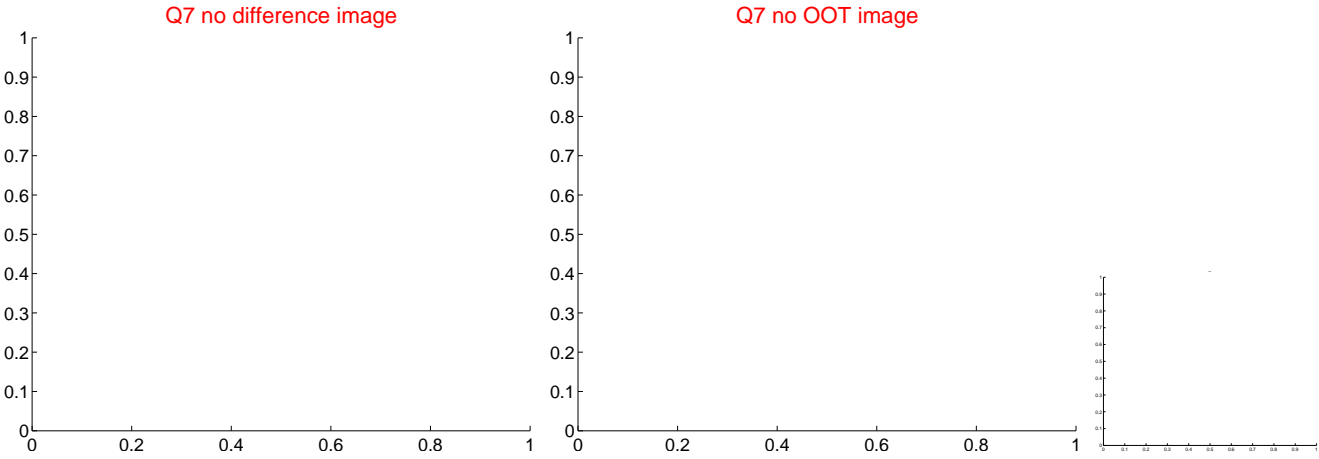
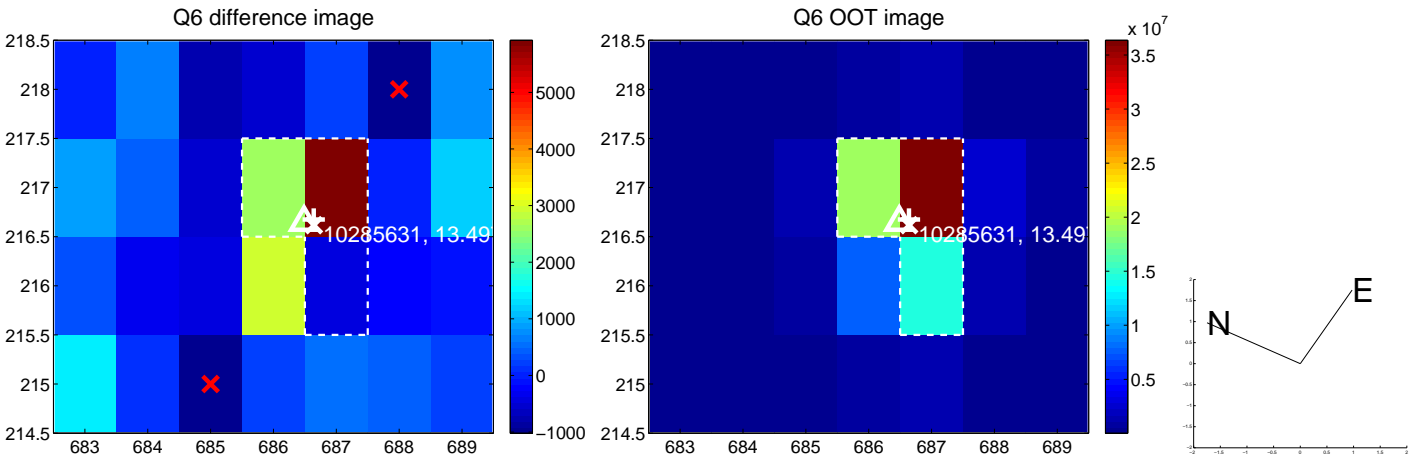
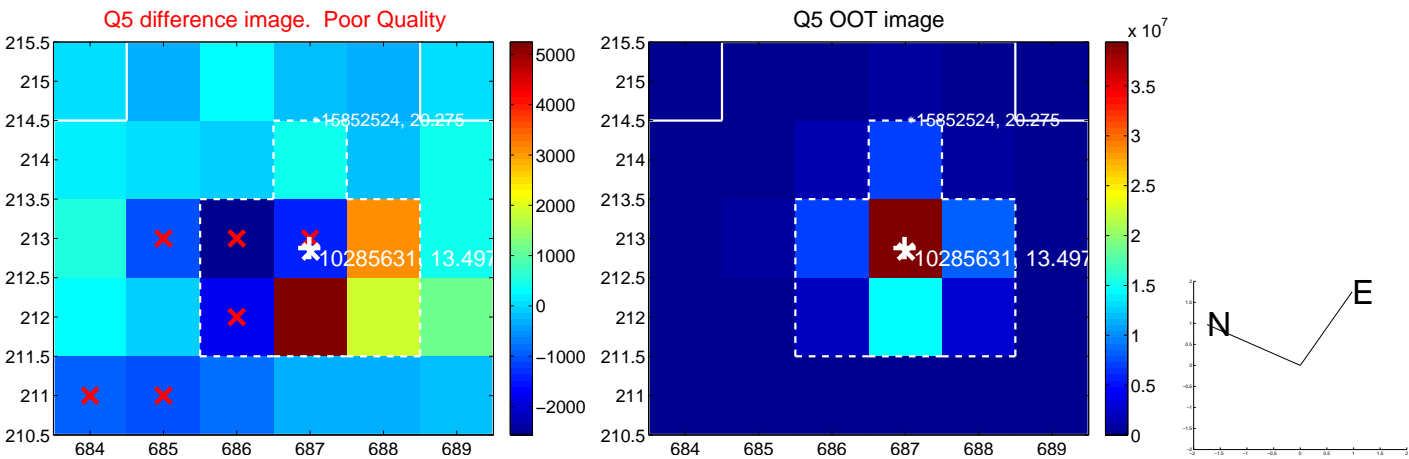


