

KIC 009283128

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})
009283128-01	OBS	No	1.247323	132.515450	16.9	3.935	9.0	8.1	3.25	8048	1.56	47901.83
009283128-02	OBS	No	0.726611	132.154988	23.6	2.251	9.0	9.6	3.25	8048	1.84	98458.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009283128-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009283128-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

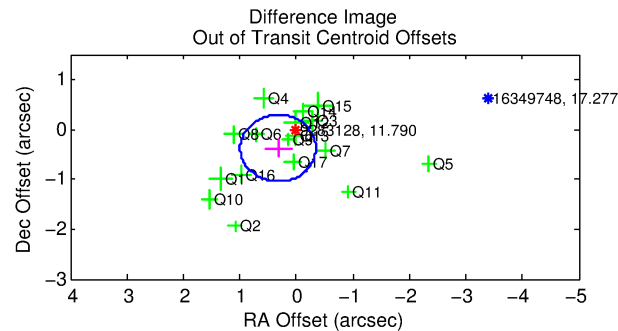
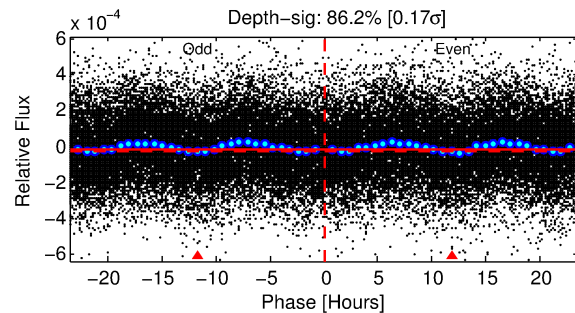
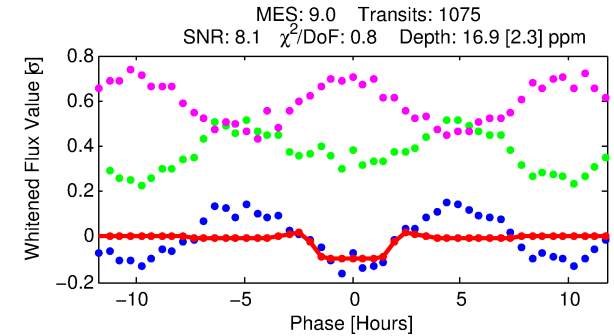
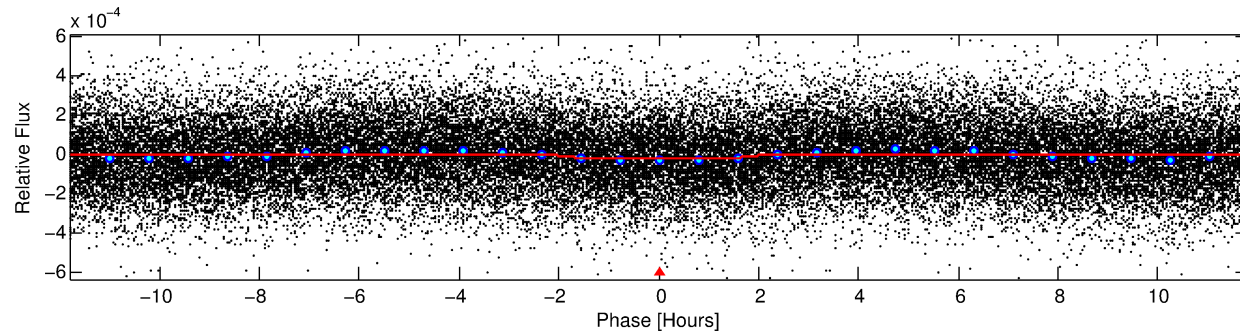
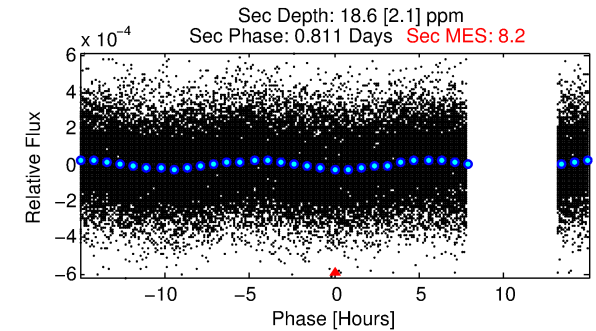
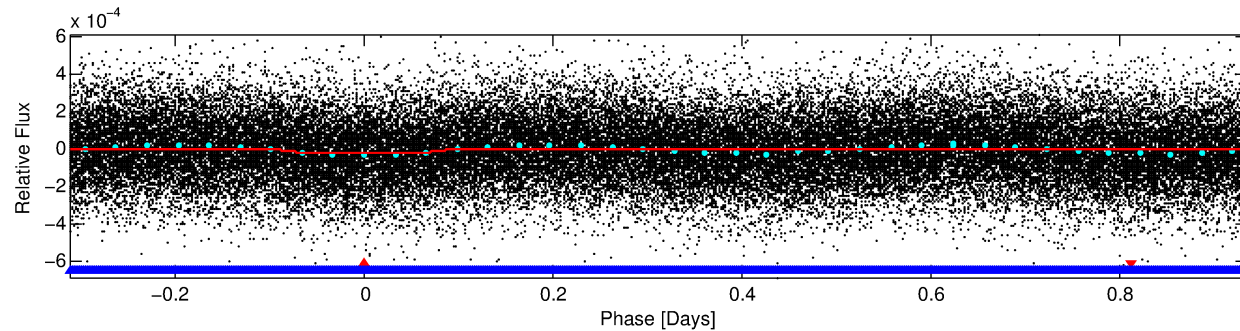
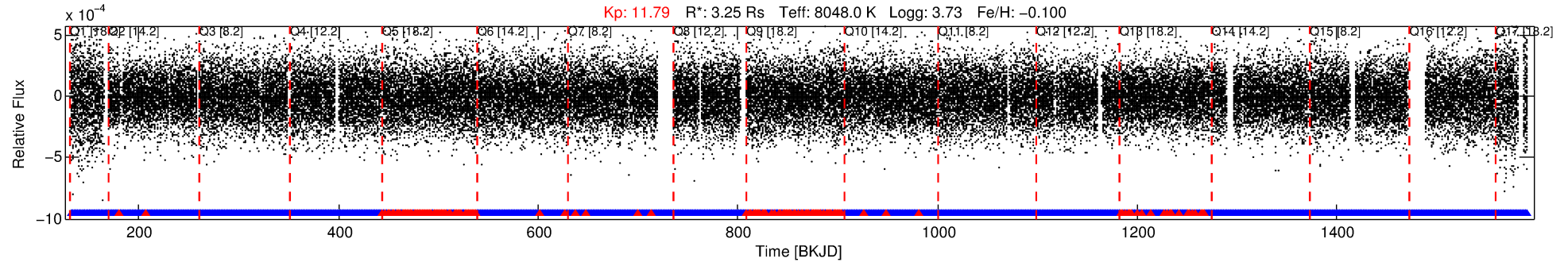
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009283128-01

No Significant Match Found

DV One-Page Summary

KIC: 9283128 Candidate: 1 of 2 Period: 1.247 d



DV Fit Results:

Period = 1.24732 [0.00002] d
Epoch = 132.5155 [0.0050] BKJD
 $R_p/R^* = 0.0044$ [0.0018]
 $a/R^* = 1.43$ [1.87]
 $b = 0.90$ [0.55]
 $\text{Seff} = 47901.83$ [36572.13]
 $T_{\text{eq}} = 3772$ [720] K
 $R_p = 1.56$ [0.95] R_e
 $a = 0.0288$ [0.0130] AU
 $A_g = 3.49$ [3.90] [0.64σ]
 $T_{\text{eff}} = 7973$ [1706] K [2.27σ]

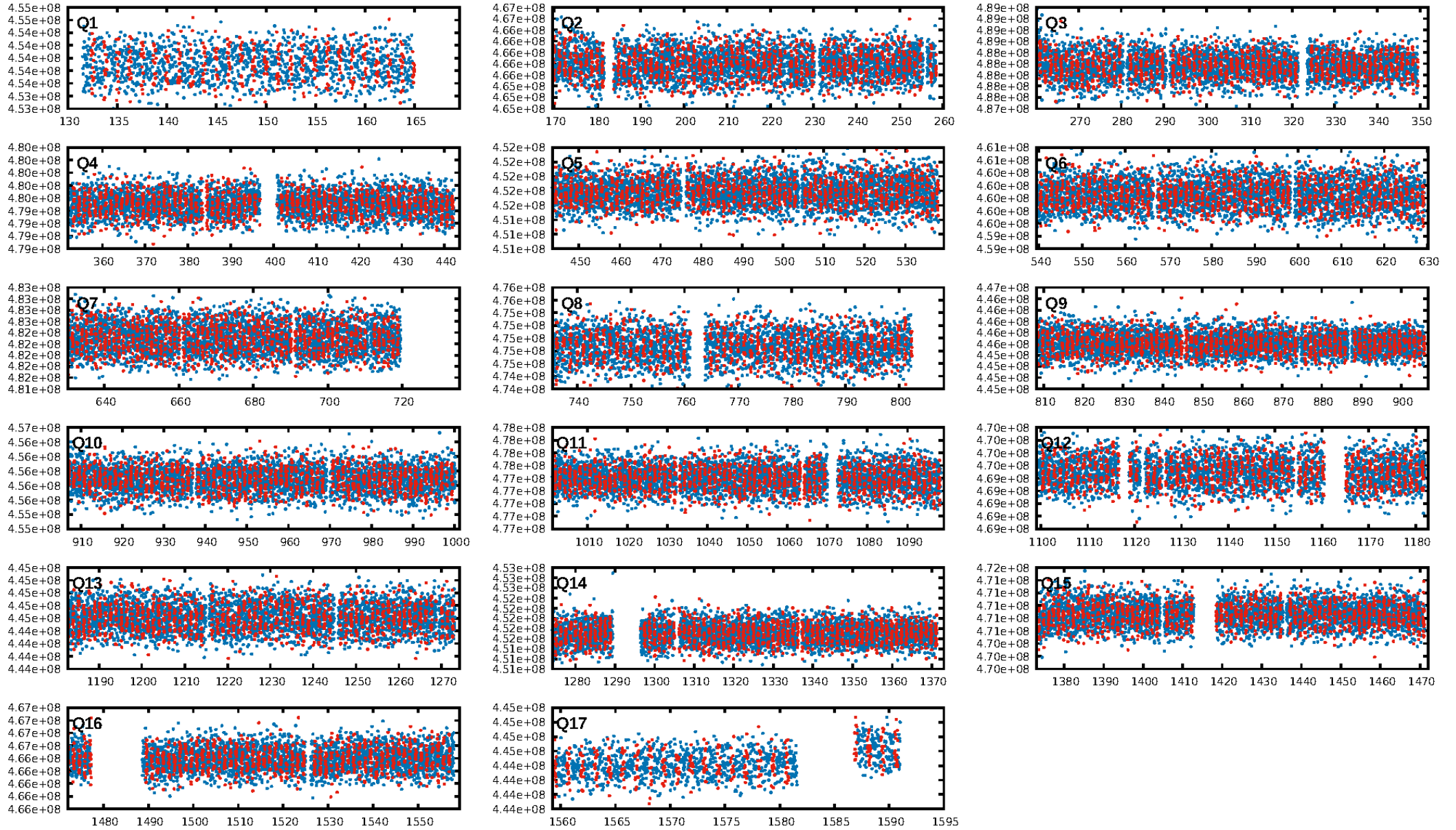
DV Diagnostic Results:

ShortPeriod-sig: 99.4% [2.76σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.84e-14
RollingBand-fgt: 0.86 [885/1026]
GhostDiagnostic-chr: 2.307
Centroid-sig: 34.8%
Centroid-so: 0.757 arcsec [1.29σ]
OotOffset-rm: 0.501 arcsec [2.25σ]
KicOffset-rm: 0.575 arcsec [2.57σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

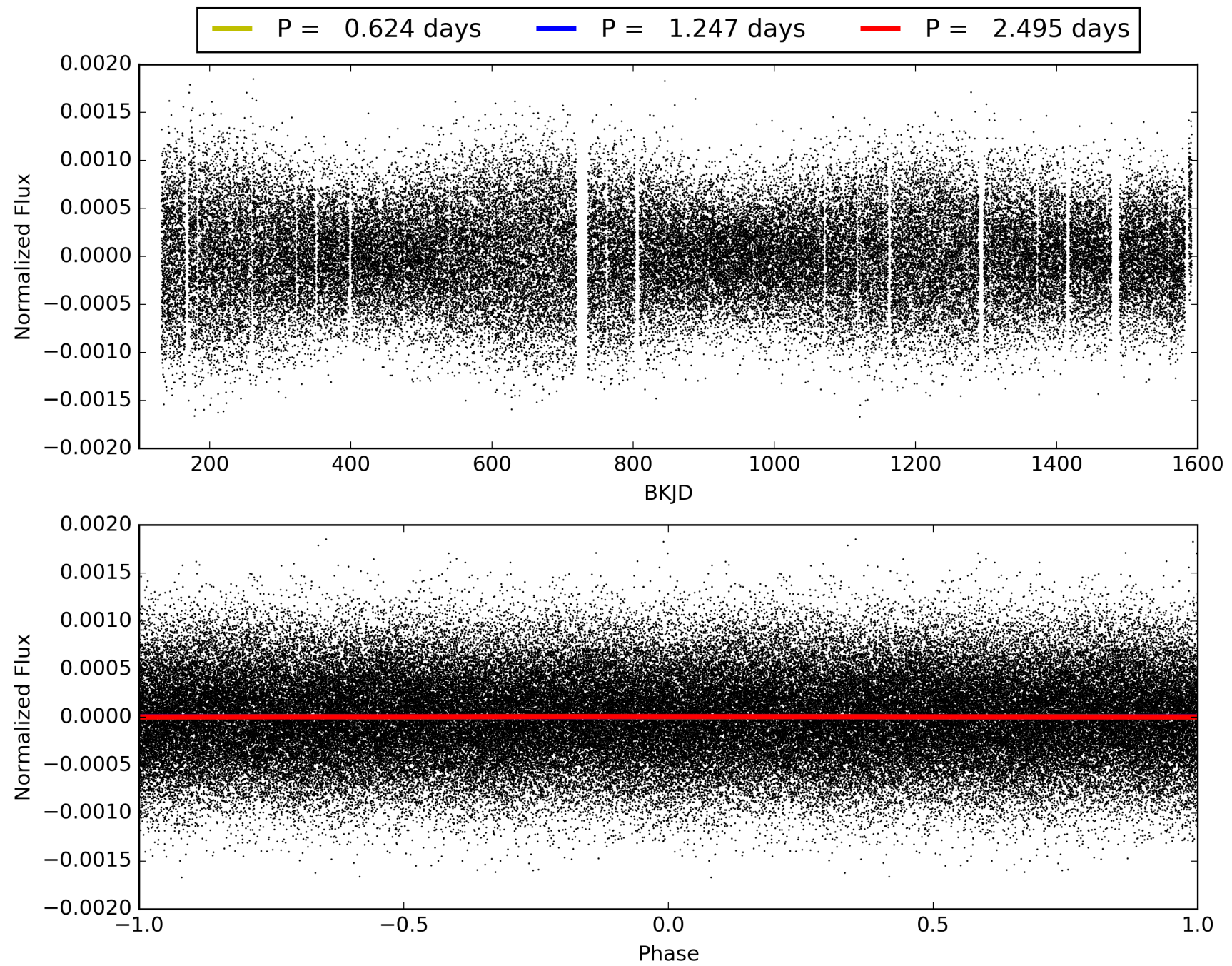
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:19:47 Z

