

KIC 012017140

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})
012017140-01	OBS	0358.01	22.845241	149.957445	45667.2	5.312	3381.9	3163.6	1.35	5926	30.46	79.92
012017140-02	OBS	No	22.845189	137.376476	1184.7	5.818	88.2	90.3	1.35	5926	5.88	79.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012017140-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012017140-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

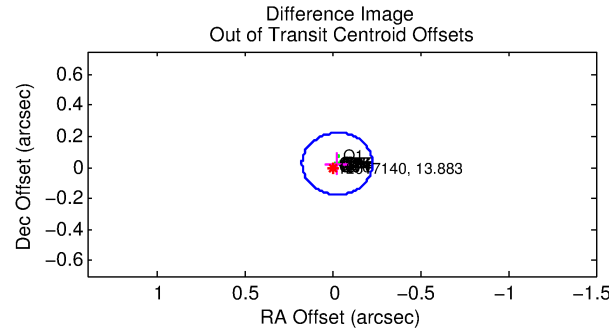
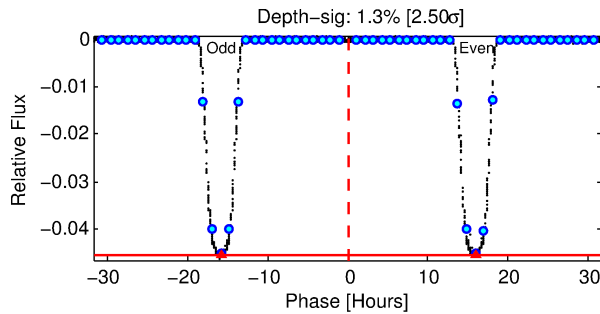
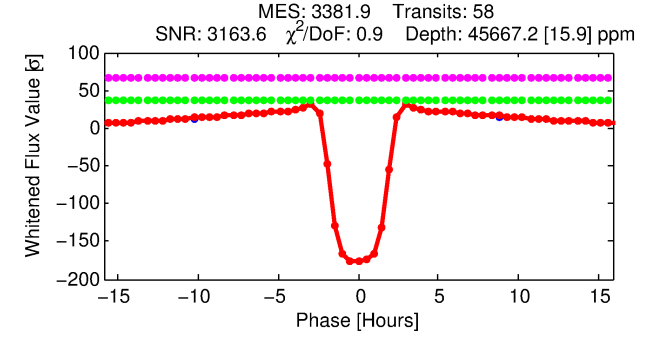
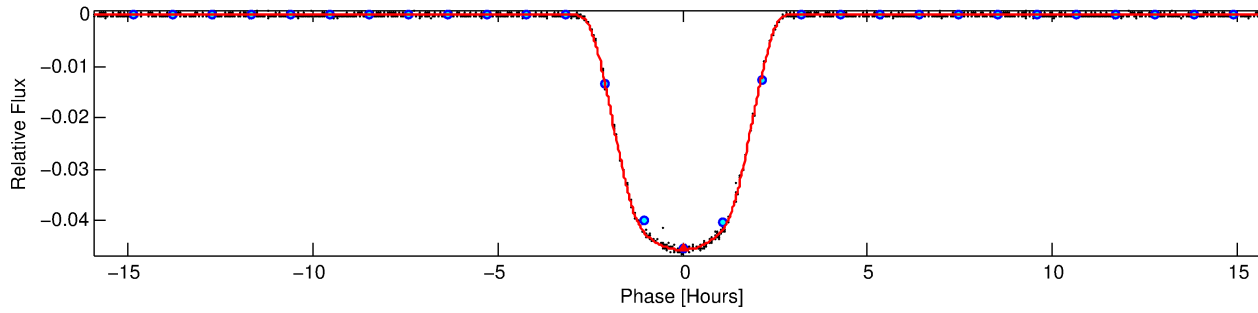
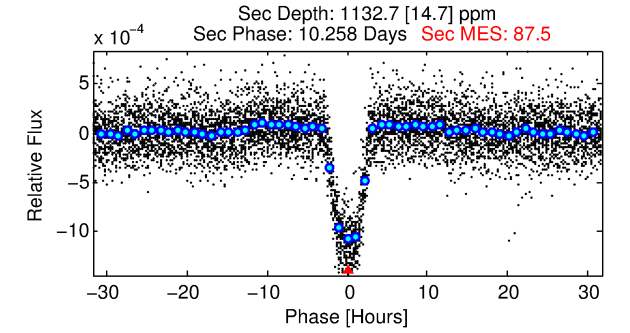
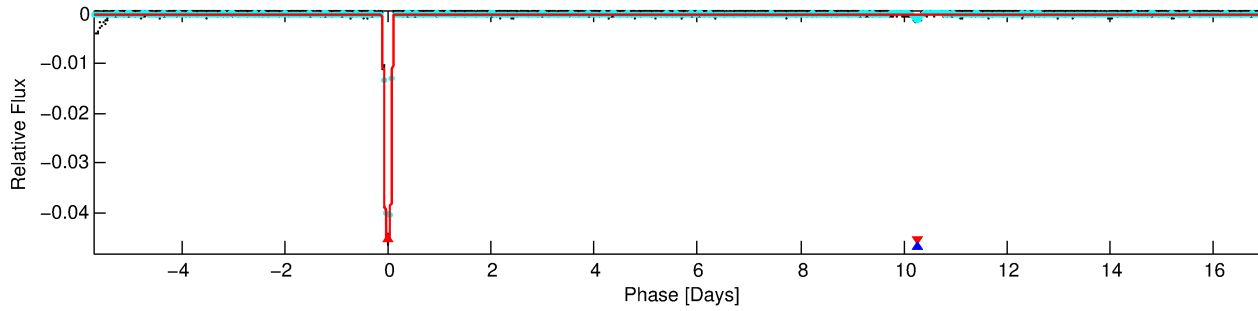
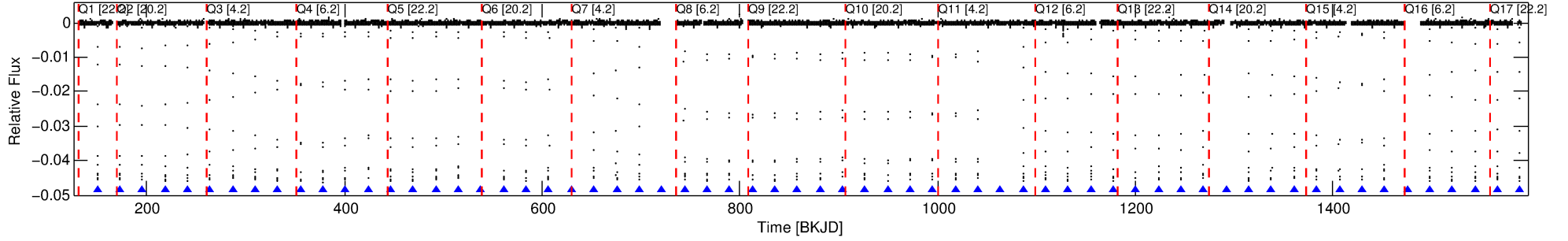
Ephemeris Match Information For 012017140-01

No Significant Match Found

DV One-Page Summary

KIC: 12017140 Candidate: 1 of 2 Period: 22.845 d
KOI: K00358.01 Corr: 0.969

Kp: 13.88 R*: 1.35 Rs Teff: 5926.0 K Logg: 4.19 Fe/H: -0.040



DV Fit Results:

Period = 22.84524 [0.00000] d
Epoch = 149.9574 [0.0000] BKJD
Rp/R* = 0.2066 [0.0001]
a/R* = 33.89 [0.03]
b = 0.63 [0.00]
Seff = 79.92 [24.37]
Teq = 762 [58] K
Rp = 30.46 [5.86] Re
a = 0.1589 [0.0296] AU
Ag = 16.95 [5.07] [3.14σ]
Teffp = 2392 [36] K [23.77σ]

