

KIC 003661886

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})
003661886-01	OBS	2279.01	27.014237	132.524102	277.7	5.558	18.6	21.2	1.18	5949	2.25	49.75
003661886-02	OBS	2279.02	12.509497	136.990033	143.8	3.530	12.3	13.4	1.18	5949	1.66	138.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003661886-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003661886-02	OBS	PC	1.00	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.

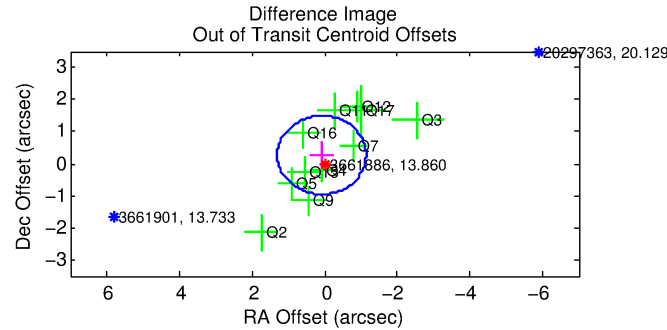
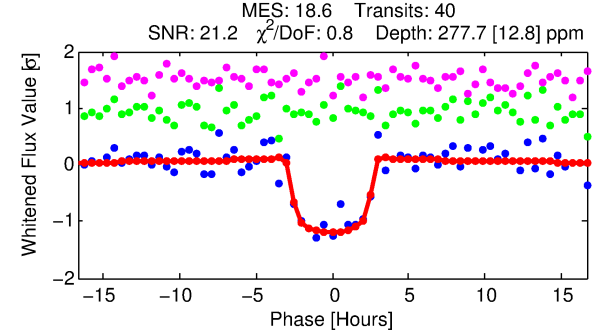
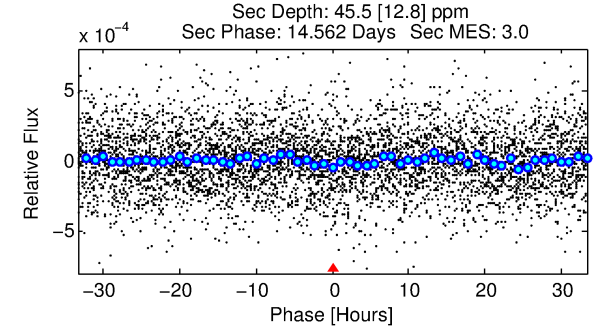
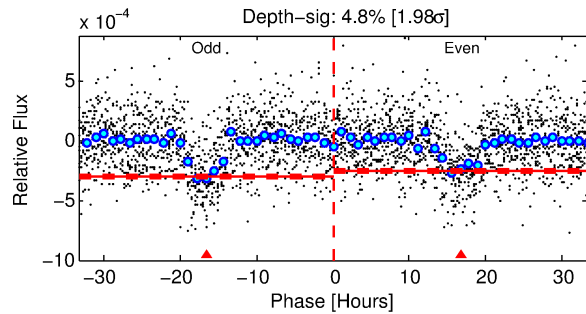
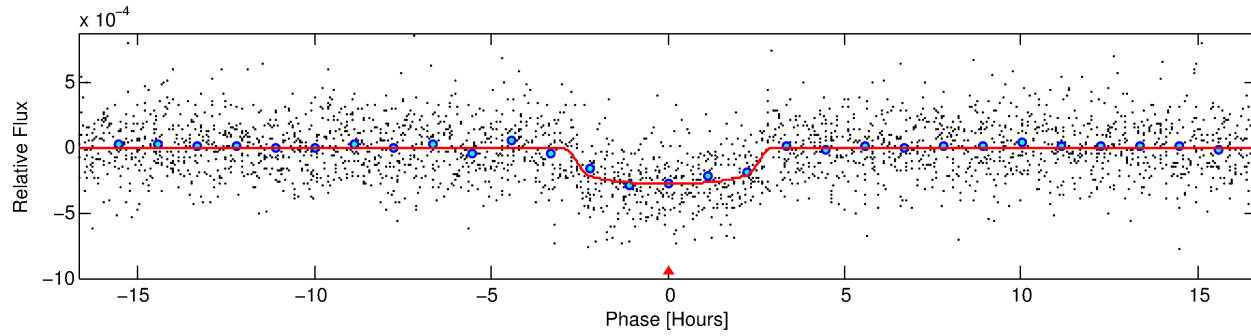
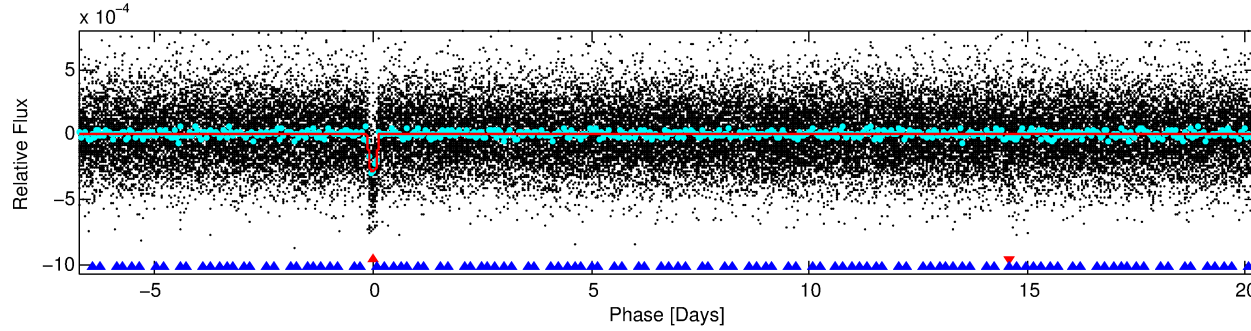
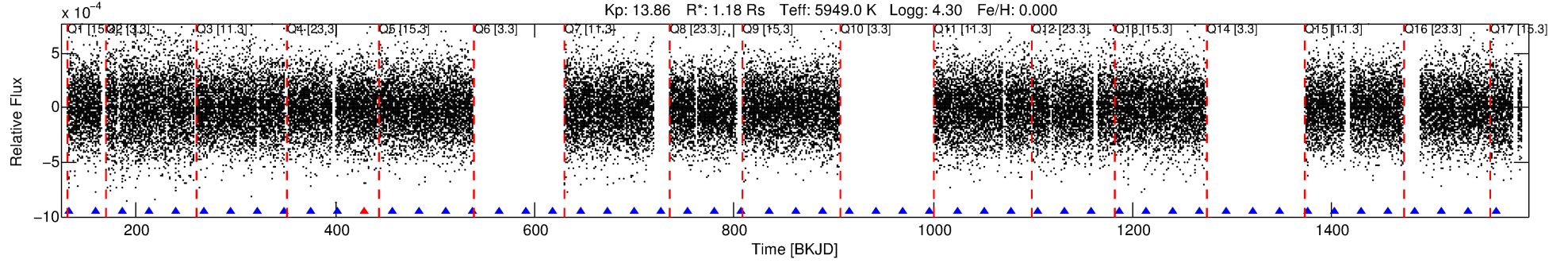
Ephemeris Match Information For 003661886-01

No Significant Match Found

DV One-Page Summary

KIC: 3661886 Candidate: 1 of 2 Period: 27.014 d
KOI: K02279.01 Name: Kepler-377c Corr: 0.980

Kp: 13.86 R*: 1.18 Rs Teff: 5949.0 K Logg: 4.30 Fe/H: 0.000



DV Fit Results:

Period = 27.01424 [0.00015] d
Epoch = 132.5241 [0.0048] BKJD
Rp/R* = 0.0174 [0.0033]
a/R* = 20.63 [18.81]
b = 0.85 [0.30]
Seff = 49.75 [11.23]
Teq = 677 [38] K
Rp = 2.25 [0.55] Re
a = 0.1778 [0.0246] AU
Ag = 156.26 [80.90] [1.92σ]
Teffp = 3702 [444] K [6.79σ]

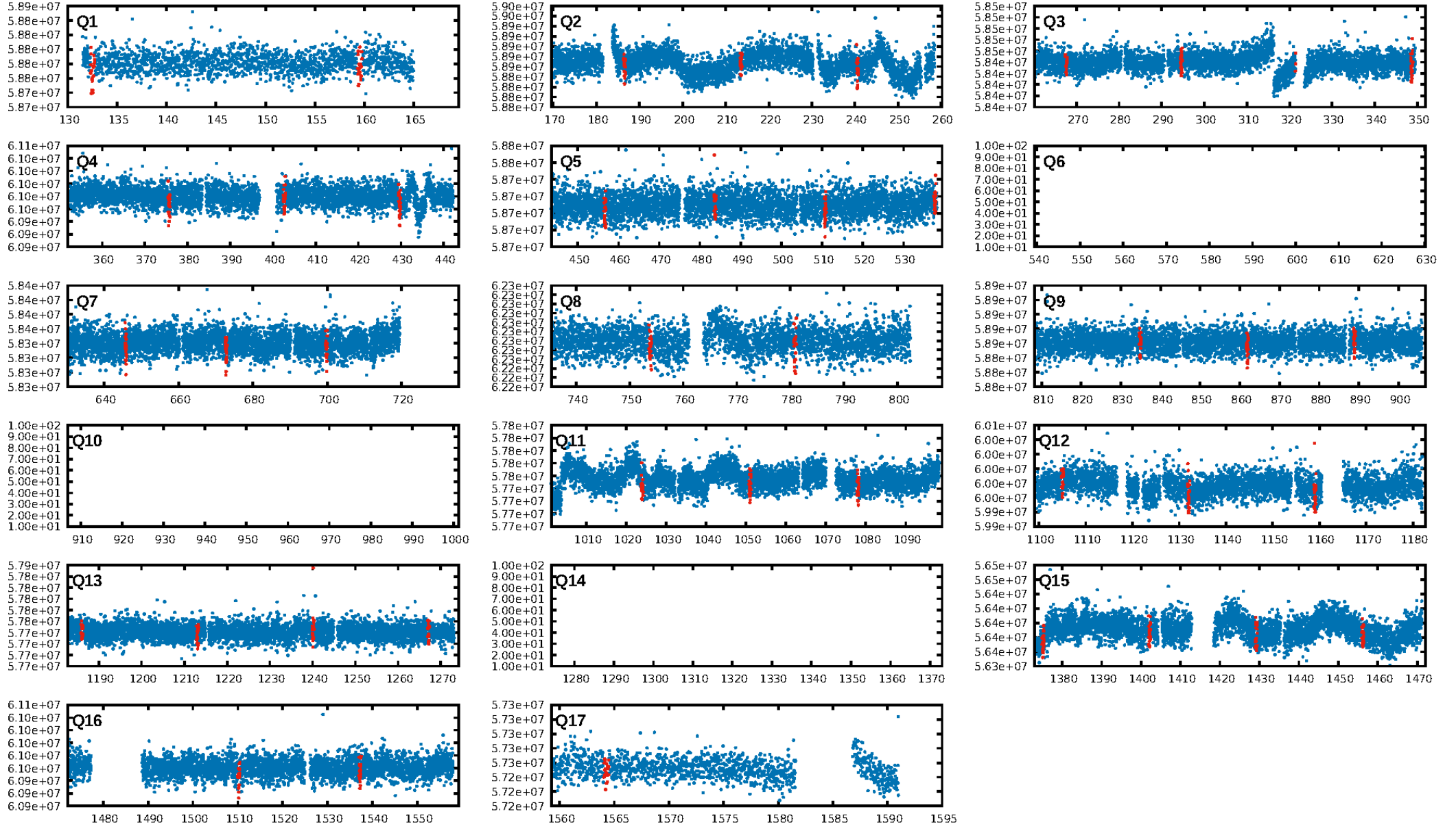
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [52.87σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.50e-72
RollingBand-fgt: 0.97 [36/37]
GhostDiagnostic-chr: -410.5
Centroid-sig: 0.0%
Centroid-so: 1.218 arcsec [1.87σ]
OotOffset-rm: 0.281 arcsec [0.69σ]
KicOffset-rm: 0.322 arcsec [0.99σ]
OotOffset-st: 1/4/3/3 [11]
KicOffset-st: 1/4/3/3 [11]
DiffImageQuality-fgm: 0.91 [10/11]
DiffImageOverlap-fno: 1.00 [14/14]

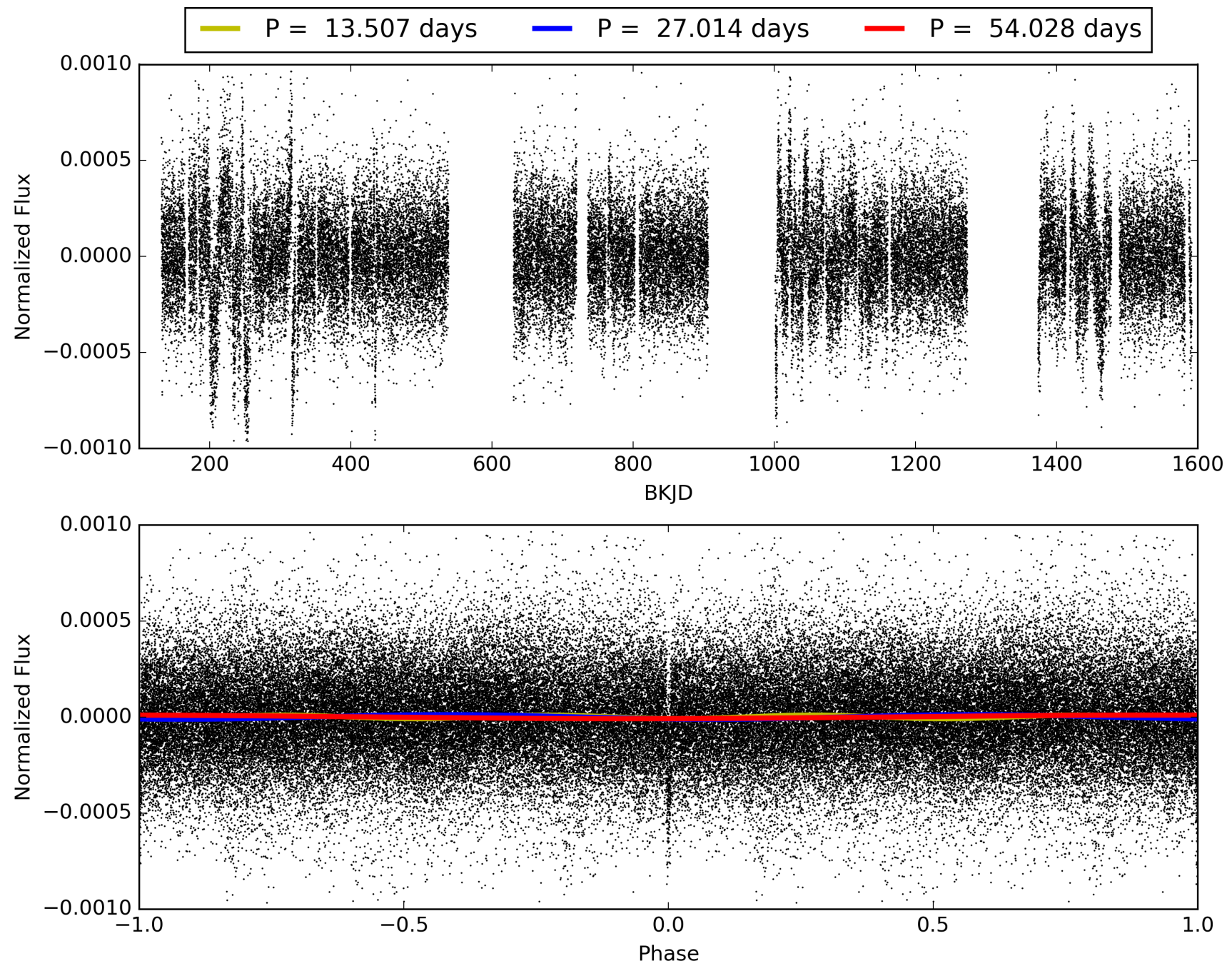
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:33:26 Z