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

TCE 009283128-01, PDC Light Curves

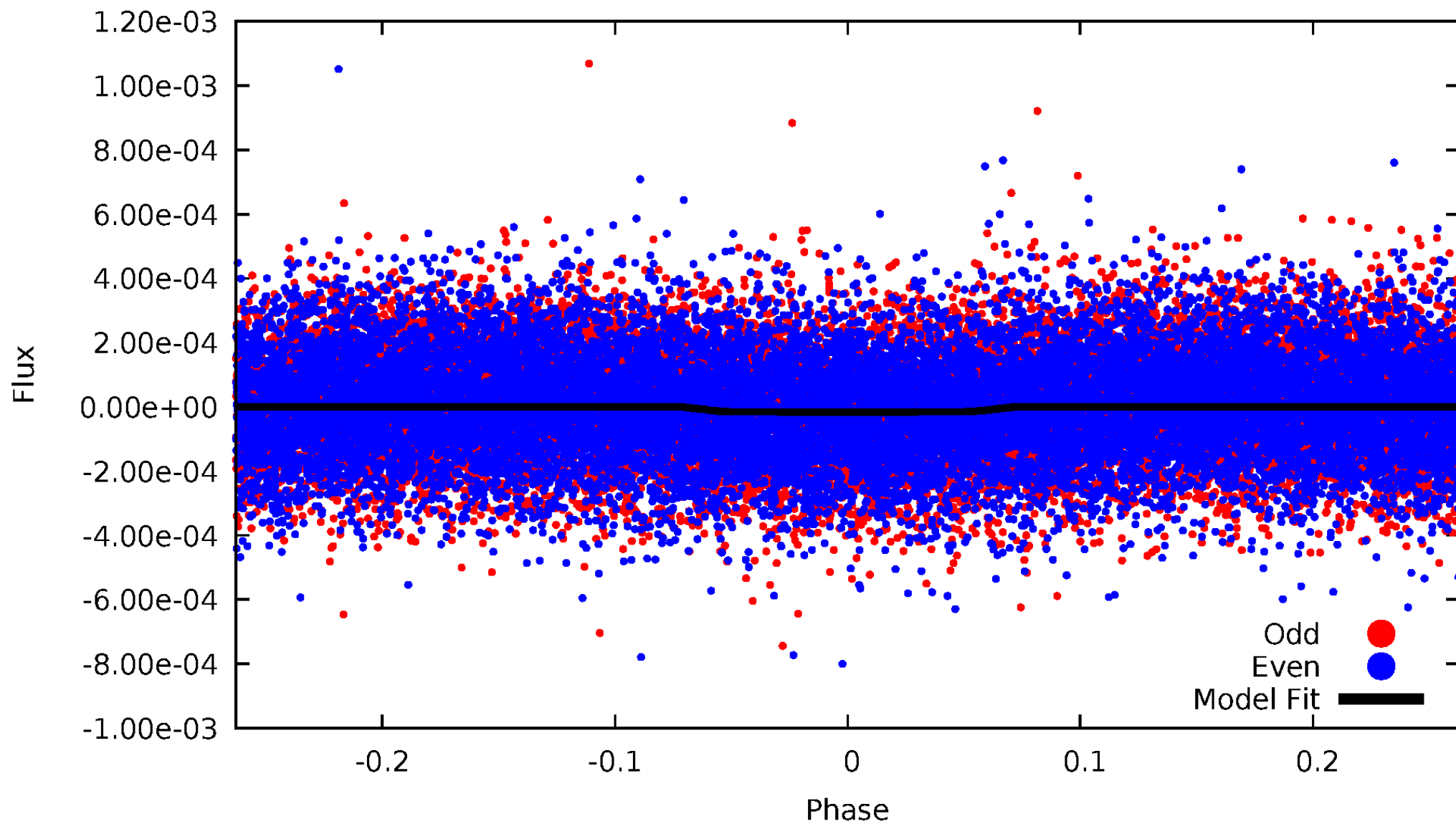


TCE 009283128-01



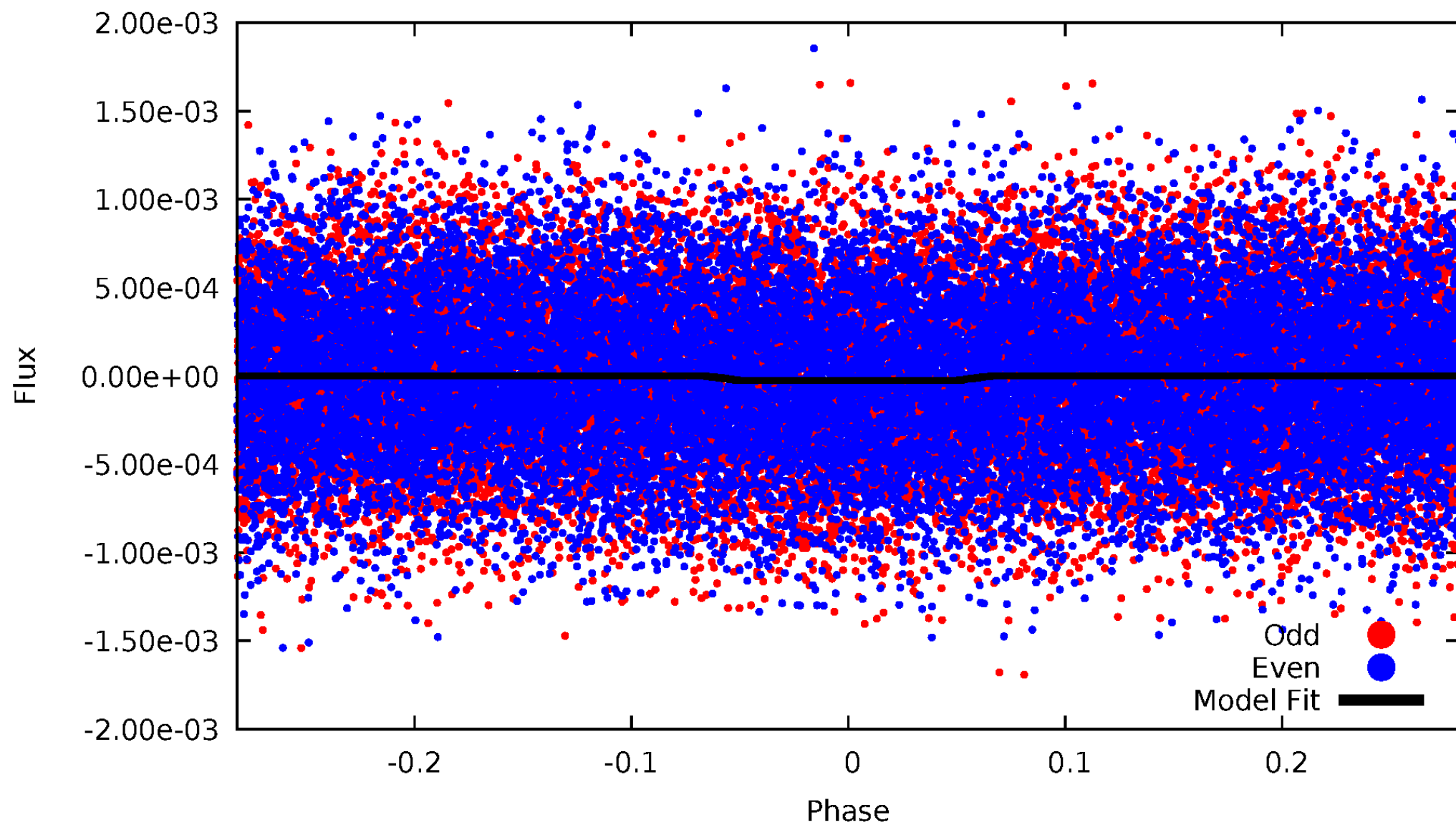
DV Odd/Even

TCE 009283128-01



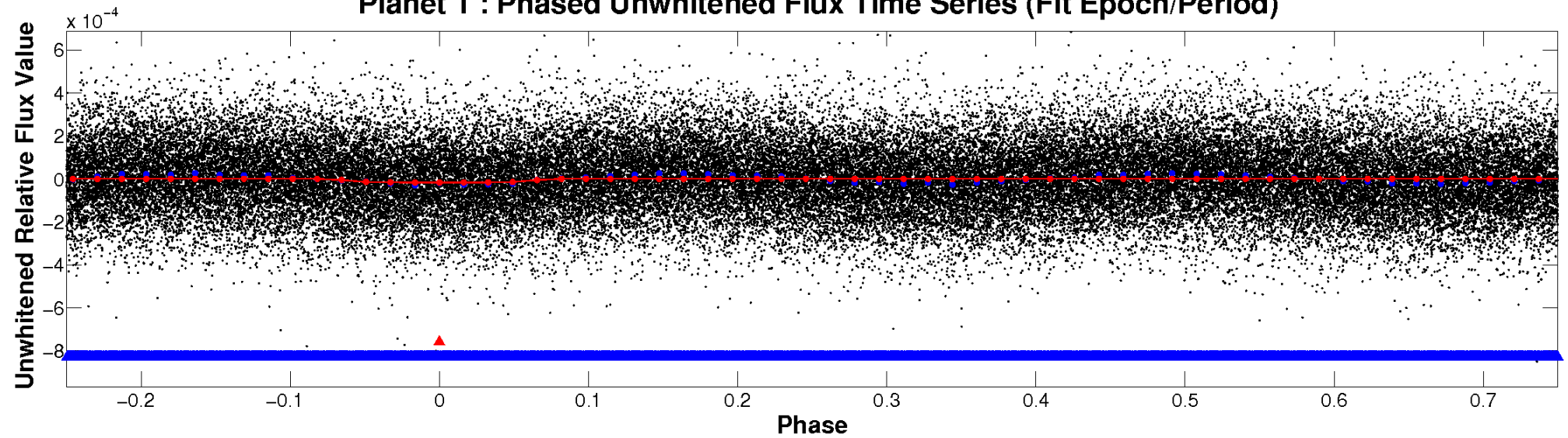
ALT Odd/Even

TCE 009283128-01

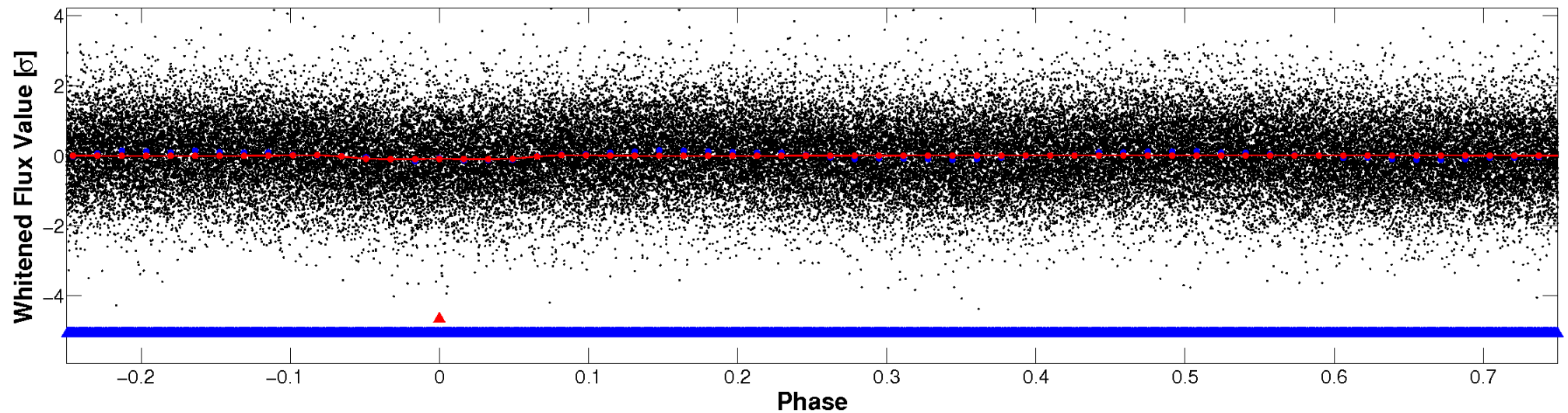


Non-Whitened Vs. Whitened Light Curve

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

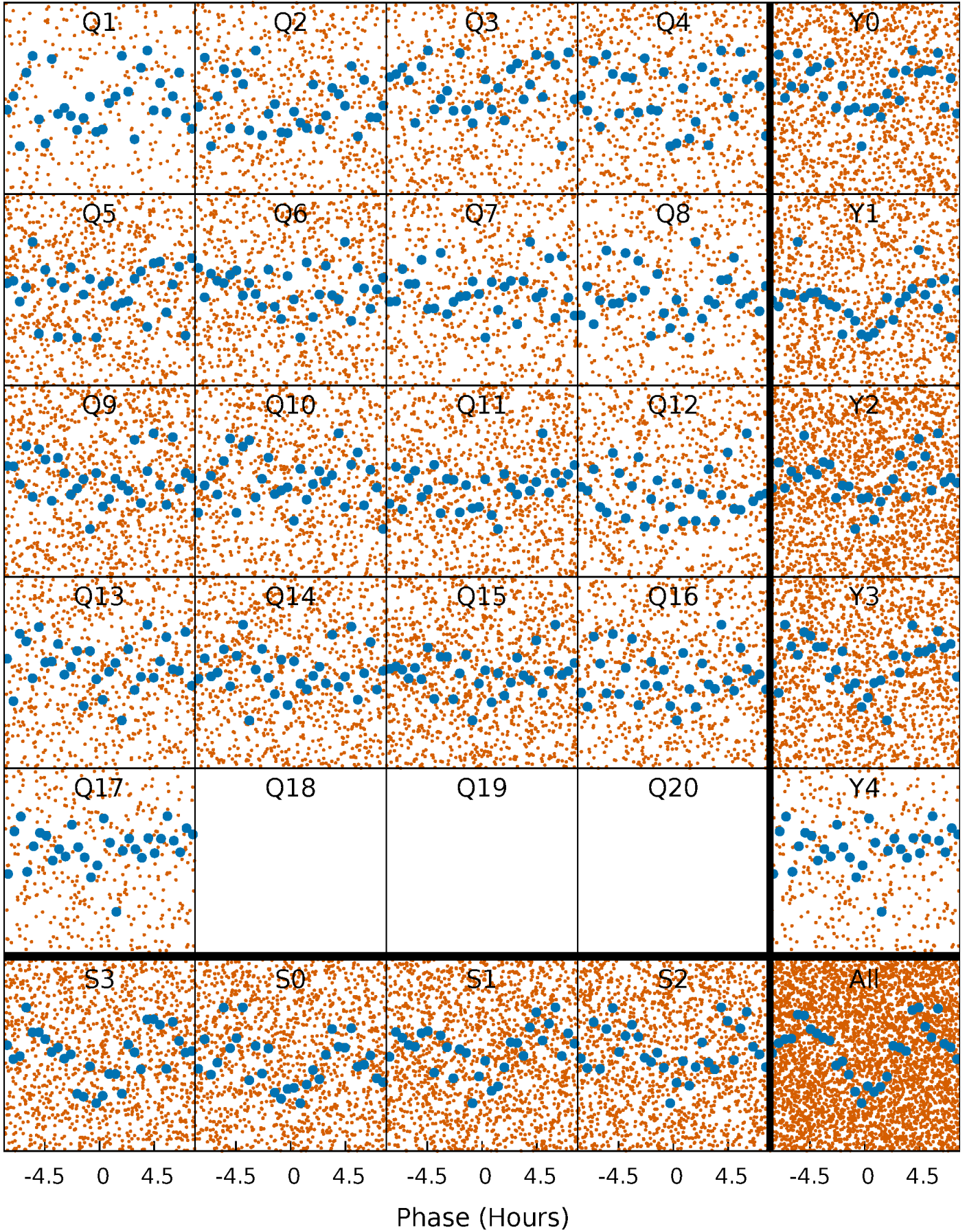


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



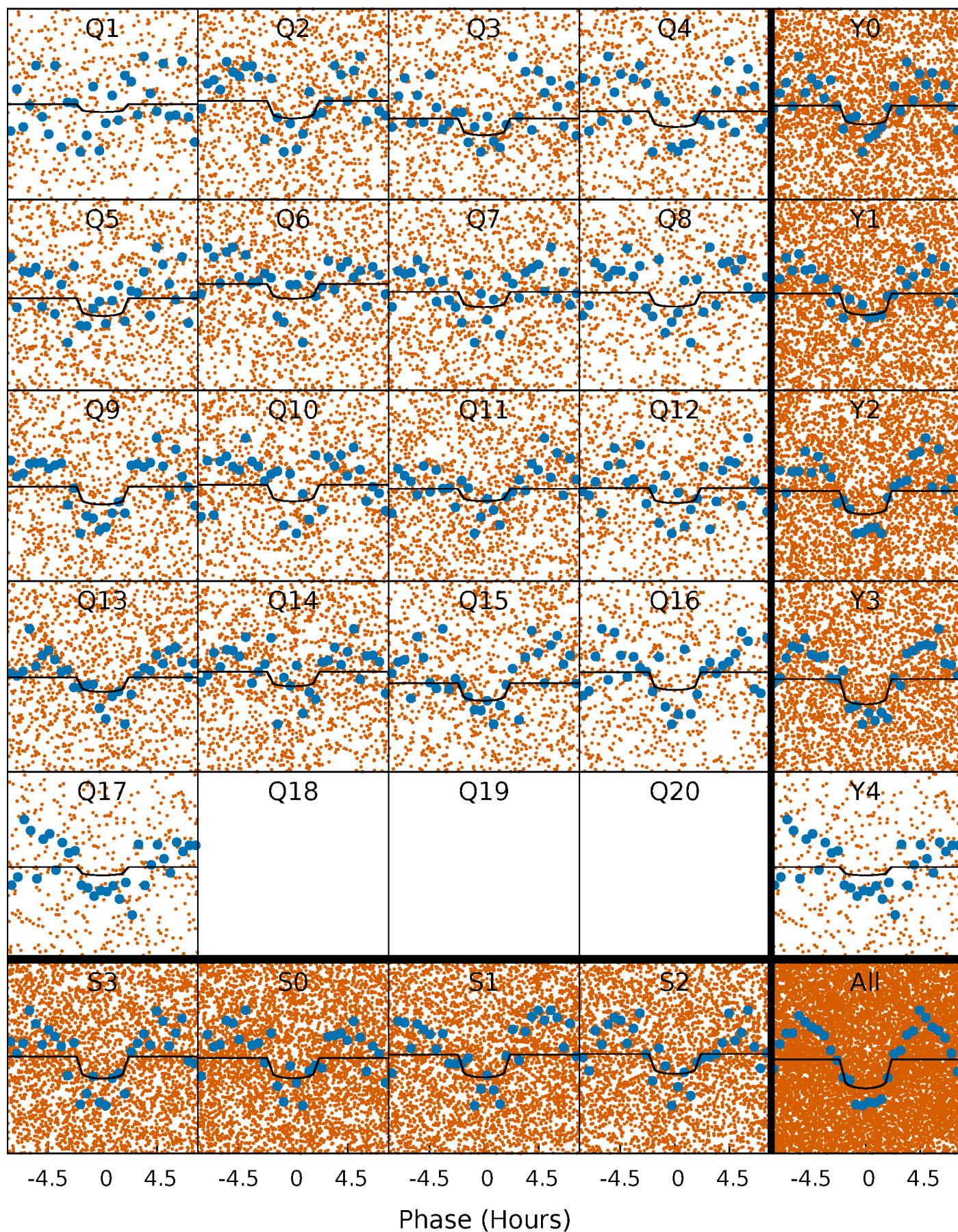
PDC Quarter-Phased Transit Curves

TCE 009283128-01 P= 1.247323 Days $T_0=132.515450$ (BKJD)



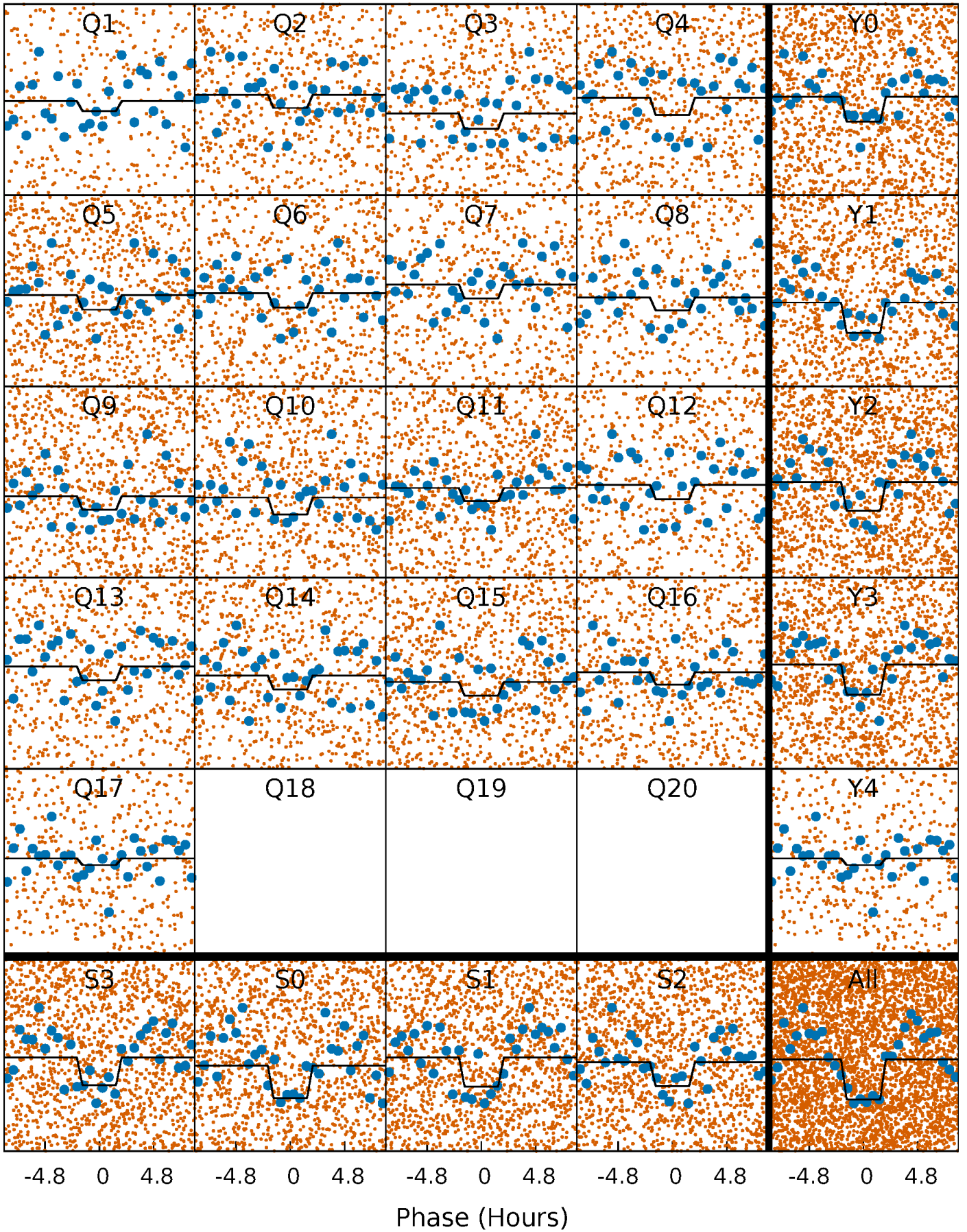
DV Quarter-Phased Transit Curves

TCE 009283128-01 P= 1.247323 Days $T_0=132.515450$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

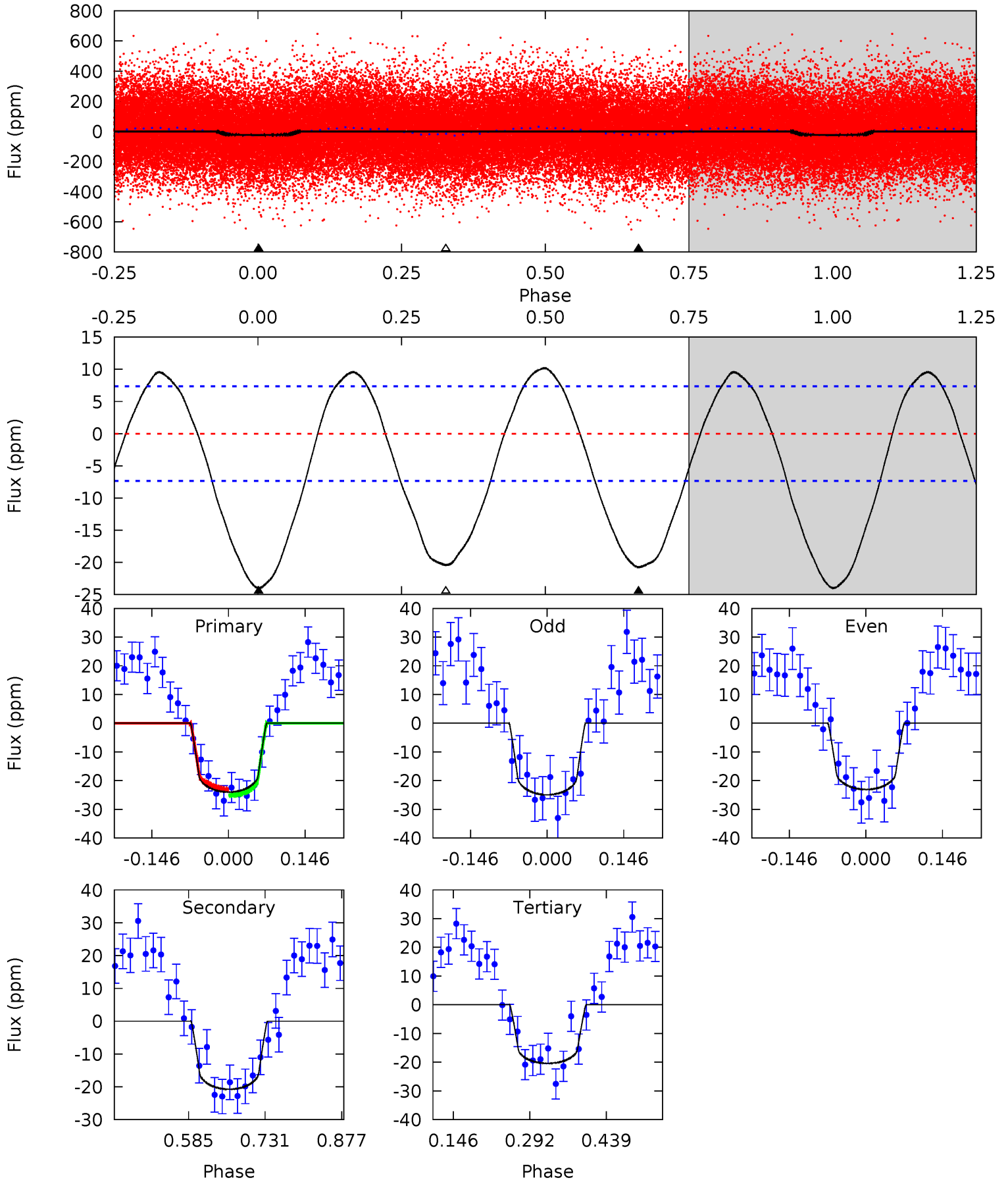
TCE 009283128-01 P= 1.247348 Days $T_0=132.509359$ (BKJD)