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

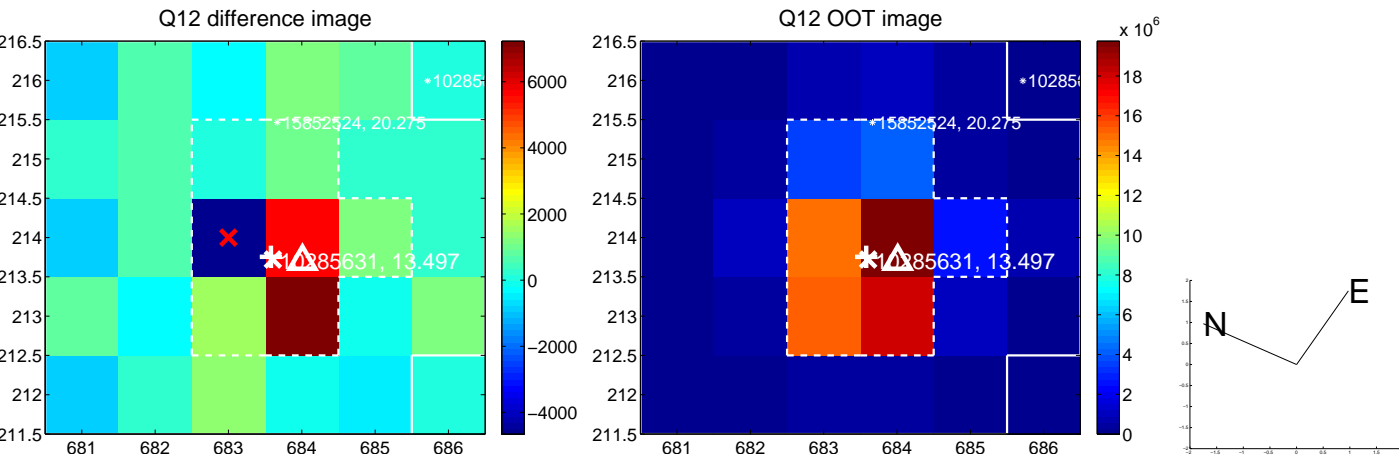