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

TCE 003661886-01, PDC Light Curves

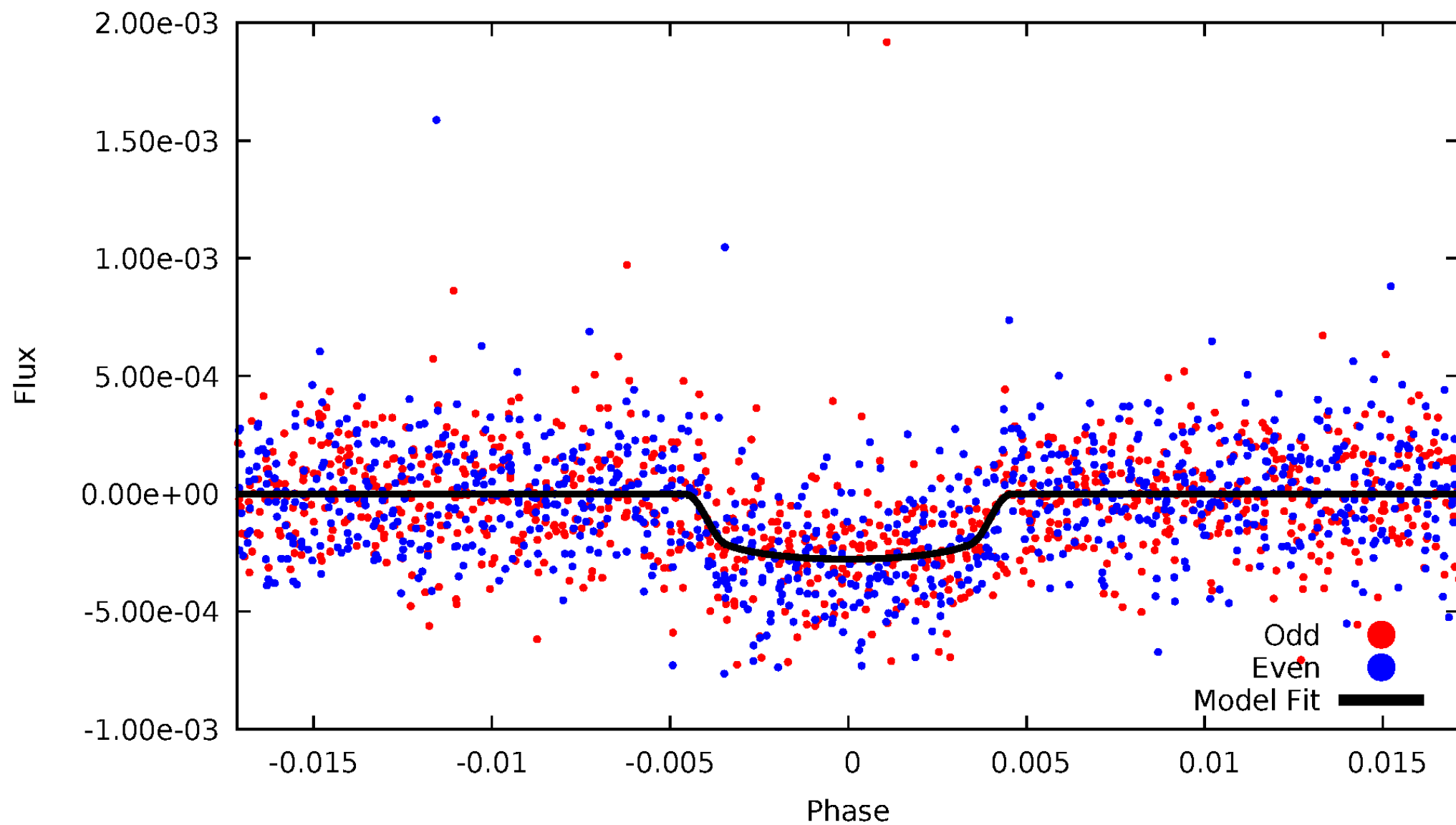


TCE 003661886-01



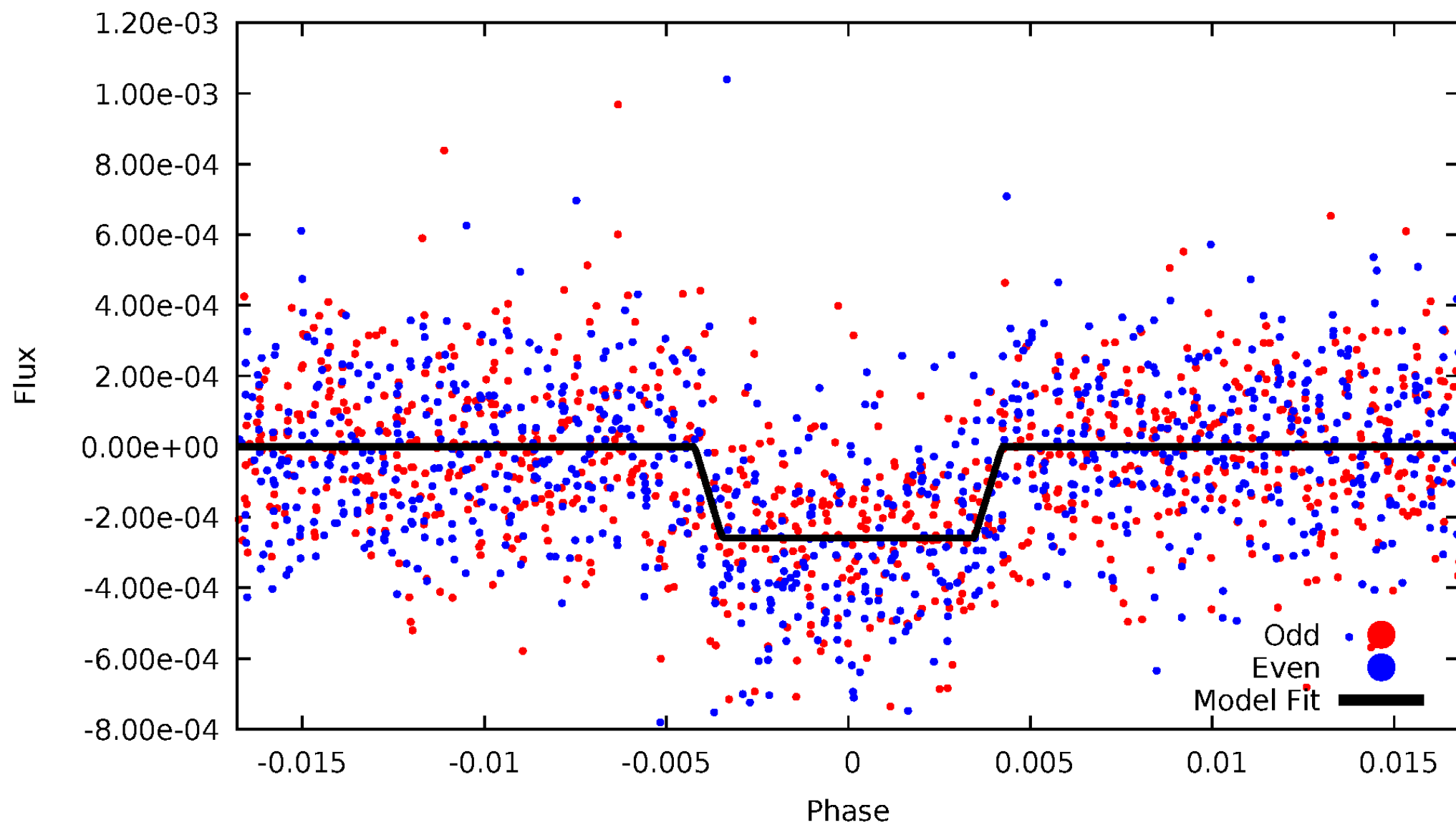
DV Odd/Even

TCE 003661886-01

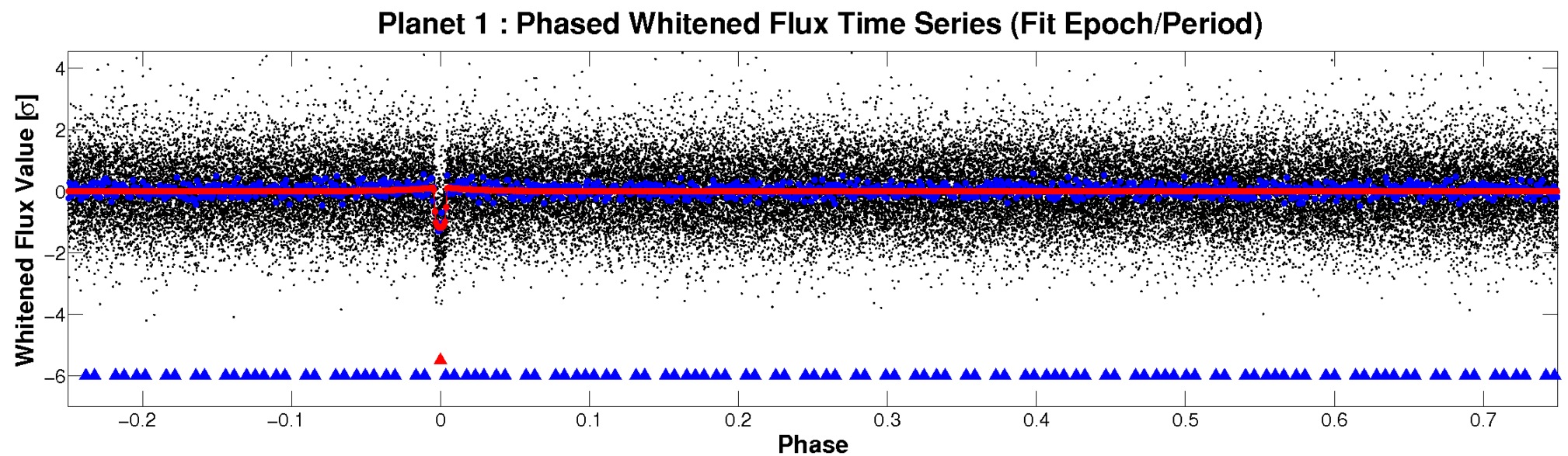
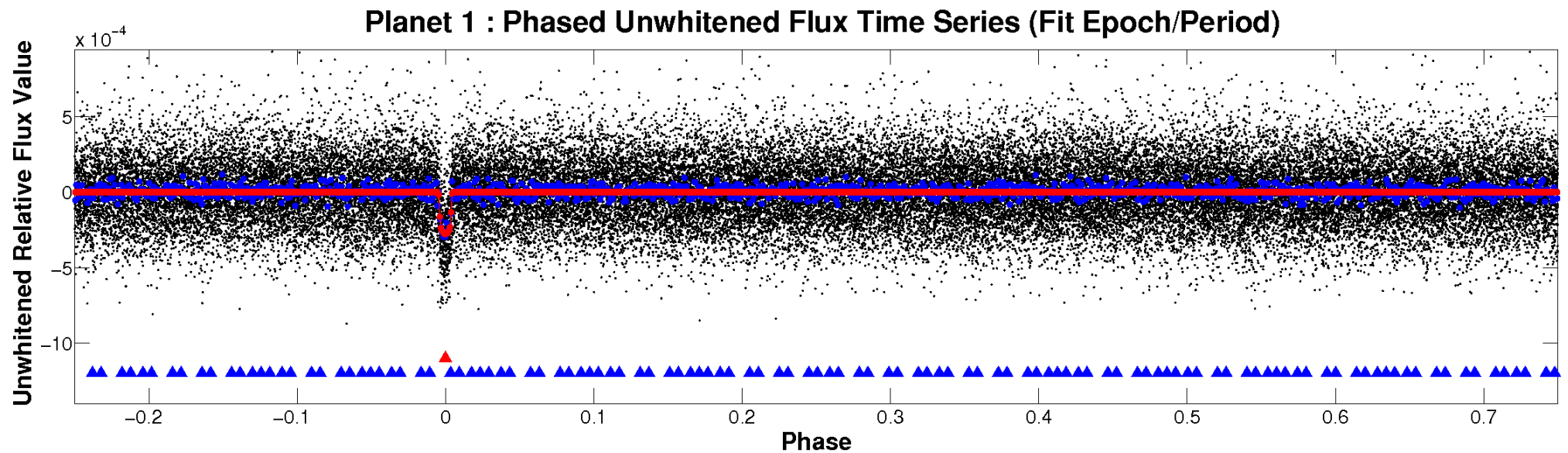


ALT Odd/Even

TCE 003661886-01

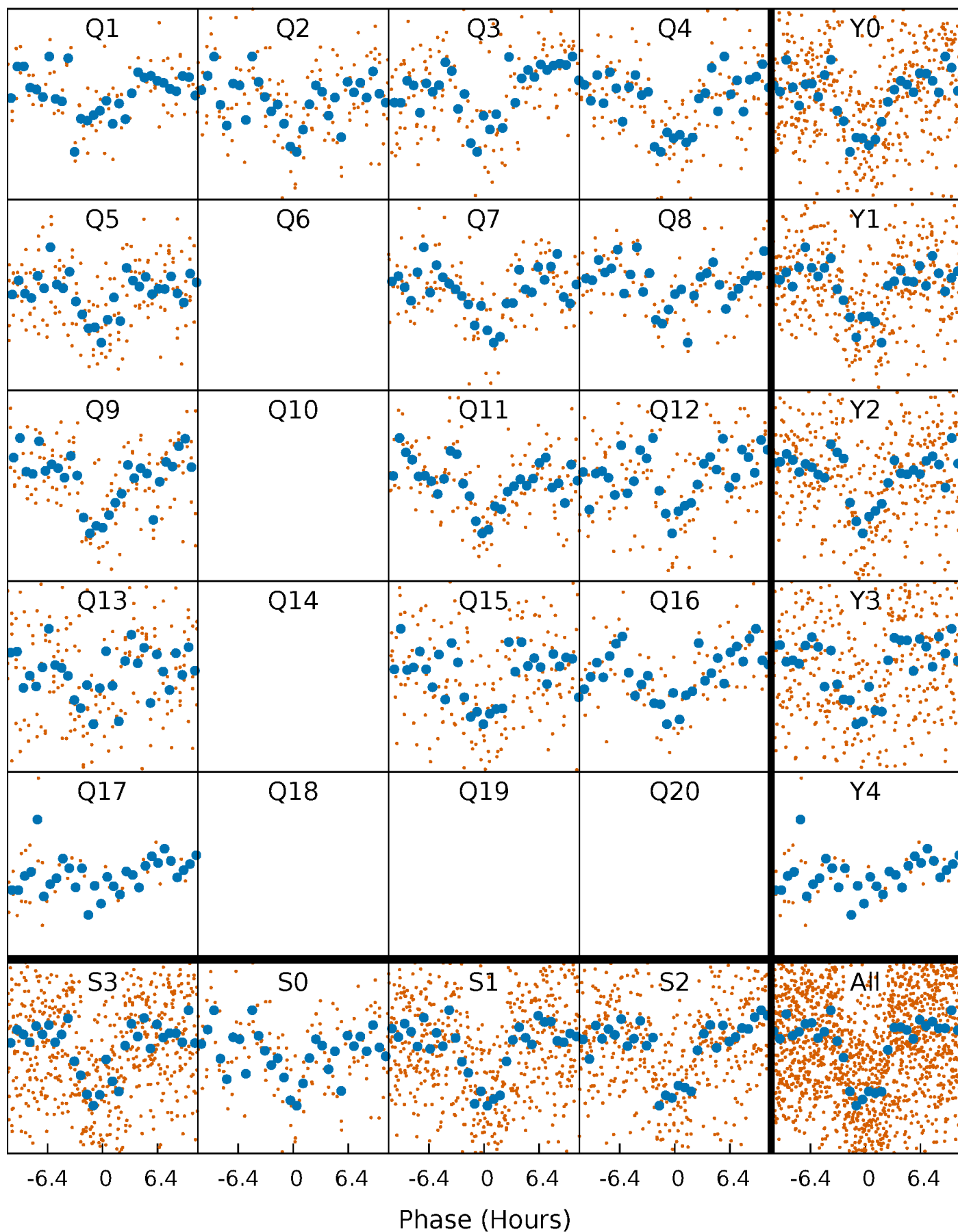


Non-Whitened Vs. Whitened Light Curve



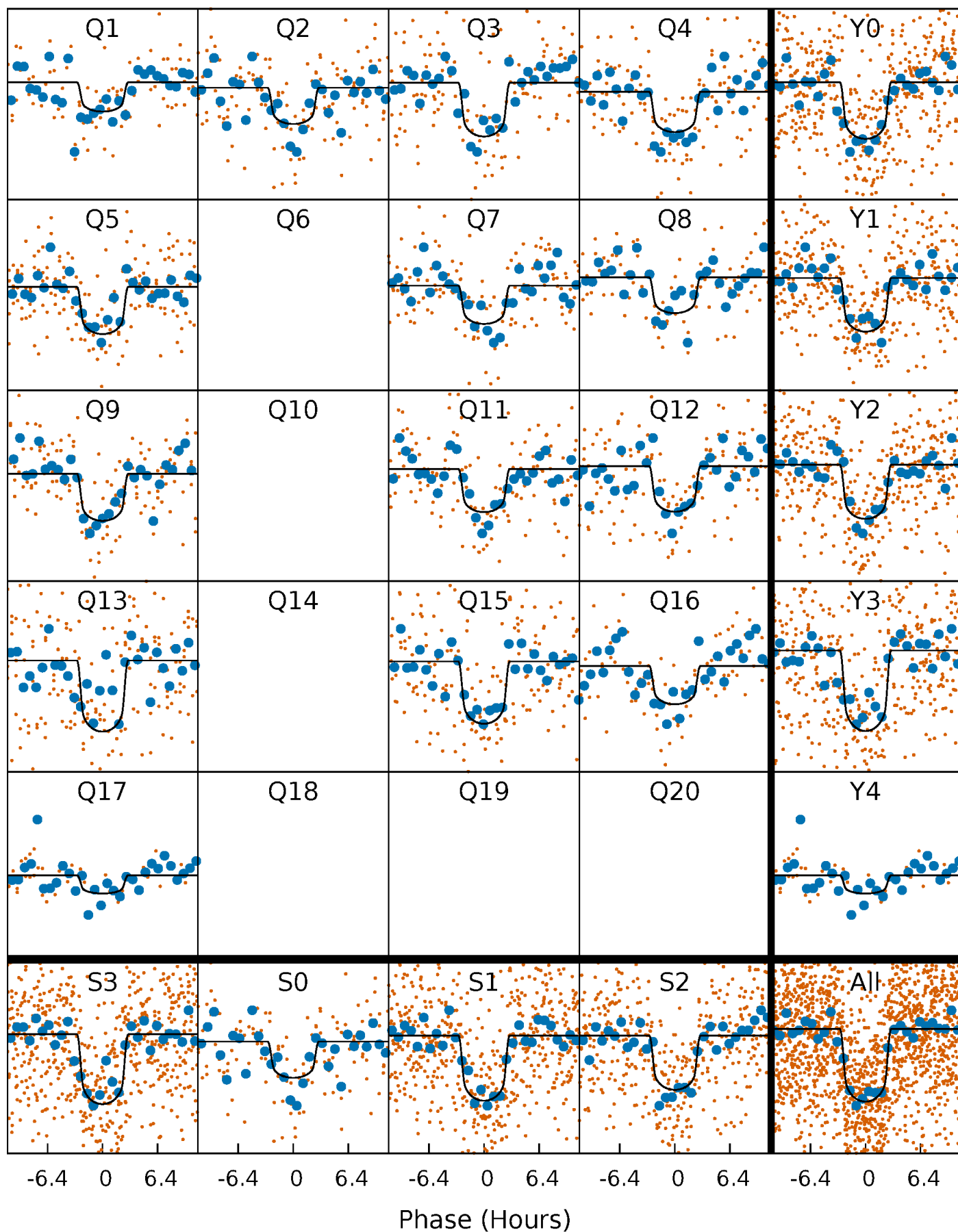
PDC Quarter-Phased Transit Curves

TCE 003661886-01 P= 27.014237 Days $T_0=132.524102$ (BKJD)



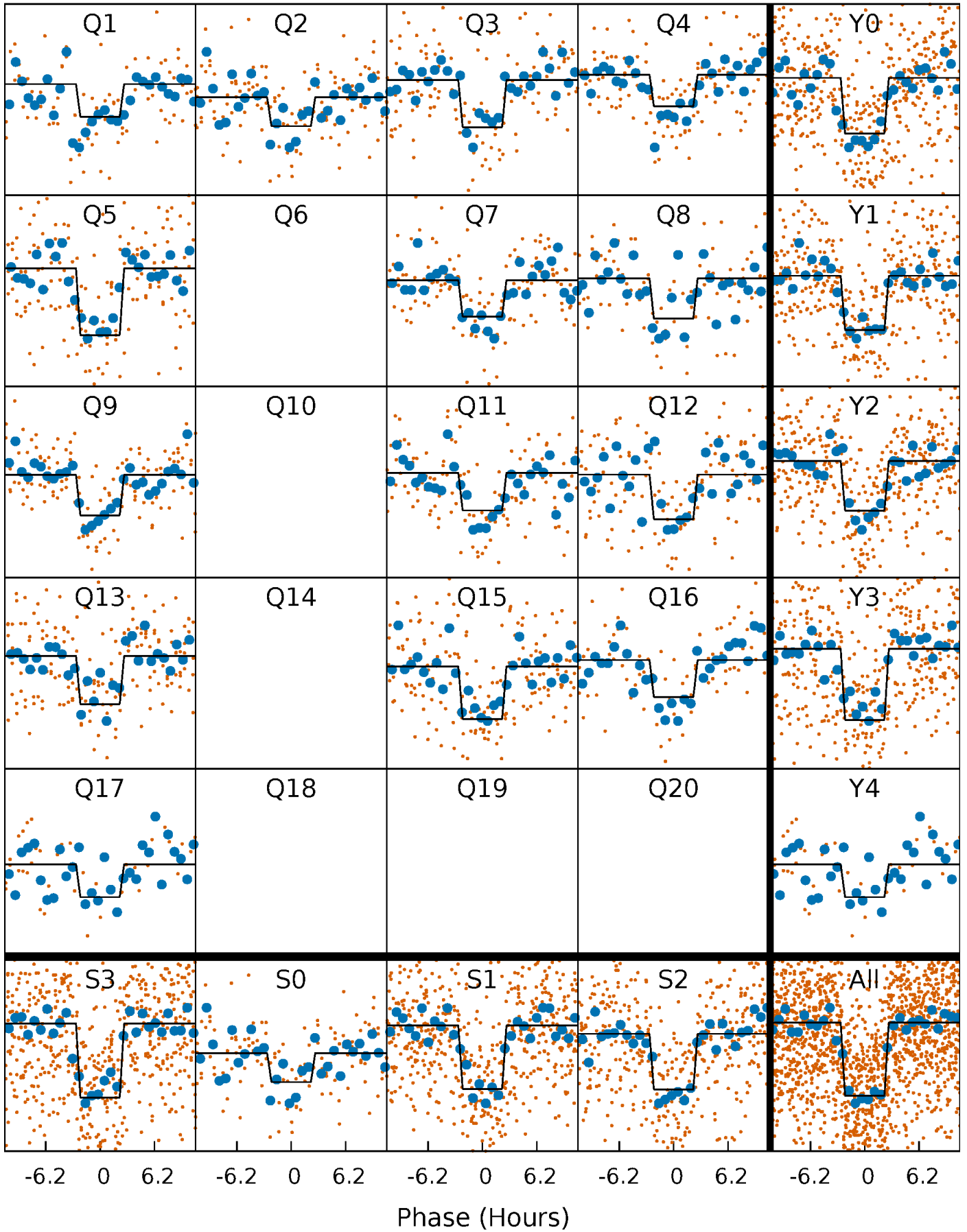
DV Quarter-Phased Transit Curves

TCE 003661886-01 P= 27.014237 Days $T_0=132.524102$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

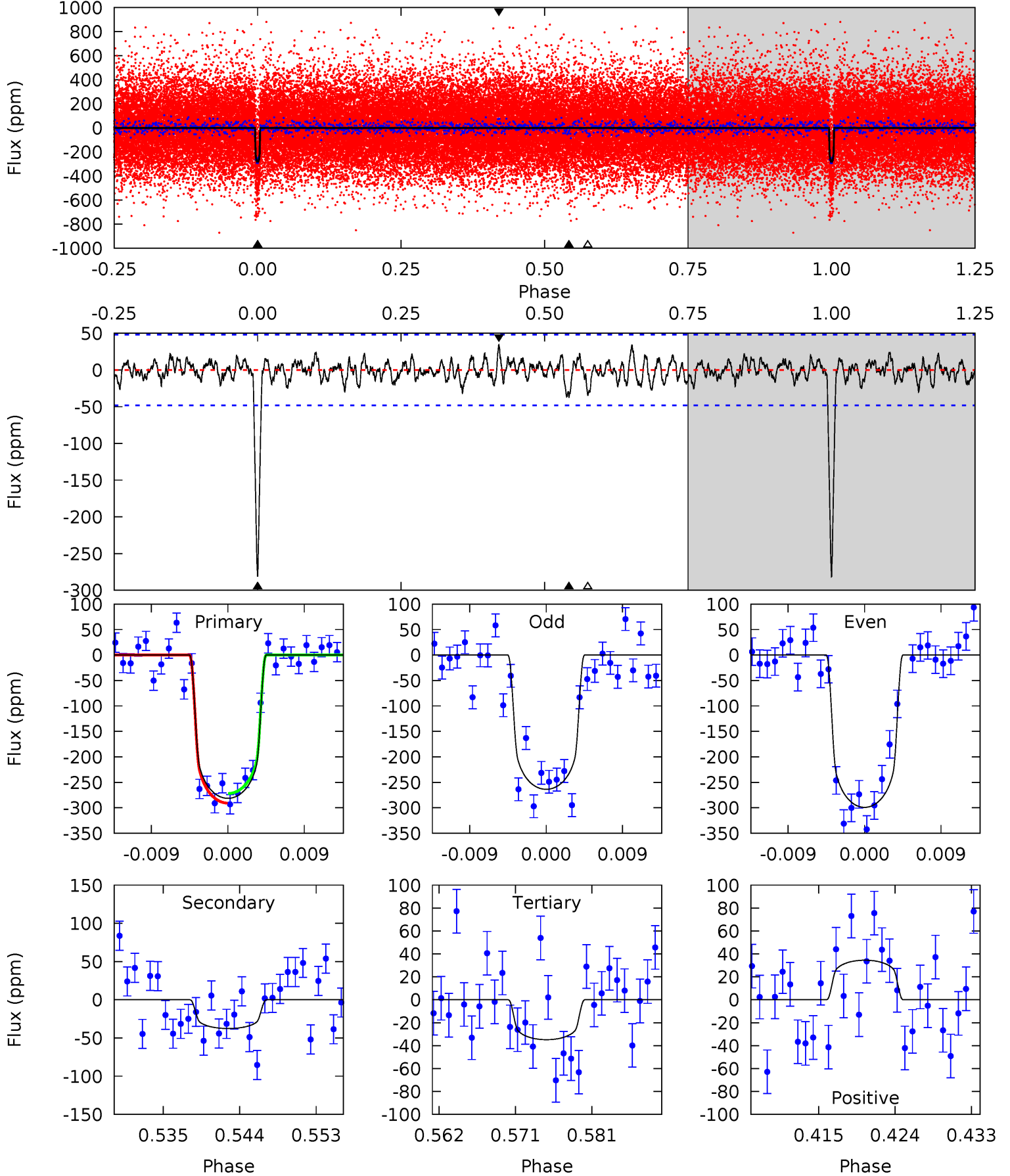
TCE 003661886-01 P= 27.013972 Days $T_0=132.530629$ (BKJD)