DV Model-Shift Uniqueness Test

009283128-01, P = 1.247323 Days, E = 131.268127 Days

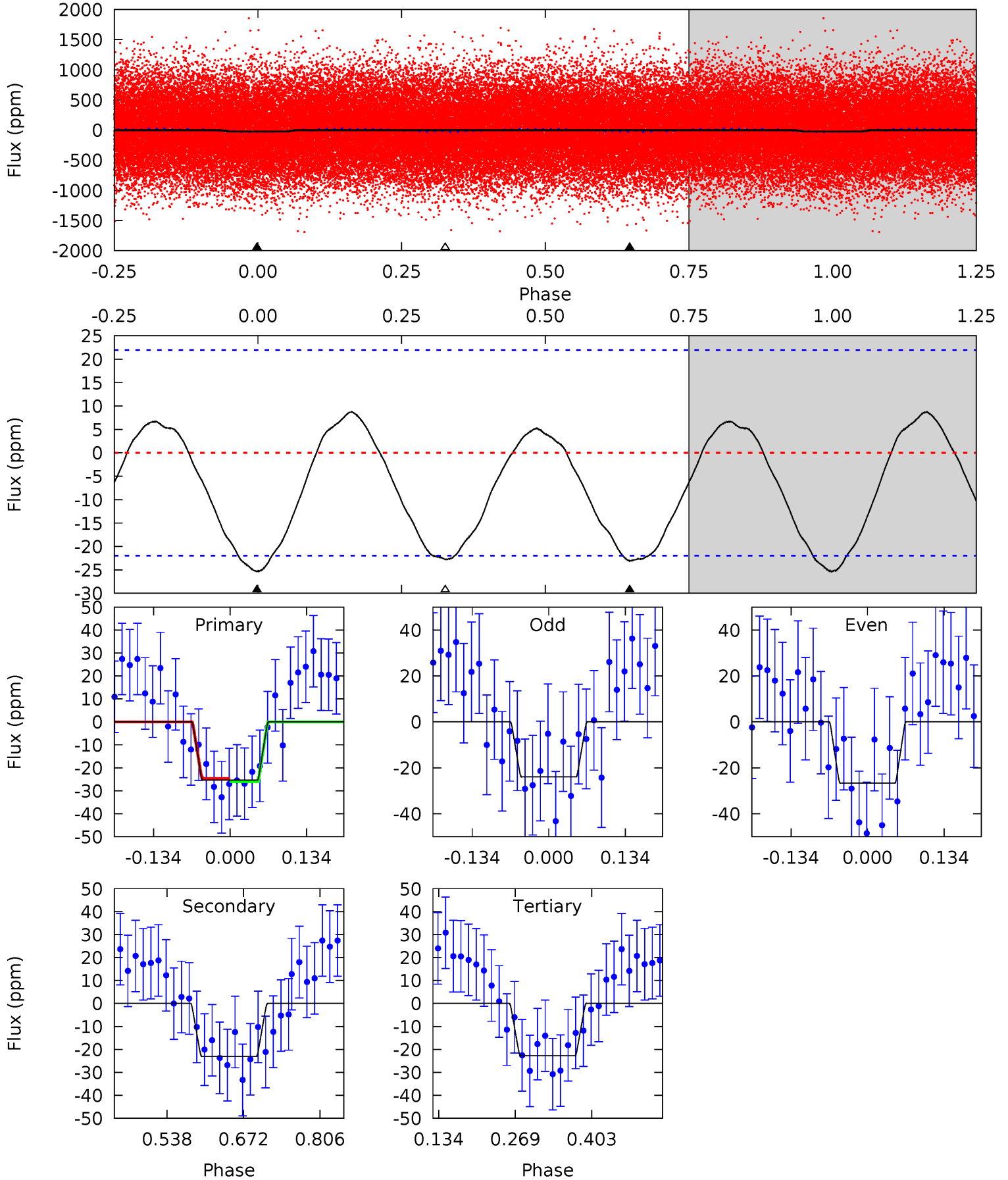
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	12.7	12.4	0	4.48	1.45	6.84	2.19	14.6	0.21	12.7	0.57	0.93	0.30	0.64



Alt Model-Shift Uniqueness Test

009283128-01, P = 1.247348 Days, E = 131.262011 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.19	4.73	4.66	0	4.50	1.50	2.20	0.53	5.19	0.07	4.73	0.28	1.28	0.26	0.14



Stellar Parameters For KIC 009283128

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8048^{+196}_{-365}	$3.725^{+0.442}_{-0.104}$	$-0.100^{+0.200}_{-0.350}$	$3.251^{+0.674}_{-1.460}$	$2.046^{+0.335}_{-0.503}$	$0.084^{+0.342}_{-0.028}$
	+2%/-5%	+12%/-3%	+200%/-350%	+21%/-45%	+16%/-25%	+407%/-33%
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 009283128-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-21 ± 2	$1.41^{+0.71}_{-0.58}$	5067^{+420}_{-631}	8011^{+3529}_{-1615}	$4.800^{+9.370}_{-2.617}$
Alt.	-23 ± 5	$1.62^{+0.73}_{-0.64}$	5039^{+428}_{-616}	7479^{+2460}_{-1390}	$3.952^{+6.651}_{-2.059}$

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

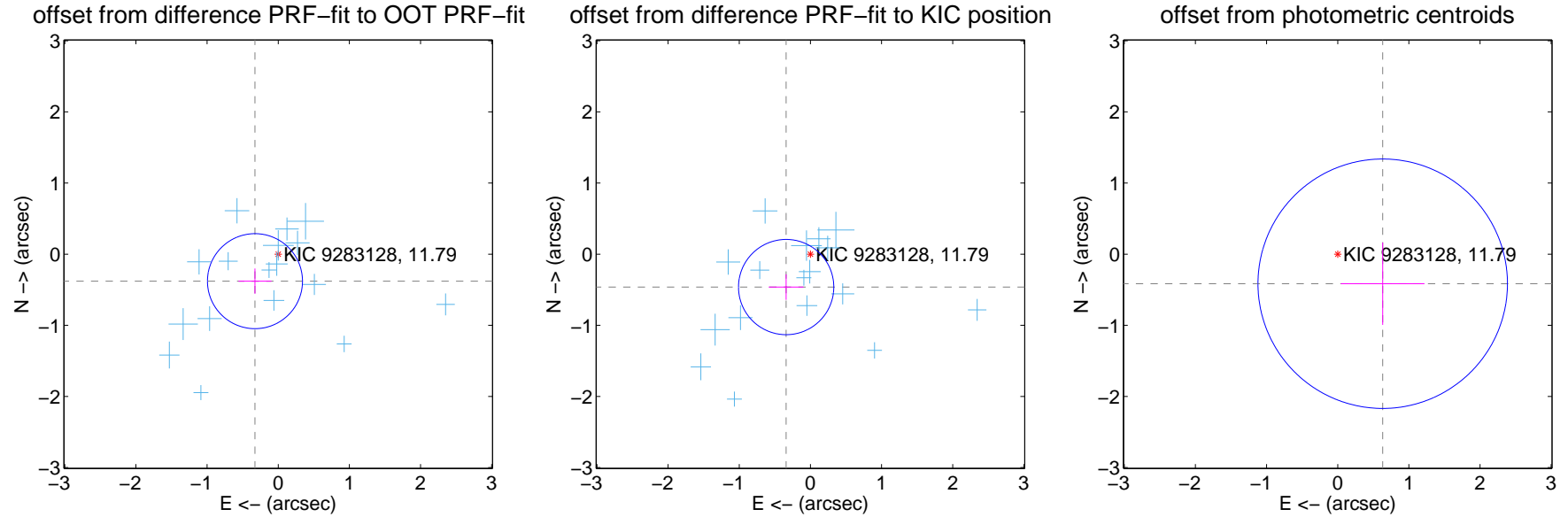
DV Centroid Data

Supplemental centroid analysis for 009283128-01. **Kepler magnitude: 11.79.** Transit SNR 8.06

There are 17 quarters with good PRF difference image offsets

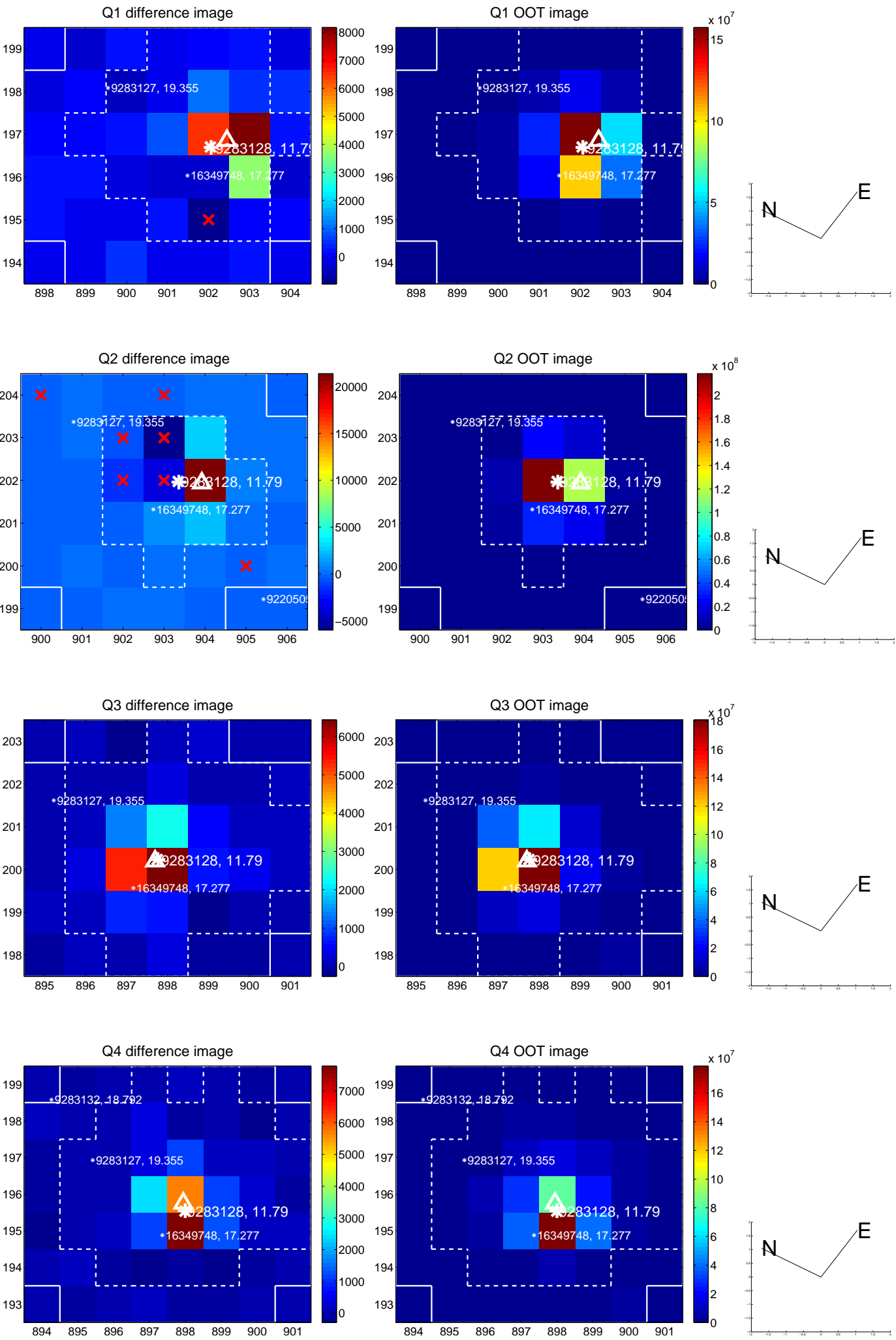
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.501 ± 0.223	2.25	0.327 ± 0.231	-0.380 ± 0.178
PRF-fit source offset from KIC position	0.575 ± 0.223	2.57	0.341 ± 0.244	-0.462 ± 0.180
photometric centroid source offset	0.76 ± 0.58	1.29	-0.63 ± 0.59	-0.42 ± 0.58