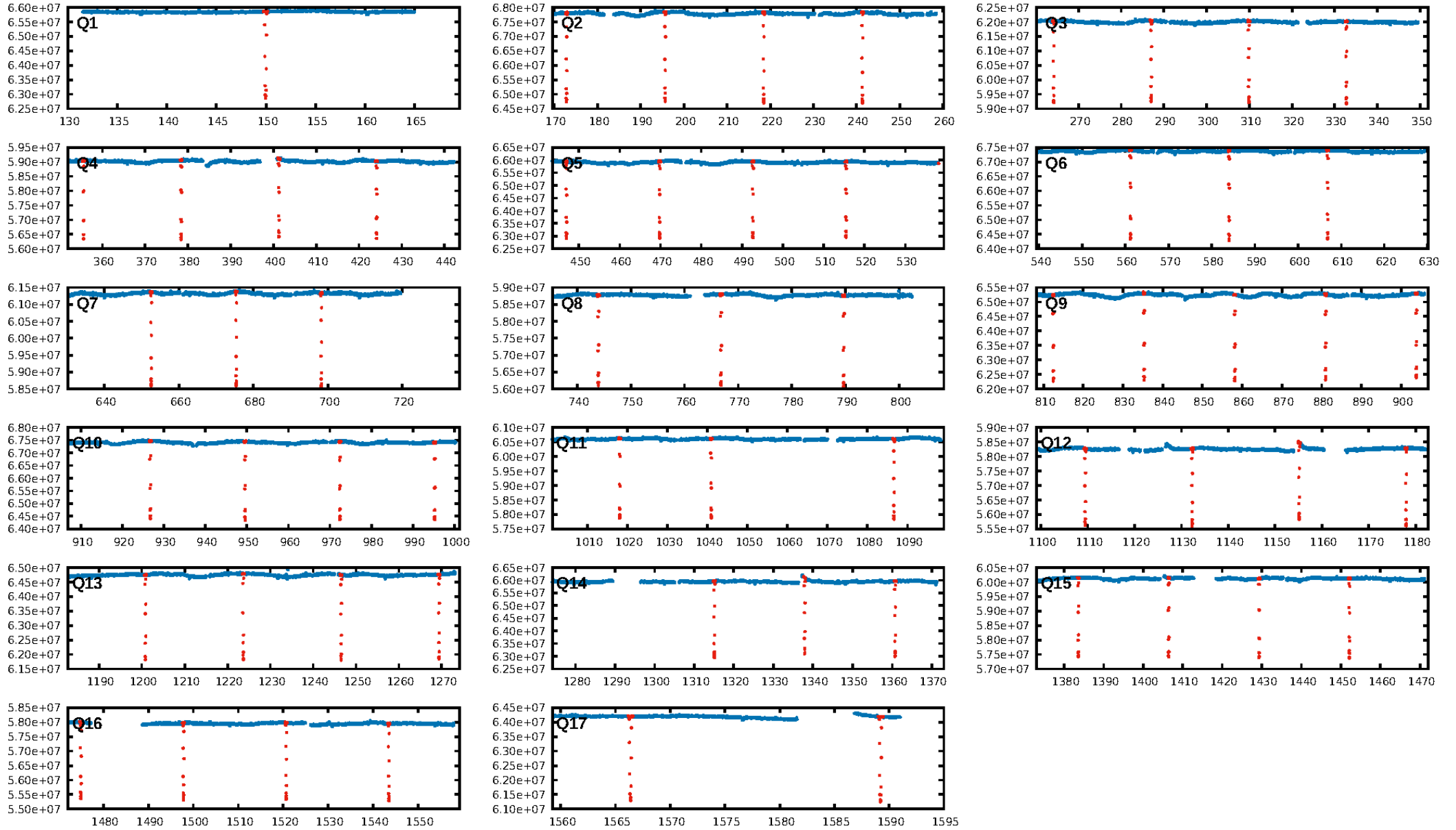
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 9.051
Centroid-sig: 0.0%
Centroid-so: 0.090 arcsec [25.04σ]
OotOffset-rm: 0.035 arcsec [0.53σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.085 arcsec [1.24σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

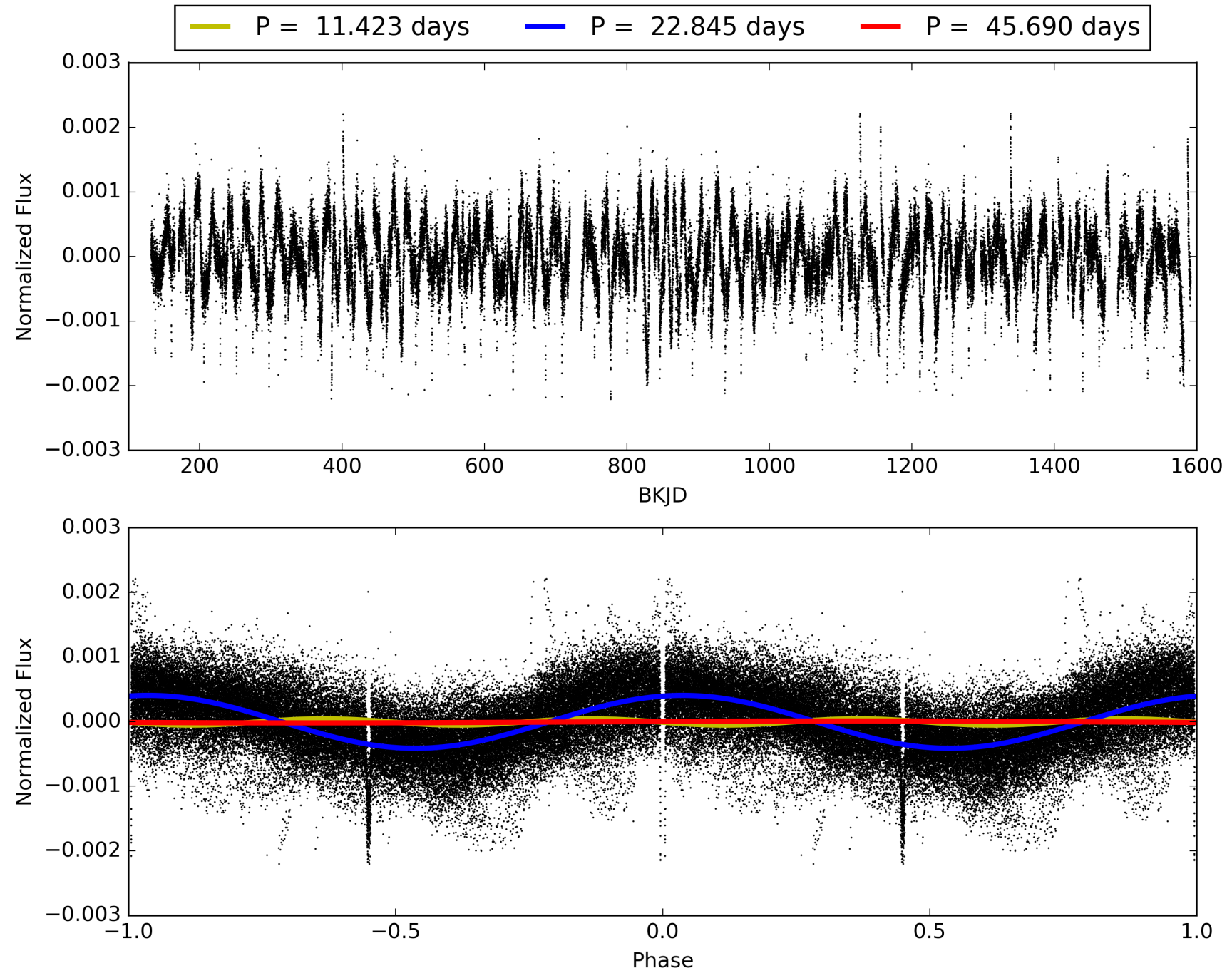
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:07:27 Z