DV Model-Shift Uniqueness Test

003661886-01, P = 27.014237 Days, E = 105.509865 Days

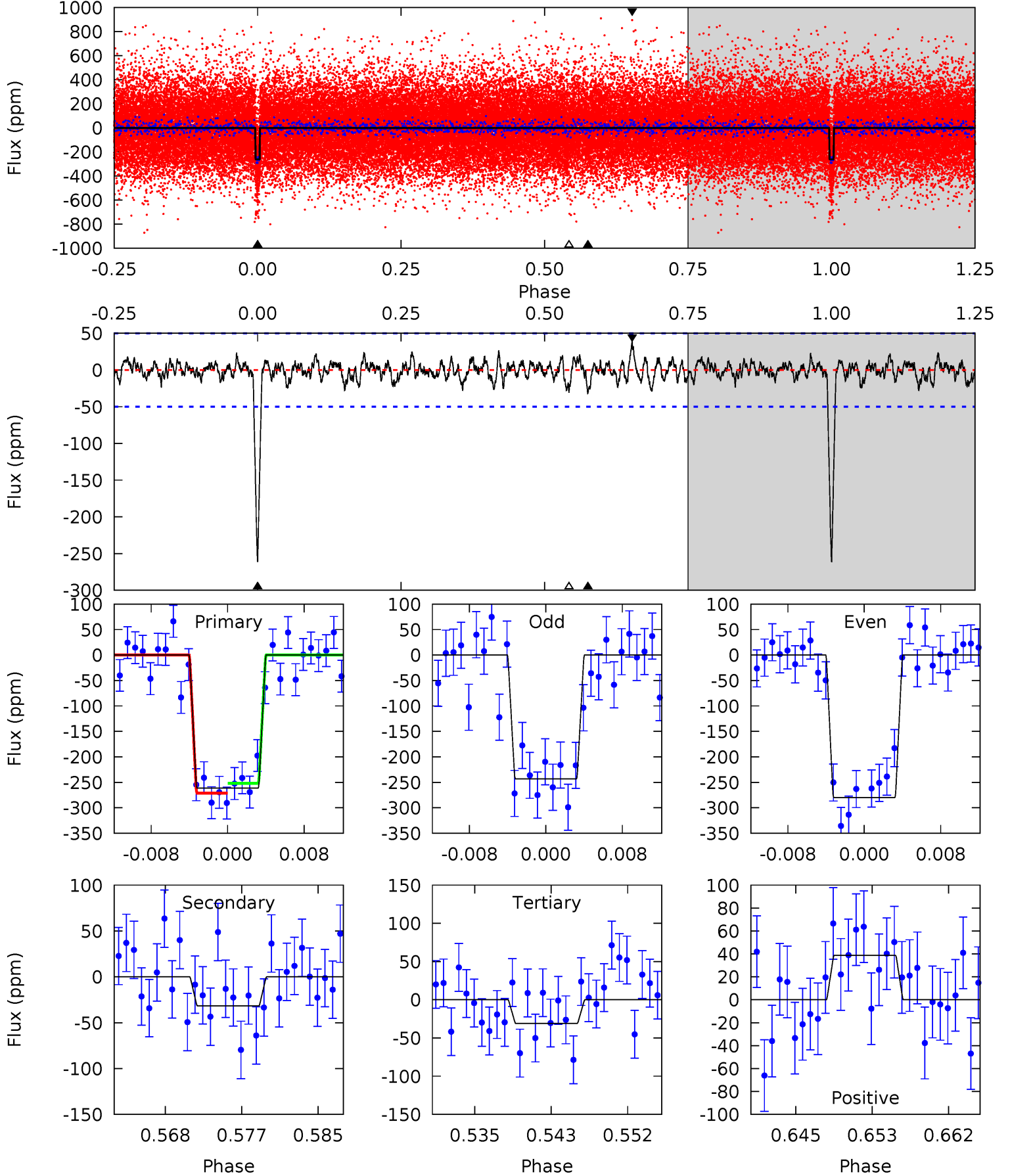
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	3.94	3.64	3.61	5.04	2.60	1.15	25.8	25.8	0.29	0.33	1.85	0.98	0.11	0.99



Alt Model-Shift Uniqueness Test

003661886-01, $P = 27.013972$ Days, $E = 105.516657$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	3.22	3.14	3.92	5.06	2.63	1.02	23.4	22.6	0.08	-0.71	1.87	1.05	0.13	0.98



Stellar Parameters For KIC 003661886

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5949^{+107}_{-119}	$4.303^{+0.120}_{-0.108}$	$0.000^{+0.150}_{-0.150}$	$1.184^{+0.183}_{-0.165}$	$1.027^{+0.088}_{-0.070}$	$0.871^{+0.512}_{-0.273}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-14%	+9%/-7%	+59%/-31%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 003661886-01 / KOI 2279.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-38 ± 10	$2.25^{+0.50}_{-0.46}$	944^{+40}_{-40}	3867^{+341}_{-281}	129^{+86}_{-52}
Alt.	-32 ± 10	$2.07^{+0.46}_{-0.46}$	944^{+44}_{-40}	3873^{+413}_{-325}	129^{+102}_{-54}

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 $A_{obs} \gg 1.0$

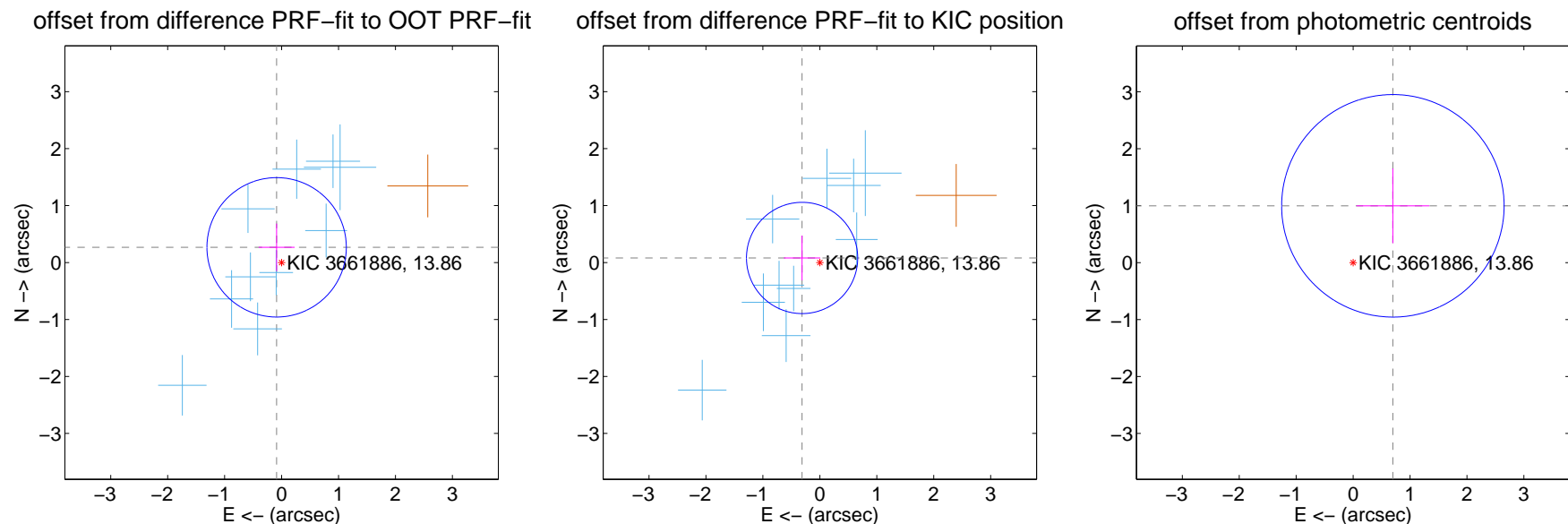
DV Centroid Data

Supplemental centroid analysis for 003661886-01. Kepler magnitude: 13.86. Transit SNR 21.23

There are 10 quarters with good PRF difference image offsets

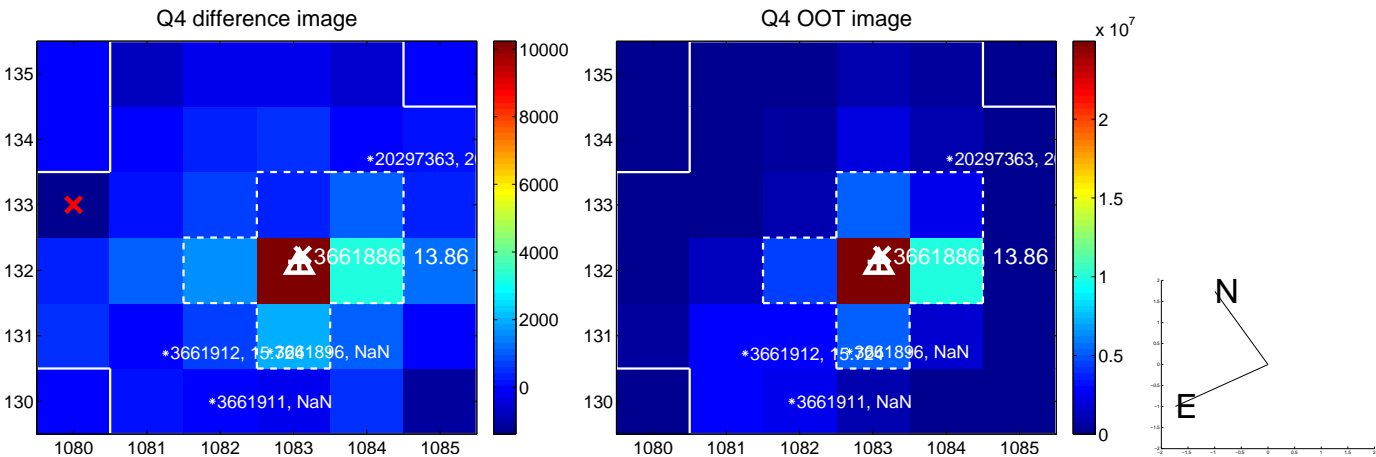
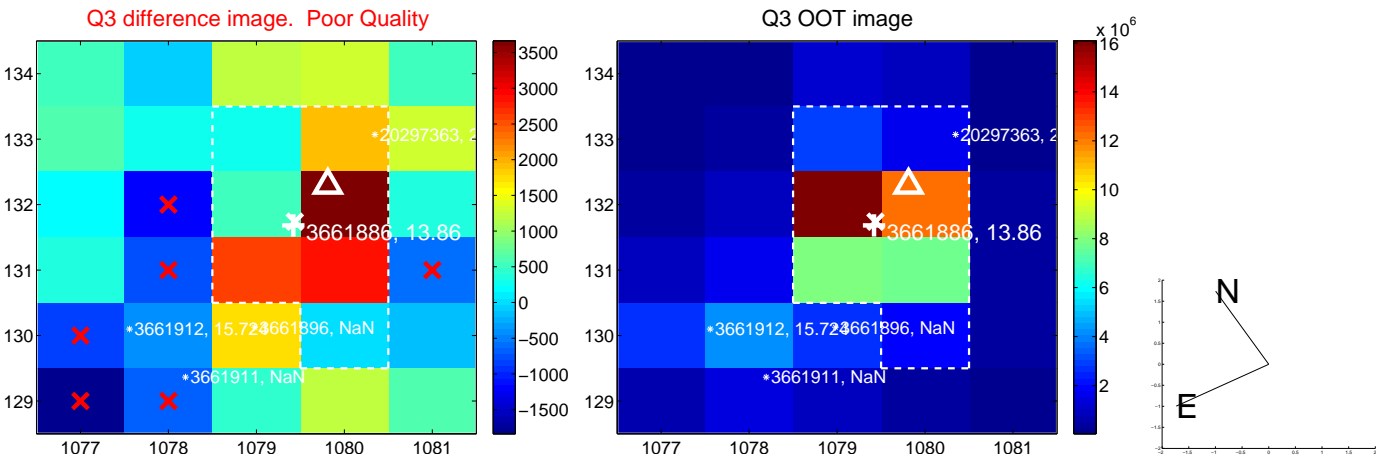
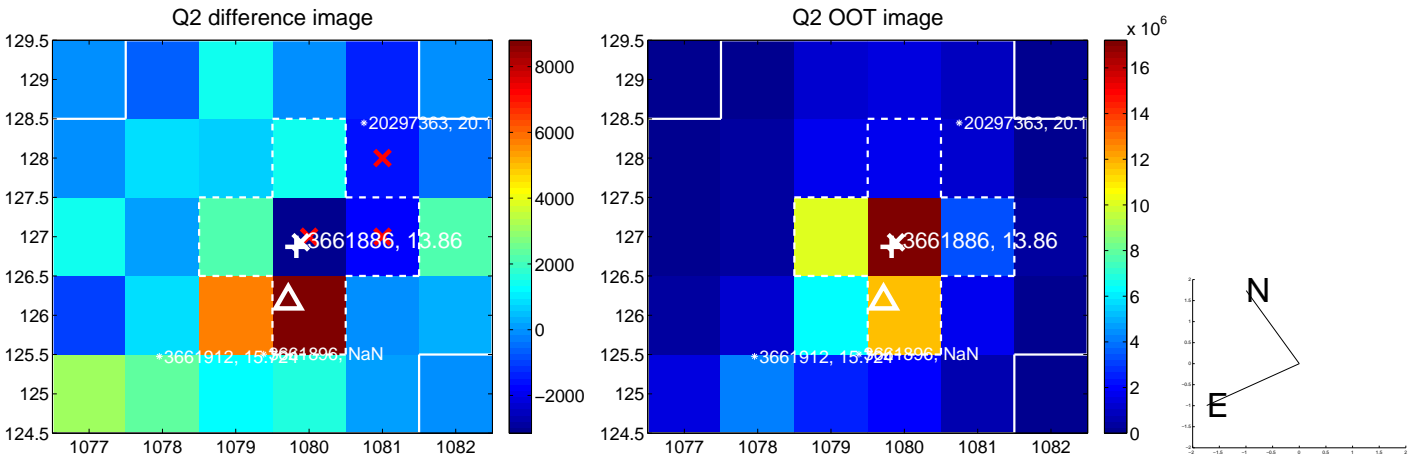
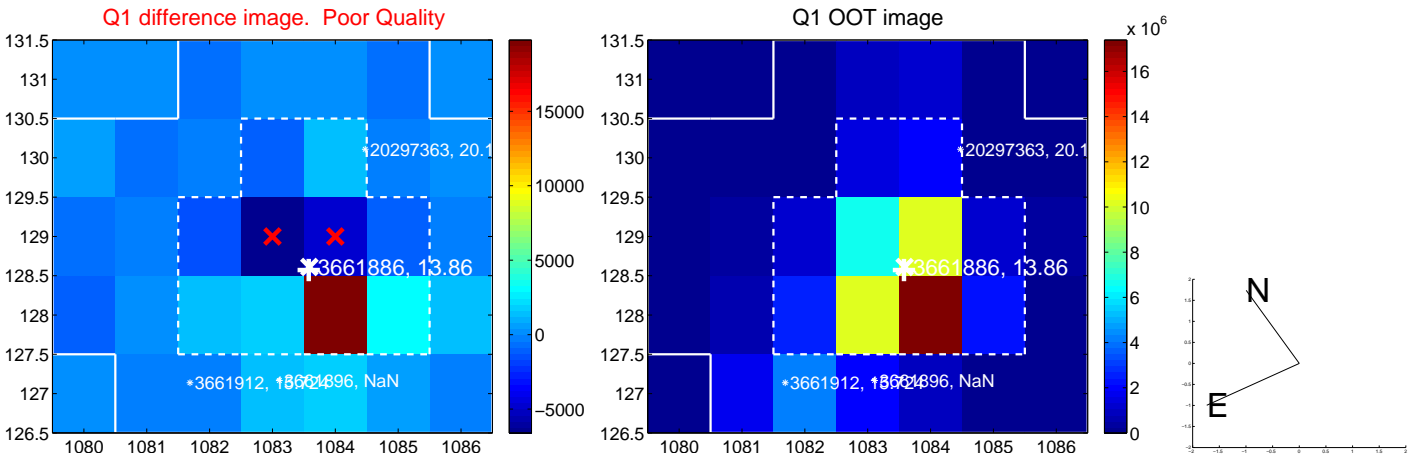
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.281 ± 0.408	0.69	0.087 ± 0.317	0.267 ± 0.417
PRF-fit source offset from KIC position	0.322 ± 0.326	0.99	0.312 ± 0.321	0.080 ± 0.393
photometric centroid source offset	1.22 ± 0.65	1.87	-0.70 ± 0.64	1.00 ± 0.66

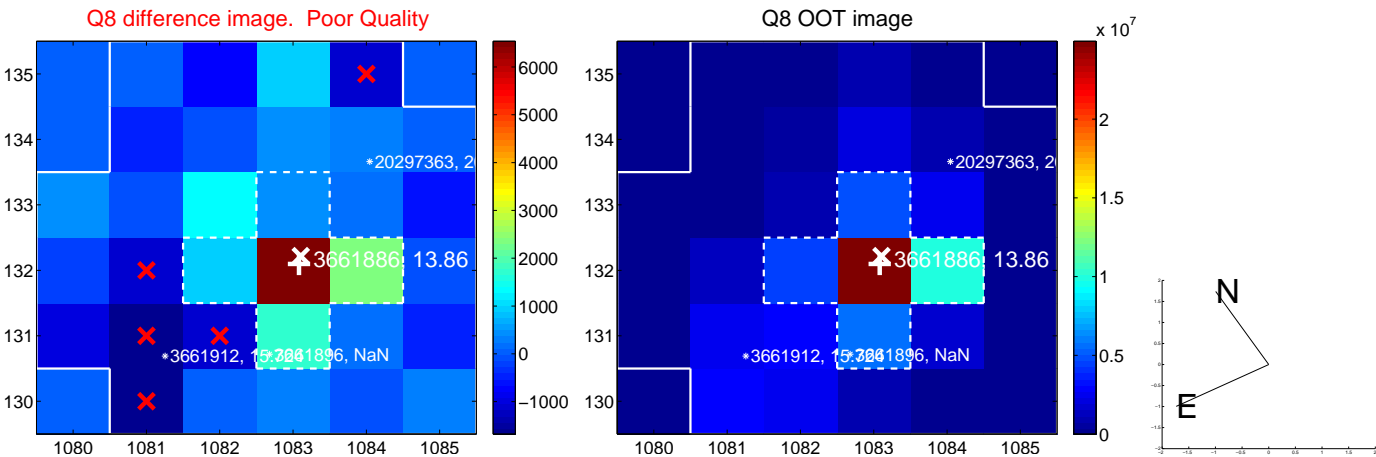
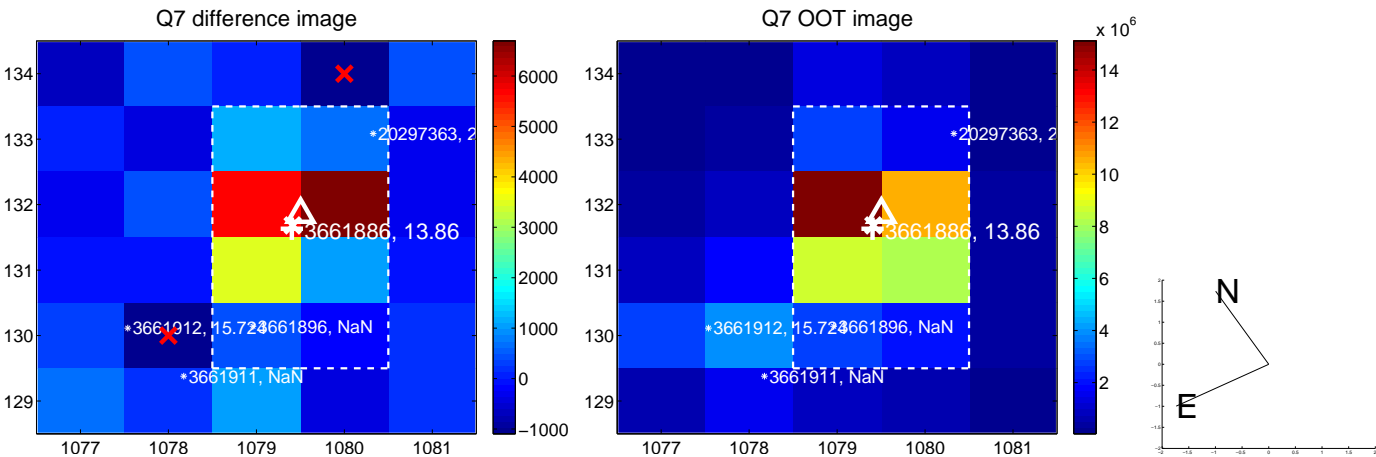
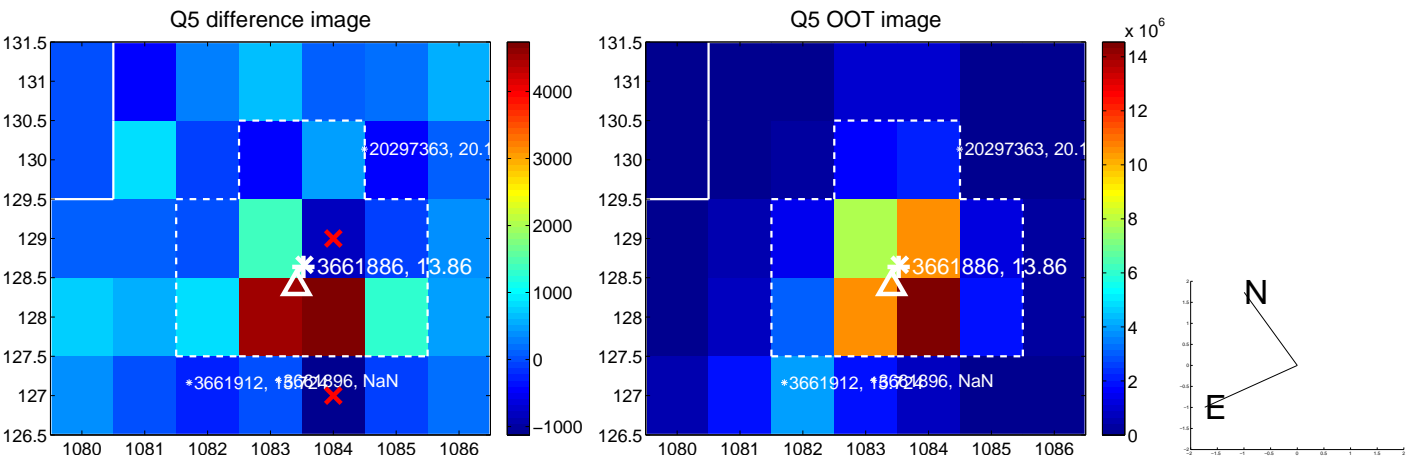