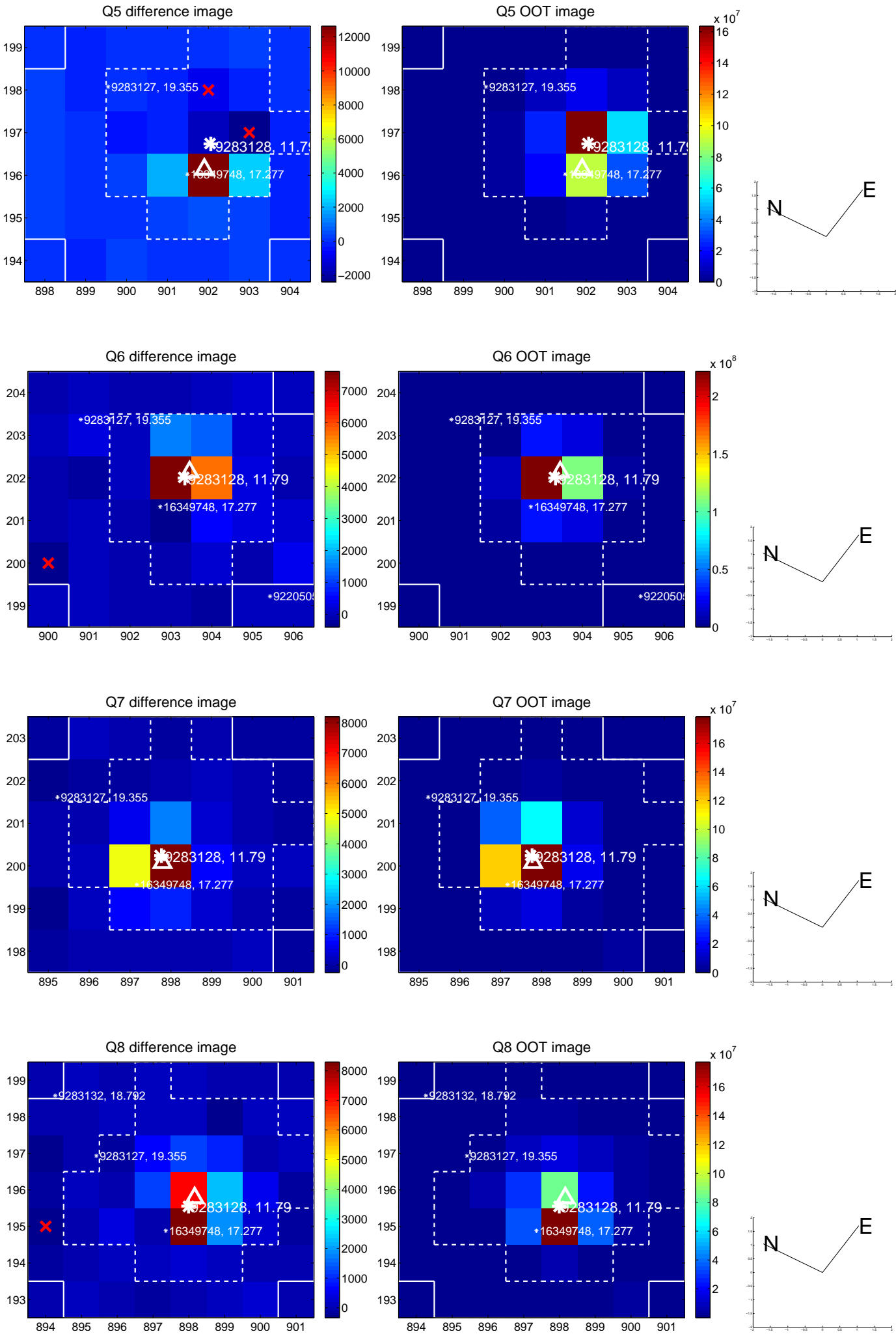


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

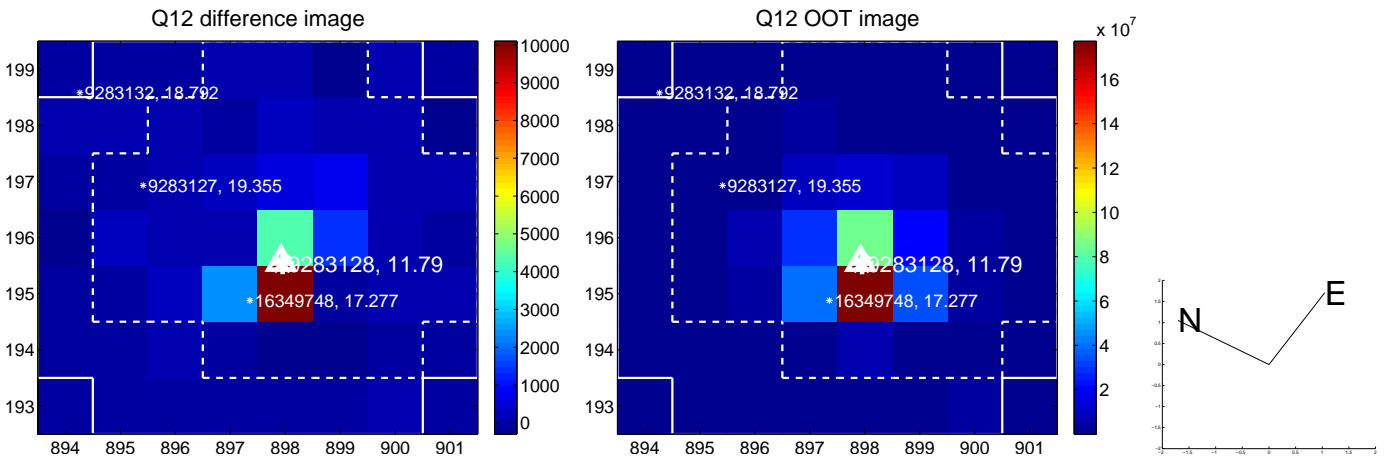
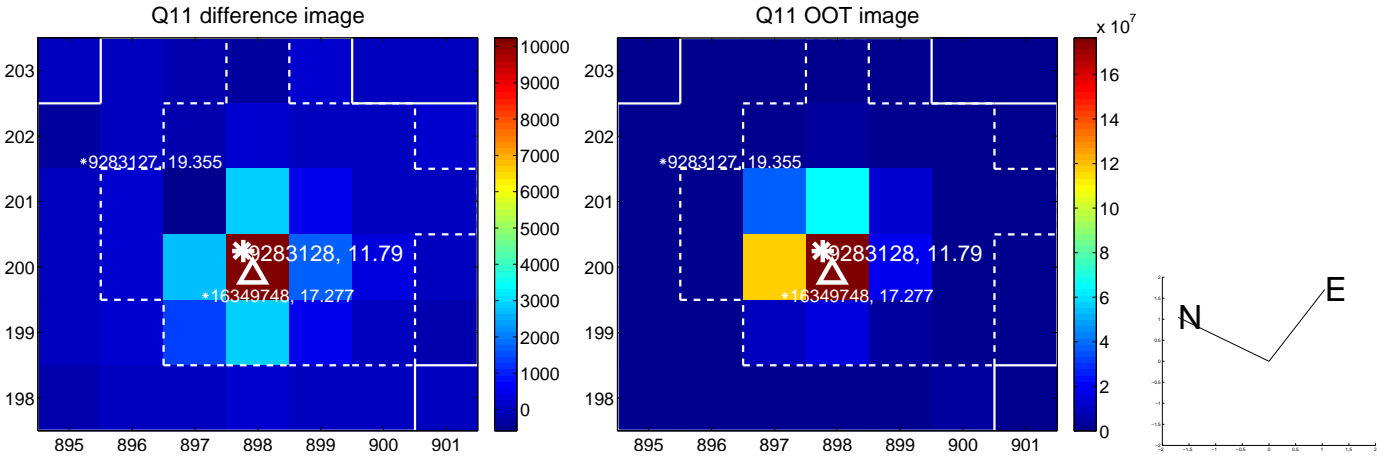
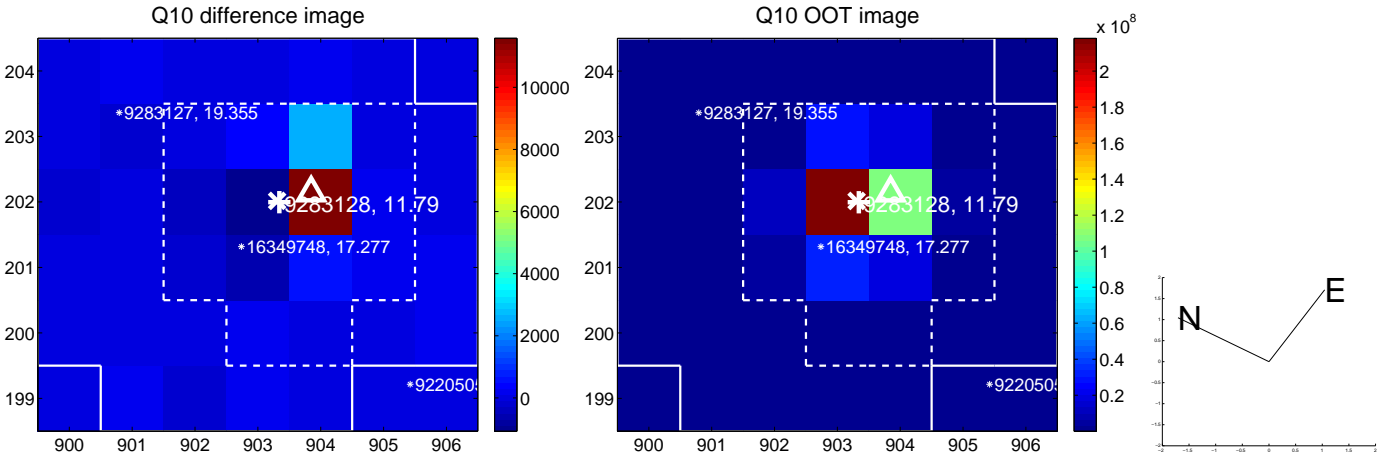
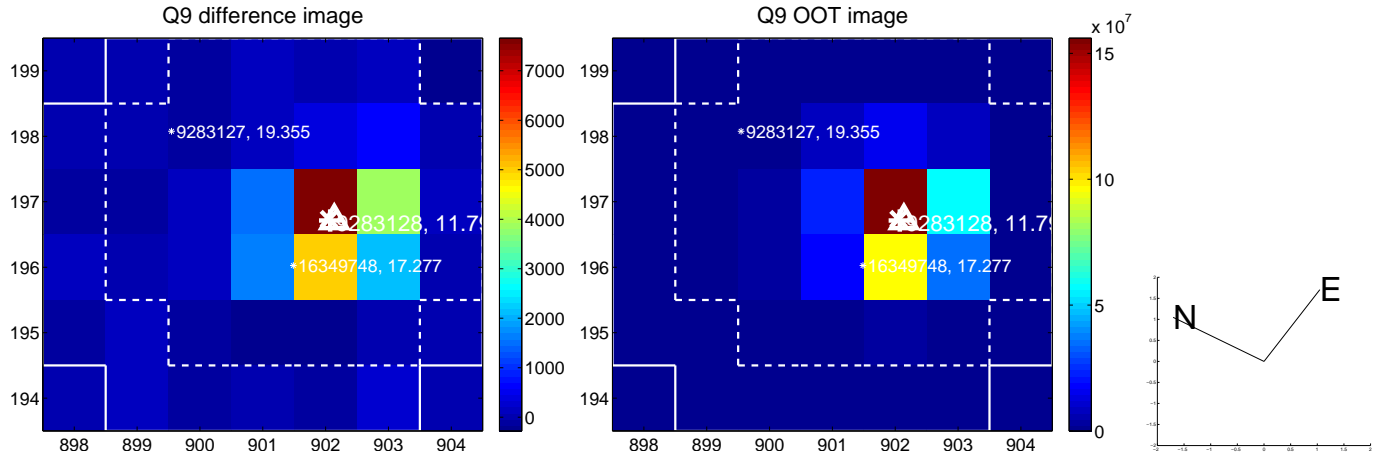
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



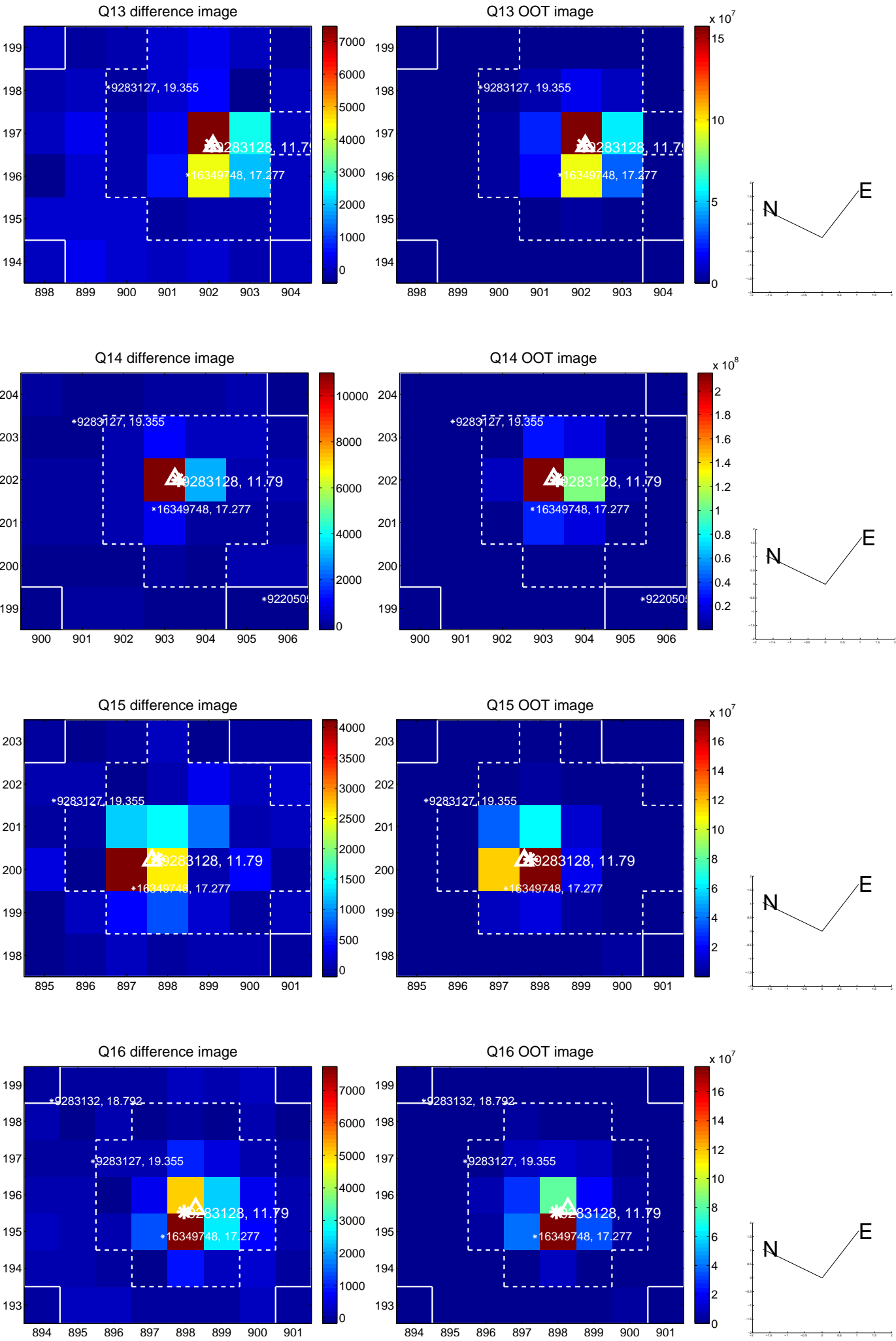
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



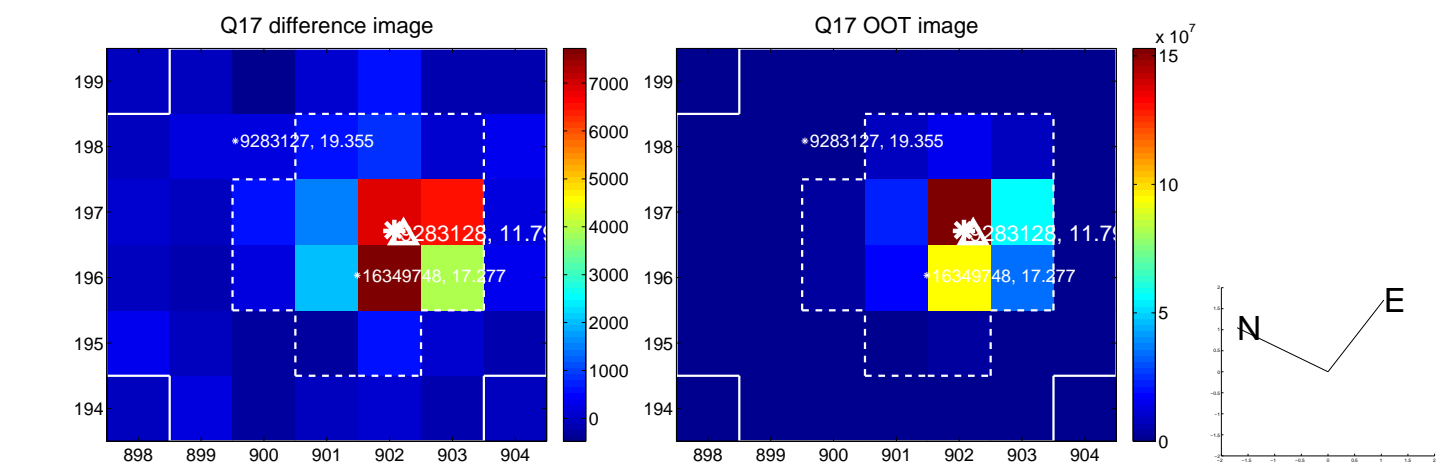
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



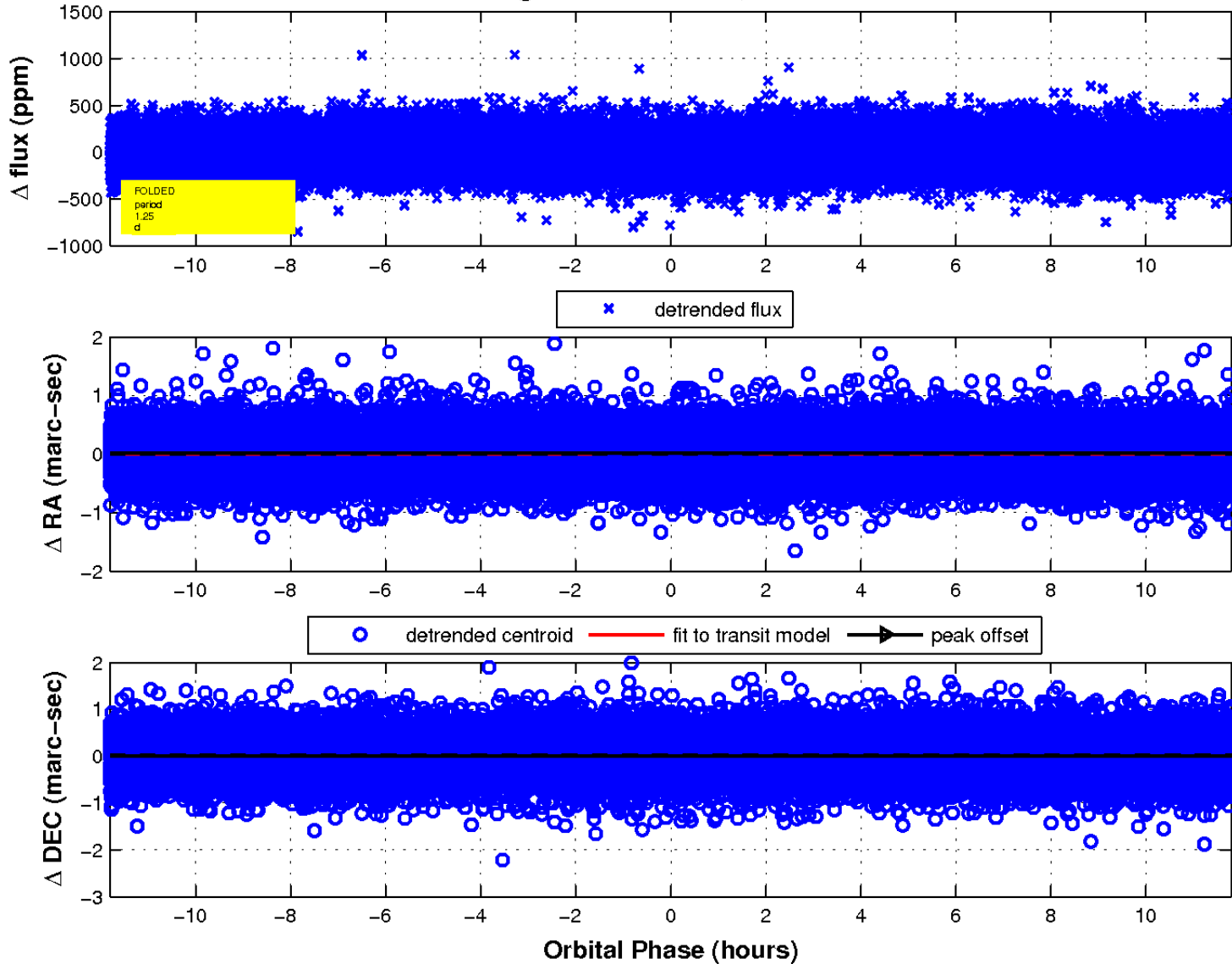
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

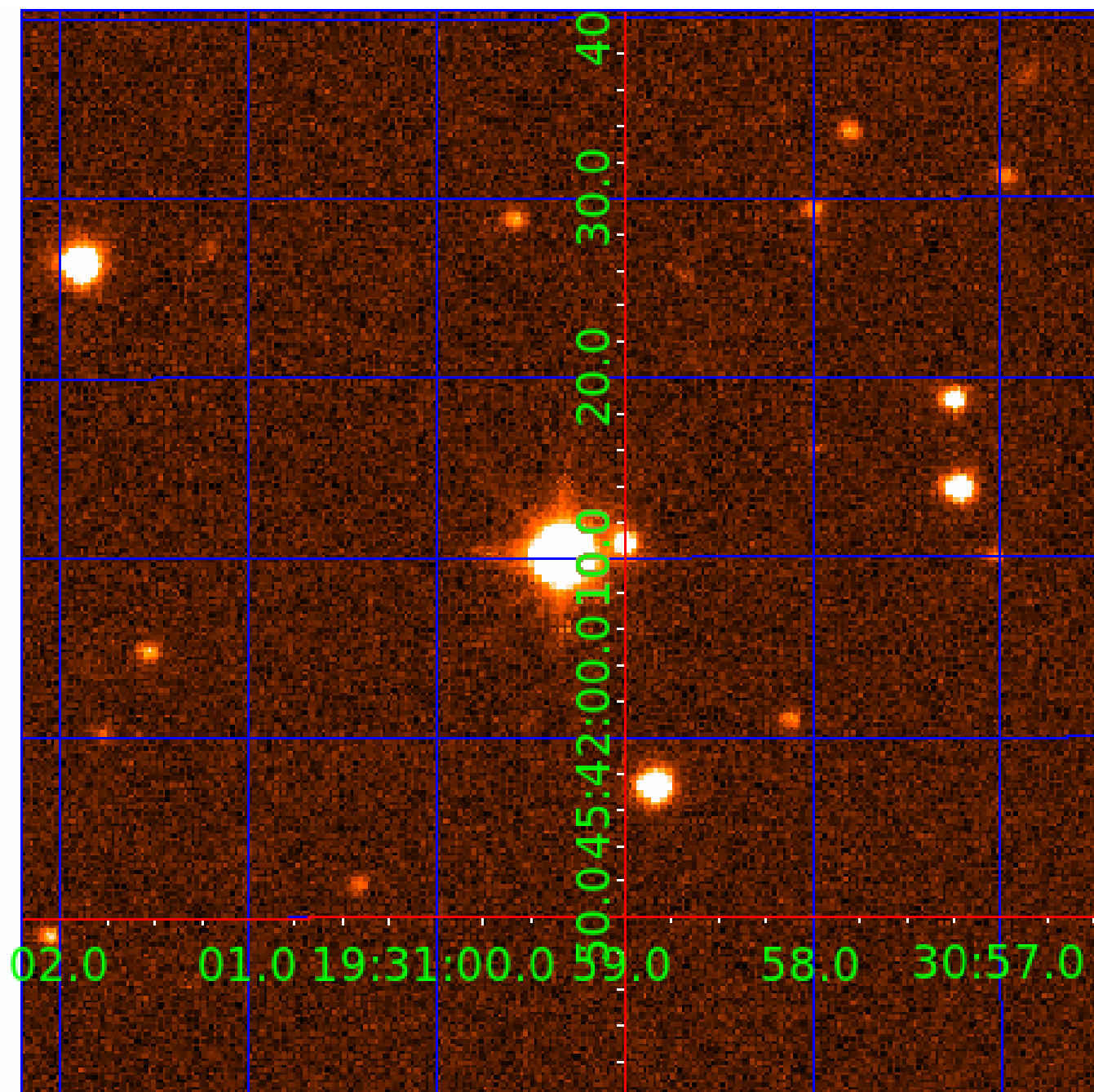


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009283128

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})
009283128-01	OBS	No	1.247323	132.515450	16.9	3.935	9.0	8.1	3.25	8048	1.56	47901.83
009283128-02	OBS	No	0.726611	132.154988	23.6	2.251	9.0	9.6	3.25	8048	1.84	98458.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009283128-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009283128-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