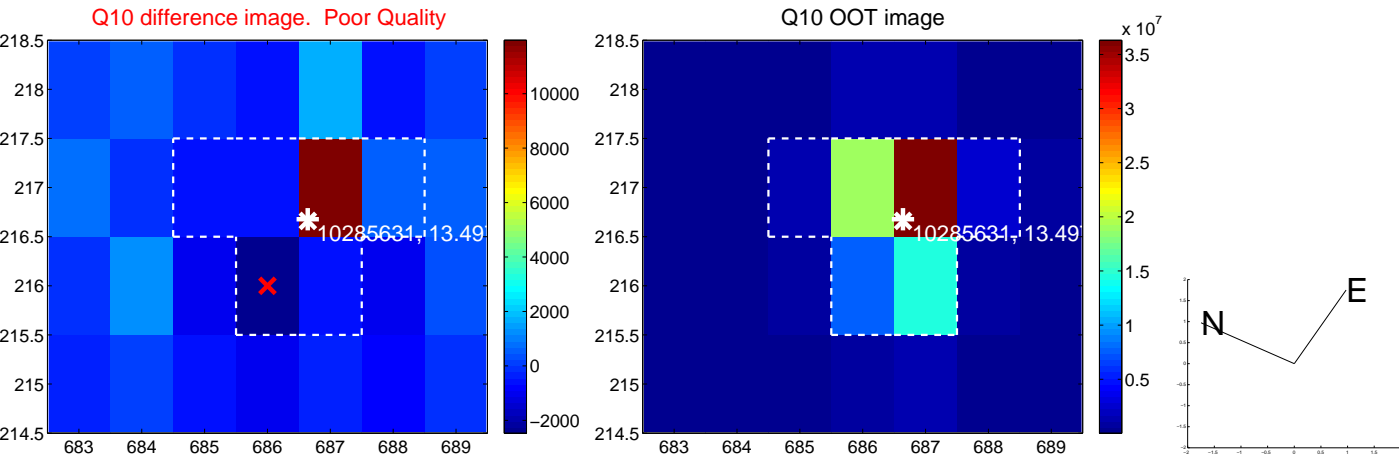
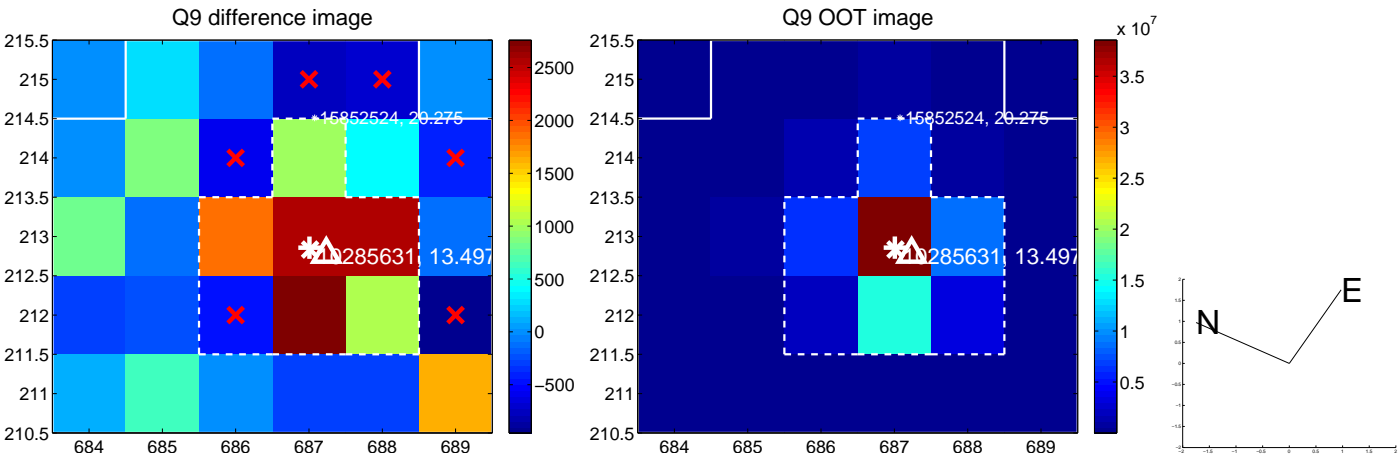
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