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

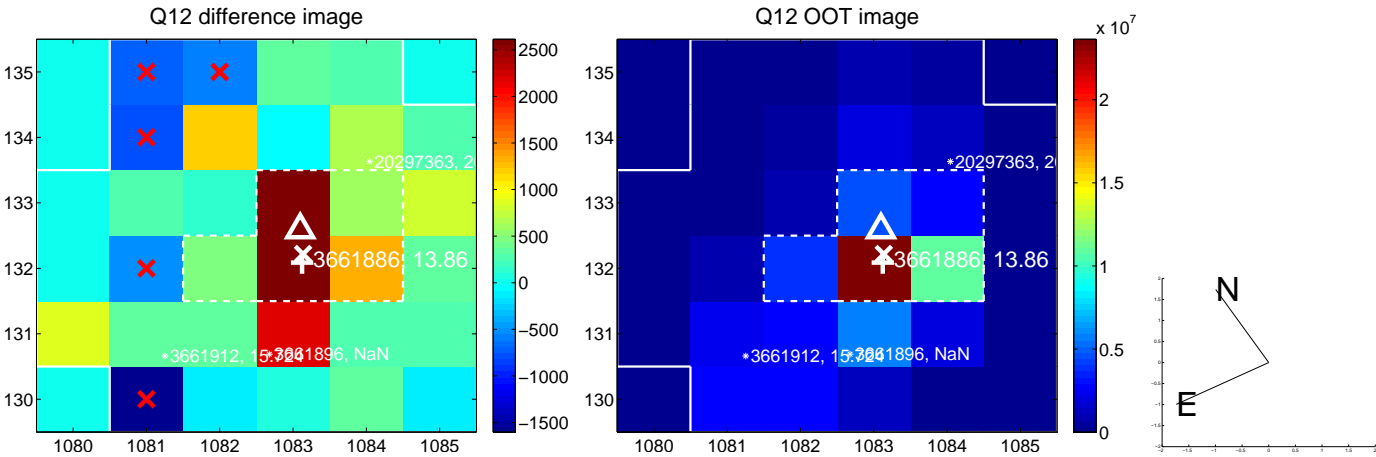
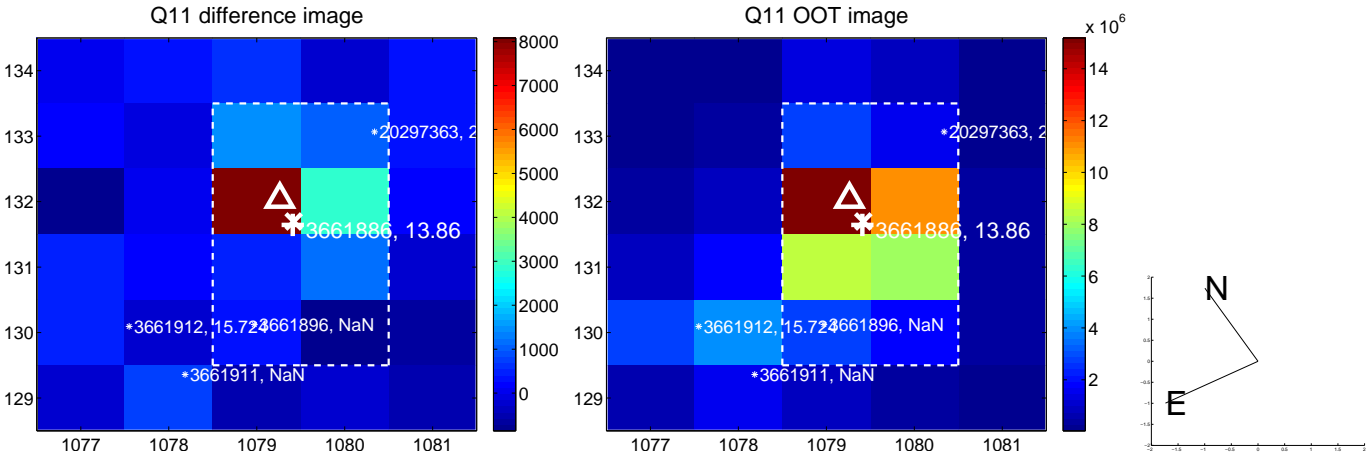
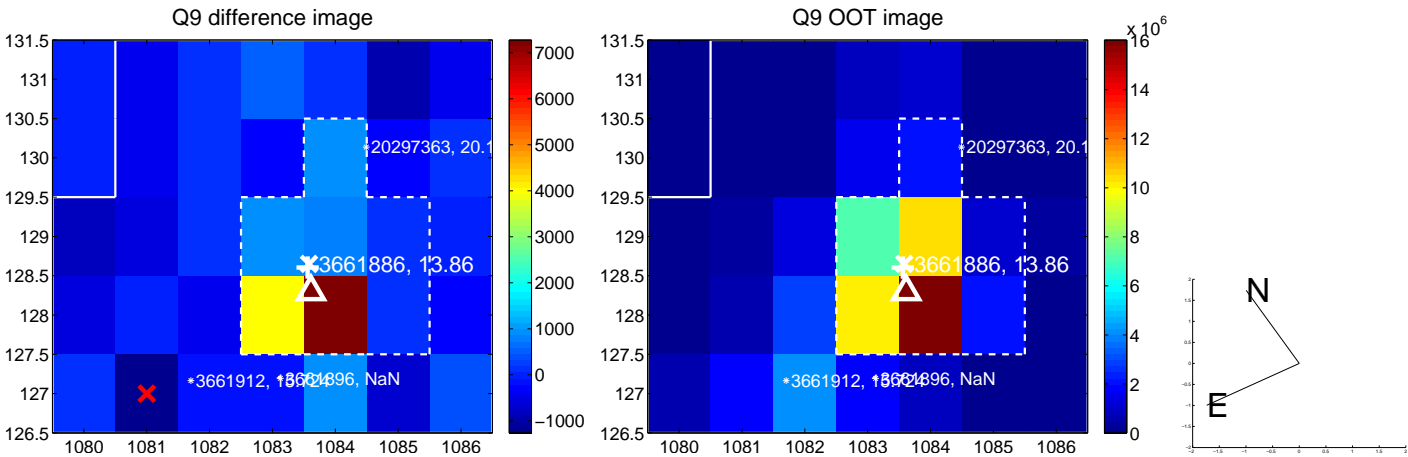
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



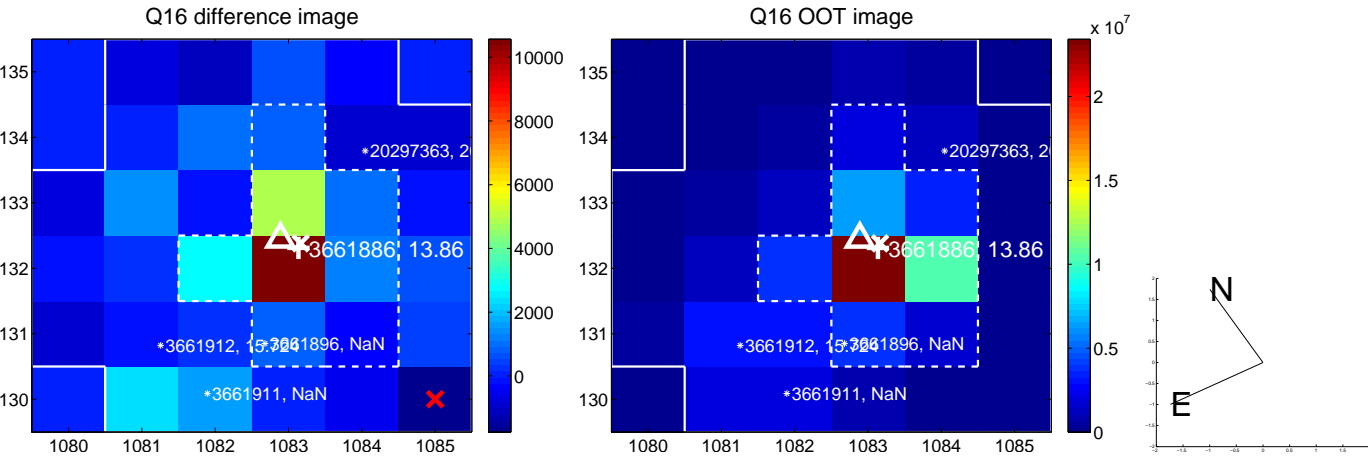
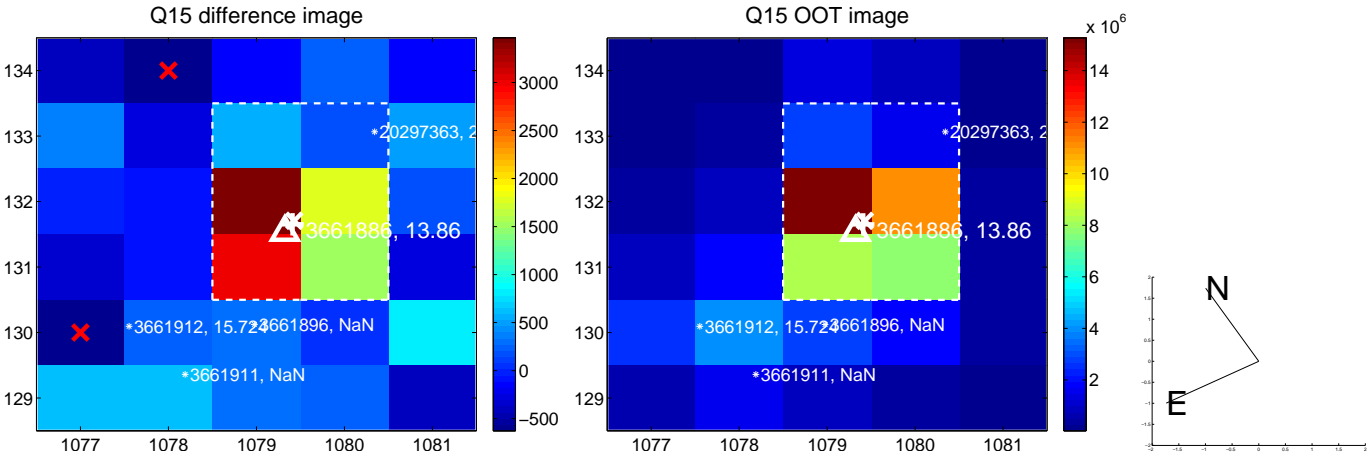
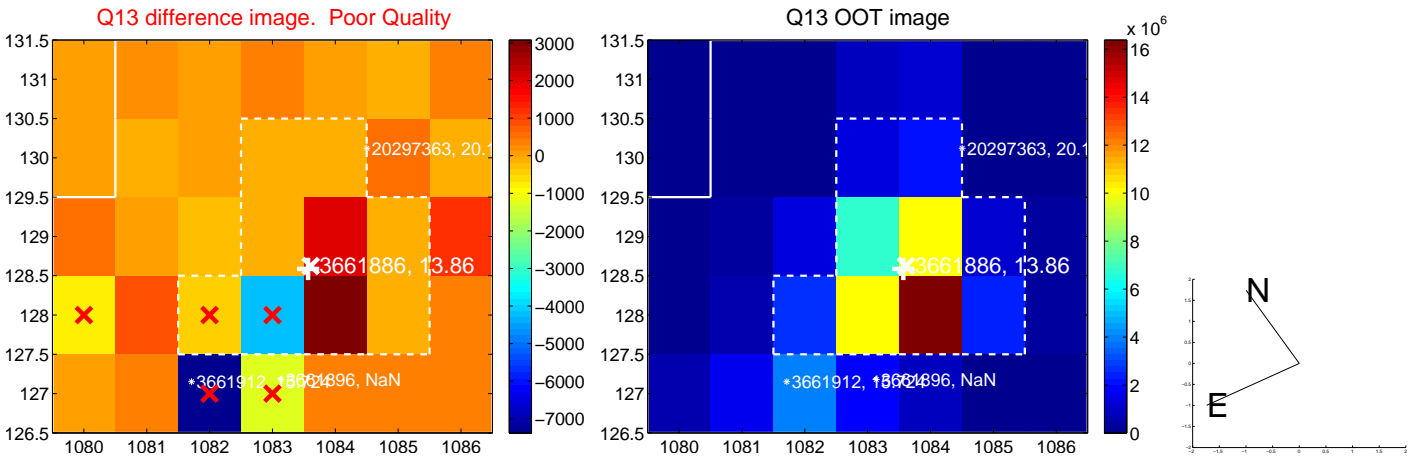
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



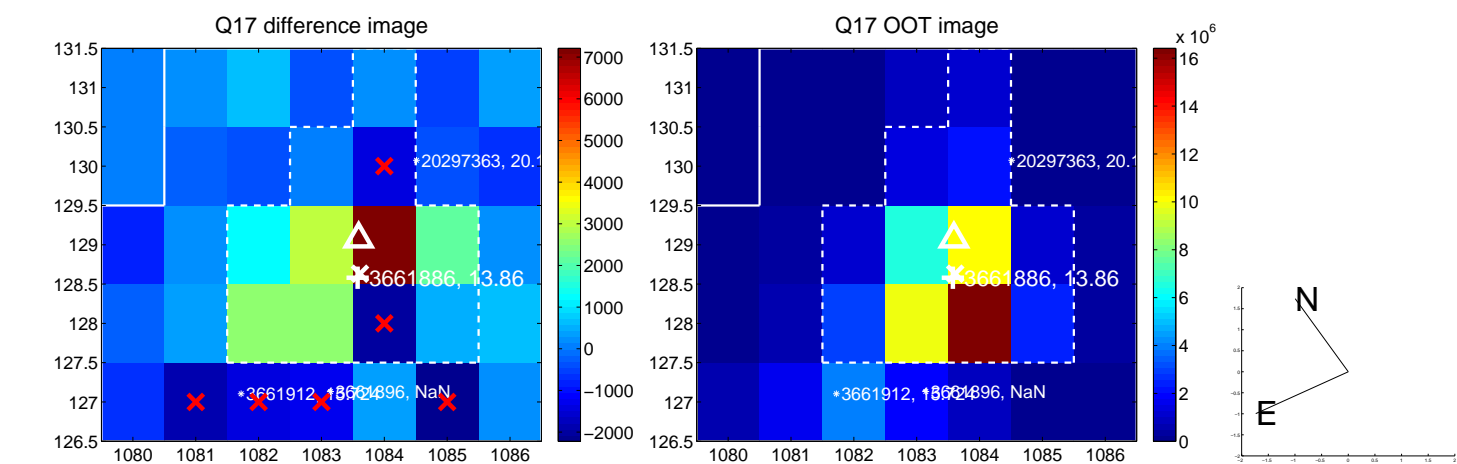
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



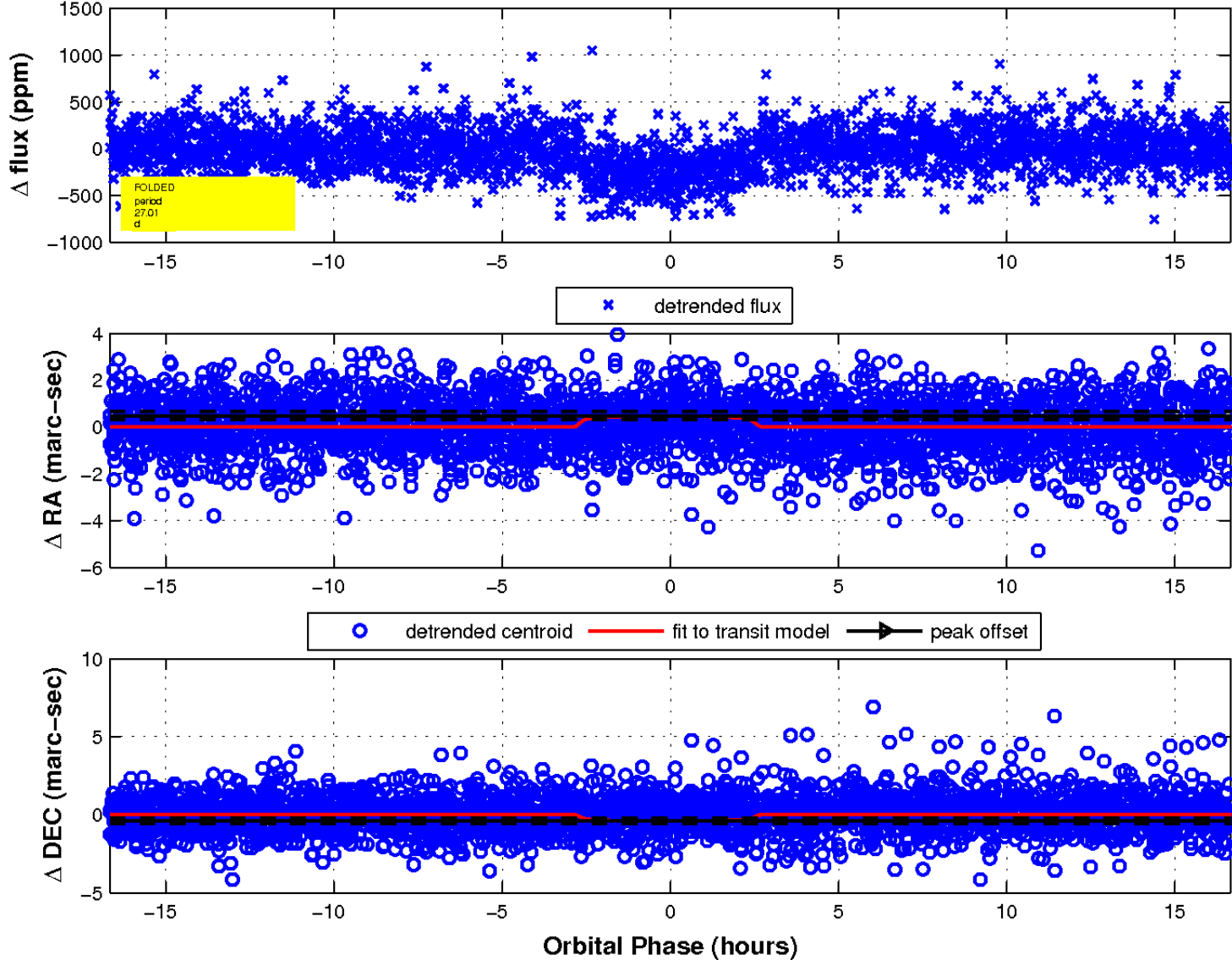
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