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

TCE 012017140-01, PDC Light Curves

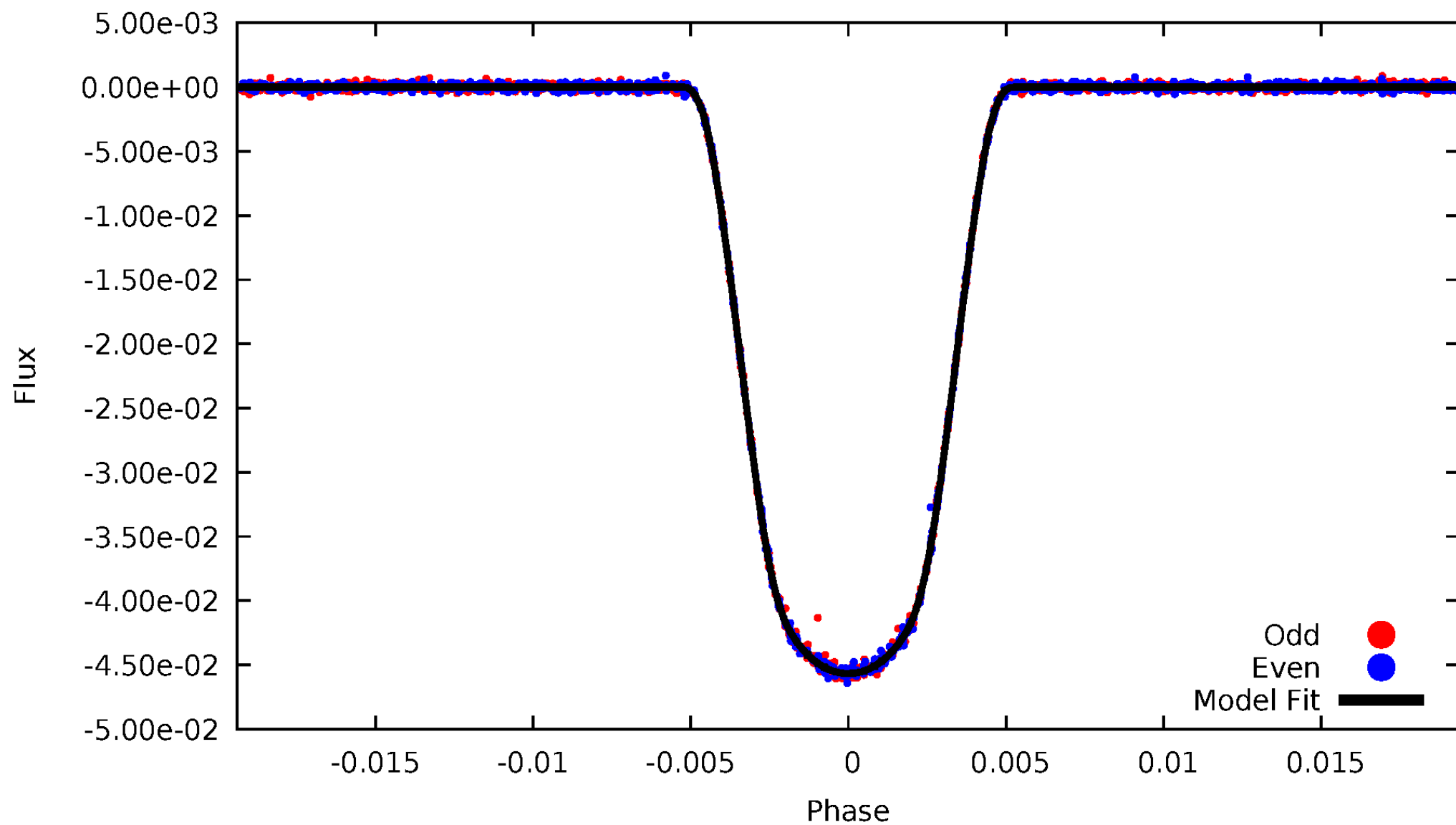


TCE 012017140-01



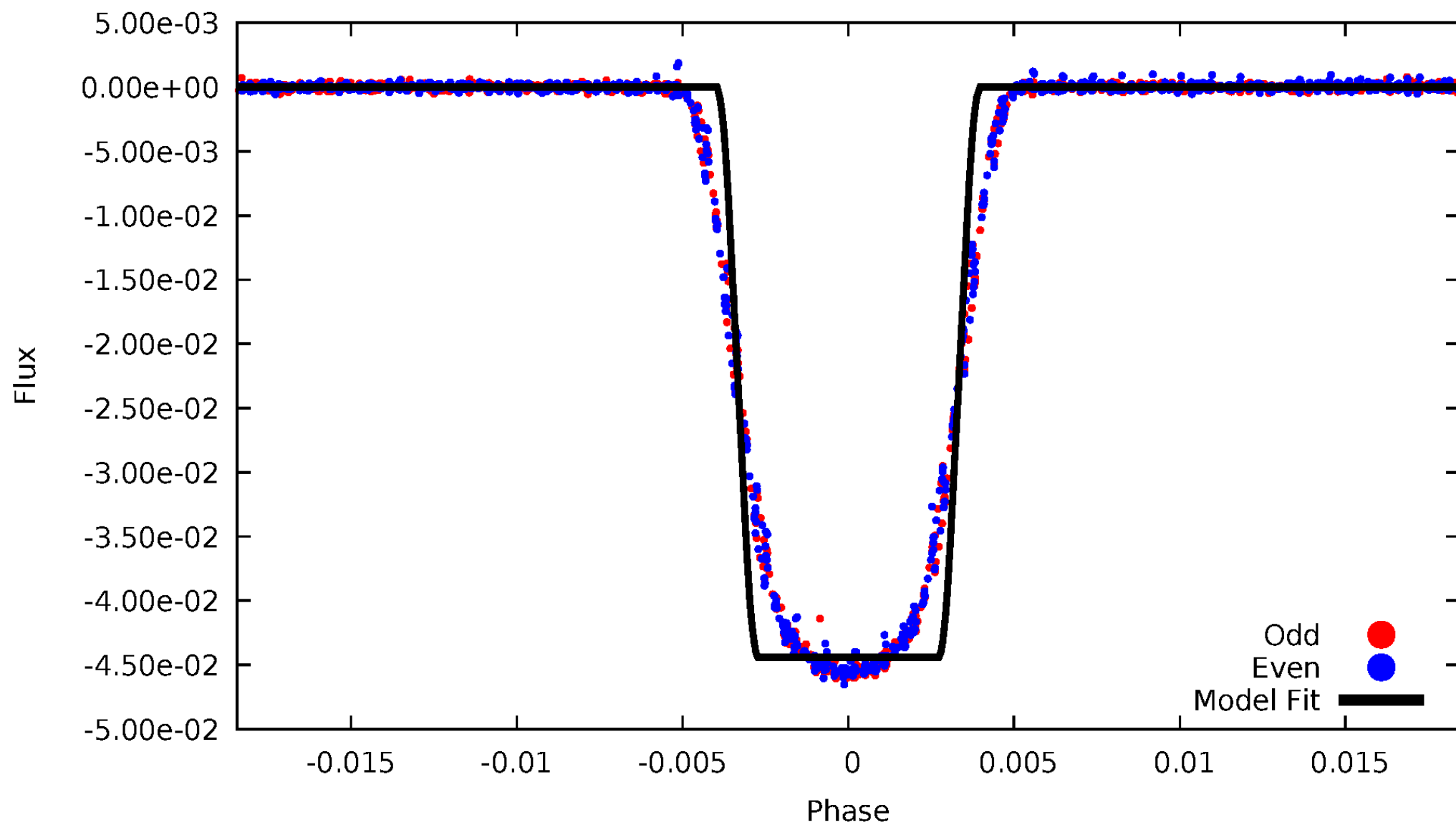
DV Odd/Even

TCE 012017140-01



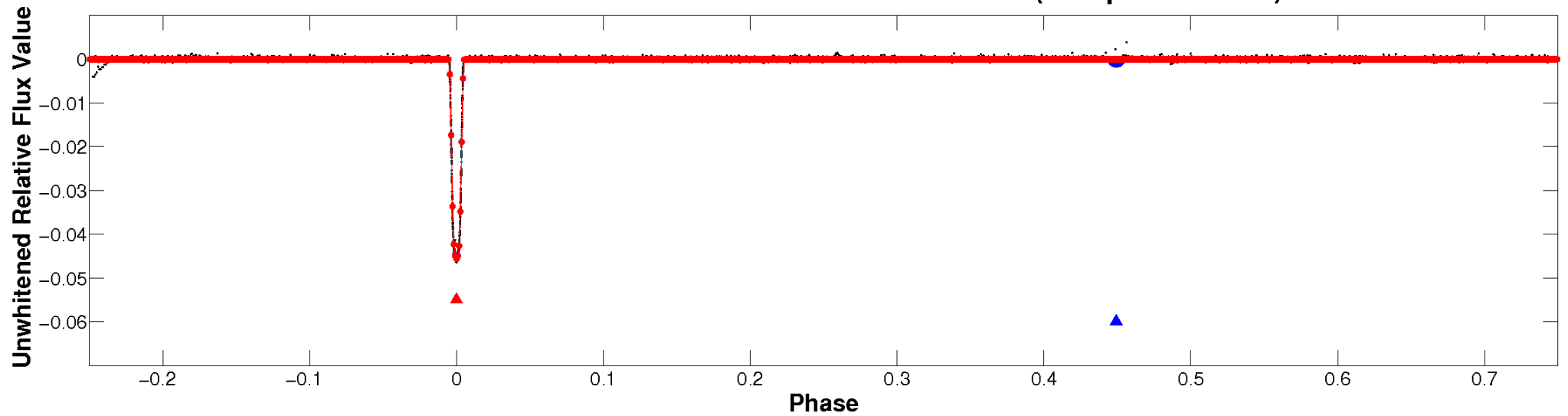
ALT Odd/Even

TCE 012017140-01

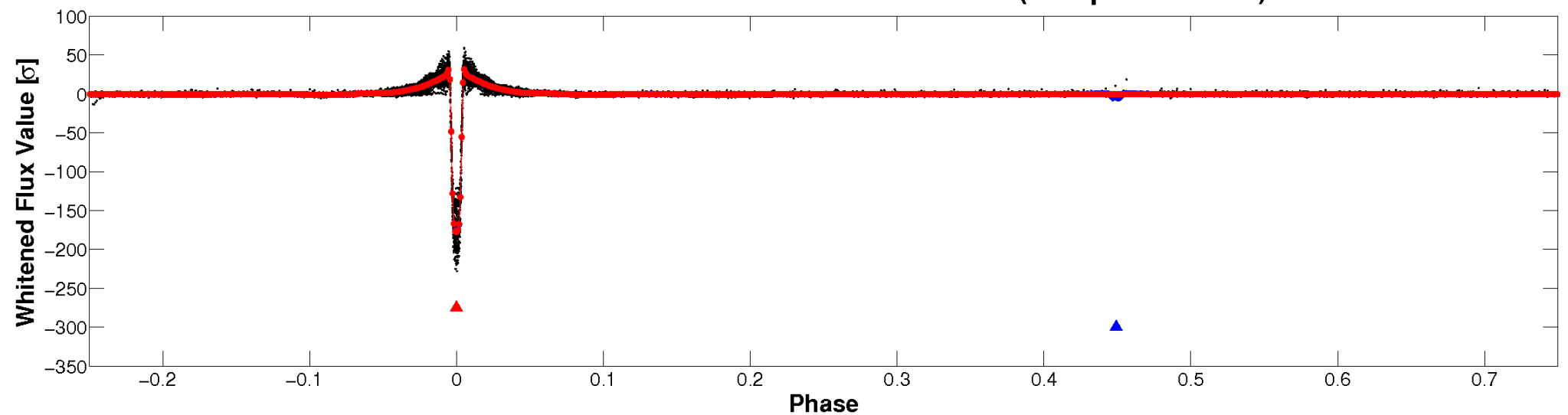