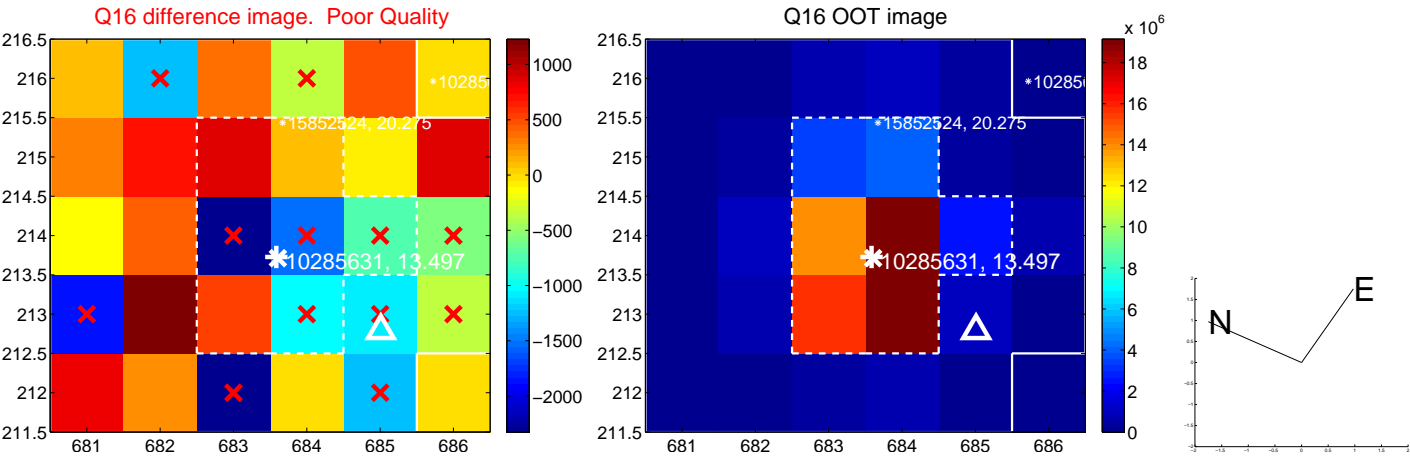
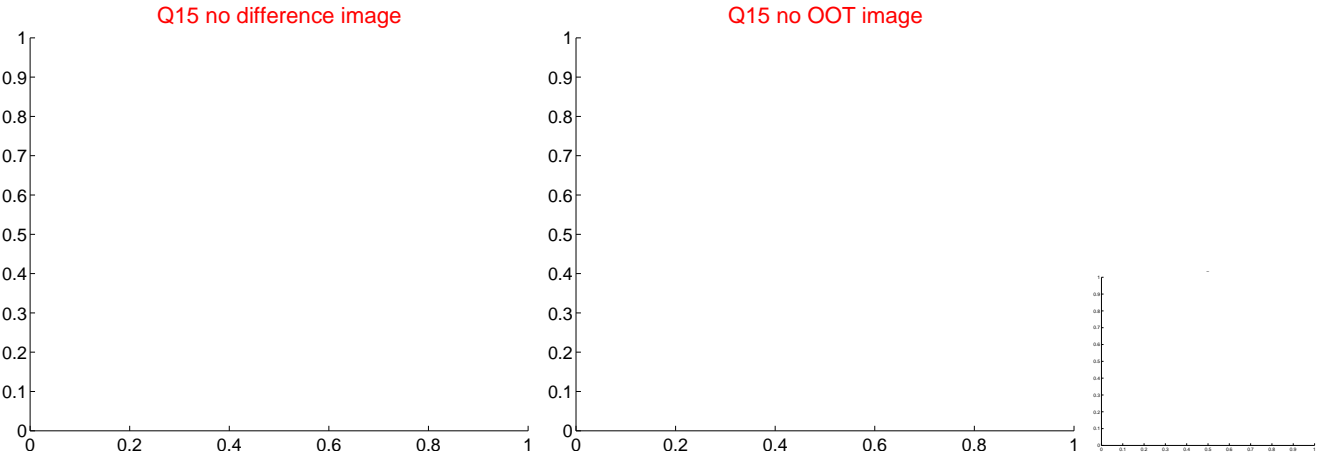