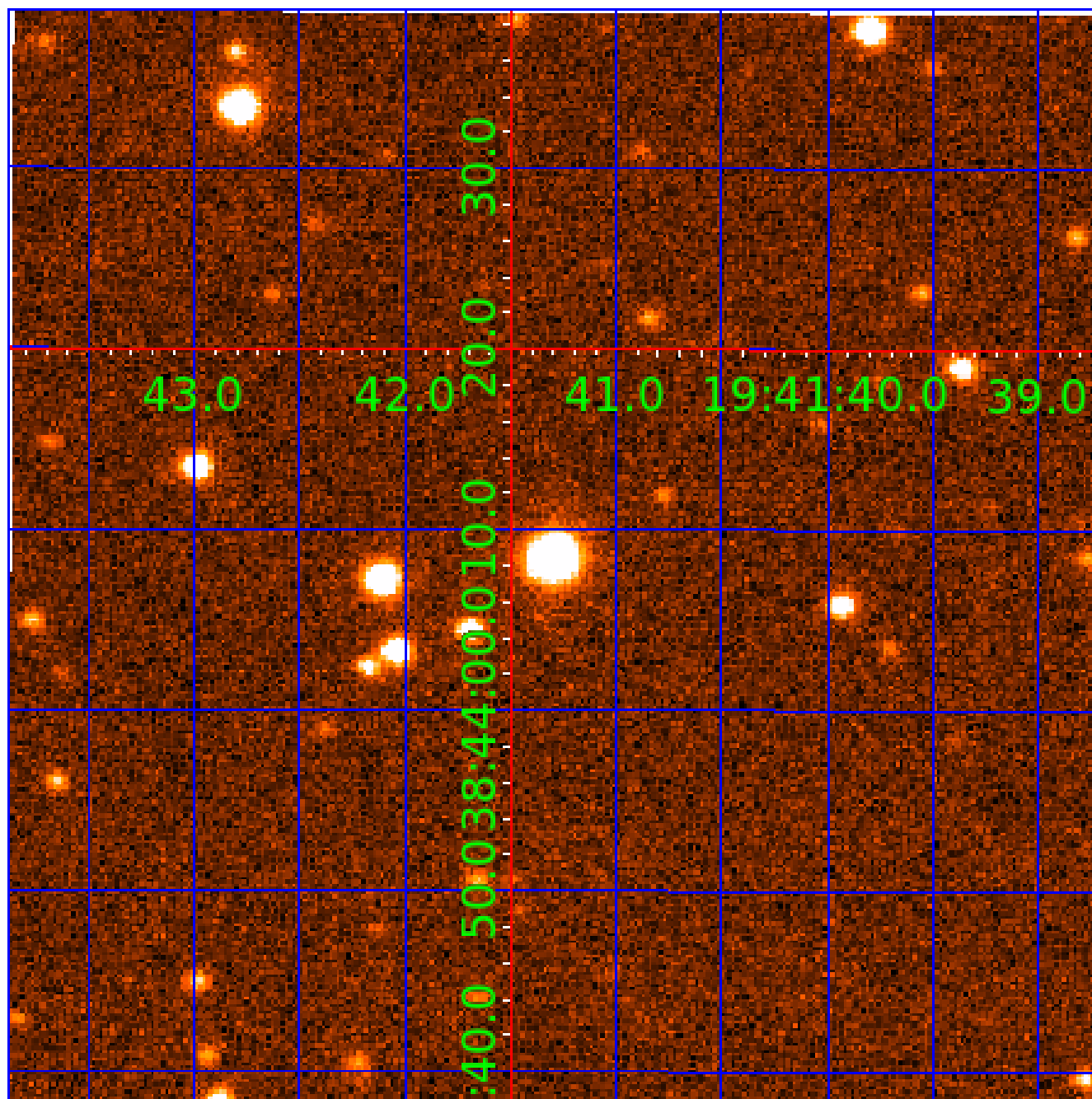


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003661886

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})
003661886-01	OBS	2279.01	27.014237	132.524102	277.7	5.558	18.6	21.2	1.18	5949	2.25	49.75
003661886-02	OBS	2279.02	12.509497	136.990033	143.8	3.530	12.3	13.4	1.18	5949	1.66	138.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003661886-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
003661886-02	OBS	PC	1.00	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.

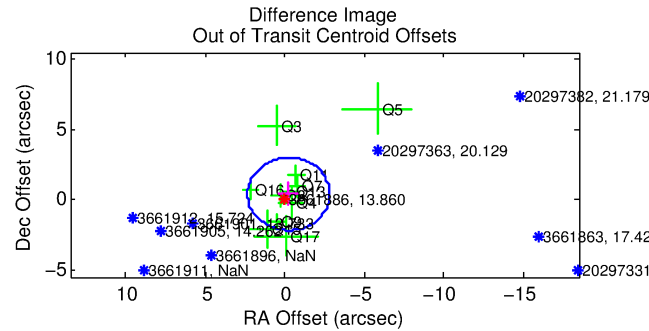
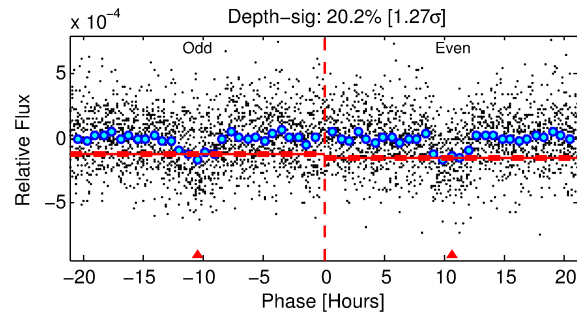
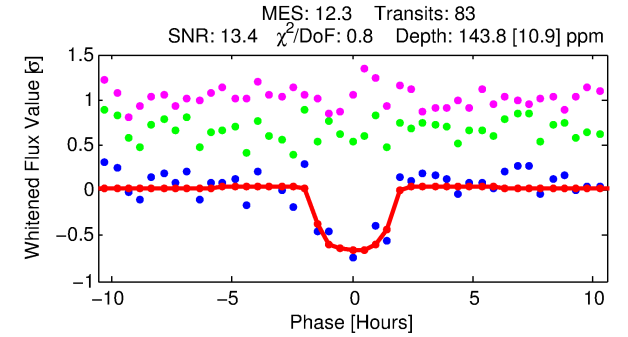
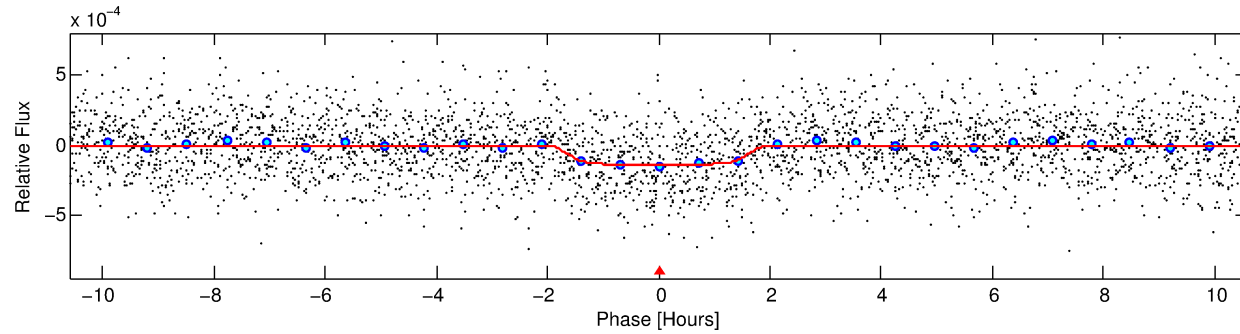
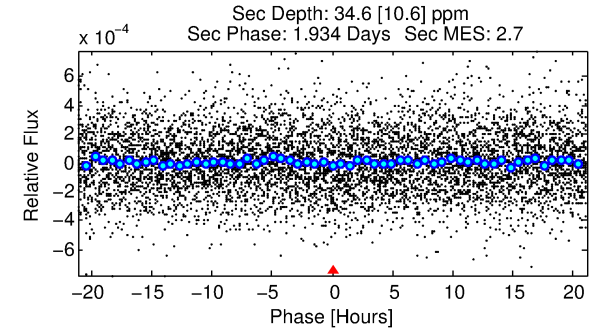
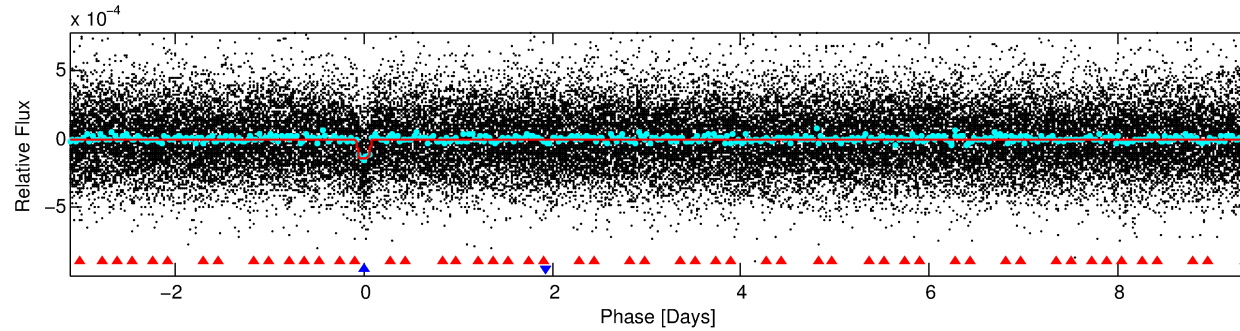
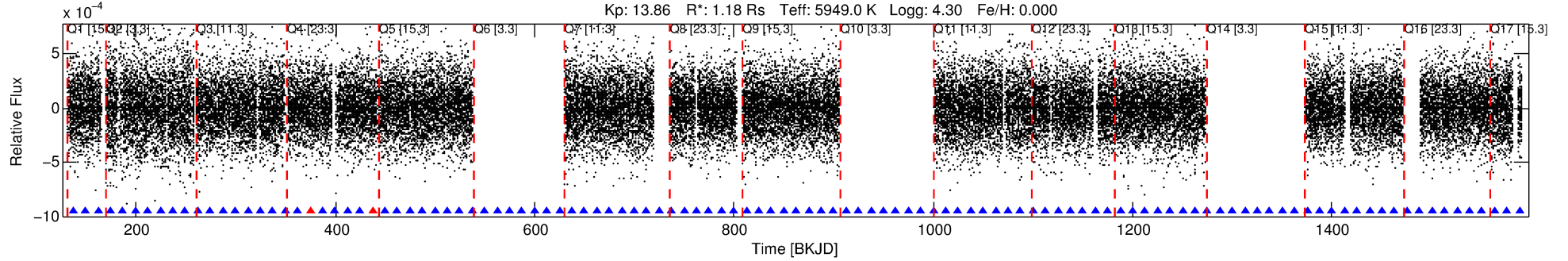
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003661886-02

No Significant Match Found

DV One-Page Summary

KIC: 3661886 Candidate: 2 of 2 Period: 12.509 d
KOI: K02279.02 Name: Kepler-377b Corr: 0.988



DV Fit Results:

Period = 12.50950 [0.00009] d
Epoch = 136.9900 [0.0055] BKJD
Rp/R* = 0.0128 [0.0058]
a/R* = 13.47 [30.28]
b = 0.88 [0.57]
Seff = 138.86 [31.34]
Teff = 875 [49] K
Rp = 1.65 [0.80] Re
a = 0.1064 [0.0147] AU
Ag = 78.82 [77.57] [1.00σ]
Teffp = 4032 [972] K [3.24σ]

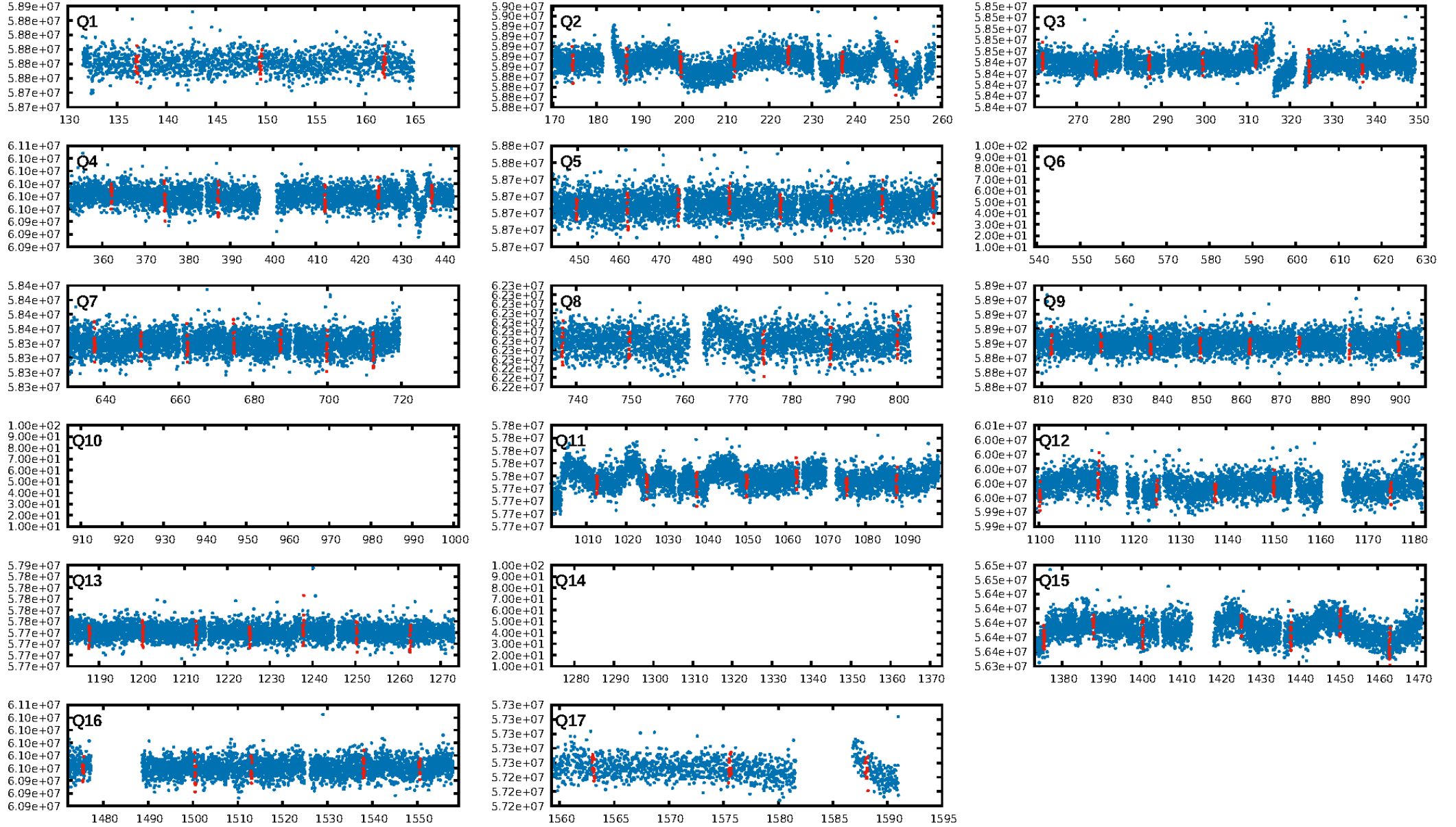
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [52.87σ]
ModelChiSquare2-sig: 96.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.93e-34
RollingBand-fgt: 0.97 [75/77]
GhostDiagnostic-chr: 42.28
Centroid-sig: 1.6%
Centroid-so: 0.881 arcsec [0.86σ]
OotOffset-rm: 0.470 arcsec [0.54σ]
KicOffset-rm: 0.227 arcsec [0.34σ]
OotOffset-st: 0/4/3/4 [11]
KicOffset-st: 0/4/3/4 [11]
DiffImageQuality-fgm: 0.73 [8/11]
DiffImageOverlap-fno: 1.00 [14/14]

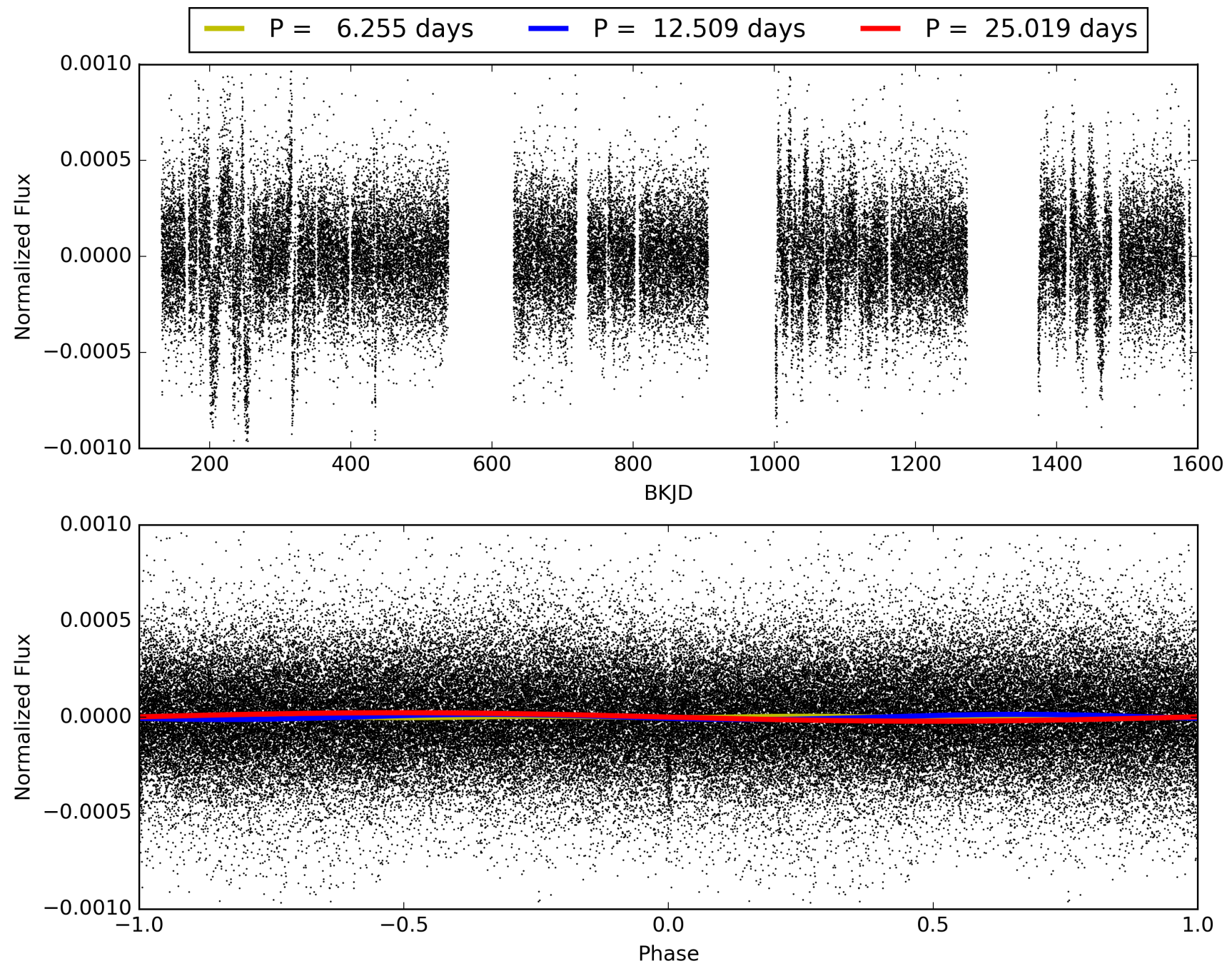
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:33:33 Z