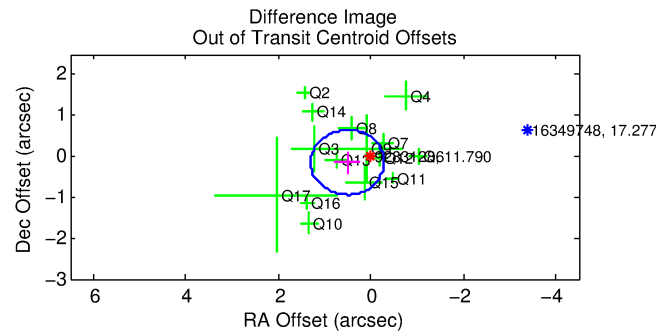
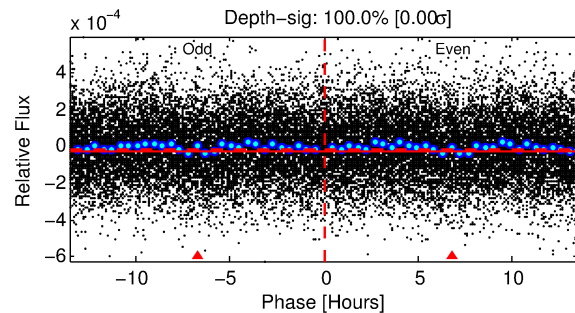
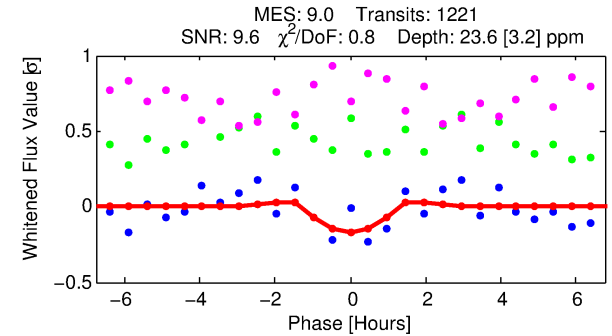
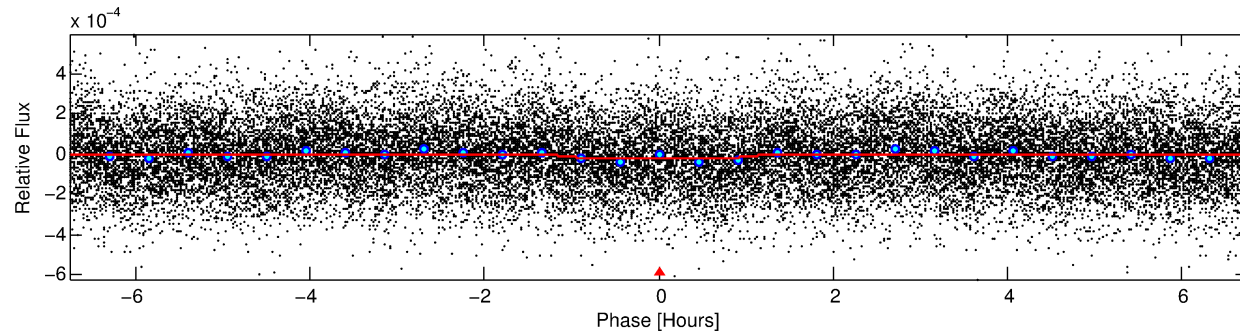
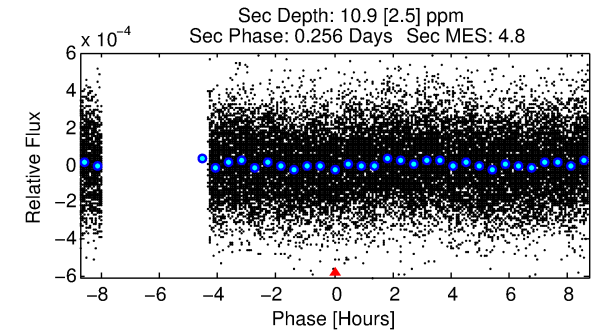
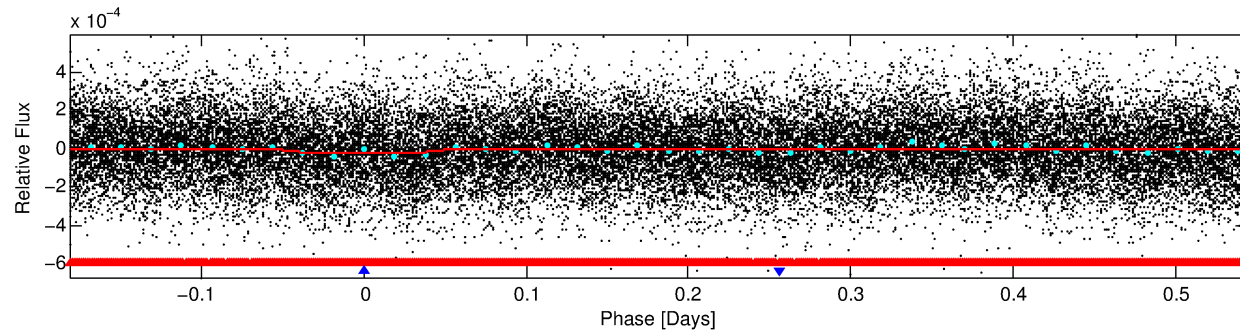
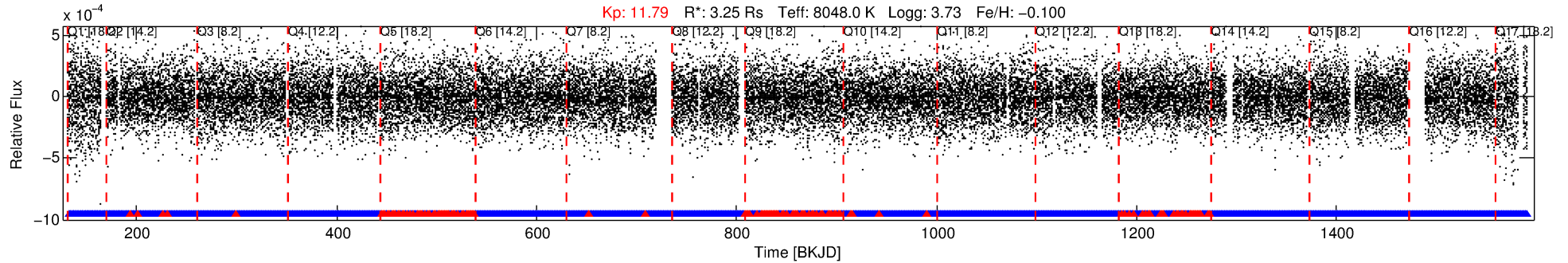
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009283128-02

No Significant Match Found

DV One-Page Summary

KIC: 9283128 Candidate: 2 of 2 Period: 0.727 d



DV Fit Results:

Period = 0.72661 [0.00001] d
Epoch = 132.1550 [0.0030] BKJD
Rp/R* = 0.0052 [0.0021]
a/R* = 1.45 [1.91]
b = 0.90 [0.54]
Seff = 98458.87 [75171.47]
Teq = 4517 [862] K
Rp = 1.84 [1.12] Re
a = 0.0201 [0.0091] AU
Ag = 0.72 [0.81] [-0.35σ]
Teffp = 6425 [1400] K [1.16σ]

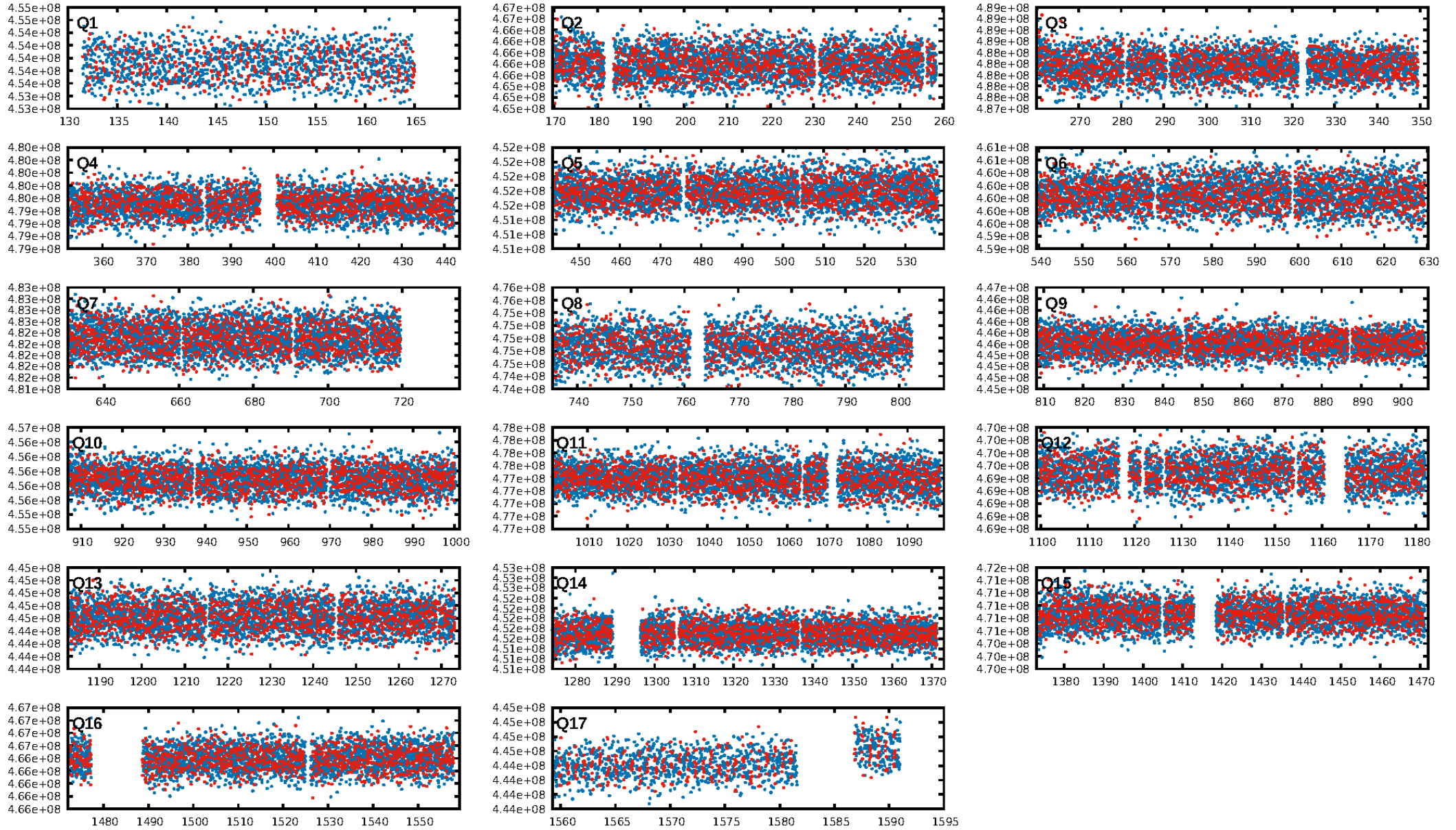
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.4% [2.76σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.71e-17
RollingBand-fgt: 0.88 [1032/1167]
GhostDiagnostic-chr: 11.47
Centroid-sig: 8.6%
Centroid-so: 0.691 arcsec [1.70σ]
OotOffset-rm: 0.529 arcsec [2.00σ]
KicOffset-rm: 0.585 arcsec [2.20σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [17/17]

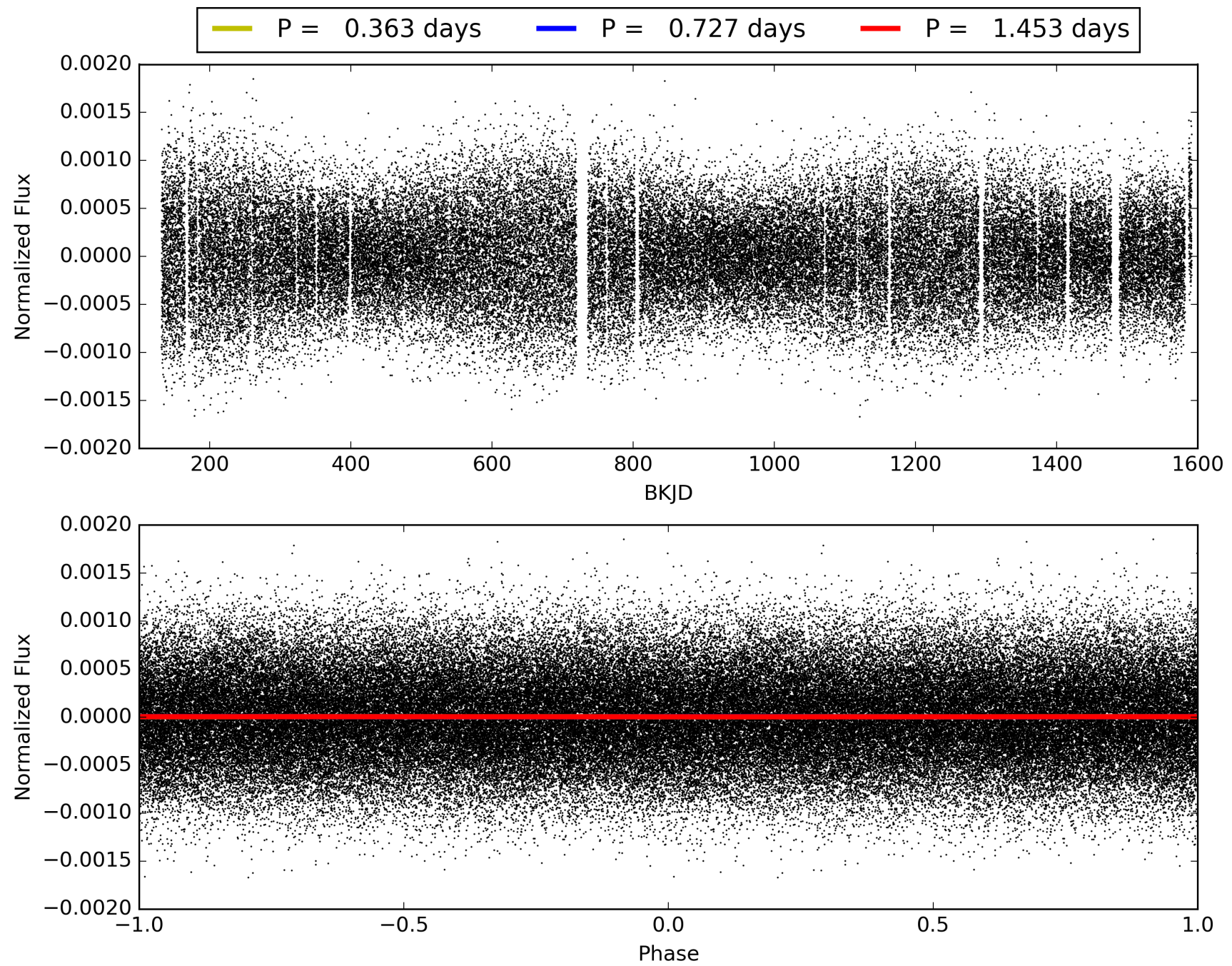
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:19:58 Z