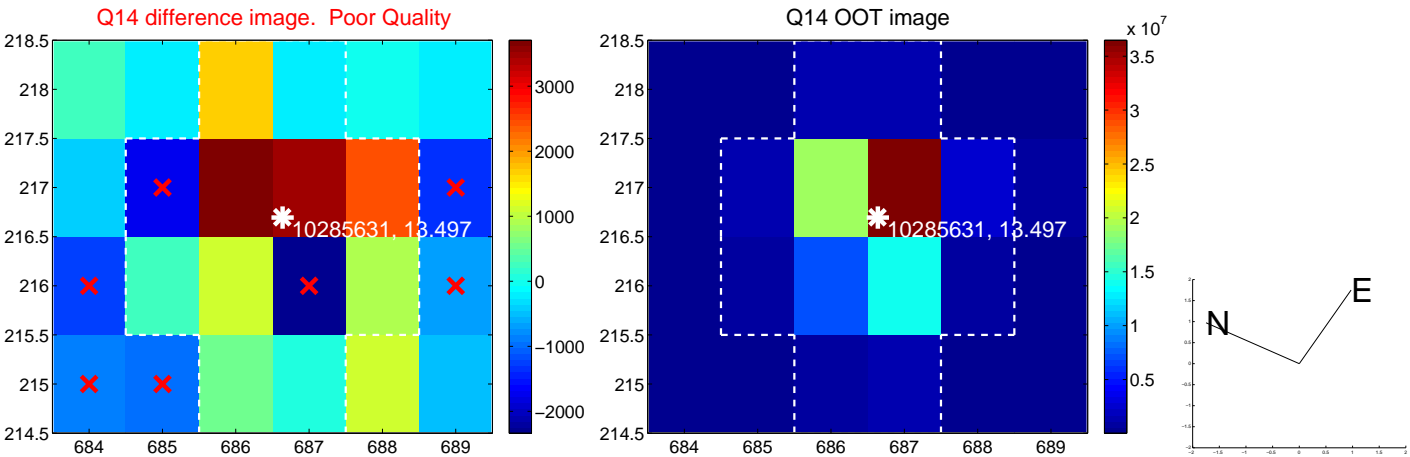
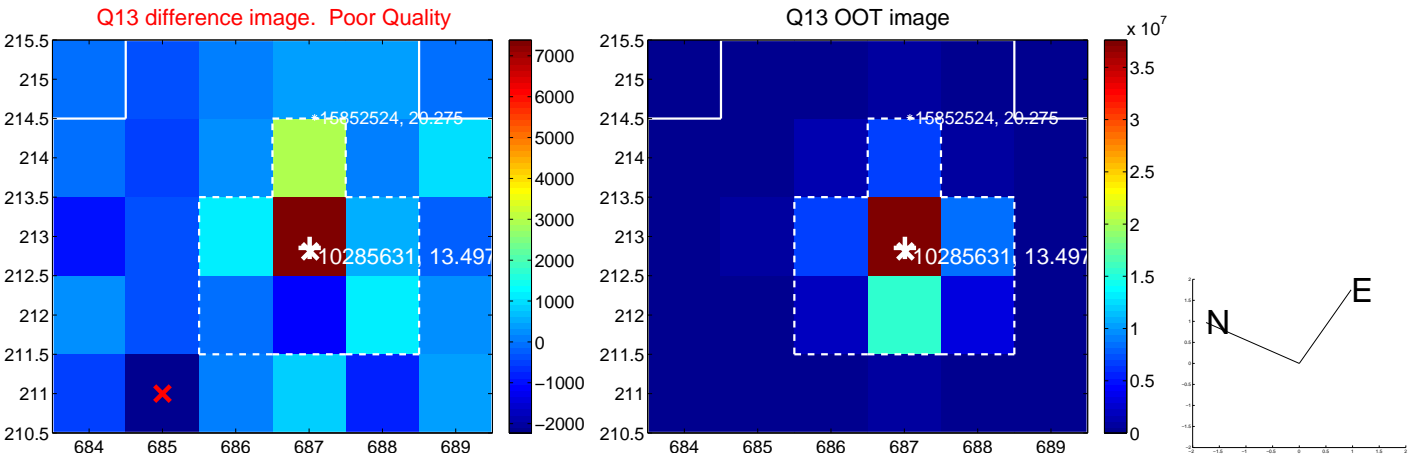
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