Non-Whitened Vs. Whitened Light Curve

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

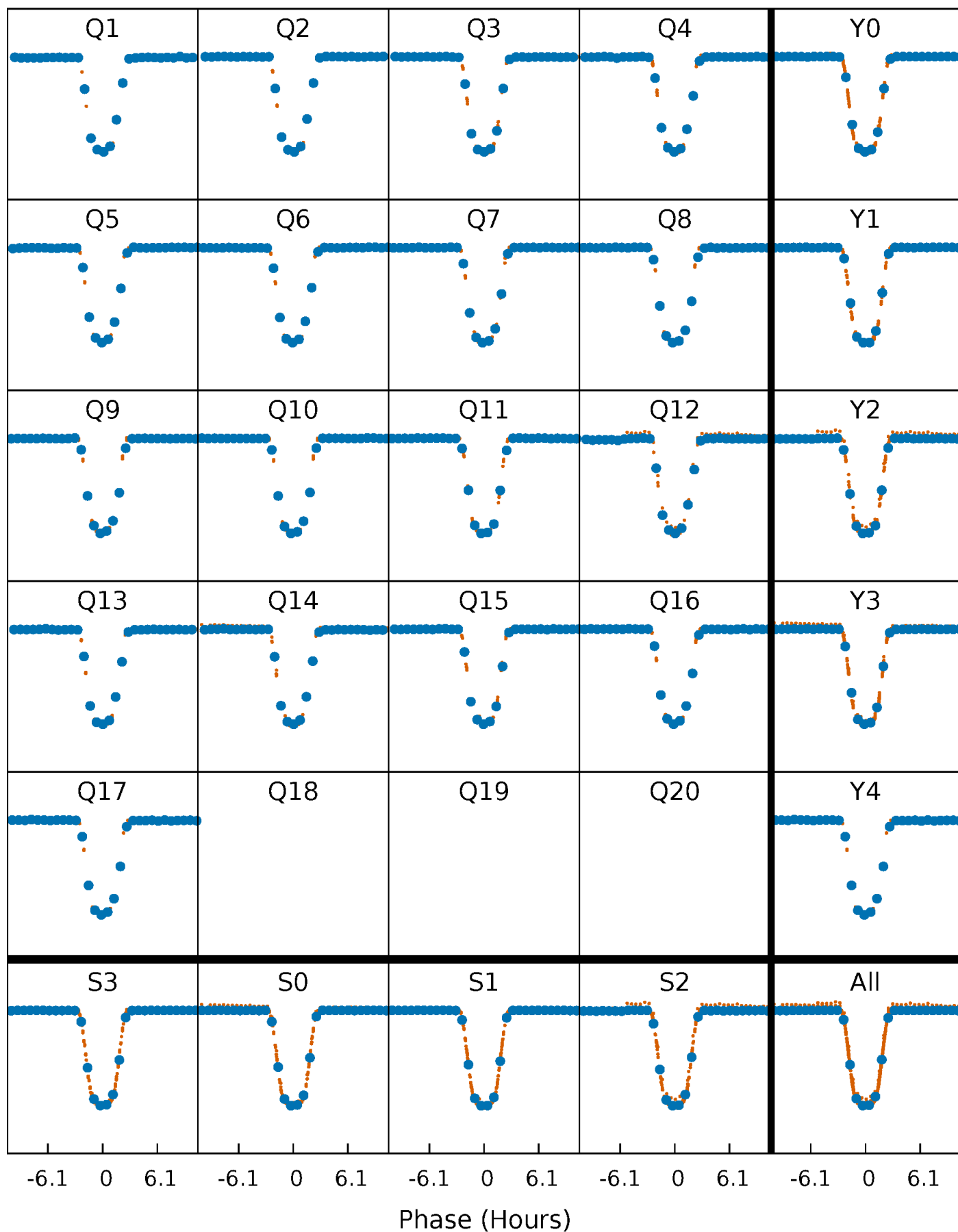


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



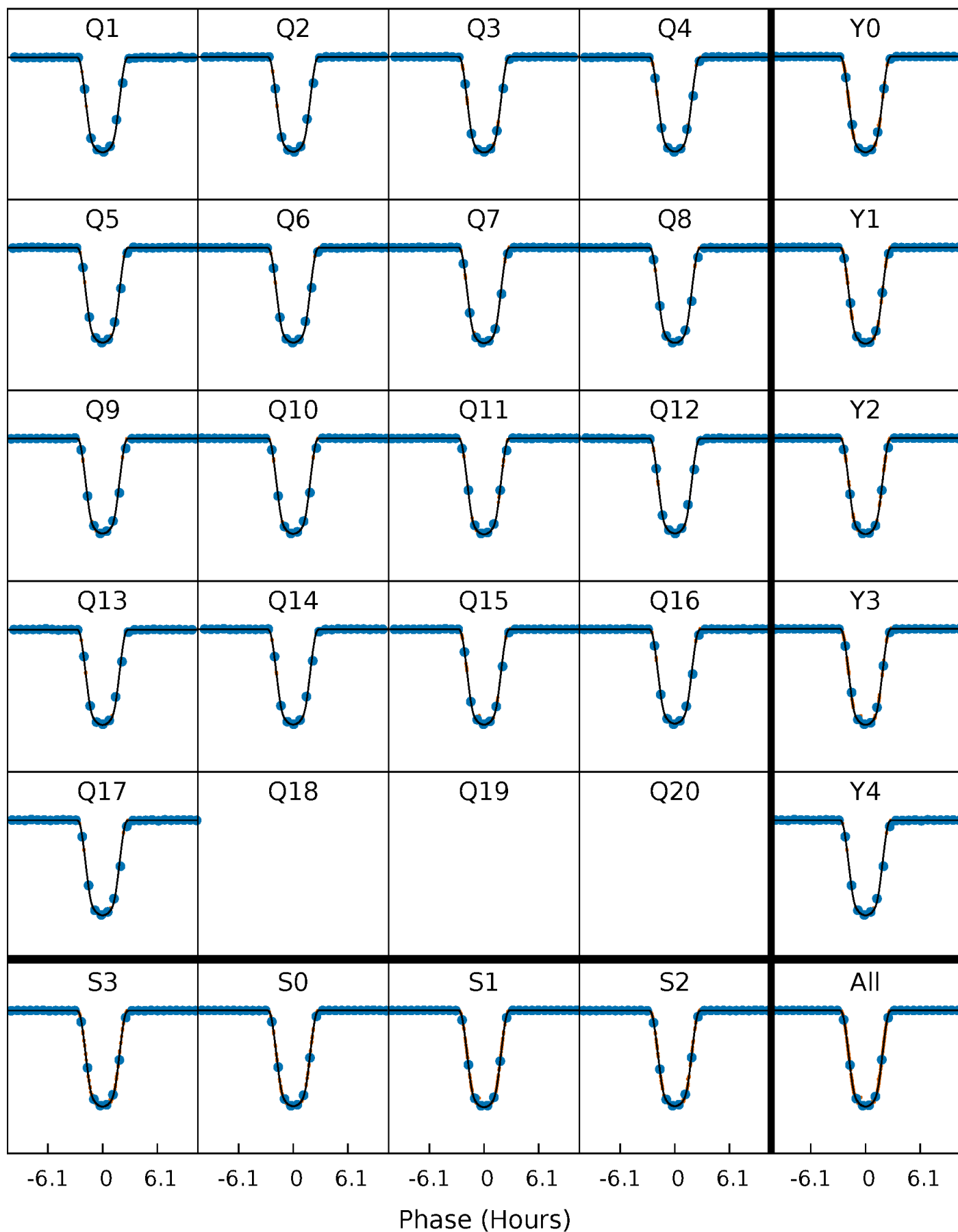
PDC Quarter-Phased Transit Curves

TCE 012017140-01 P= 22.845241 Days $T_0=149.957445$ (BKJD)