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

TCE 009283128-02, PDC Light Curves

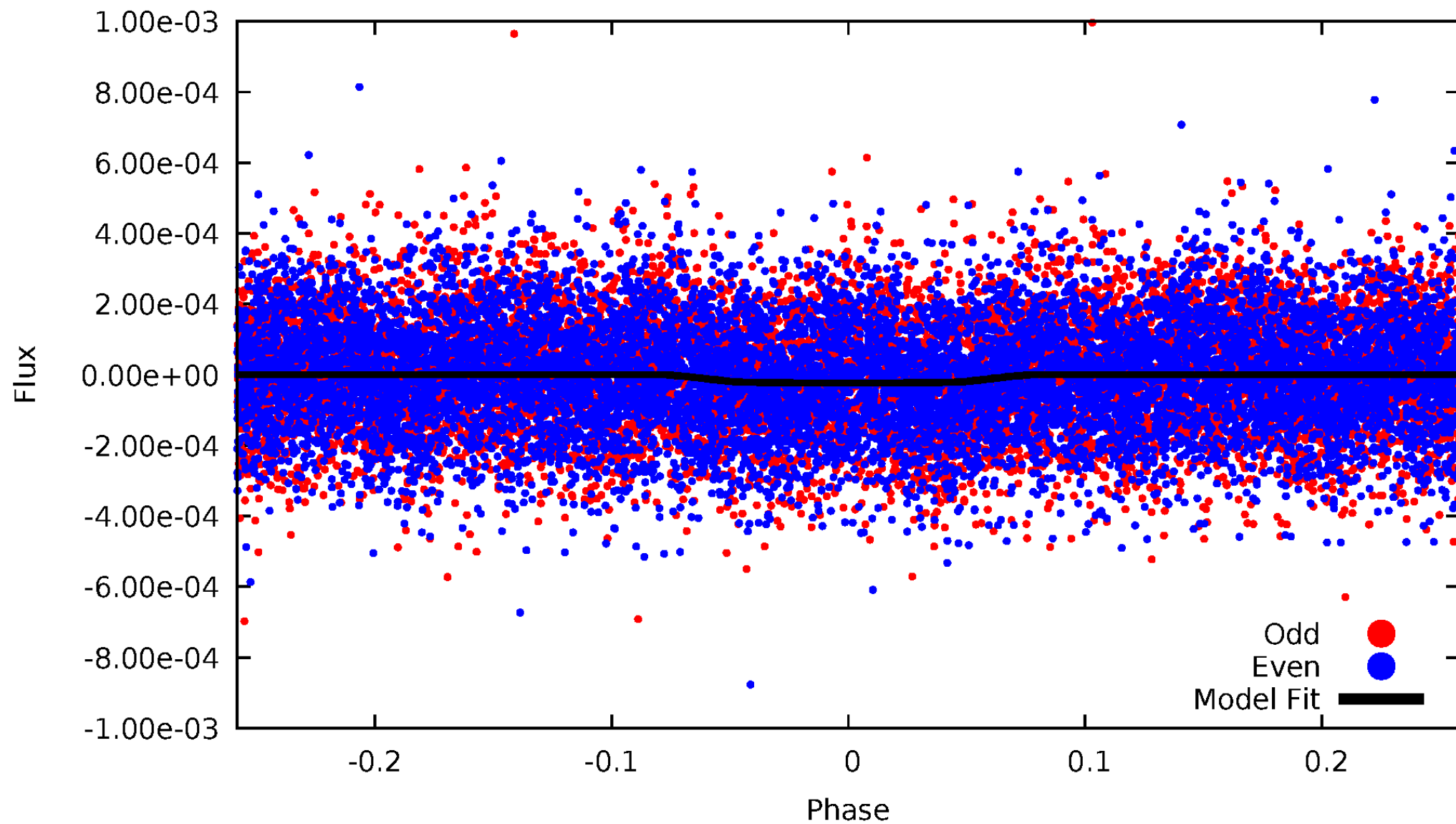


TCE 009283128-02



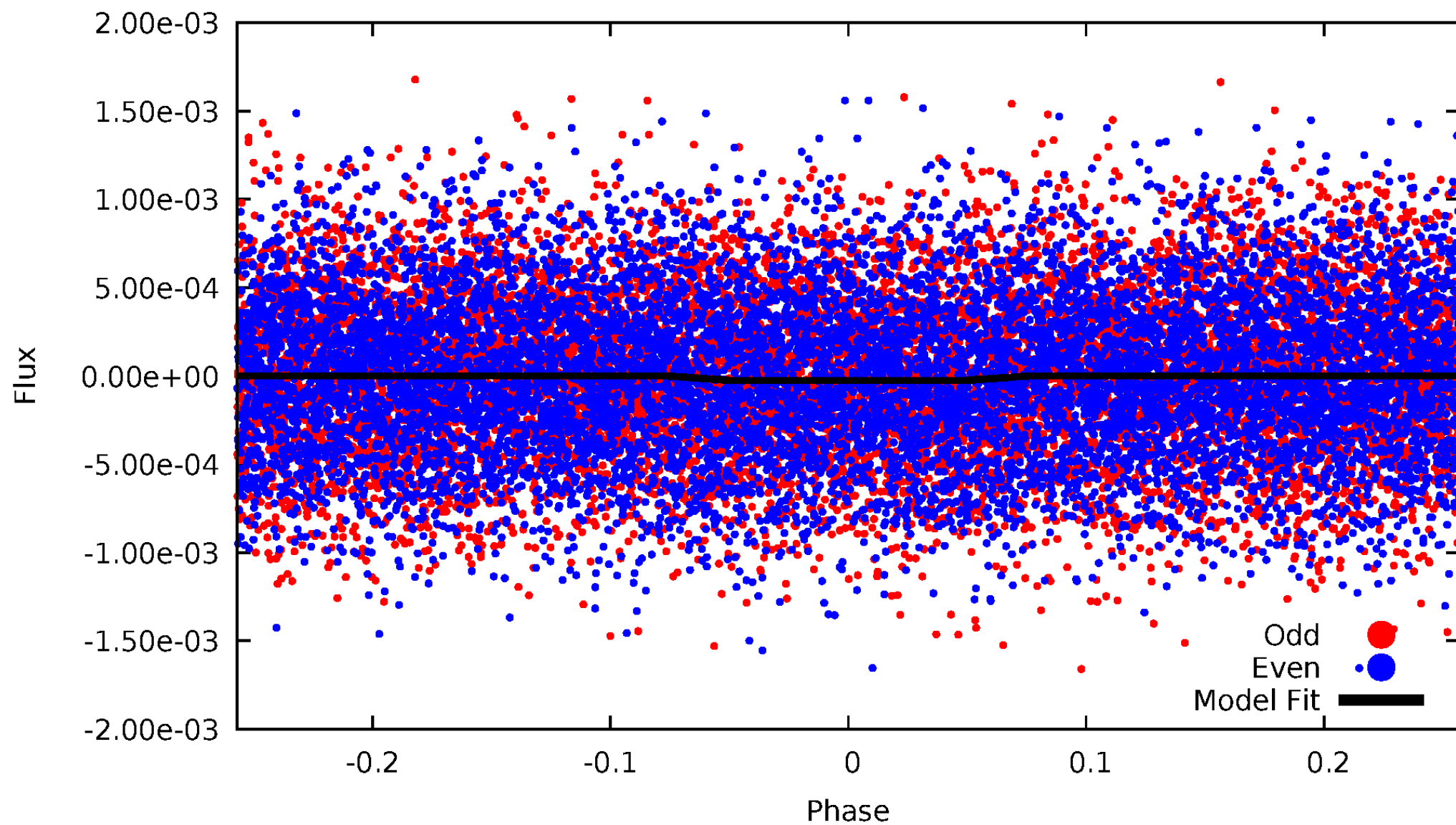
DV Odd/Even

TCE 009283128-02



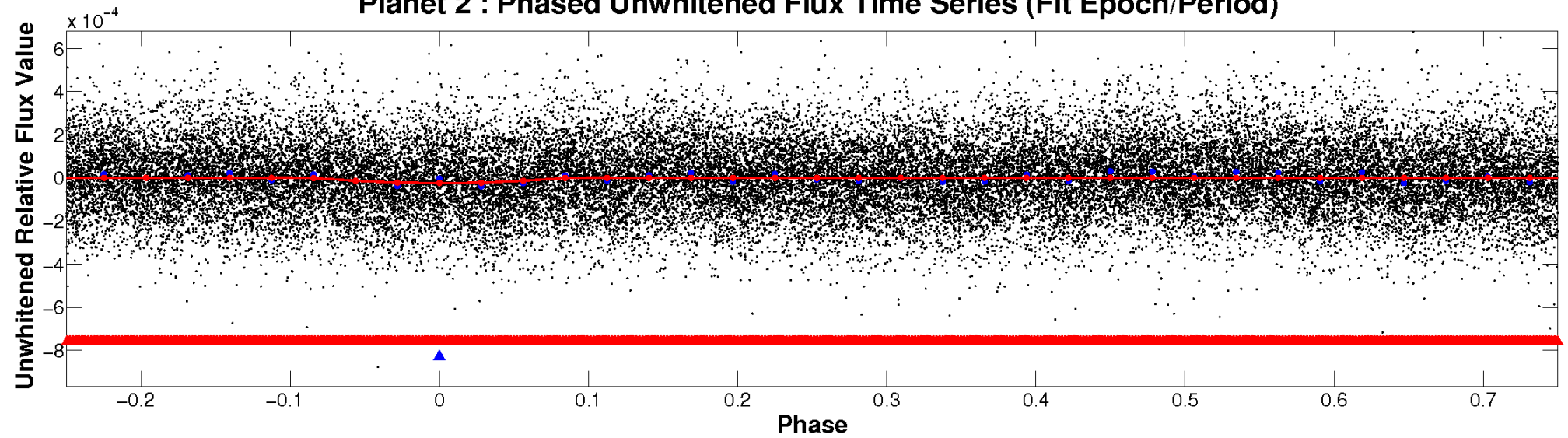
ALT Odd/Even

TCE 009283128-02

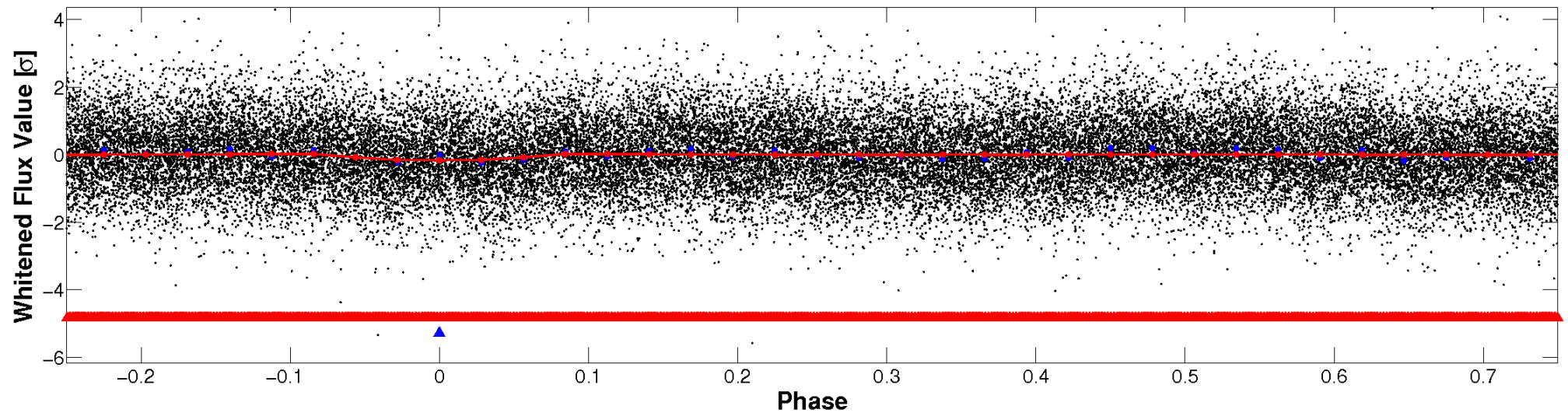


Non-Whitened Vs. Whitened Light Curve

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

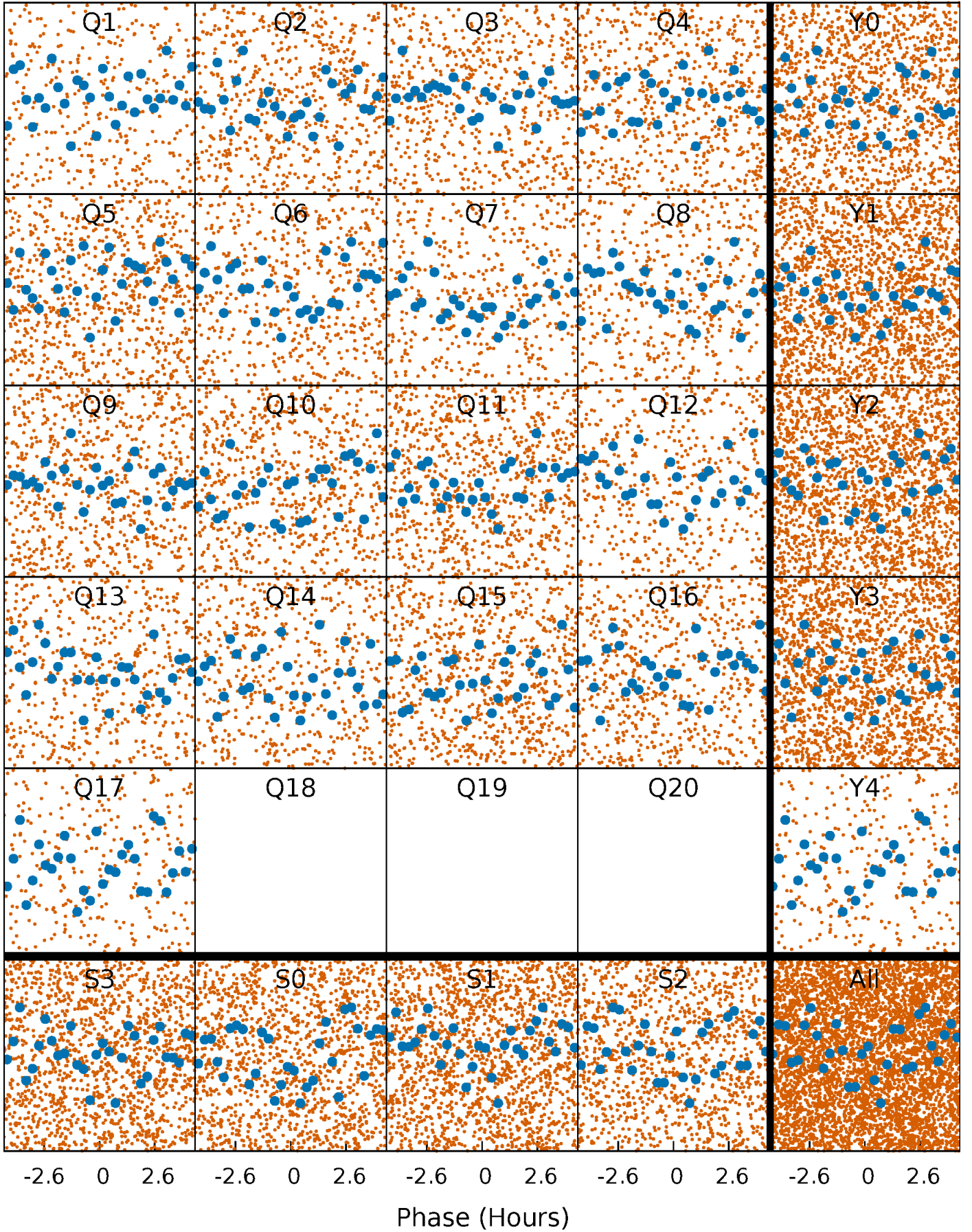


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



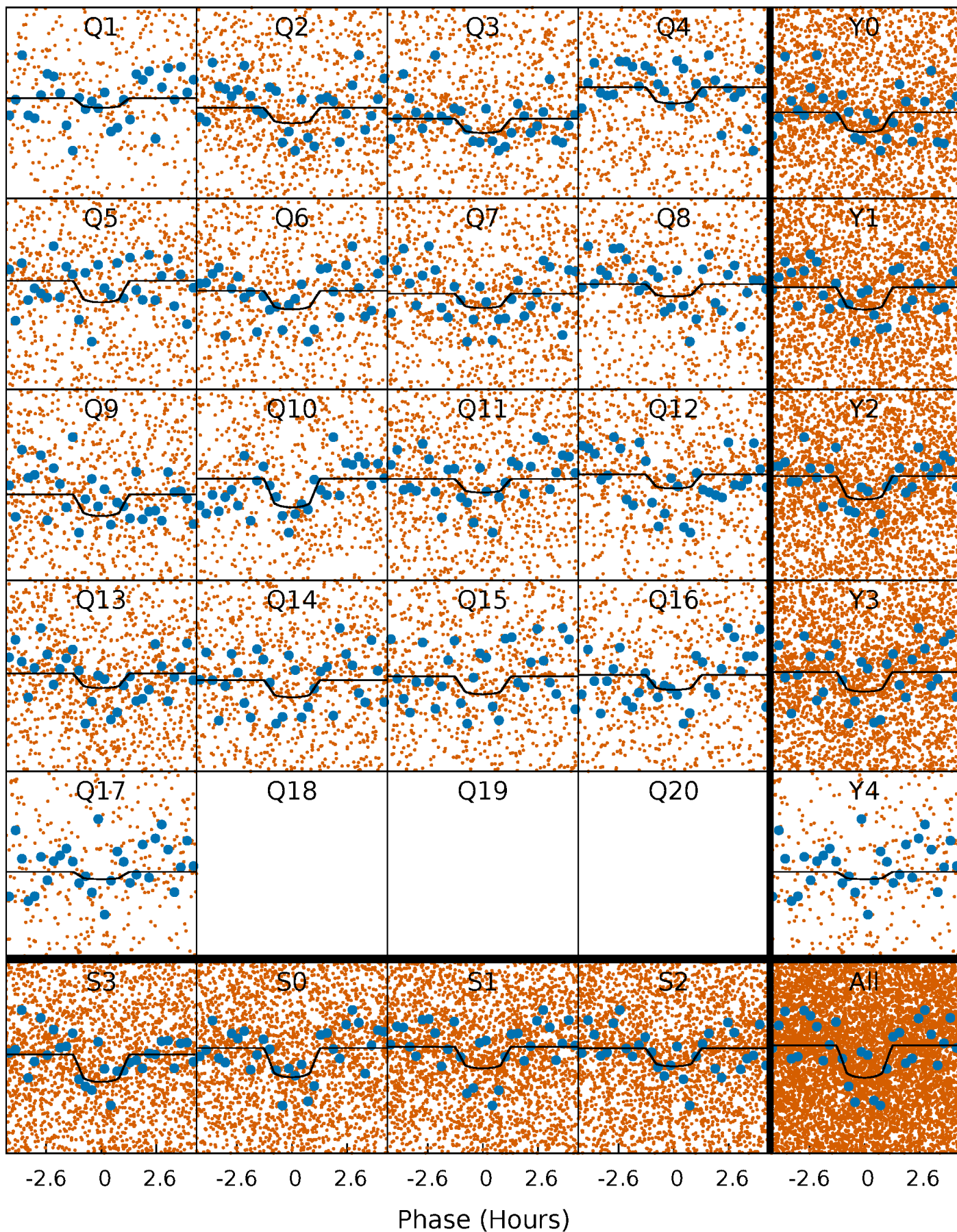
PDC Quarter-Phased Transit Curves

TCE 009283128-02 P= 0.726611 Days $T_0=132.154988$ (BKJD)



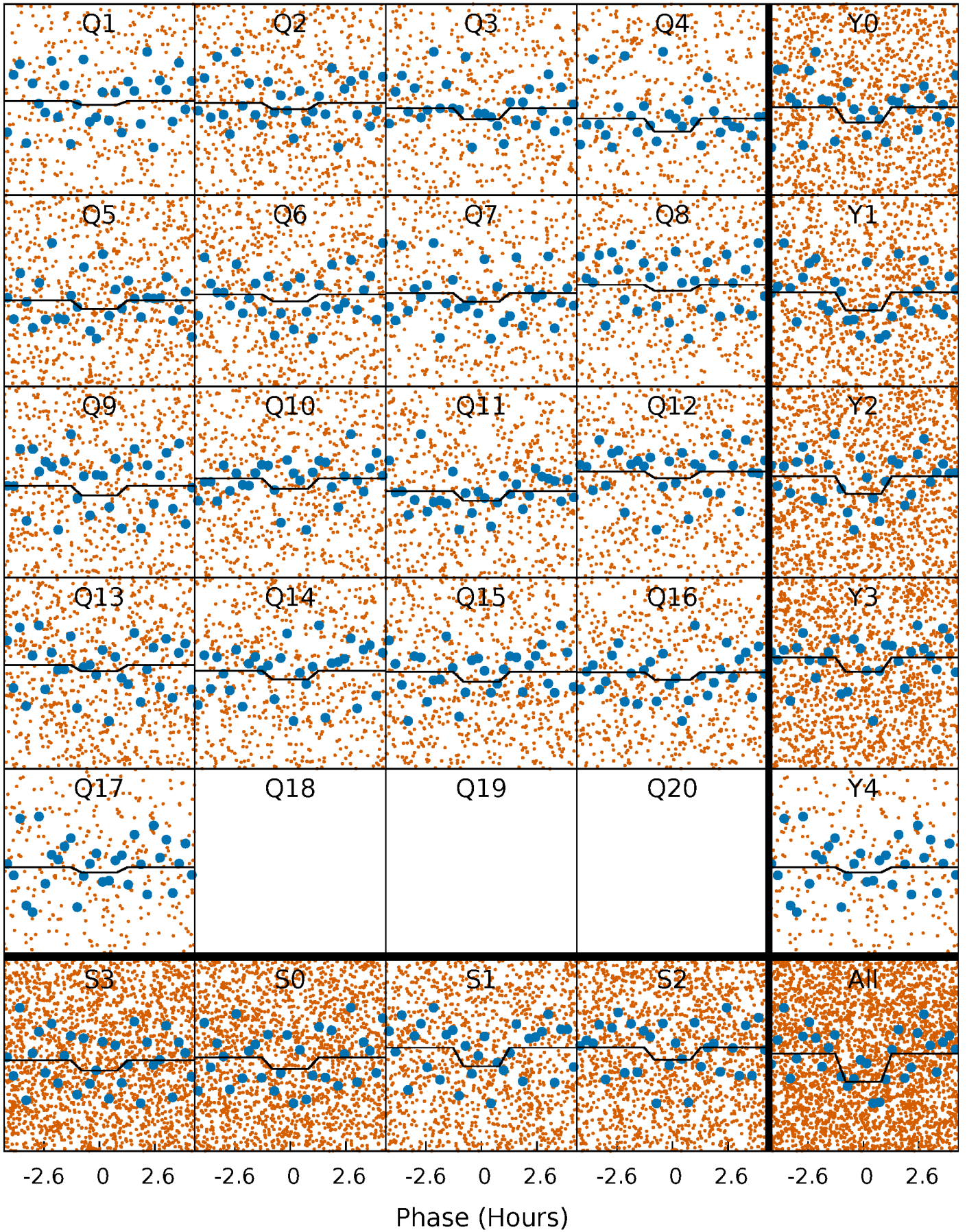
DV Quarter-Phased Transit Curves

TCE 009283128-02 P= 0.726611 Days $T_0=132.154988$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

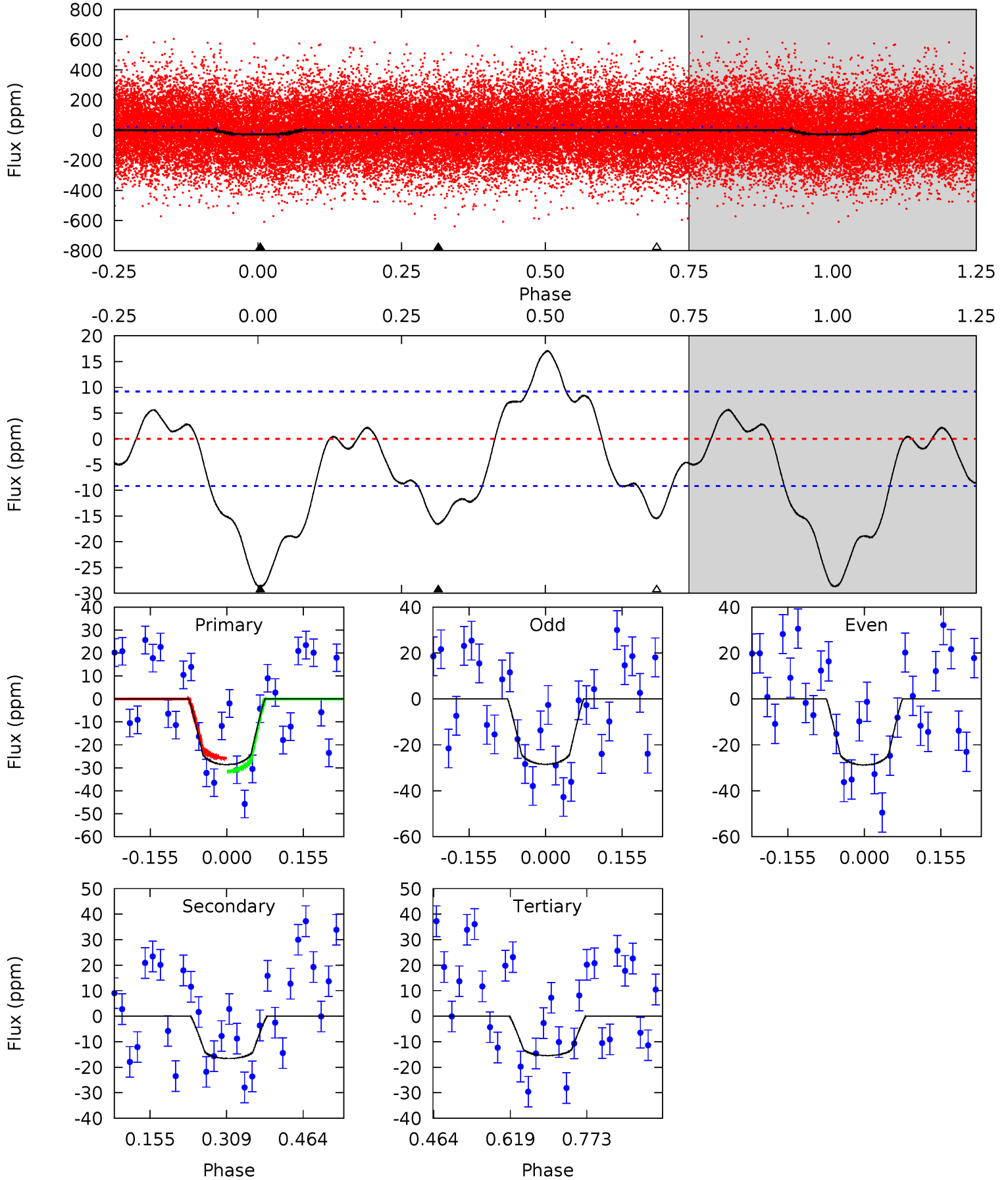
TCE 009283128-02 P= 0.726612 Days $T_0=132.154903$ (BKJD)