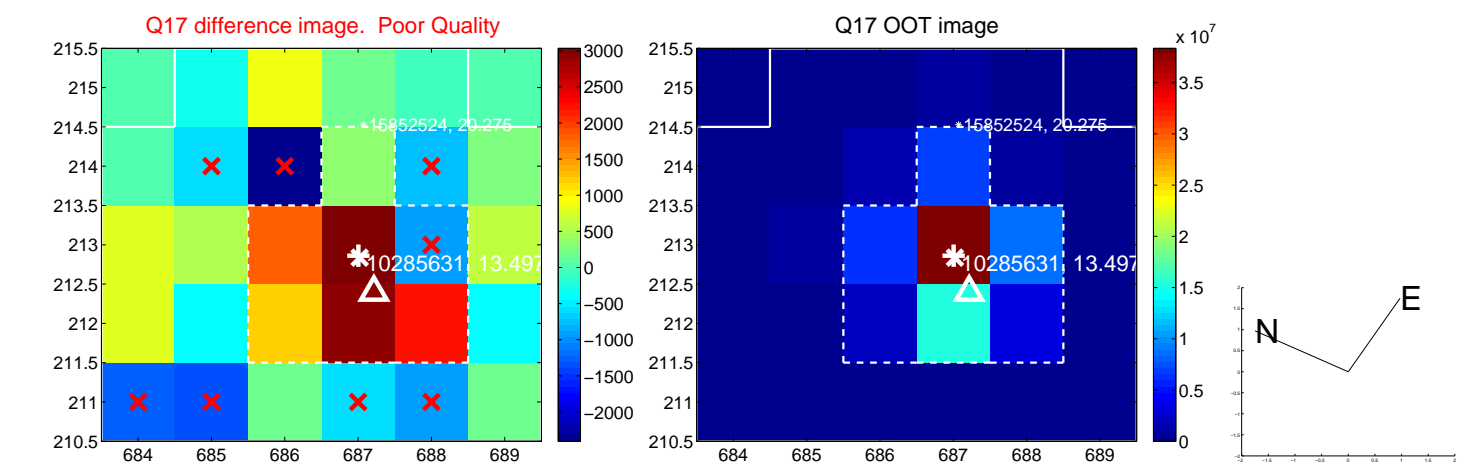
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