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

TCE 003661886-02, PDC Light Curves

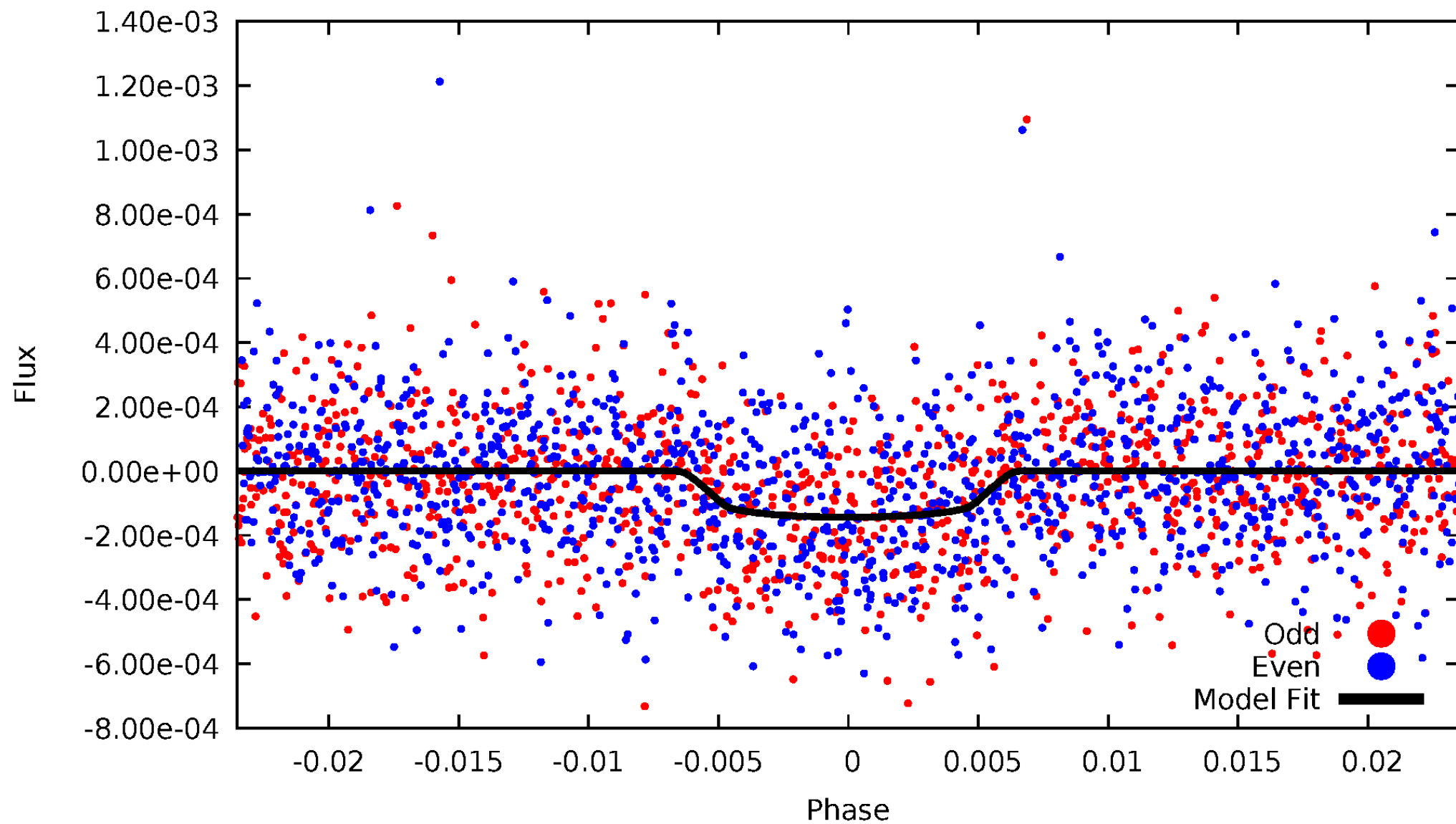


TCE 003661886-02



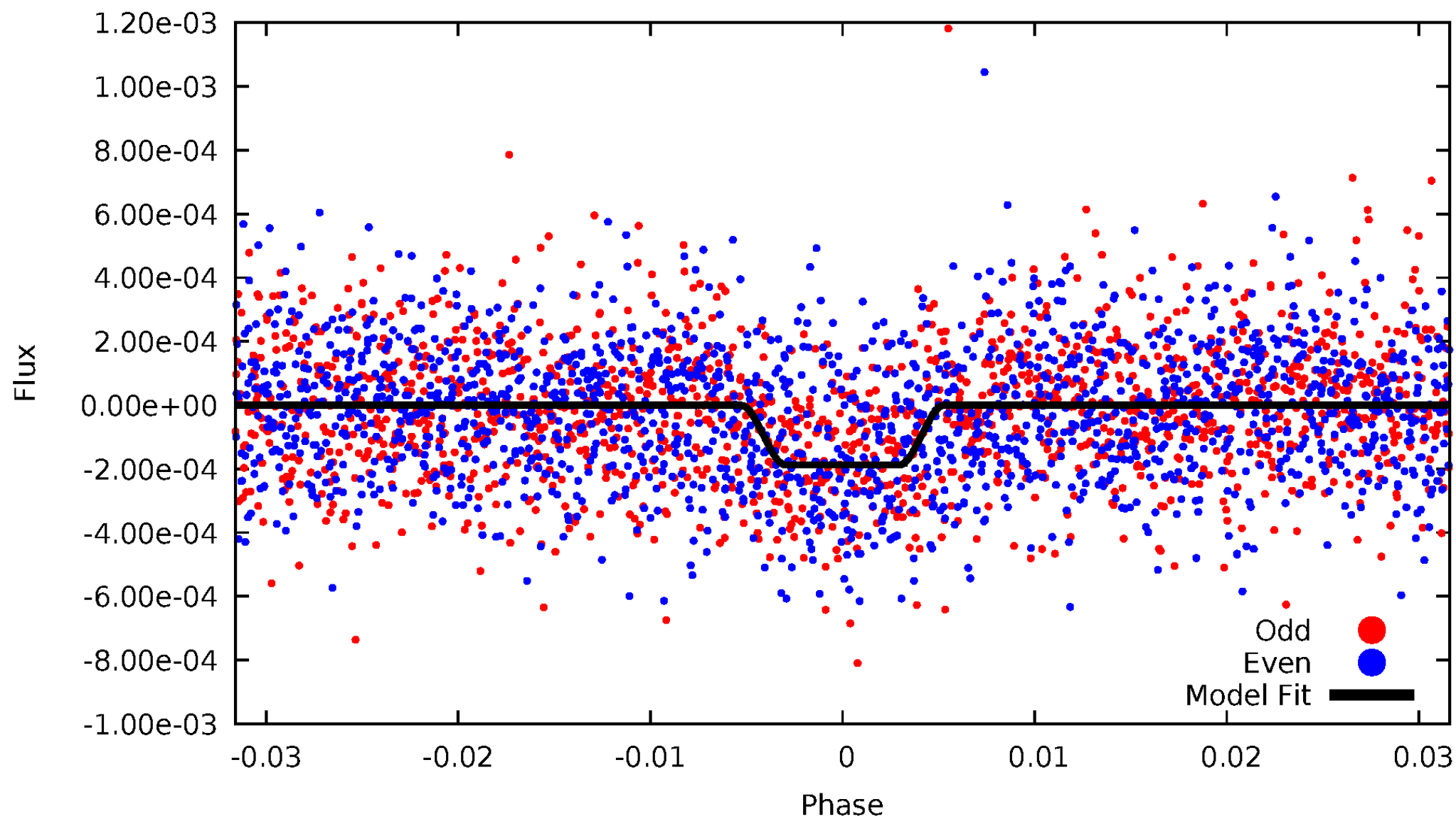
DV Odd/Even

TCE 003661886-02



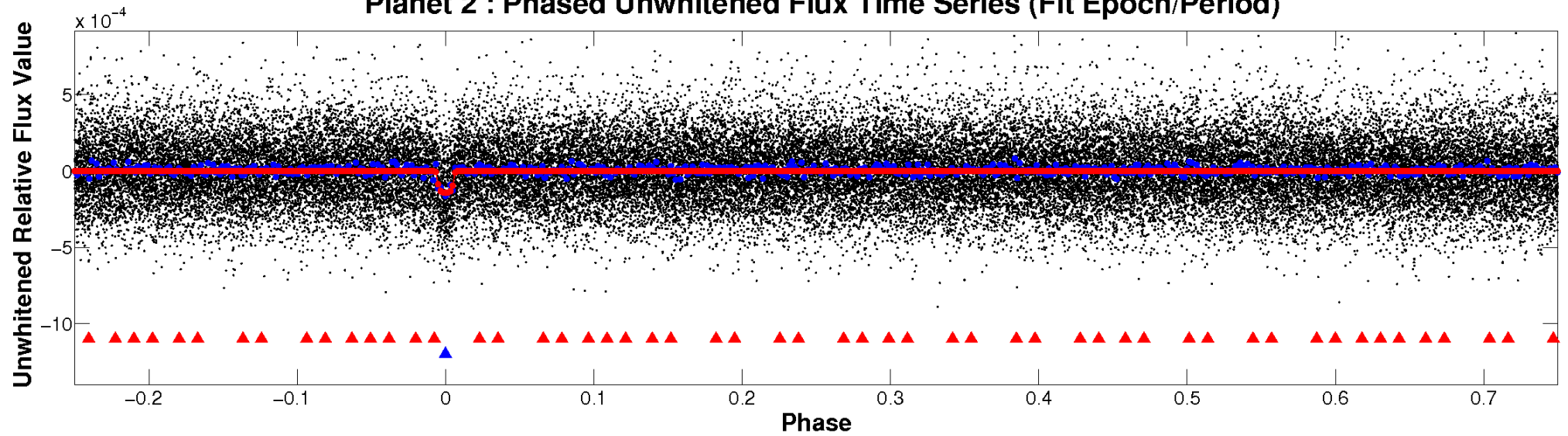
ALT Odd/Even

TCE 003661886-02

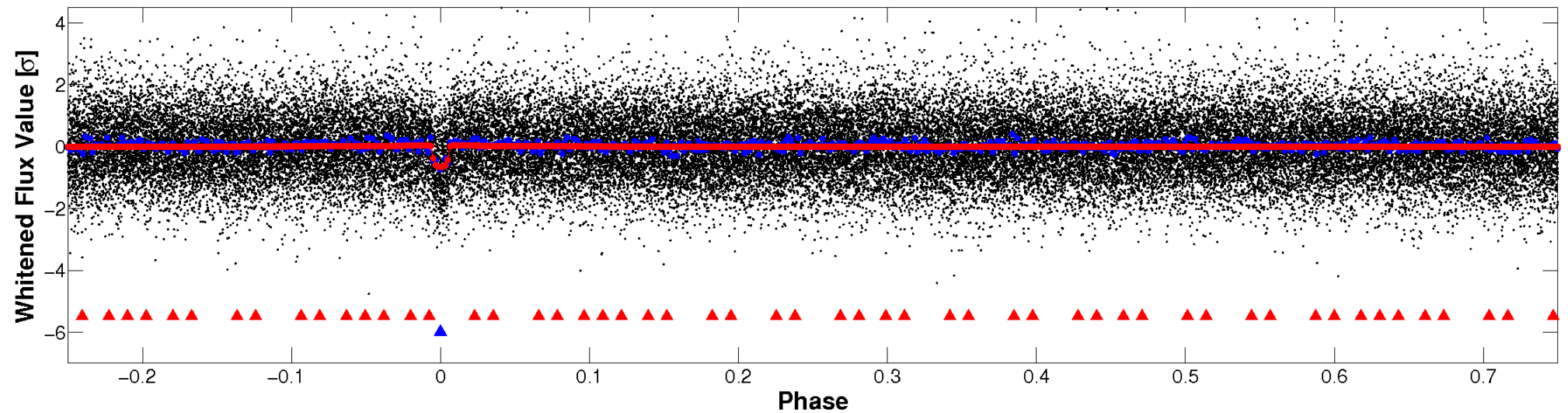


Non-Whitened Vs. Whitened Light Curve

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

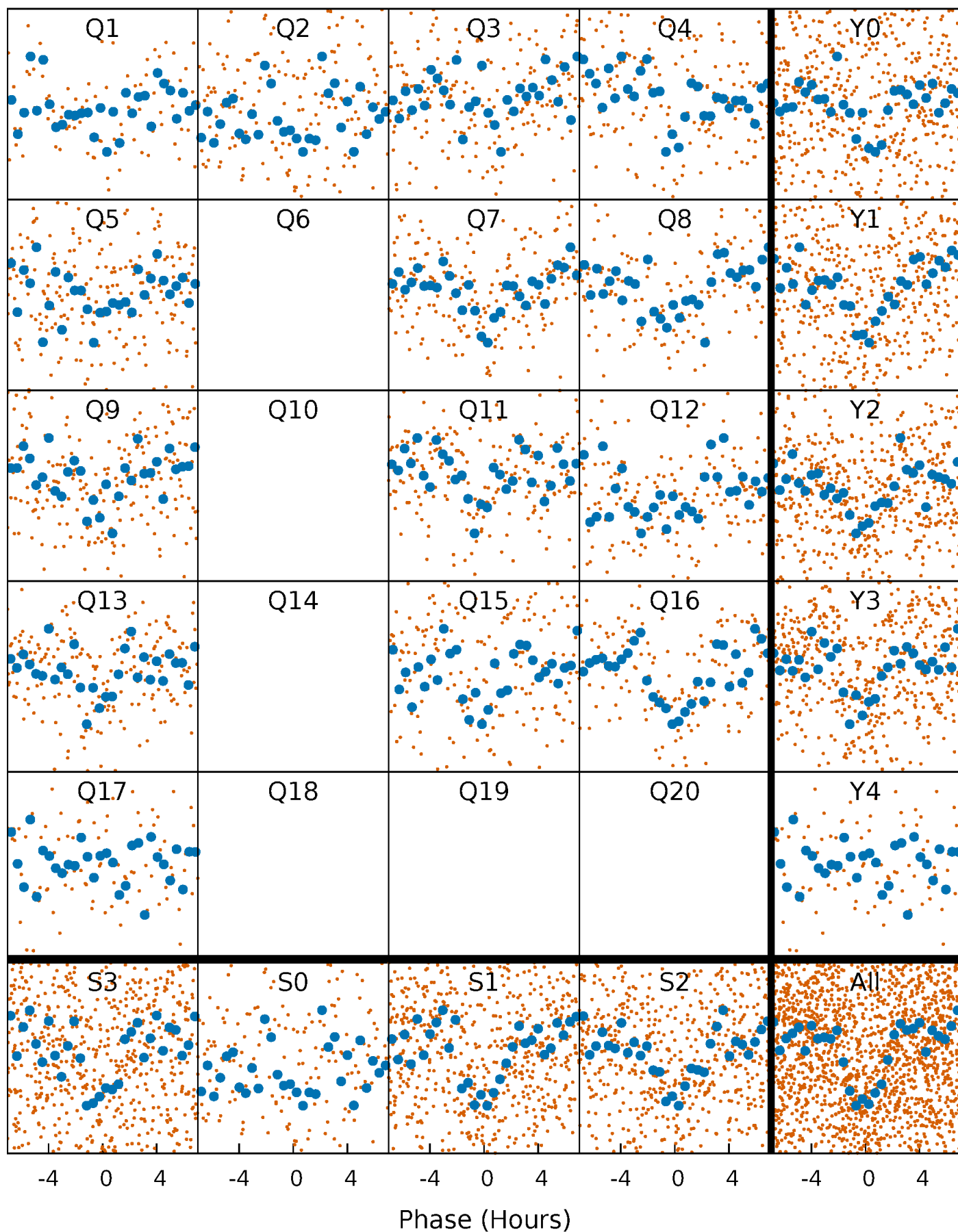


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 003661886-02 P= 12.509497 Days $T_0=136.990033$ (BKJD)



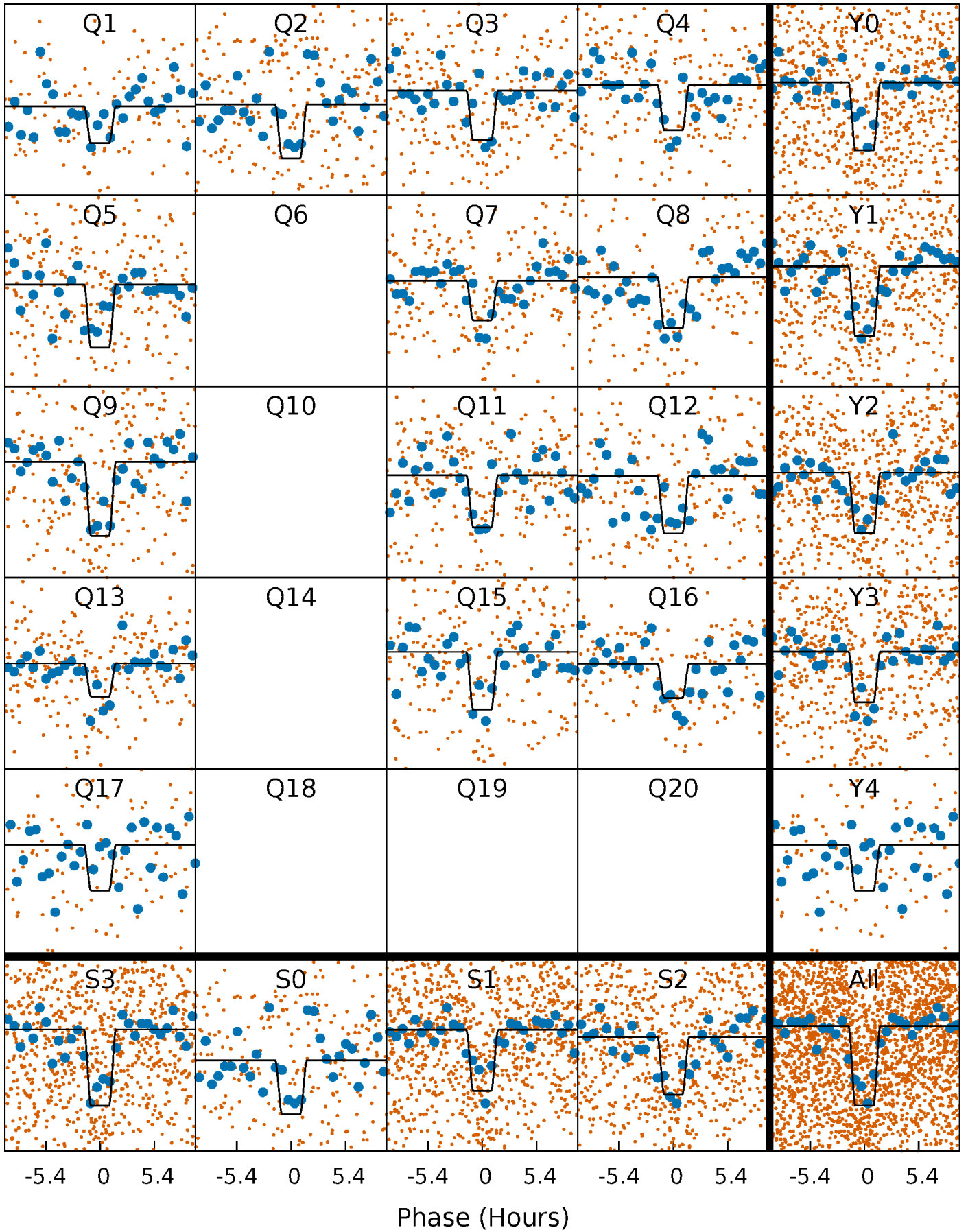
DV Quarter-Phased Transit Curves

TCE 003661886-02 P= 12.509497 Days $T_0=136.990033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

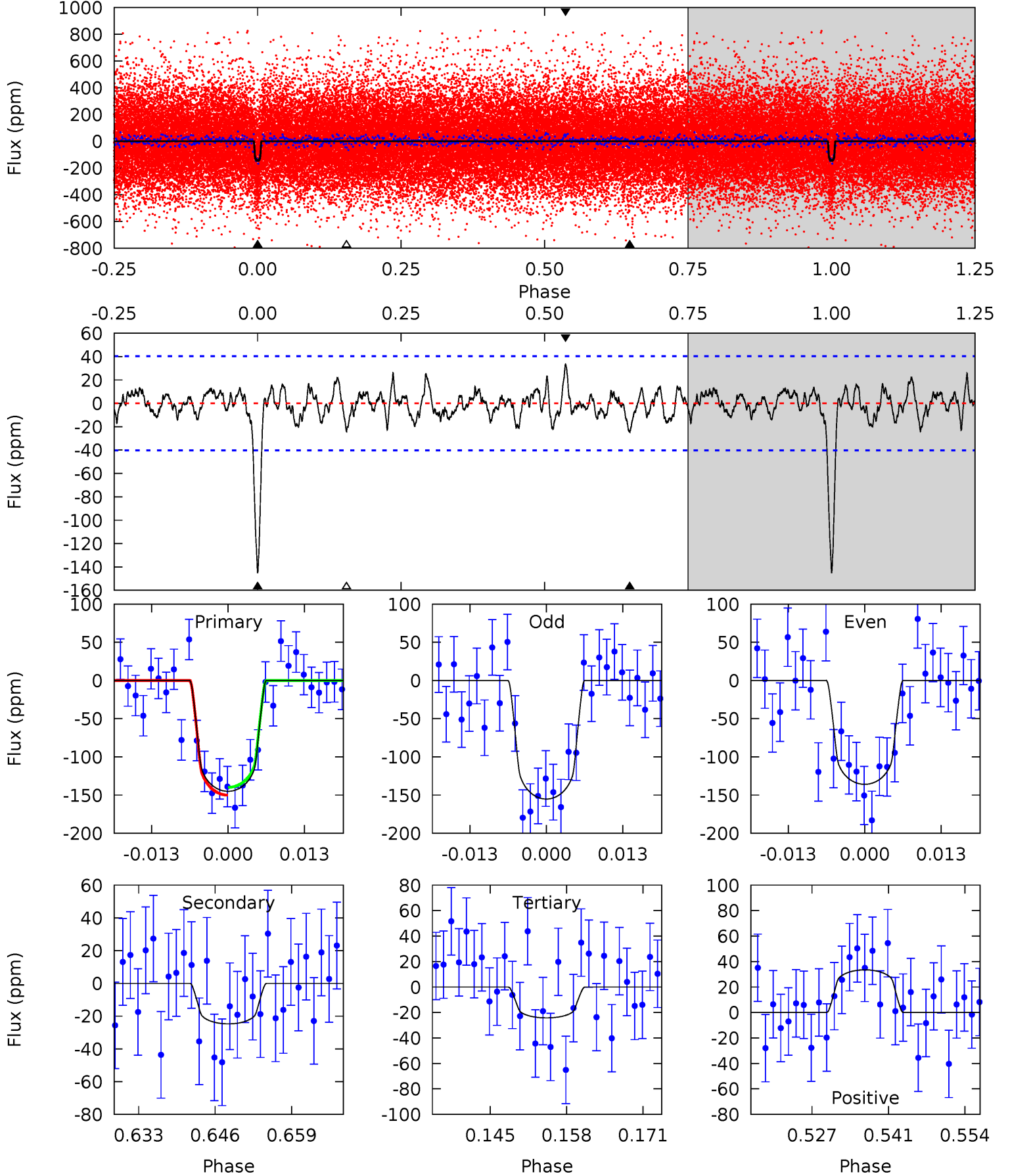
TCE 003661886-02 P= 12.509172 Days $T_0=137.009923$ (BKJD)