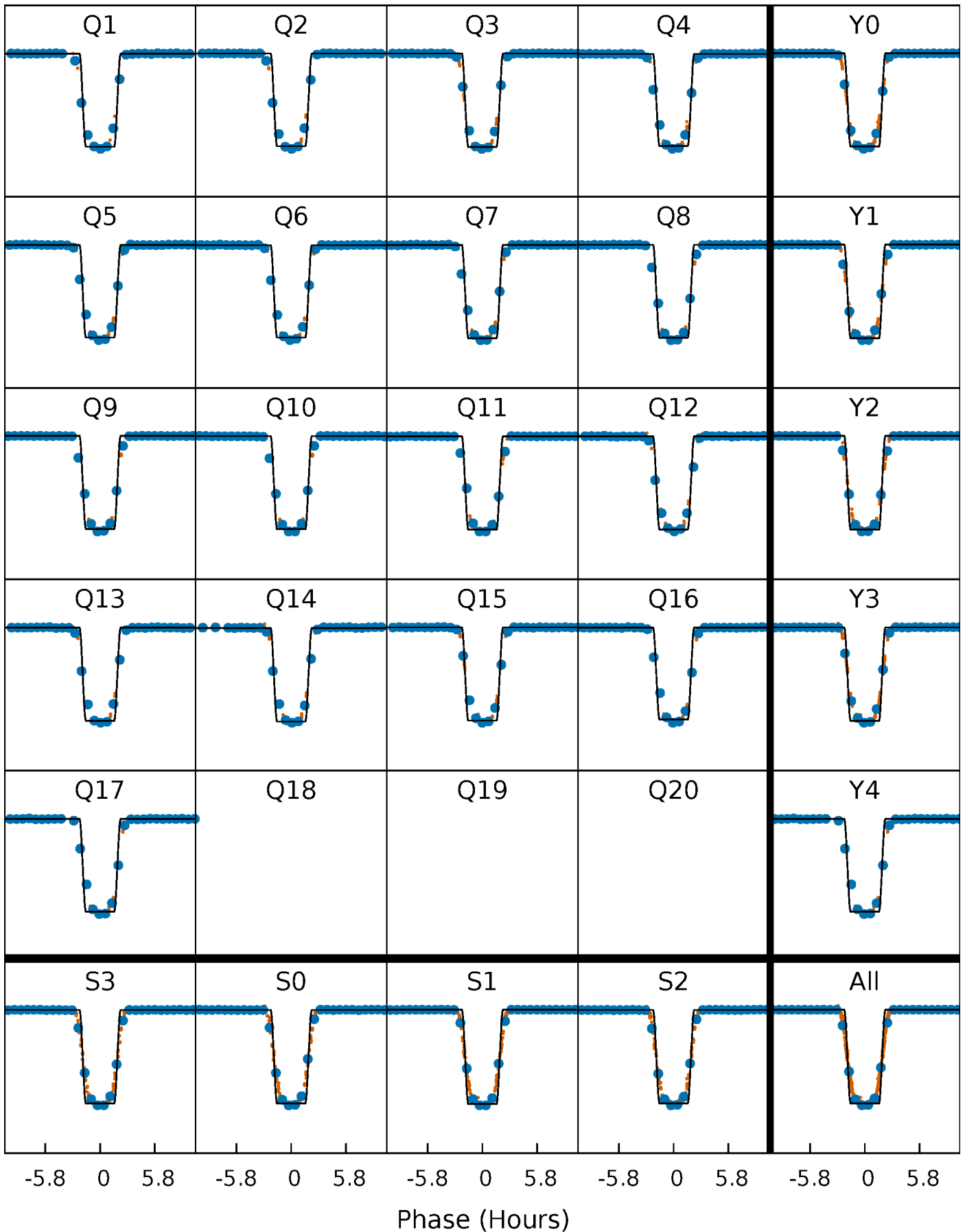
DV Quarter-Phased Transit Curves

TCE 012017140-01 P= 22.845241 Days $T_0=149.957445$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

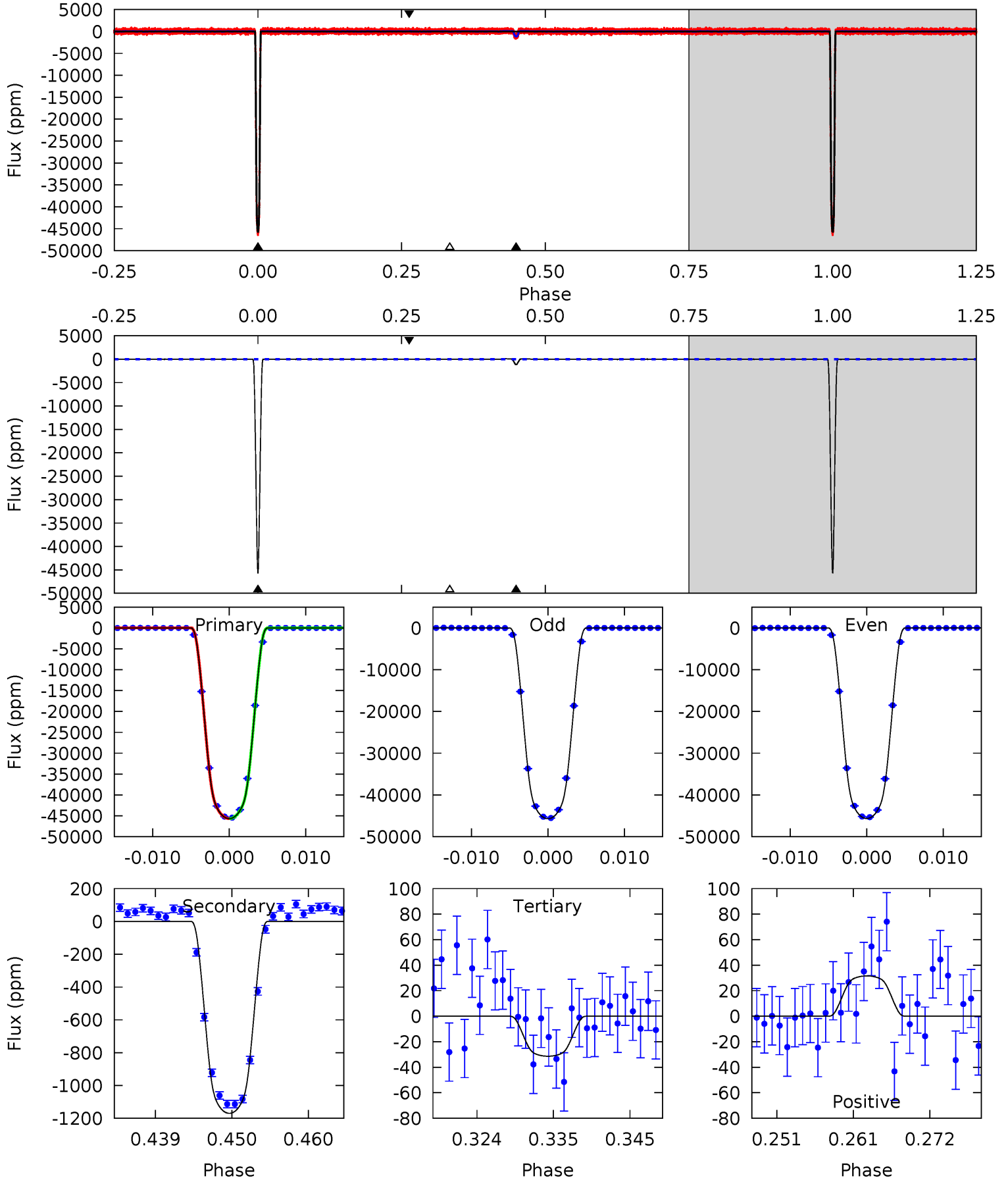
TCE 012017140-01 P= 22.845144 Days $T_0=149.960434$ (BKJD)



DV Model-Shift Uniqueness Test

012017140-01, P = 22.845241 Days, E = 127.112204 Days

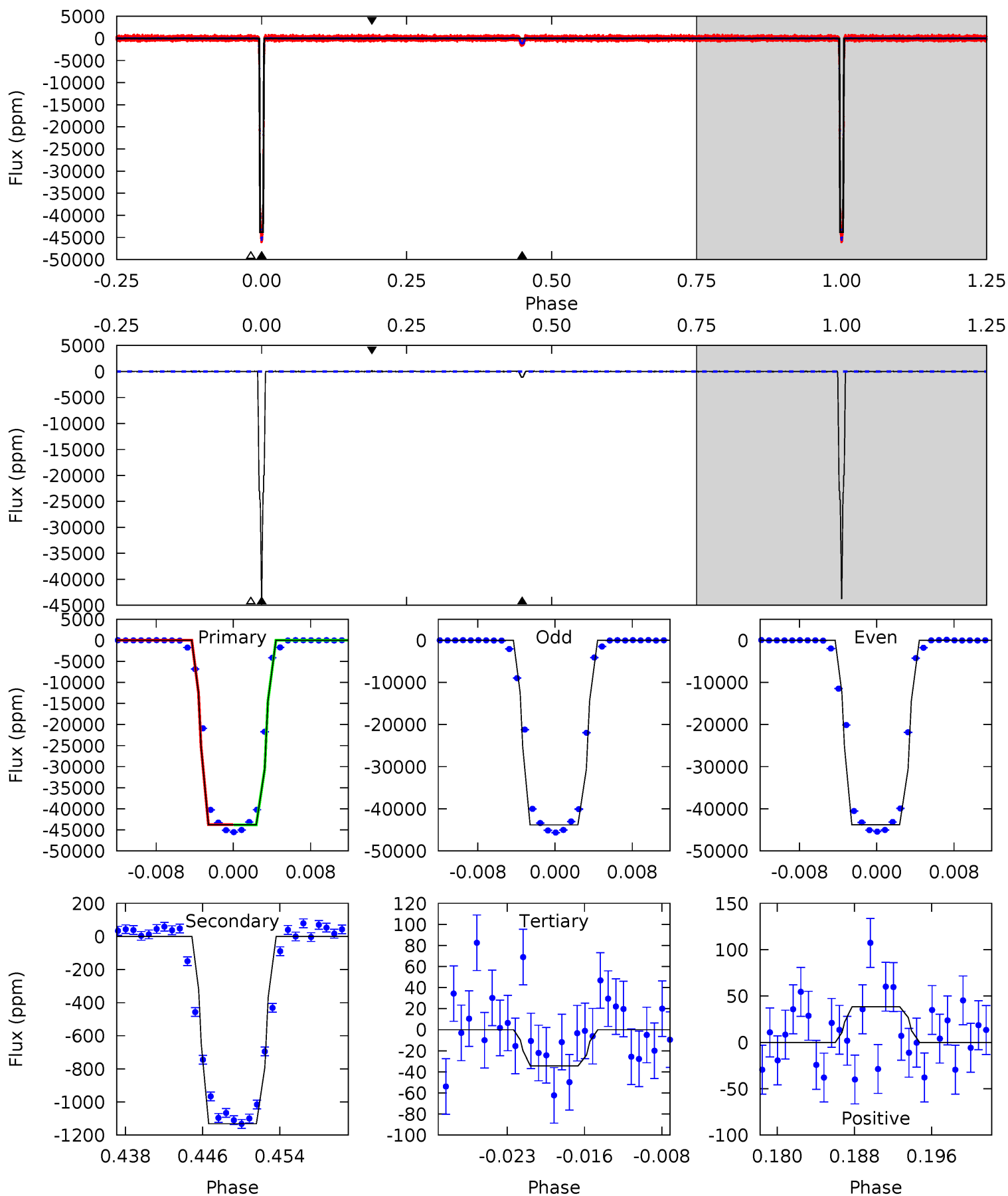
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5915	151.5	4.06	4.09	5.02	2.56	2.24	5911	5911	147.5	147.4	3.51	1.00	0.00	0.55