DV Model-Shift Uniqueness Test

009283128-02, P = 0.726611 Days, E = 131.428377 Days

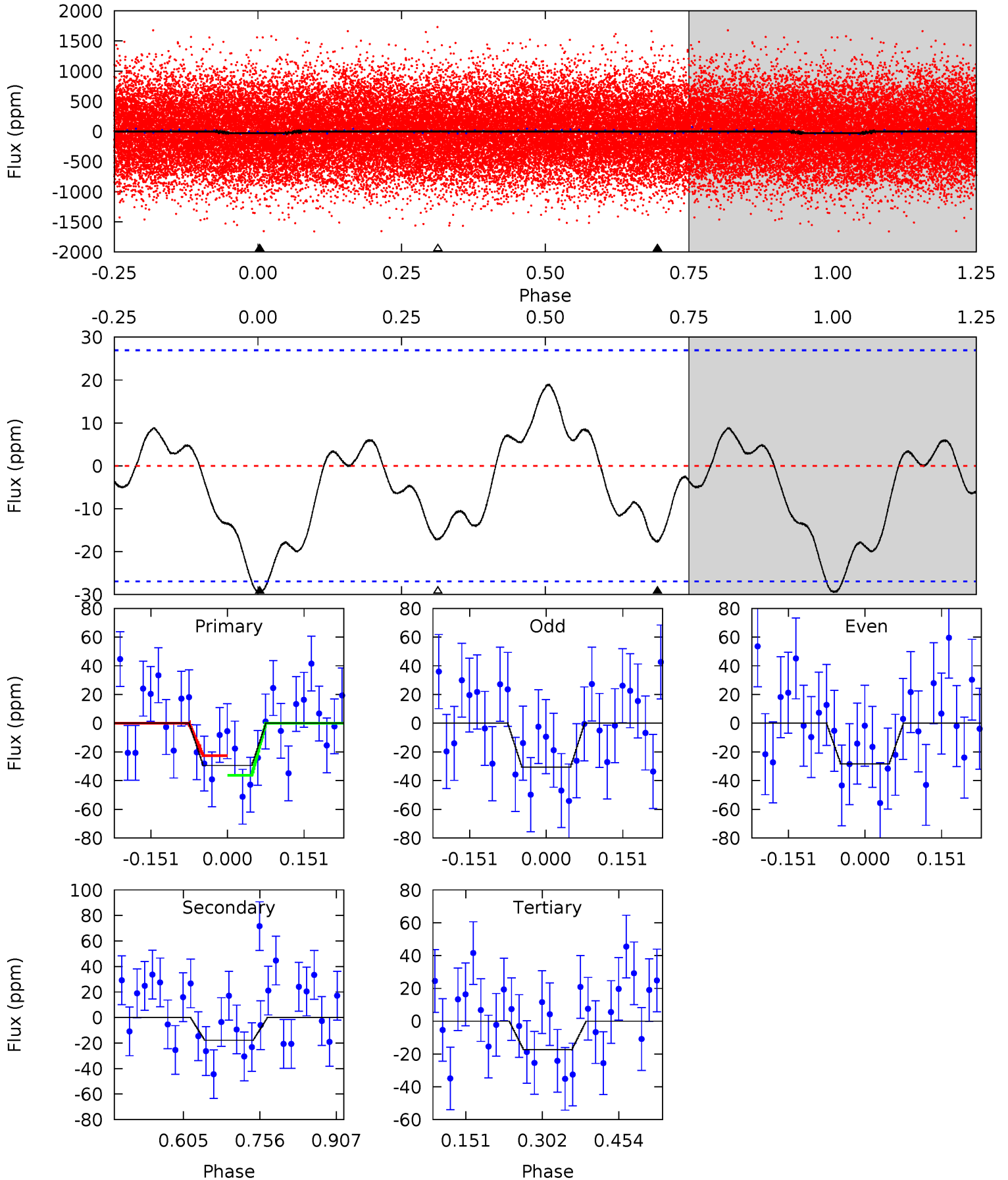
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	8.08	7.53	0	4.47	1.42	4.53	6.43	14.0	0.55	8.08	0.07	1.04	0.37	1.40



Alt Model-Shift Uniqueness Test

009283128-02, P = 0.726612 Days, E = 131.428291 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.90	2.96	2.87	0	4.48	1.44	1.68	2.03	4.90	0.09	2.96	0.19	0.99	0.39	1.14



Stellar Parameters For KIC 009283128

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8048^{+196}_{-365}	$3.725^{+0.442}_{-0.104}$	$-0.100^{+0.200}_{-0.350}$	$3.251^{+0.674}_{-1.460}$	$2.046^{+0.335}_{-0.503}$	$0.084^{+0.342}_{-0.028}$
	+2%/-5%	+12%/-3%	+200%/-350%	+21%/-45%	+16%/-25%	+407%/-33%
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 009283128-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 2	$1.69^{+0.84}_{-0.72}$	6074^{+493}_{-719}	6380^{+2790}_{-1489}	$1.290^{+2.651}_{-0.710}$
Alt.	-18 ± 6	$1.70^{+0.84}_{-0.79}$	6108^{+472}_{-706}	6404^{+3311}_{-1574}	$1.276^{+3.549}_{-0.713}$

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

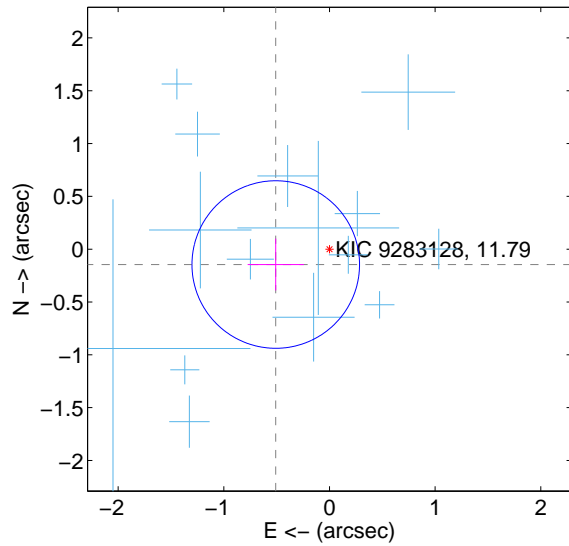
Supplemental centroid analysis for 009283128-02. **Kepler magnitude: 11.79.** Transit SNR 9.62

There are 15 quarters with good PRF difference image offsets

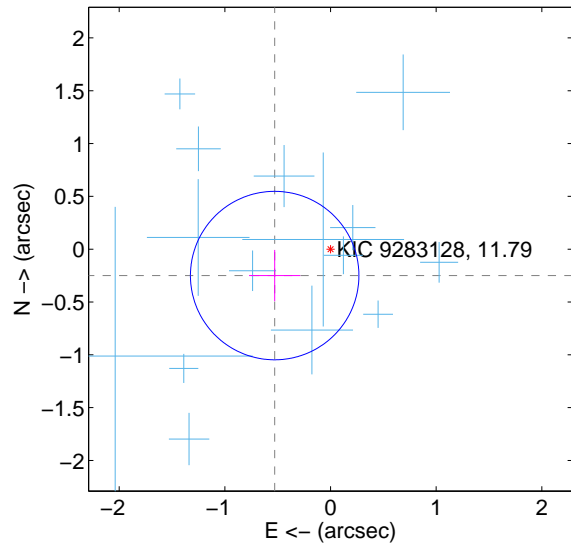
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.529 ± 0.264	2.00	0.508 ± 0.266	-0.145 ± 0.245
PRF-fit source offset from KIC position	0.585 ± 0.266	2.20	0.529 ± 0.242	-0.250 ± 0.242
photometric centroid source offset	0.69 ± 0.41	1.70	-0.05 ± 0.41	-0.69 ± 0.41

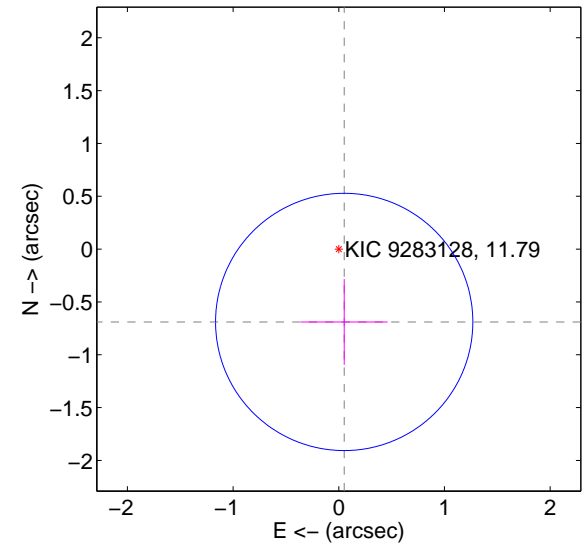
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

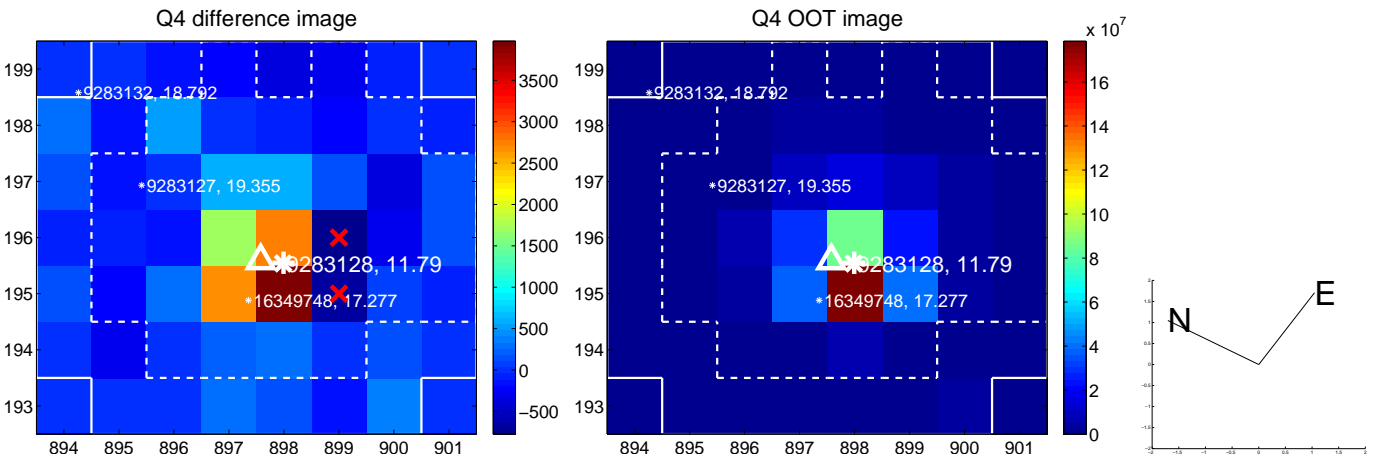
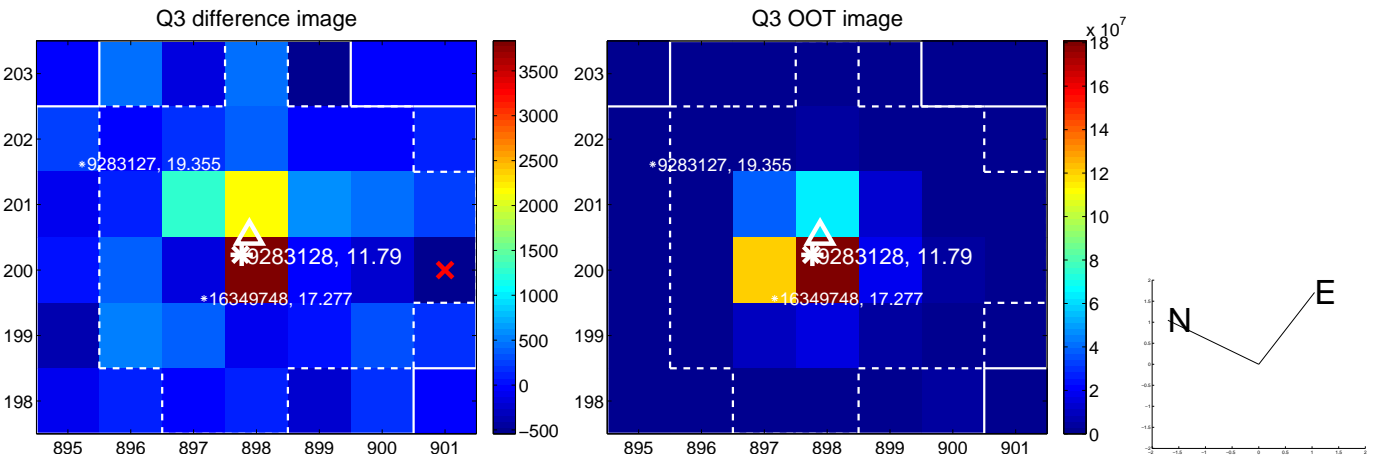
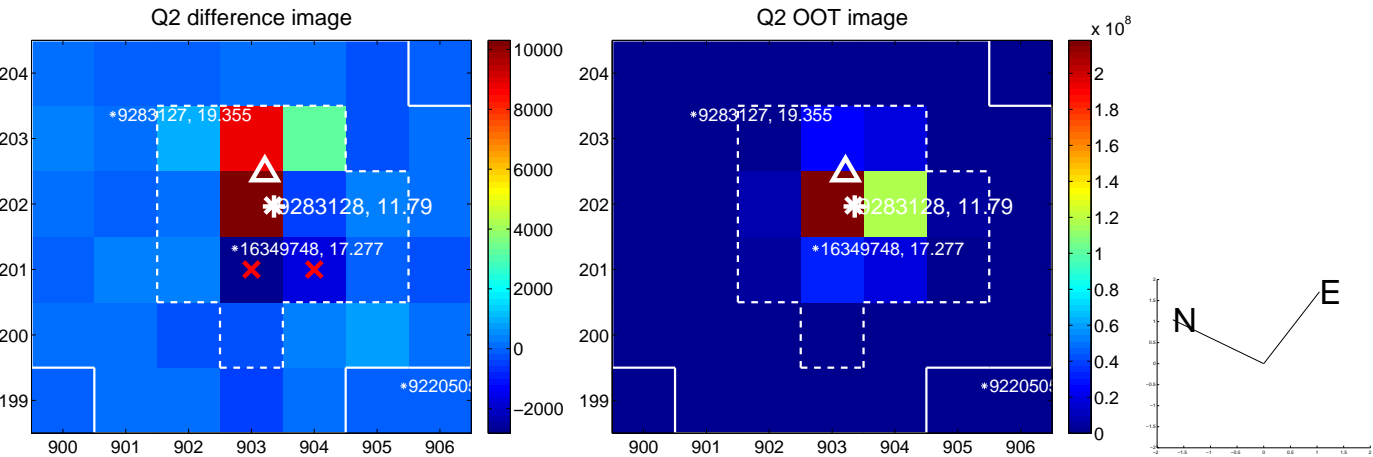
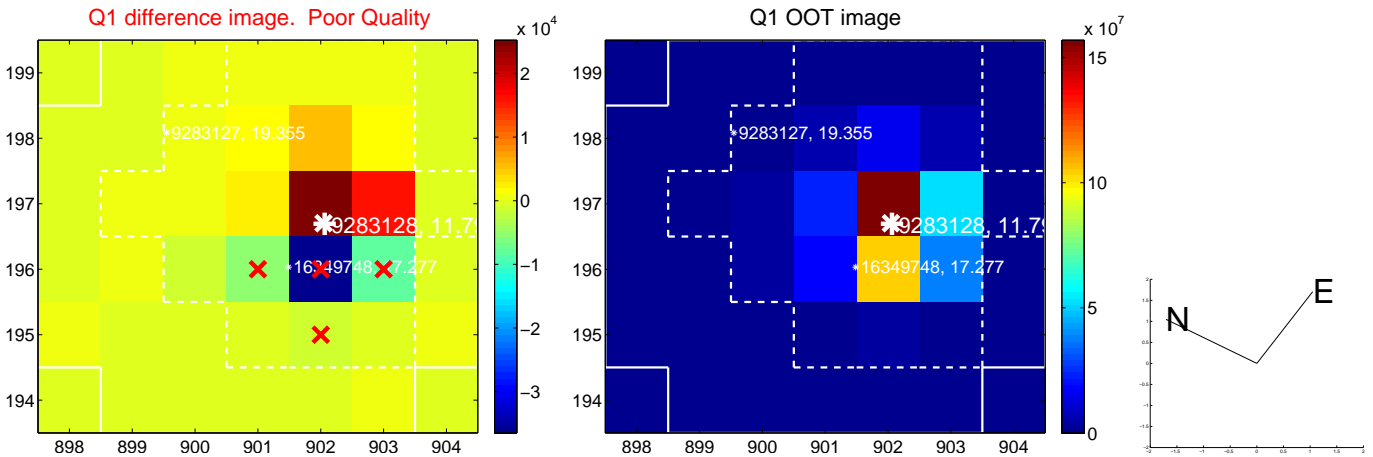


offset from photometric centroids

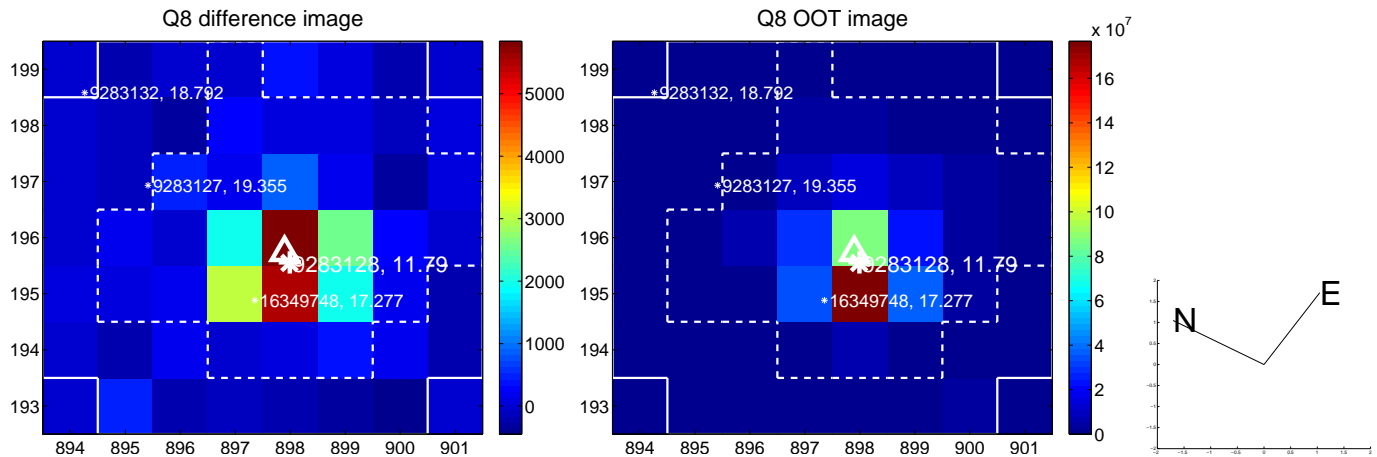
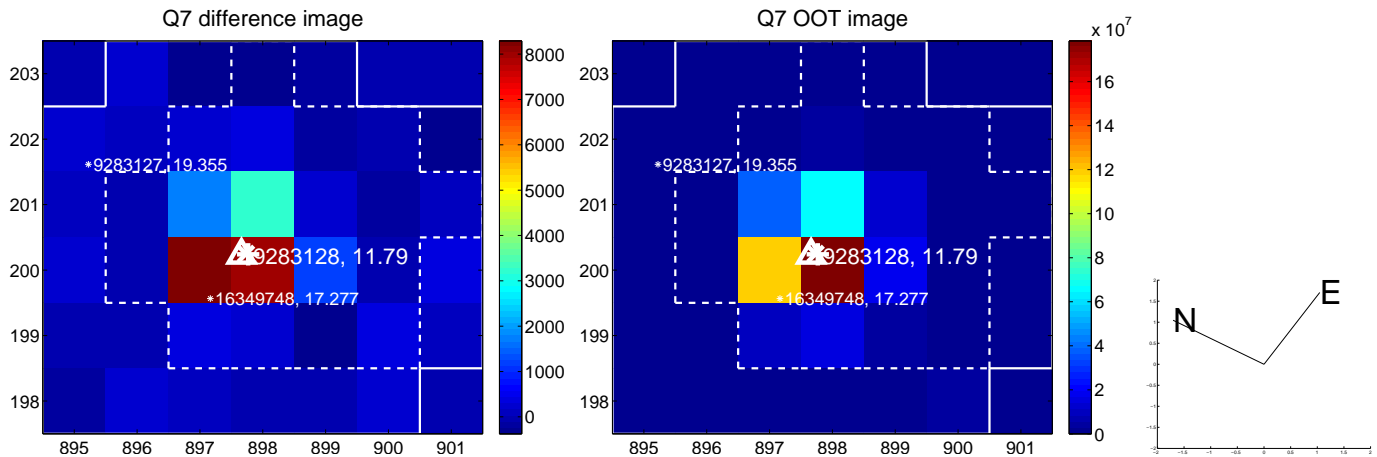
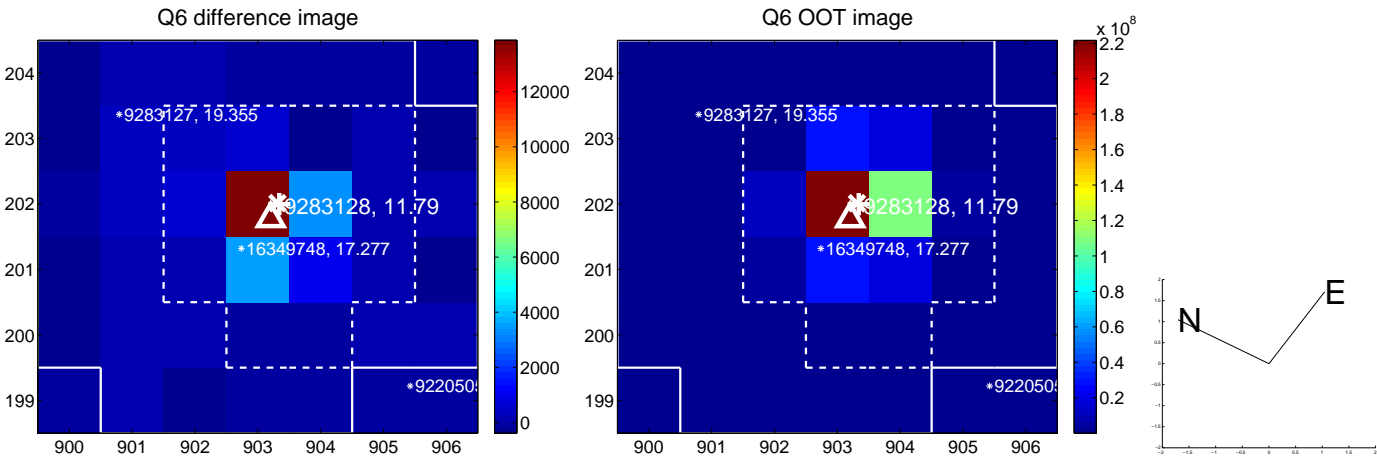
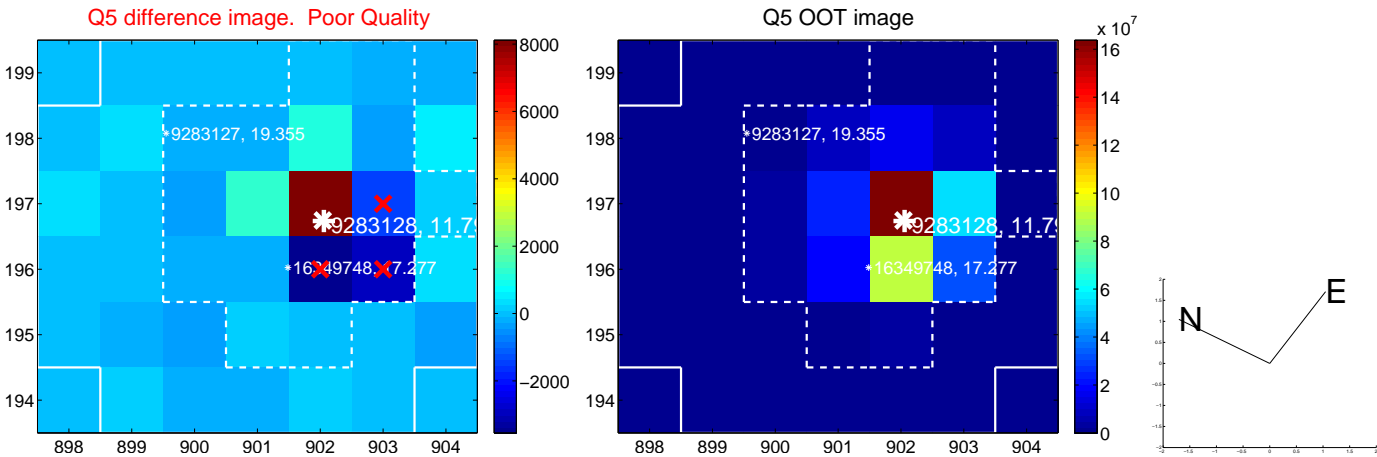