DV Model-Shift Uniqueness Test

003661886-02, P = 12.509497 Days, E = 124.480536 Days

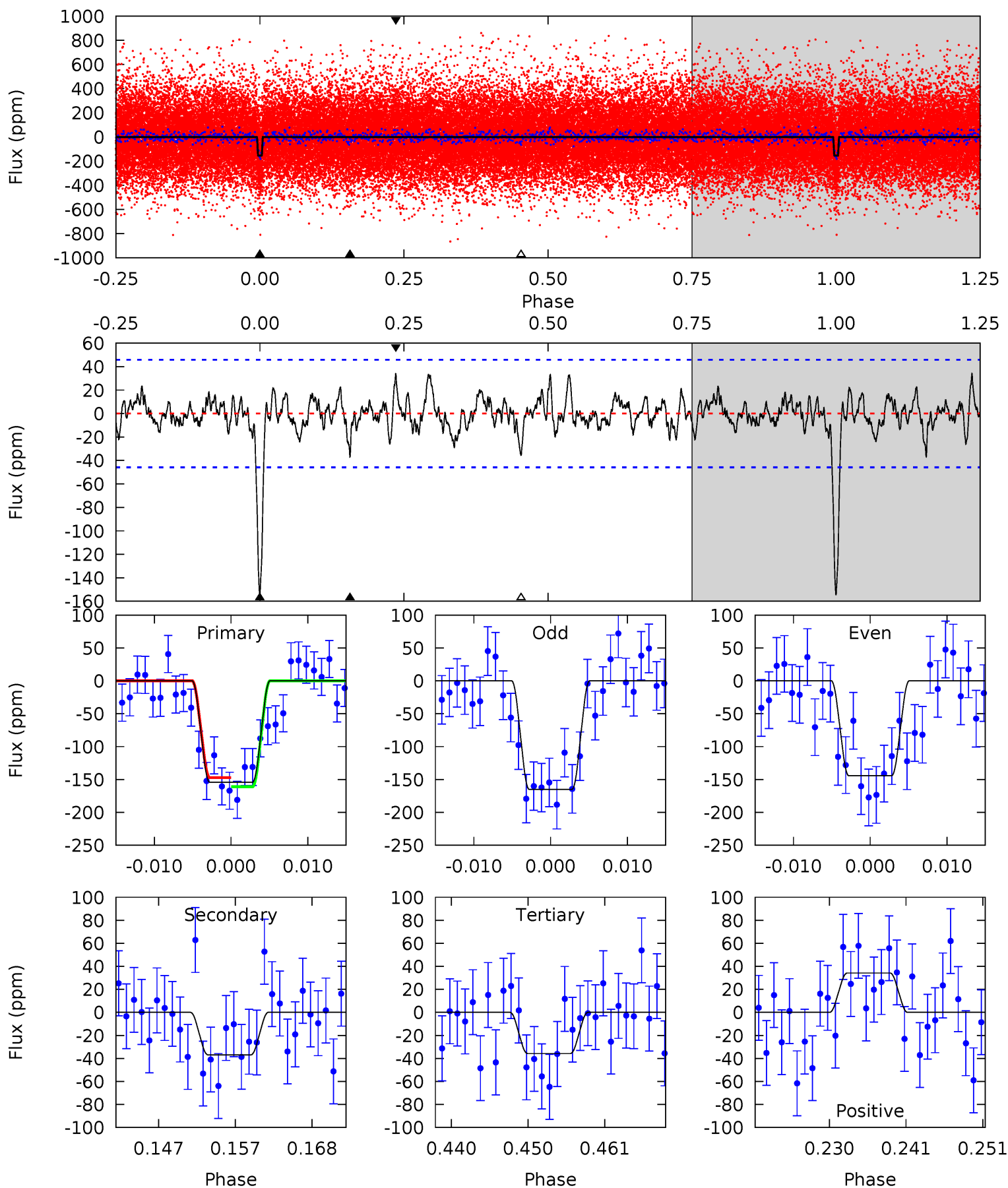
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	3.05	2.99	4.13	4.97	2.48	1.14	14.9	13.8	0.06	-1.08	1.19	1.00	0.19	0.63



Alt Model-Shift Uniqueness Test

003661886-02, P = 12.509172 Days, E = 124.500751 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	4.05	3.92	3.75	5.02	2.56	1.19	13.0	13.1	0.13	0.30	1.13	1.08	0.18	0.75



Stellar Parameters For KIC 003661886

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5949^{+107}_{-119}	$4.303^{+0.120}_{-0.108}$	$0.000^{+0.150}_{-0.150}$	$1.184^{+0.183}_{-0.165}$	$1.027^{+0.088}_{-0.070}$	$0.871^{+0.512}_{-0.273}$
	+2%/-2%	+3%/-3%	+inf%/-inf%	+15%/-14%	+9%/-7%	+59%/-31%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 003661886-02 / KOI 2279.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25 ± 8	$1.67^{+0.82}_{-0.76}$	1220^{+57}_{-49}	3958^{+1100}_{-504}	52^{+127}_{-30}
Alt.	-37 ± 9	$1.81^{+0.78}_{-0.77}$	1220^{+56}_{-52}	4161^{+1019}_{-499}	67^{+143}_{-35}

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

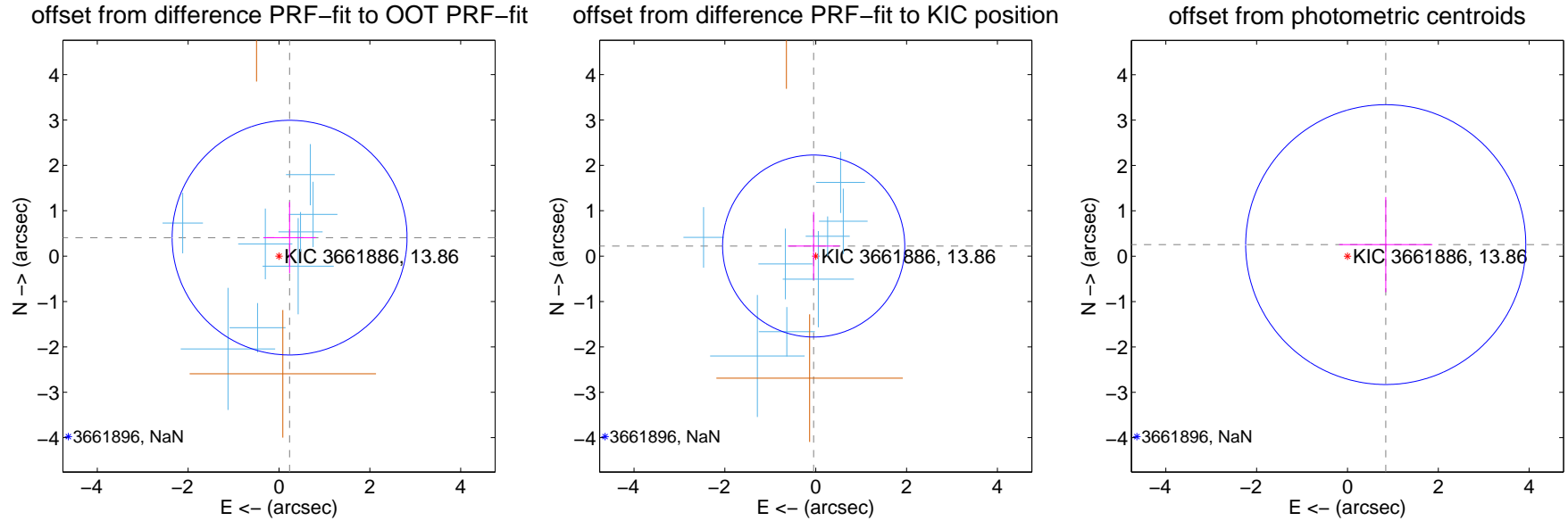
DV Centroid Data

Supplemental centroid analysis for 003661886-02. Kepler magnitude: 13.86. Transit SNR 13.38

There are 8 quarters with good PRF difference image offsets

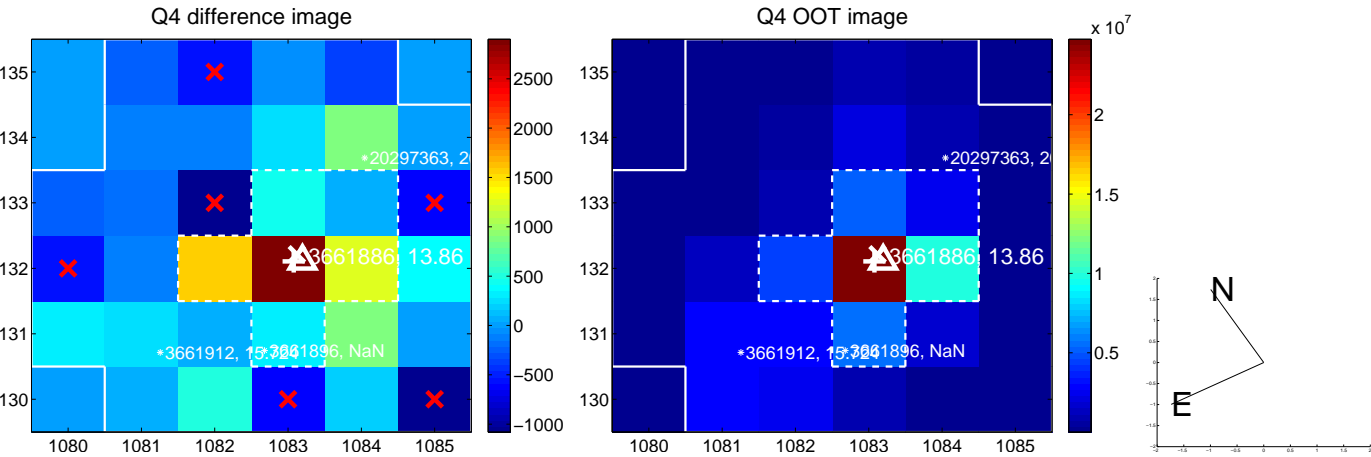
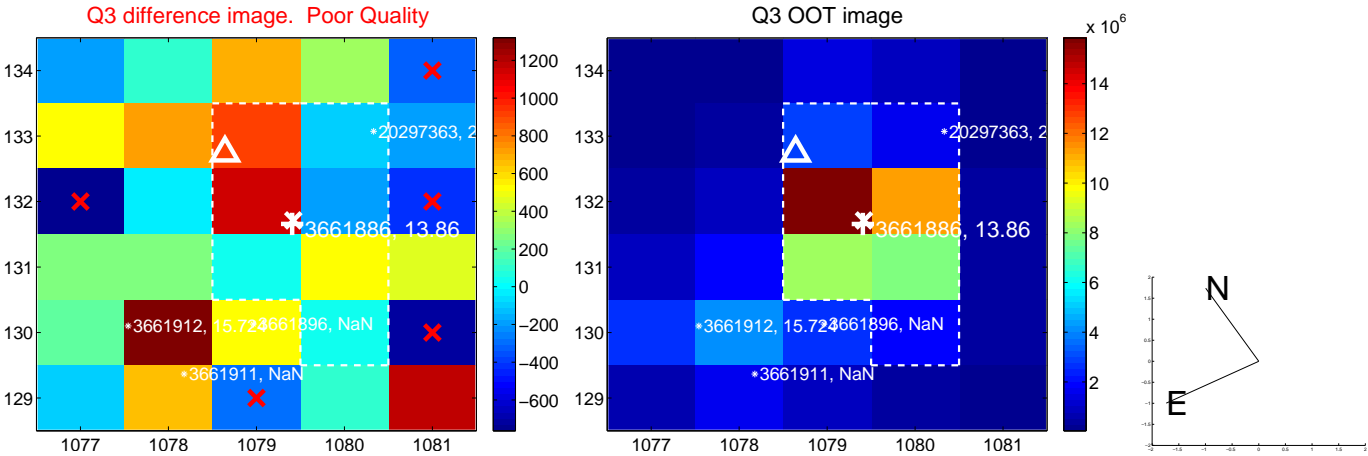
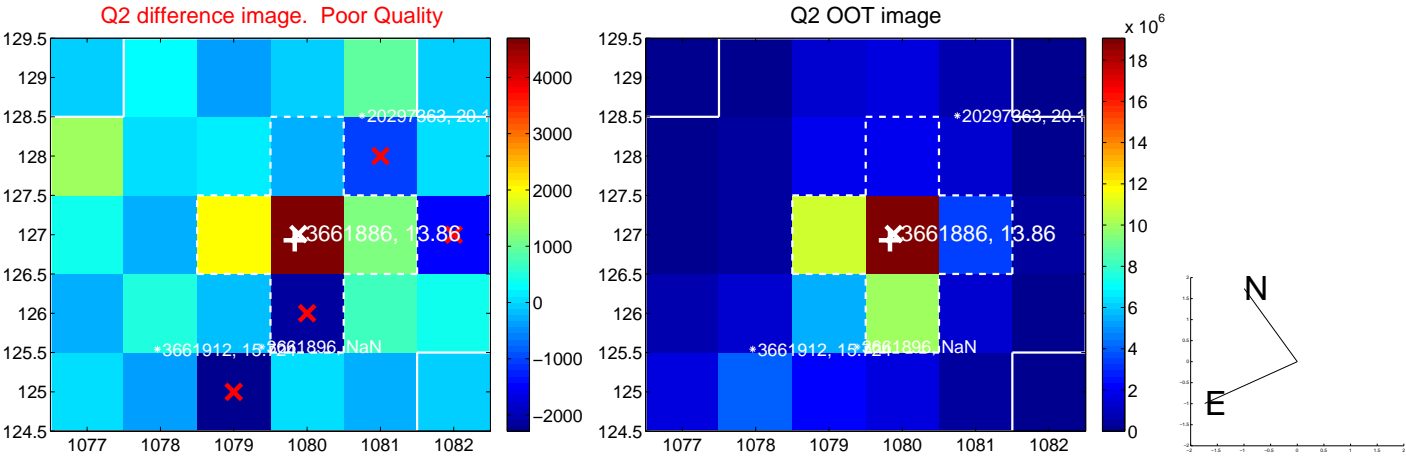
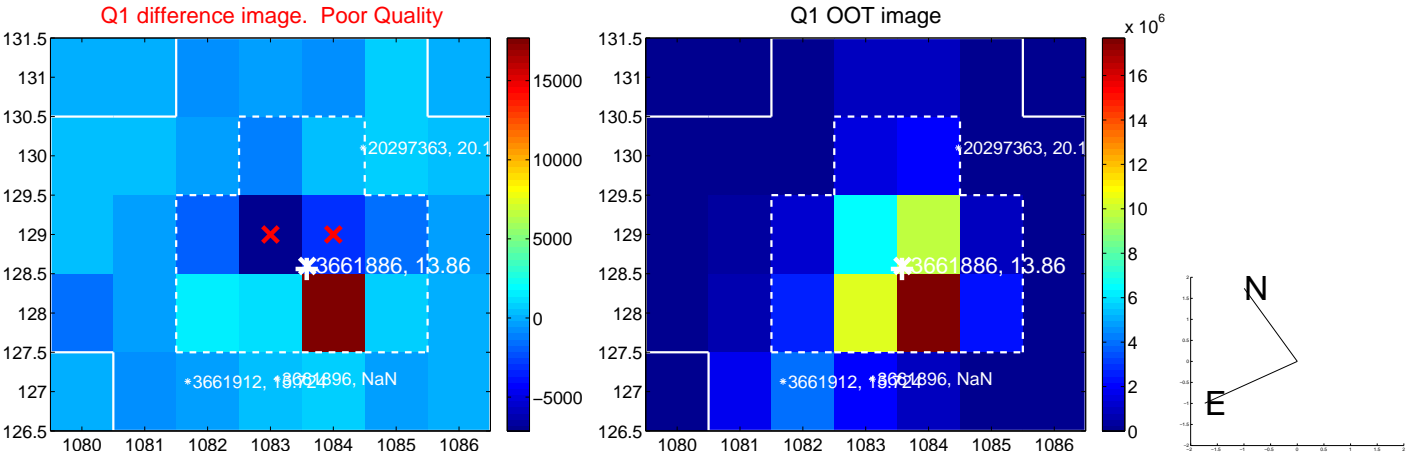
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.470 ± 0.862	0.54	-0.233 ± 0.580	0.408 ± 0.782
PRF-fit source offset from KIC position	0.227 ± 0.669	0.34	0.045 ± 0.568	0.223 ± 0.749
photometric centroid source offset	0.88 ± 1.03	0.86	-0.84 ± 1.03	0.26 ± 1.05

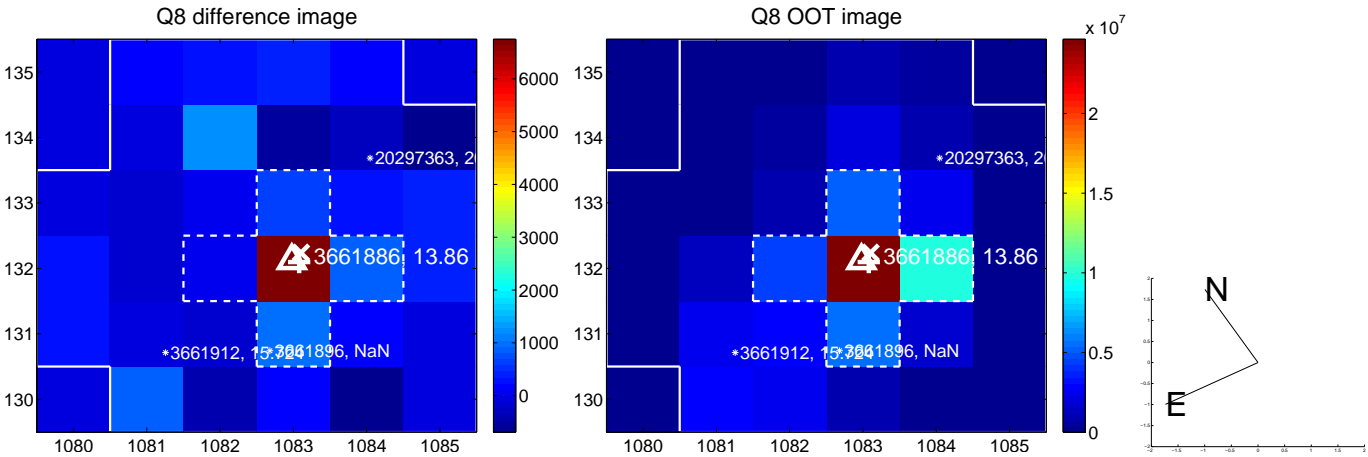
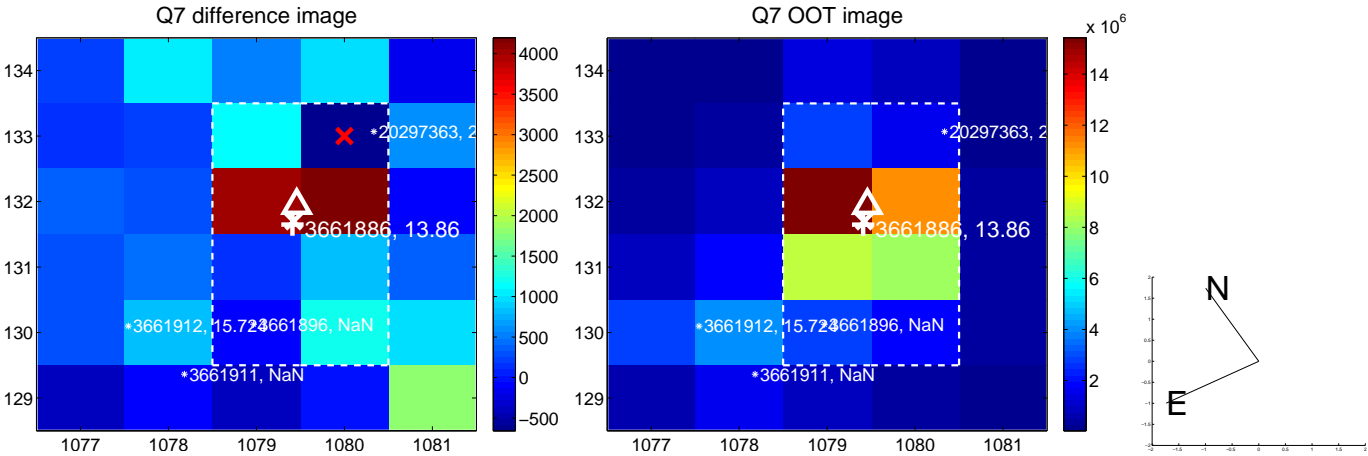
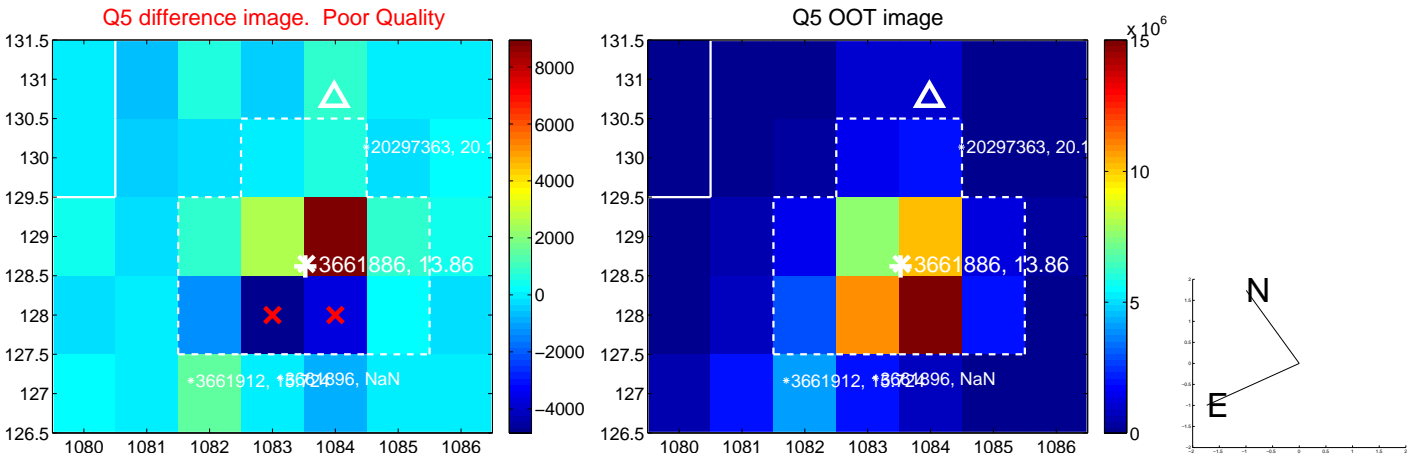