Alt Model-Shift Uniqueness Test

012017140-01, P = 22.845144 Days, E = 127.115290 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3880	100.3	3.05	3.40	5.07	2.66	1.22	3877	3877	97.2	96.9	1.90	1.00	0.00	3.48



Stellar Parameters For KIC 012017140

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+70}_{-88}	$4.187^{+0.176}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.351^{+0.212}_{-0.260}$	$1.024^{+0.090}_{-0.074}$	$0.585^{+0.487}_{-0.194}$
	+1%/-1%	+4%/-3%	+375%/-375%	+16%/-19%	+9%/-7%	+83%/-33%
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 012017140-01 / KOI 0358.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1170 ± 8	$30.23^{+3.09}_{-3.09}$	1059^{+51}_{-57}	3052^{+21}_{-27}	18^{+4}_{-3}
Alt.	-1132 ± 11	$31.02^{+2.79}_{-3.41}$	1058^{+48}_{-55}	3019^{+25}_{-26}	17^{+4}_{-3}

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

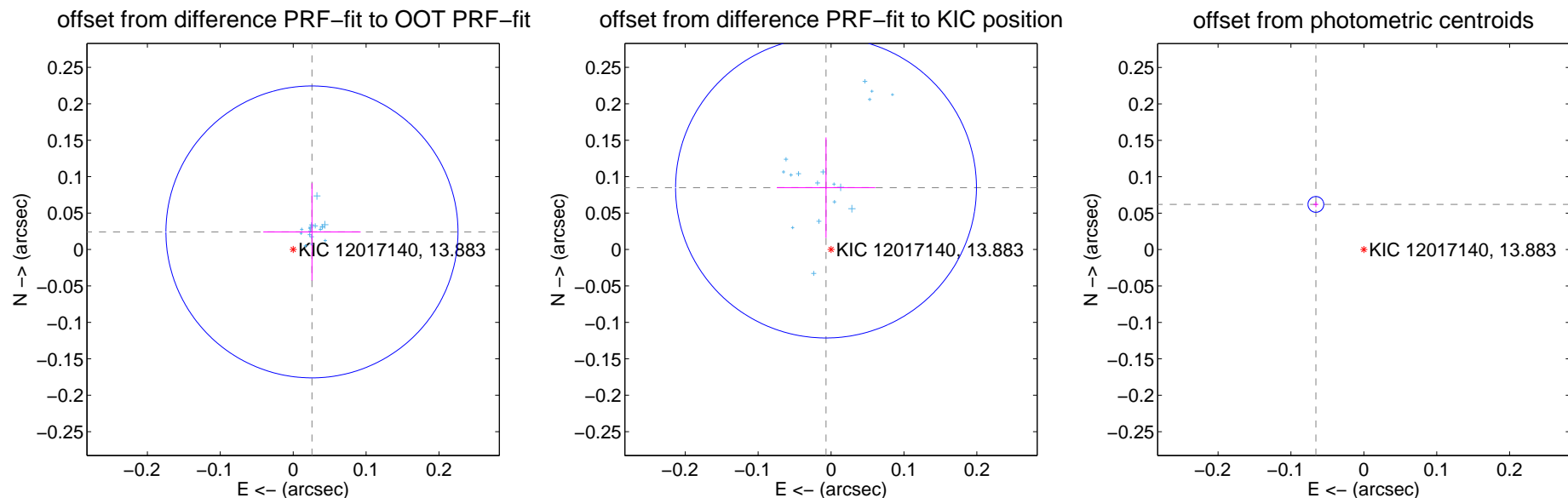
DV Centroid Data

Supplemental centroid analysis for 012017140-01. Kepler magnitude: 13.88. Transit SNR 3163.63

There are 17 quarters with good PRF difference image offsets

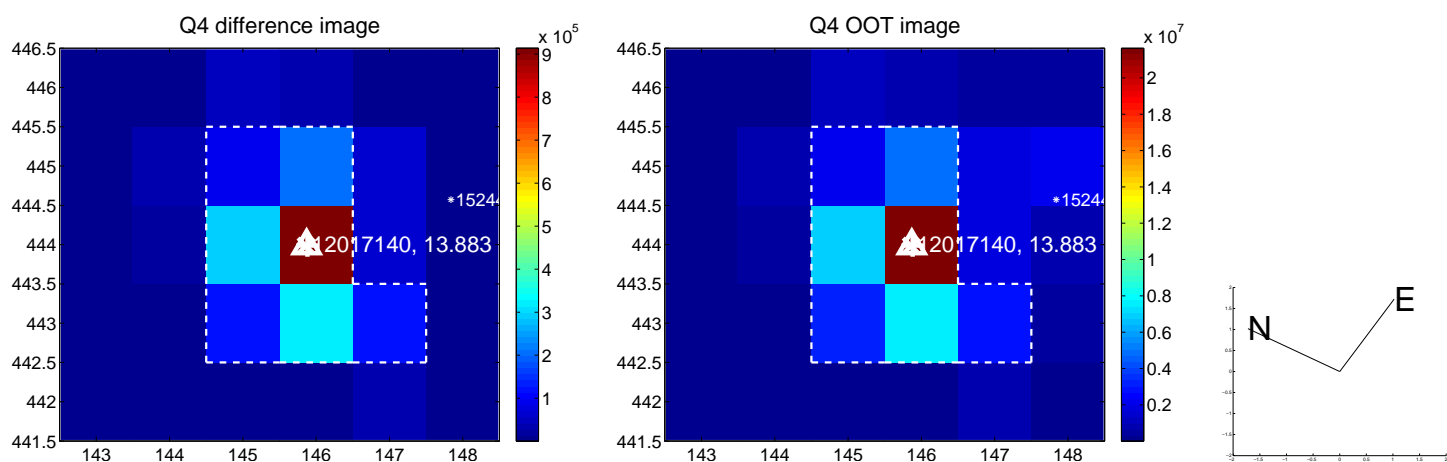
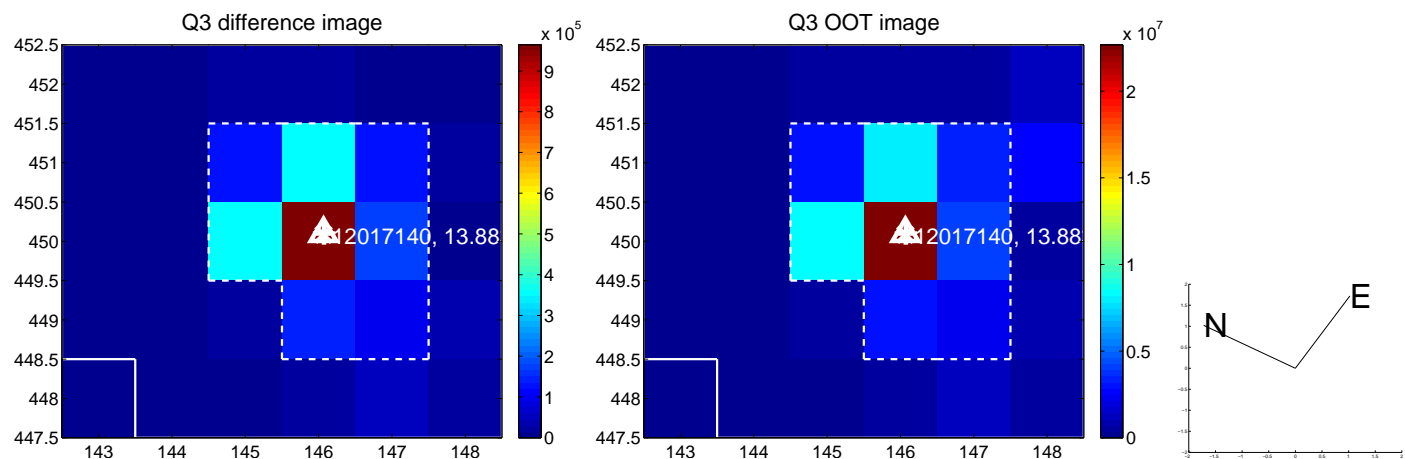
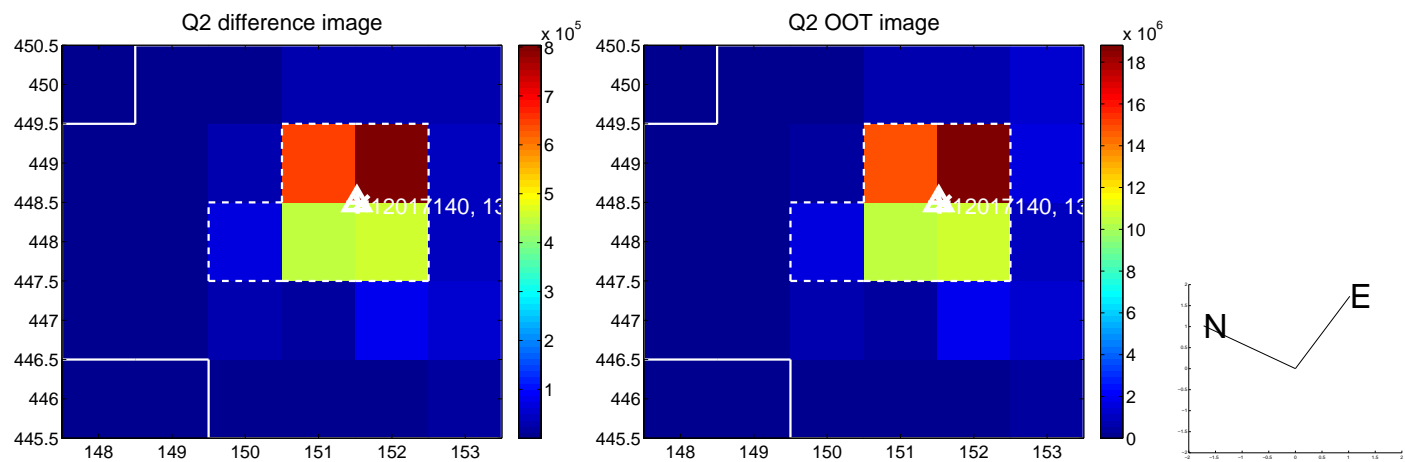
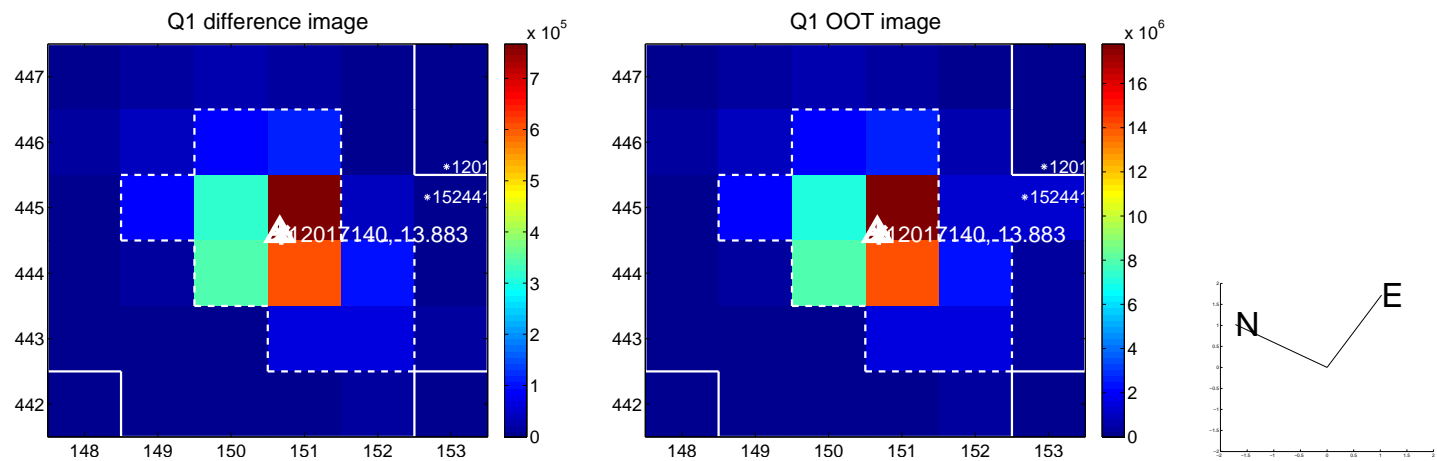
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.035 ± 0.067	0.53	-0.026 ± 0.067	0.024 ± 0.067
PRF-fit source offset from KIC position	0.085 ± 0.069	1.24	0.007 ± 0.068	0.085 ± 0.069
photometric centroid source offset	0.09 ± 0.00	25.04	0.07 ± 0.00	0.06 ± 0.00