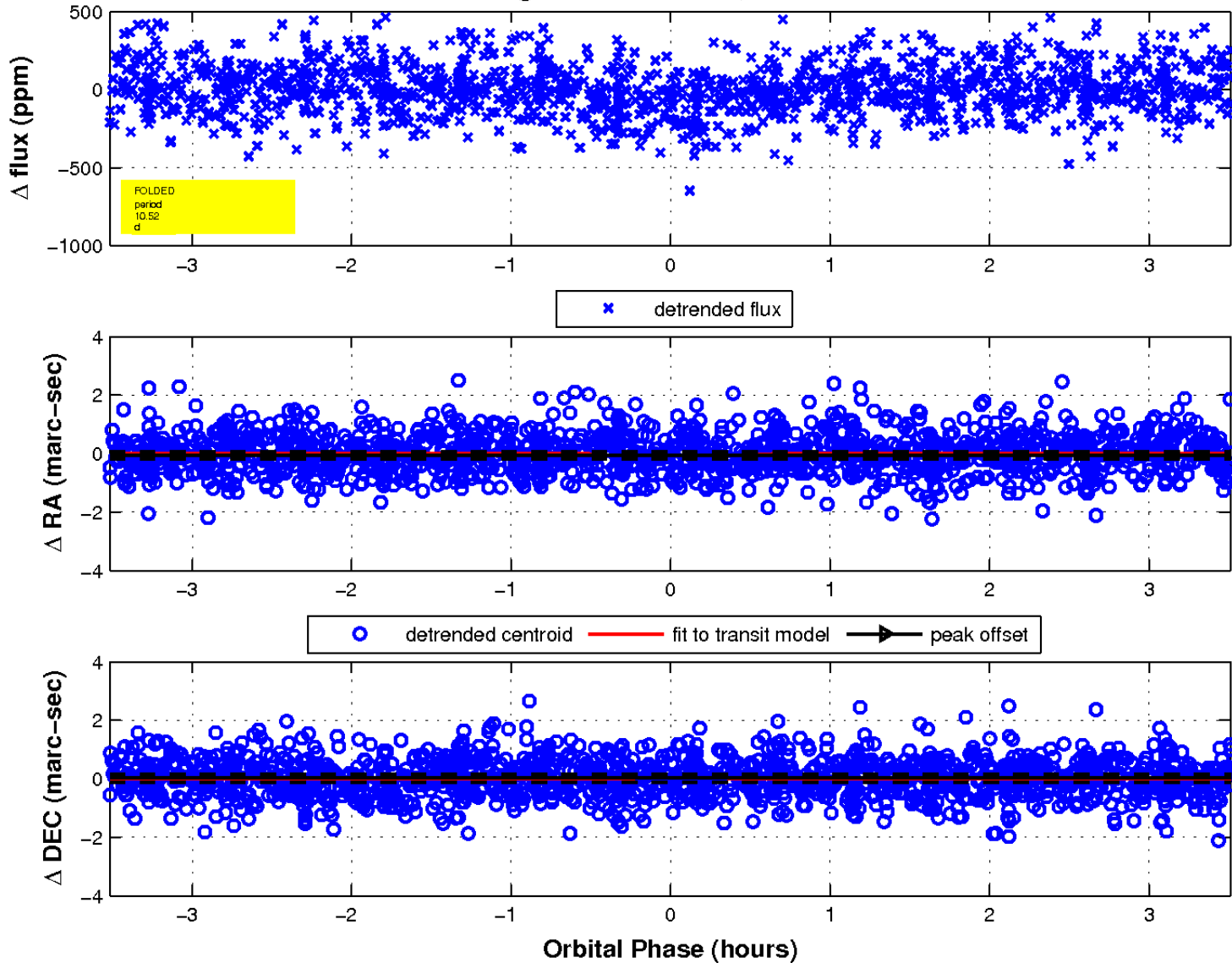
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