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

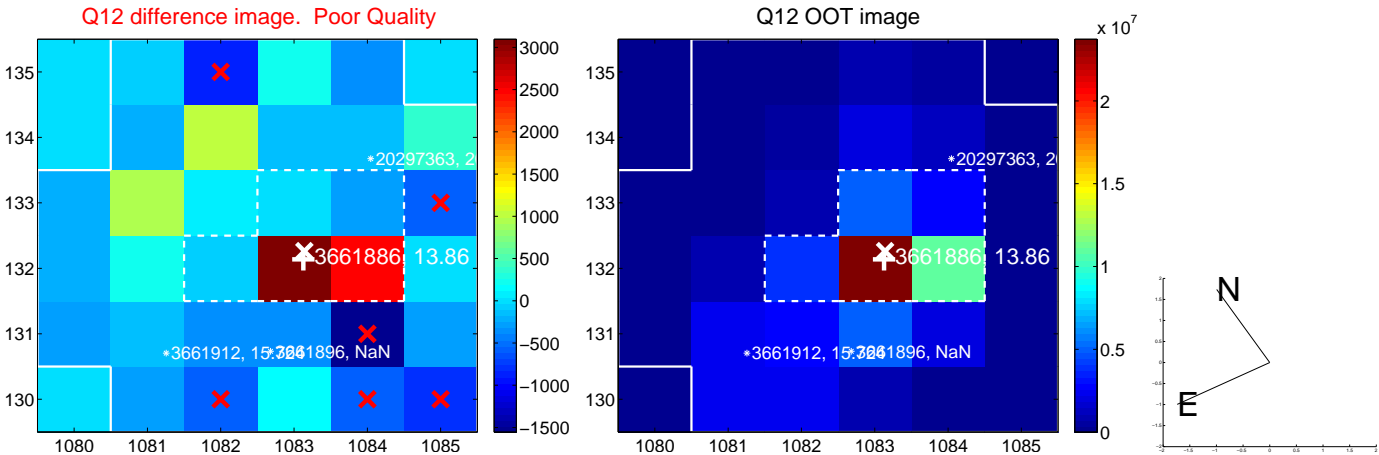
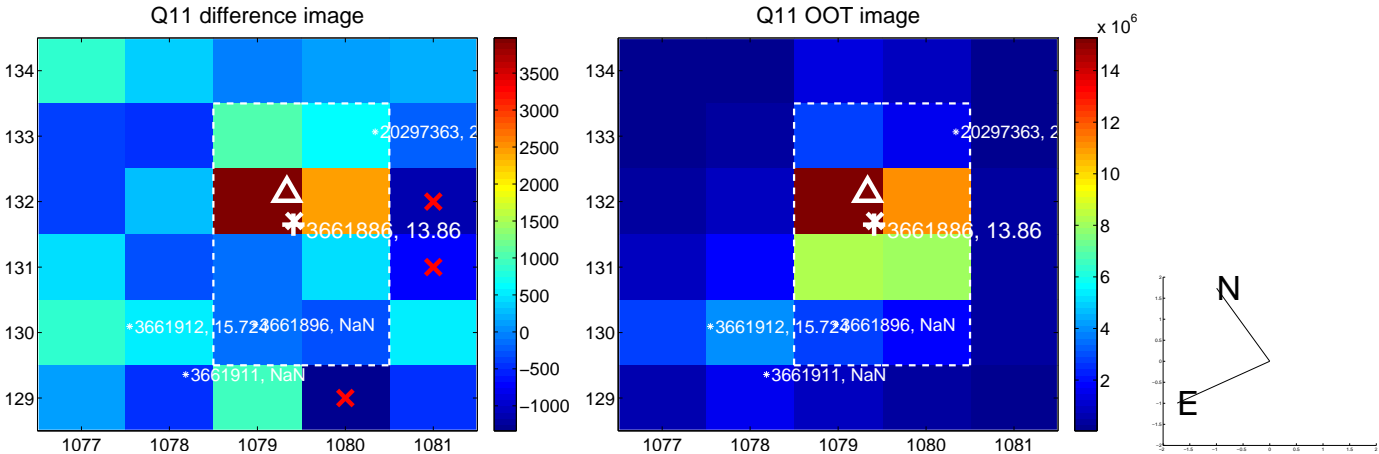
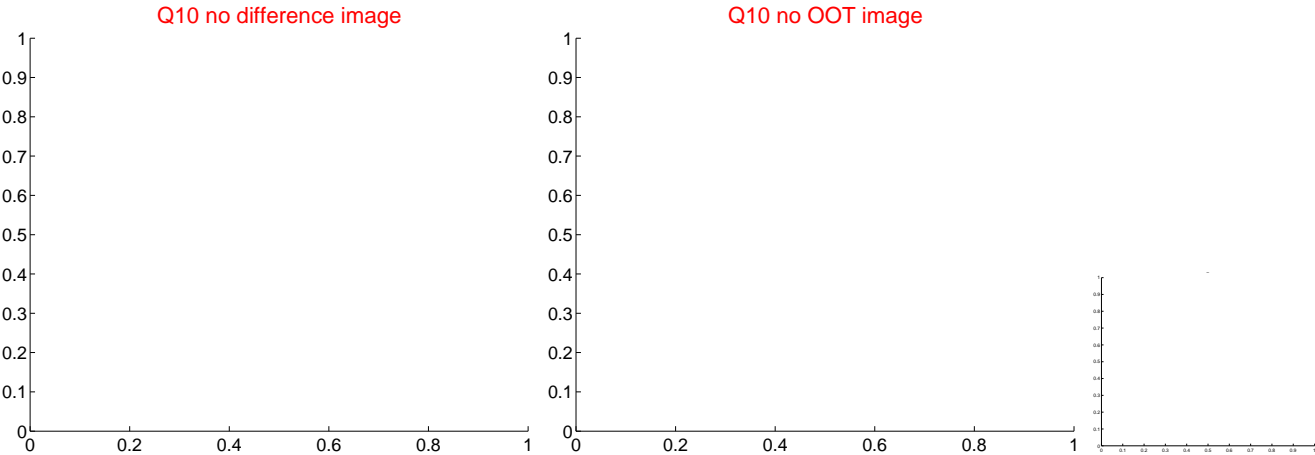
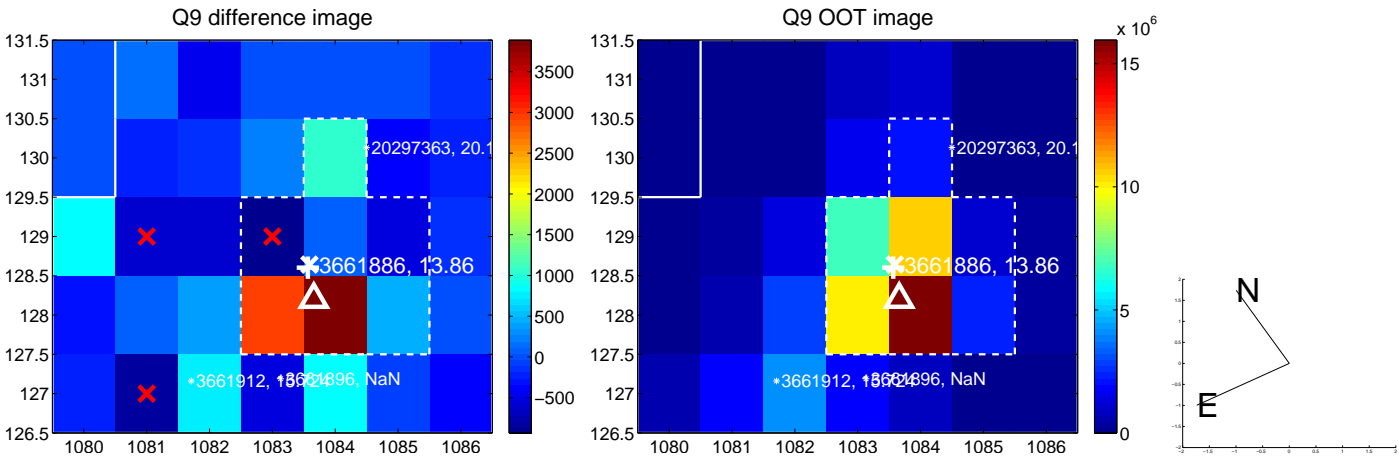
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



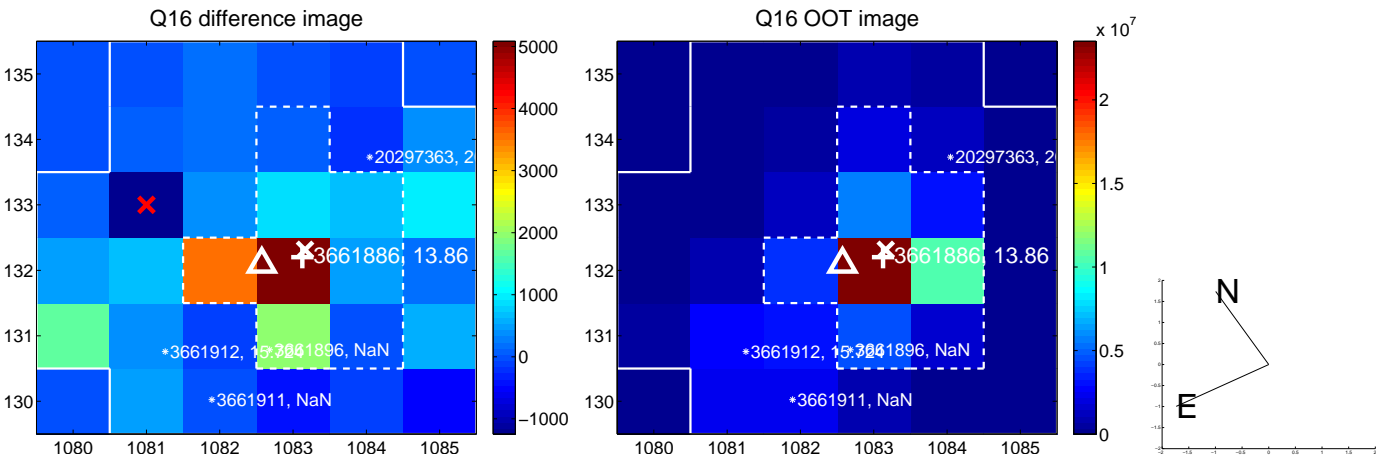
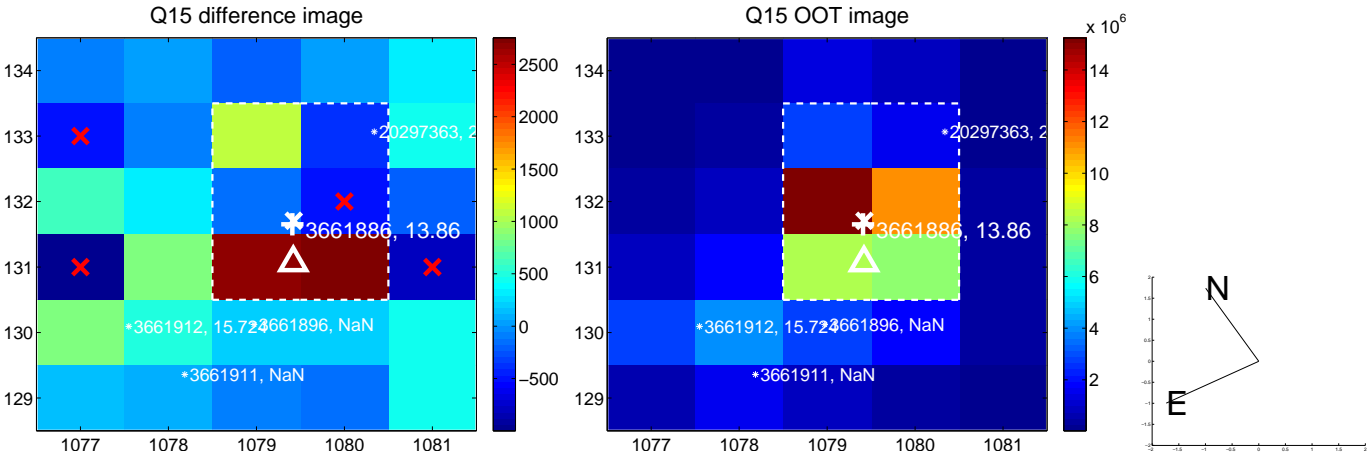
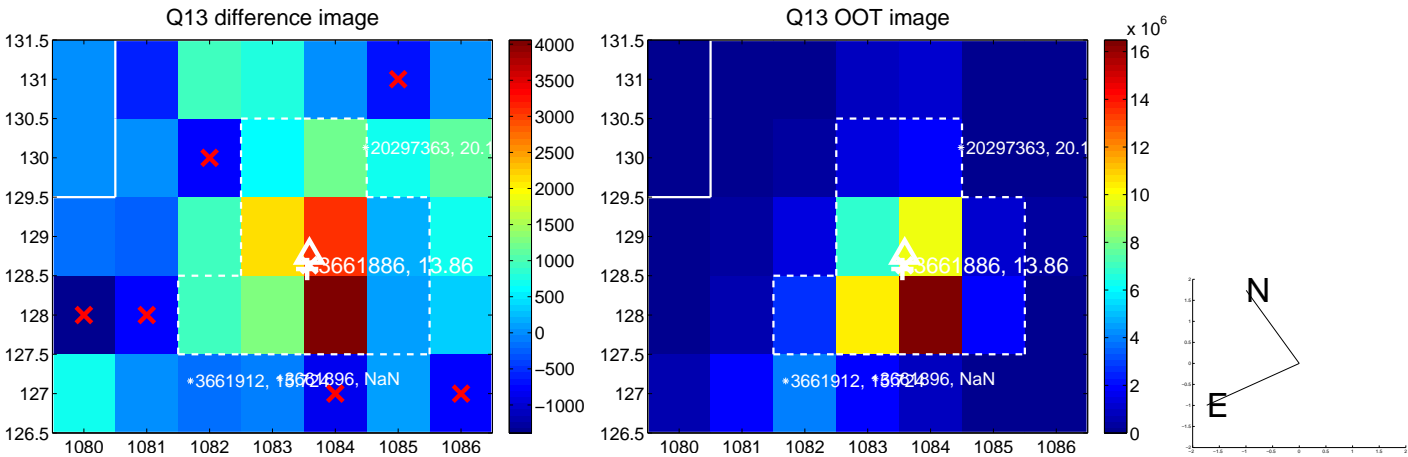
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



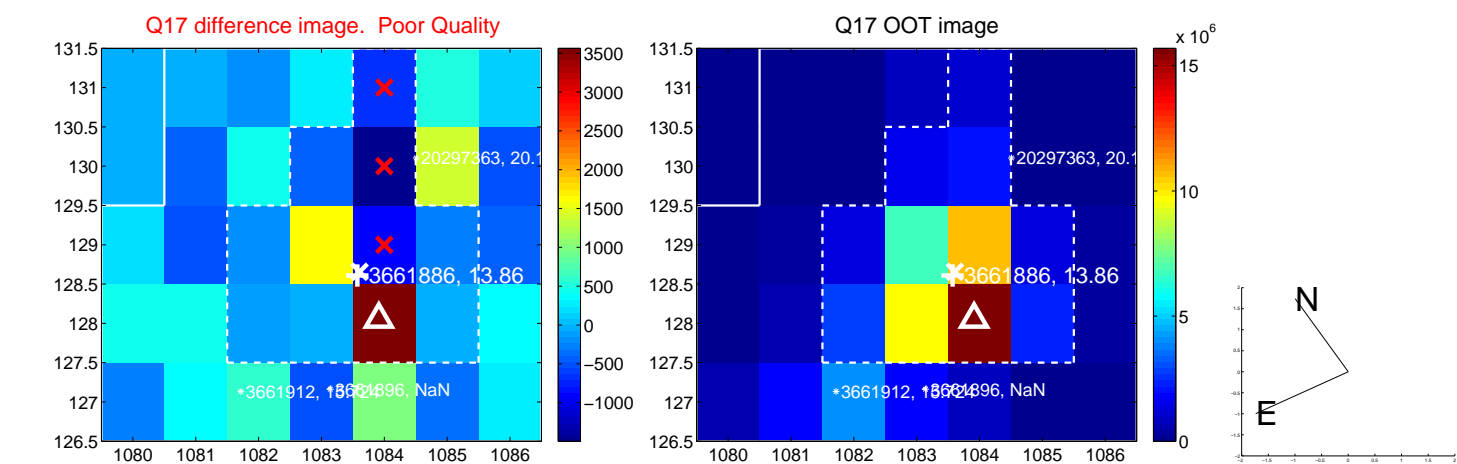
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



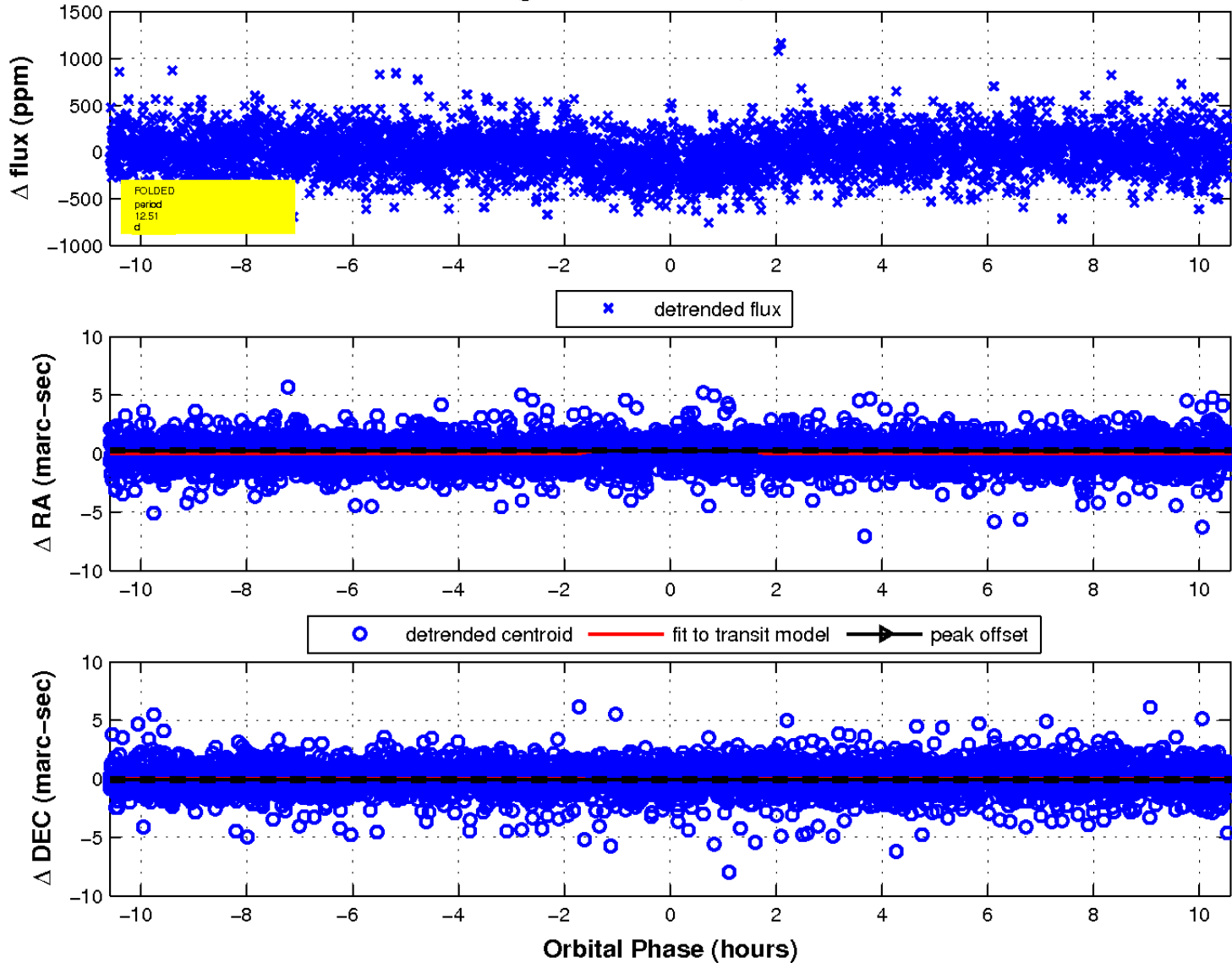
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