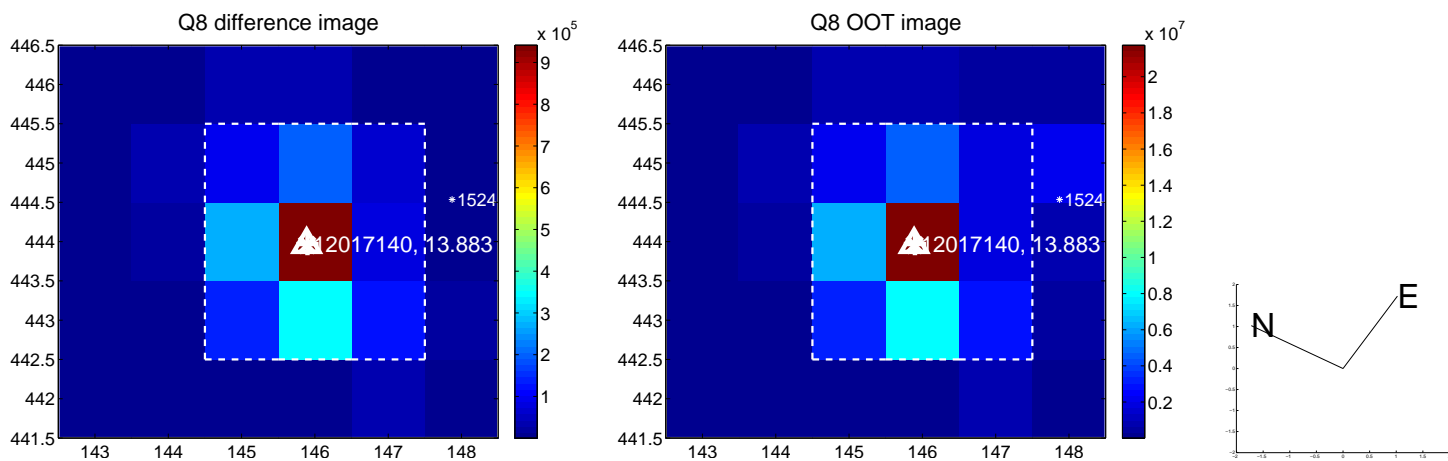
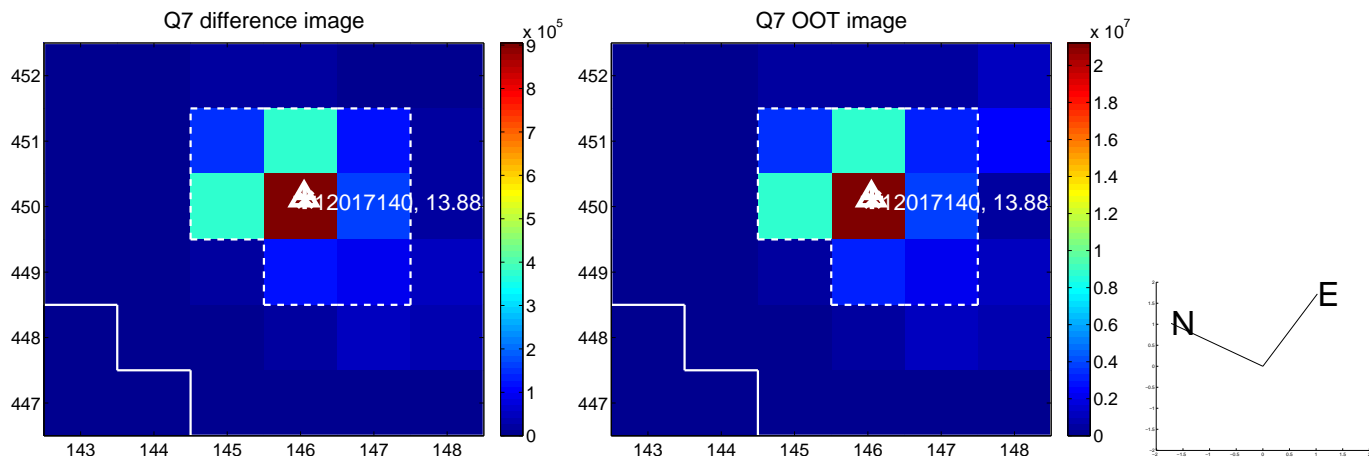
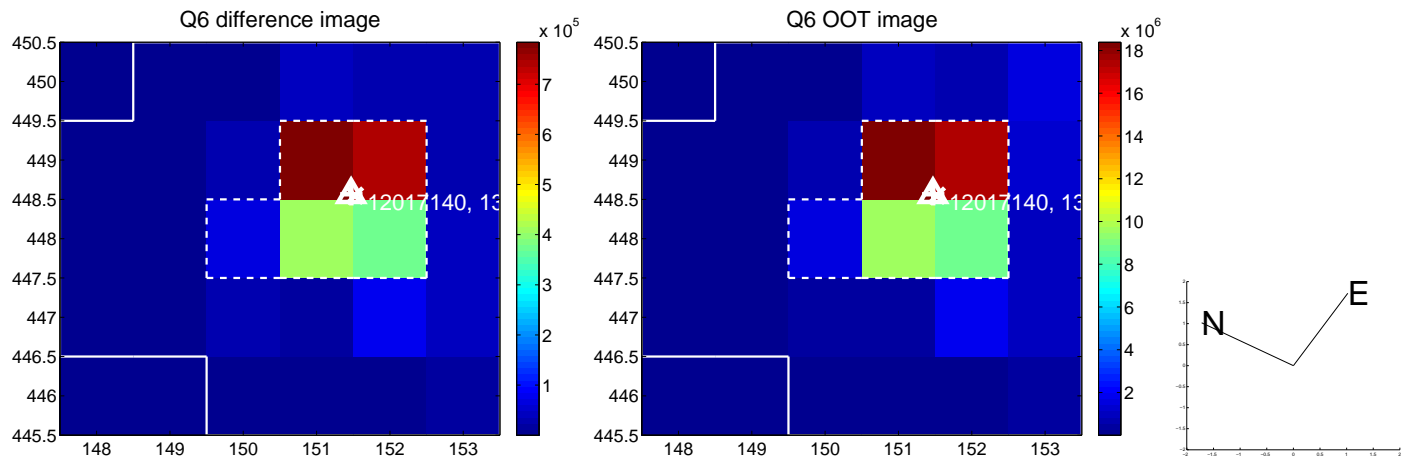
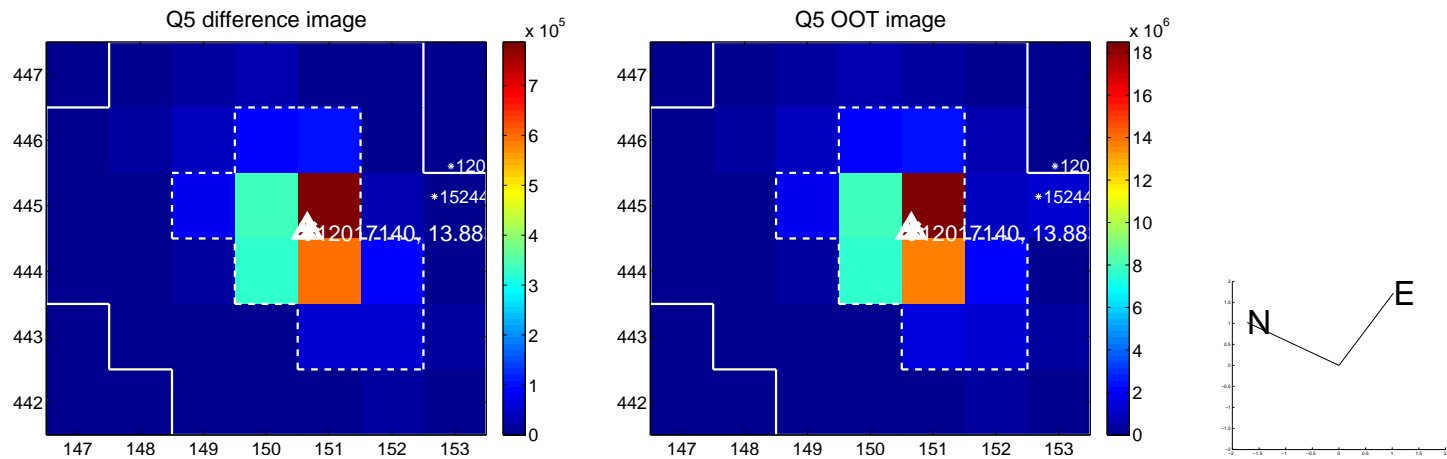