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

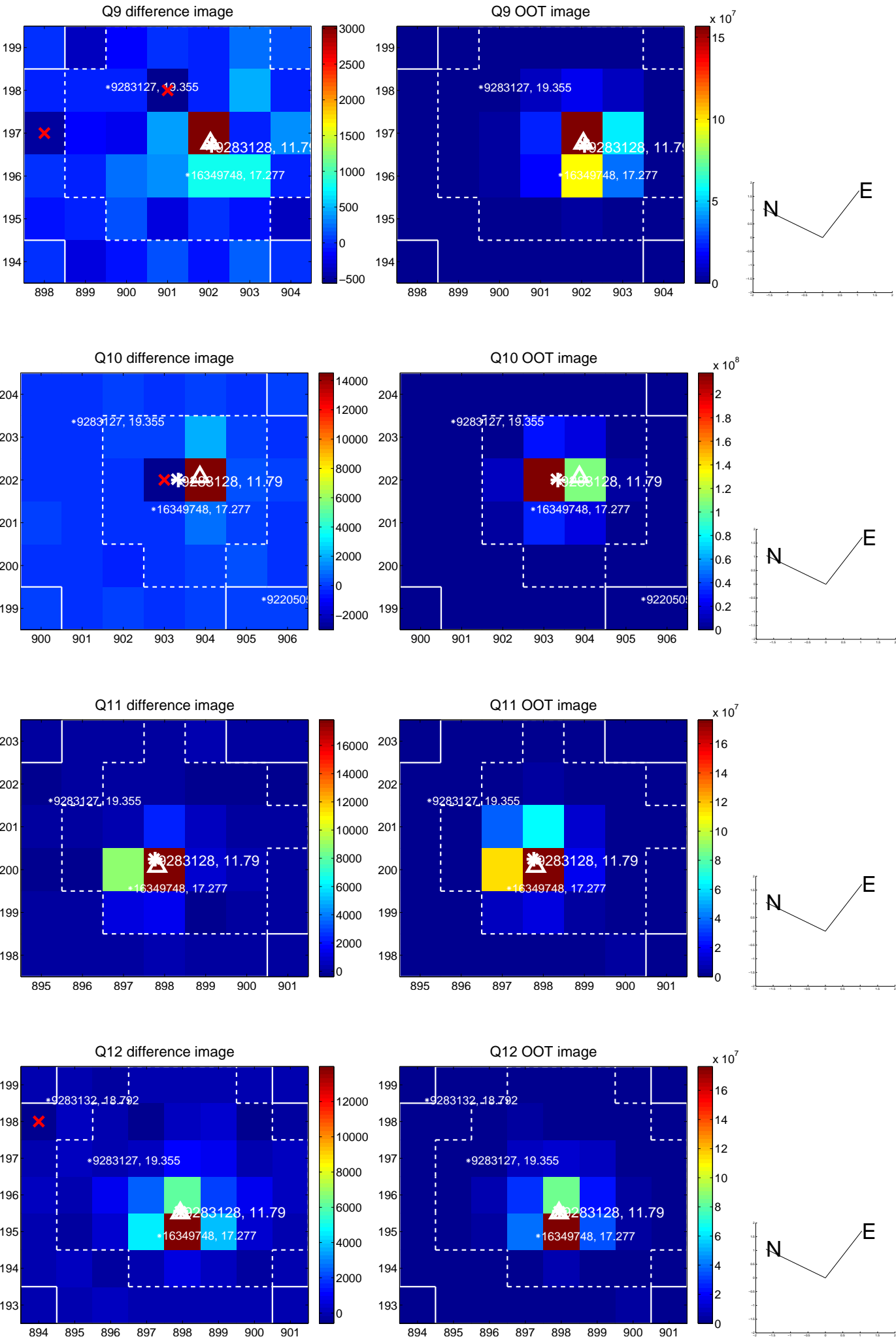
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



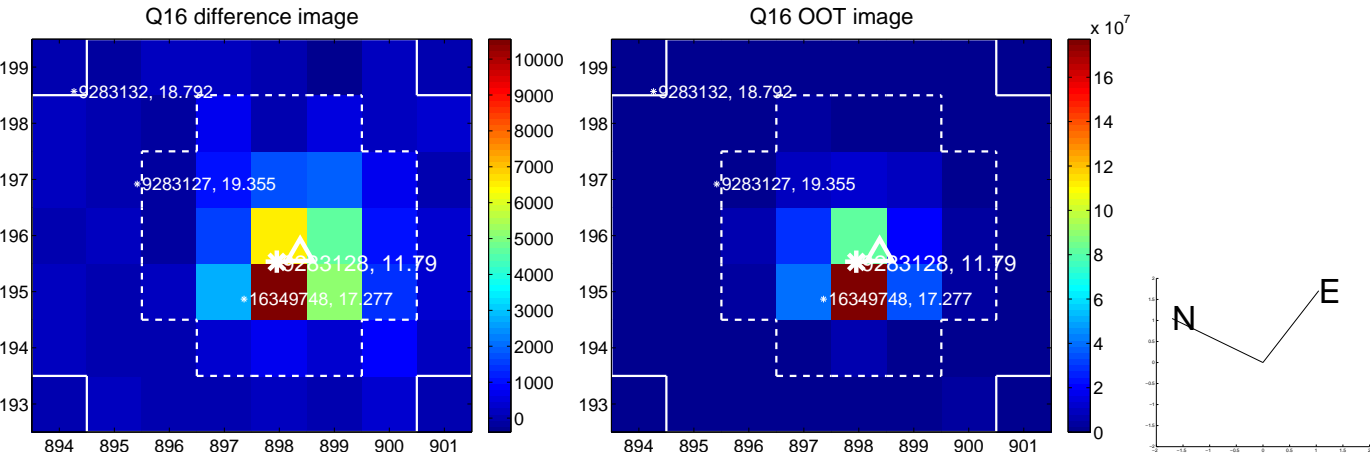
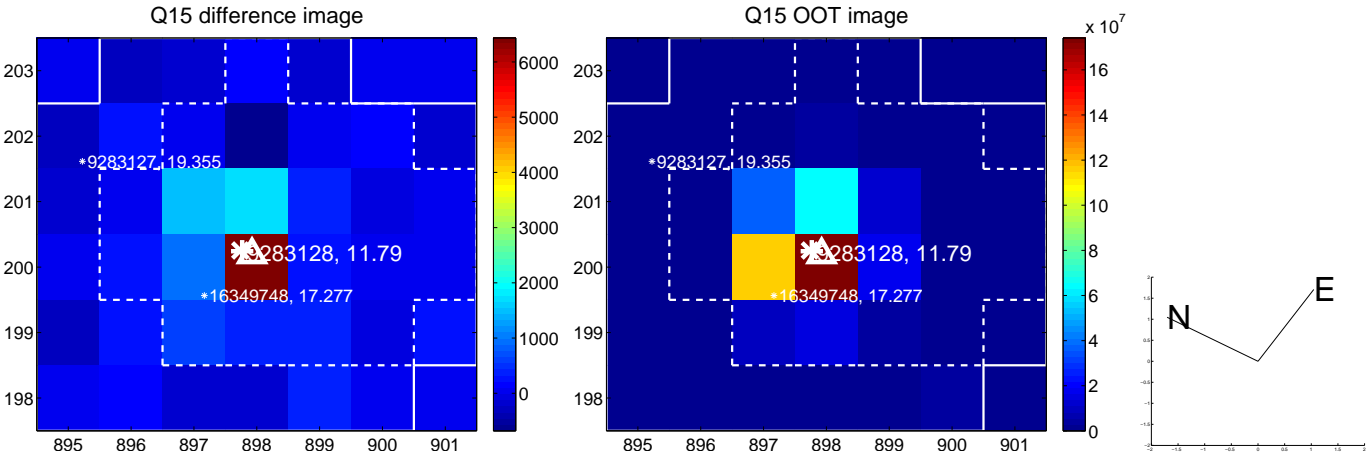
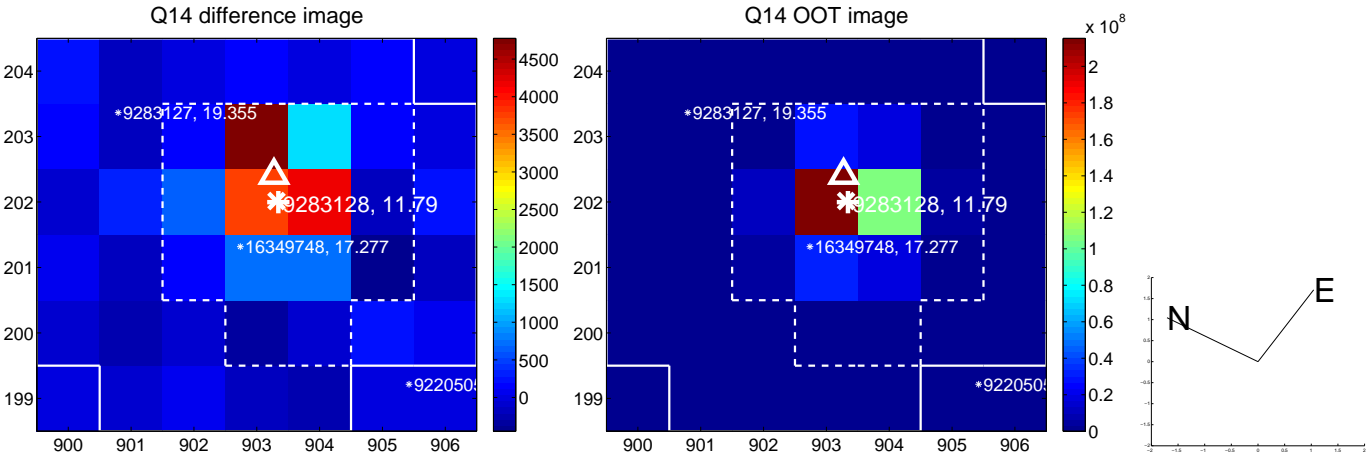
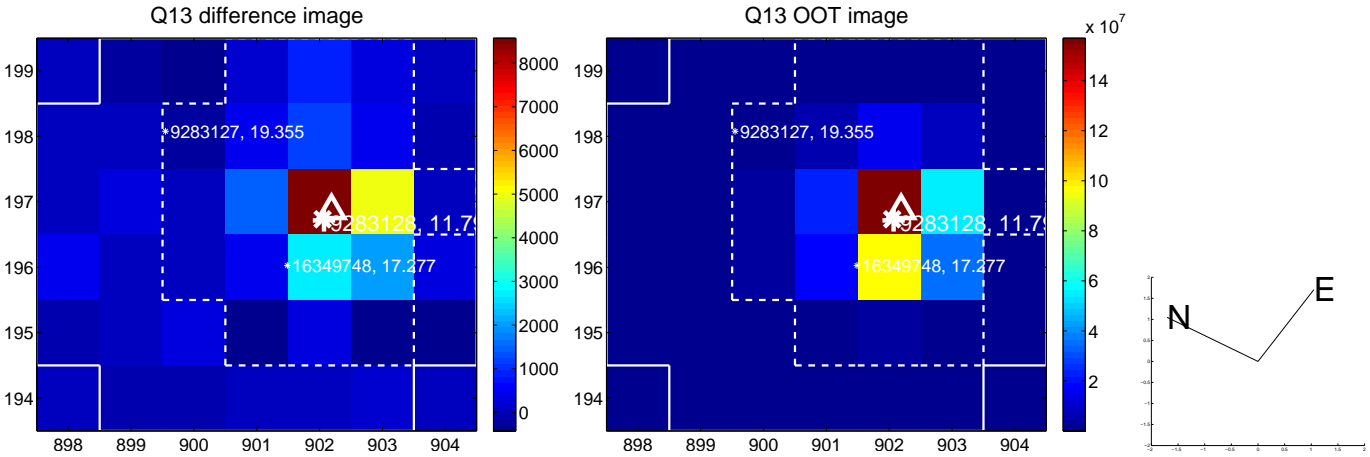
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



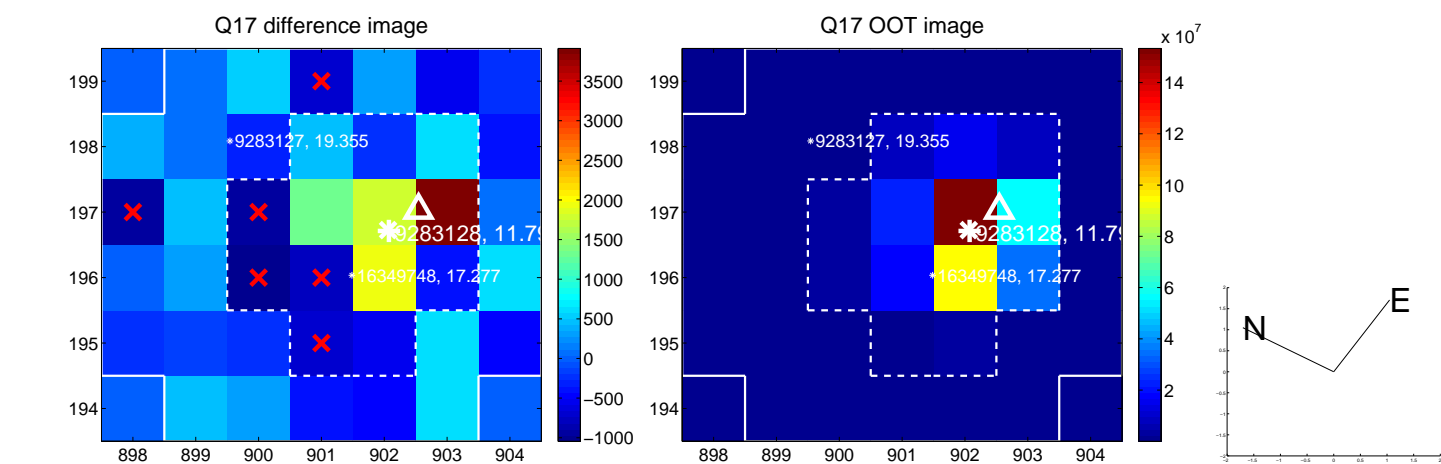
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



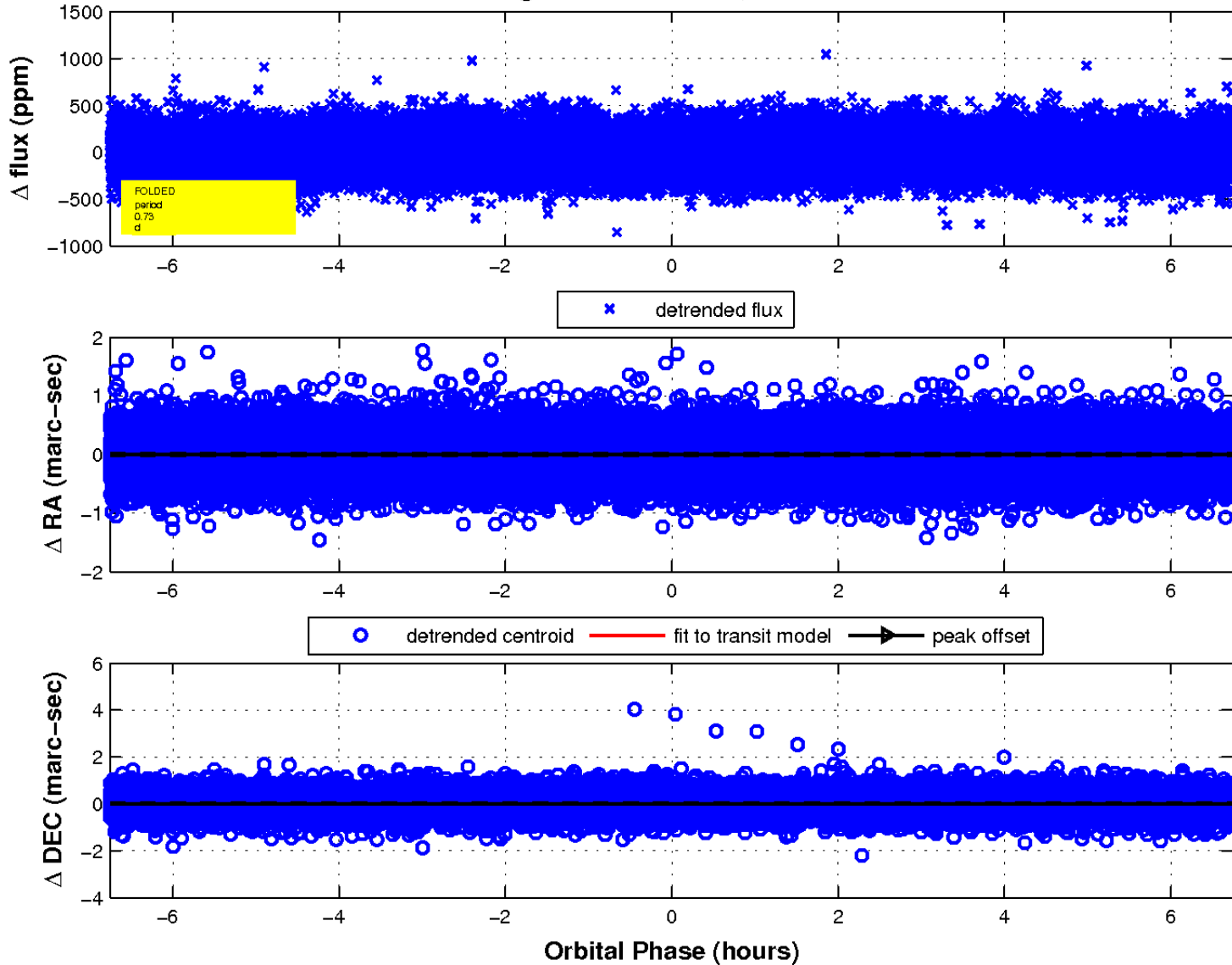
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