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

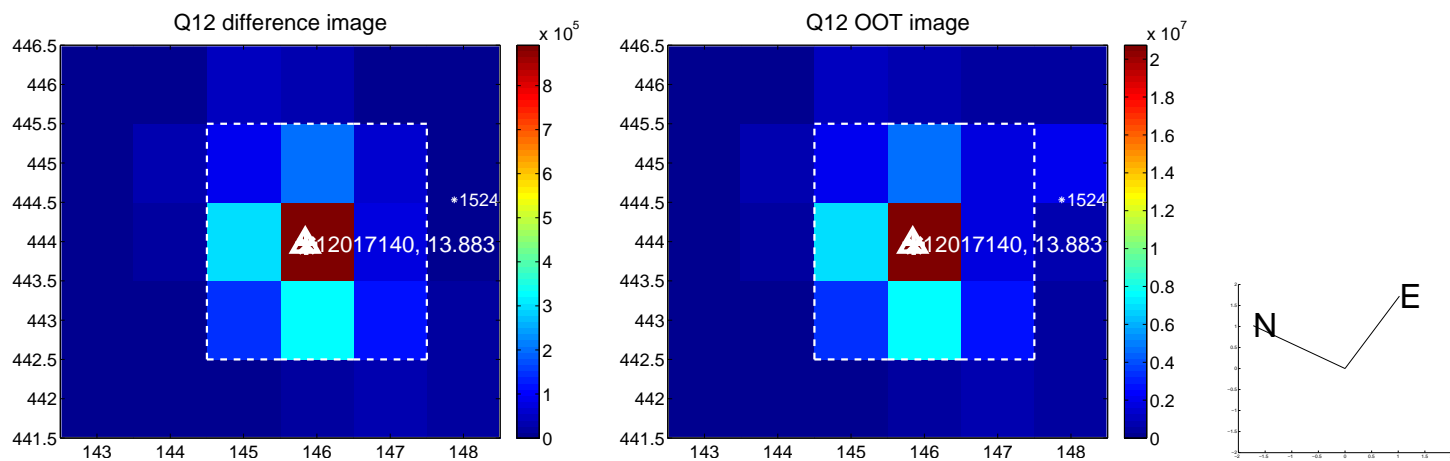
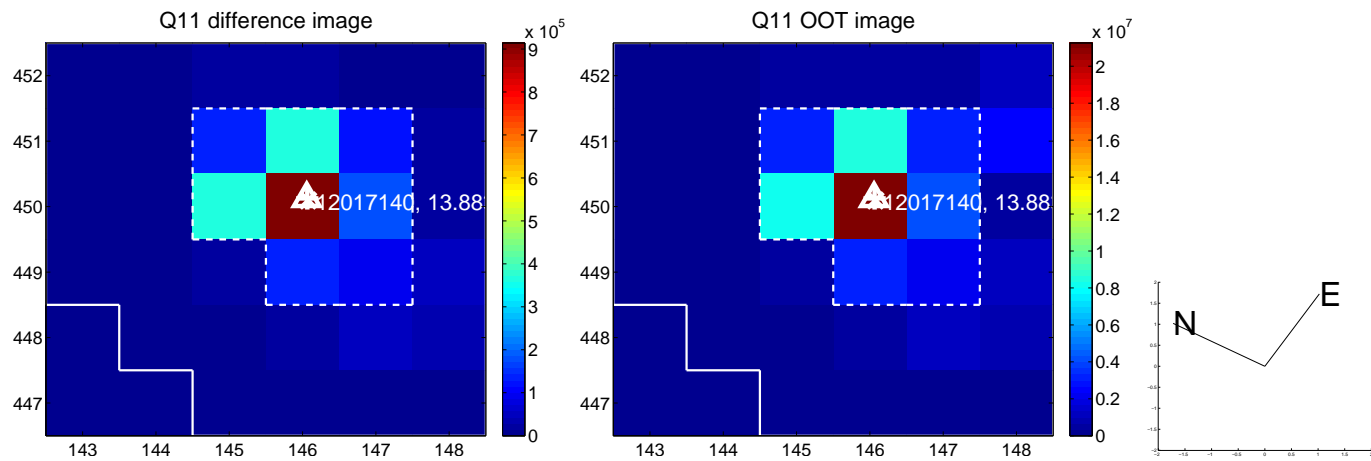
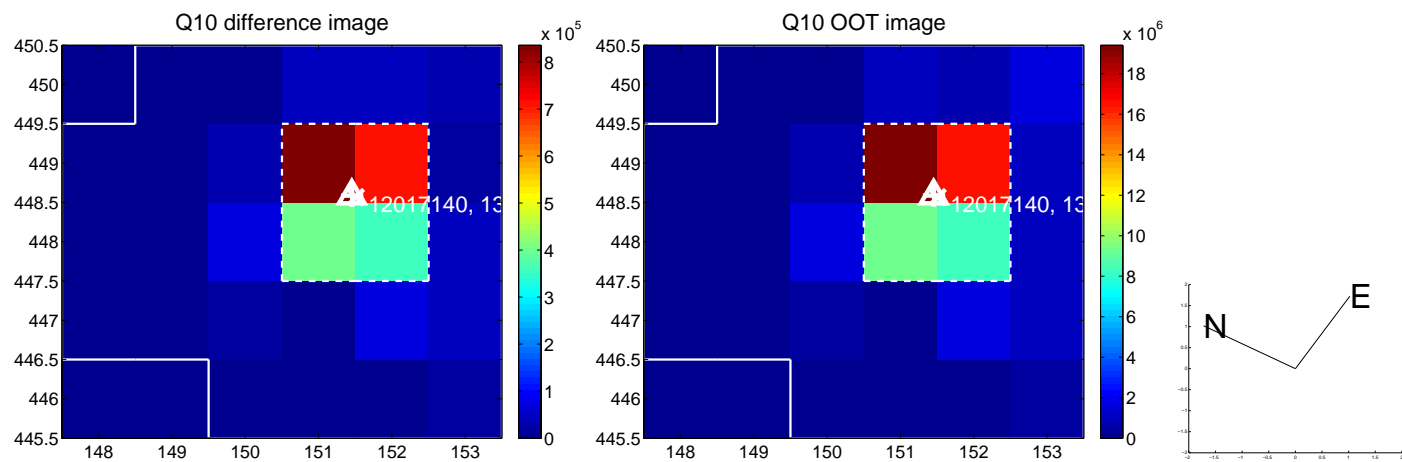
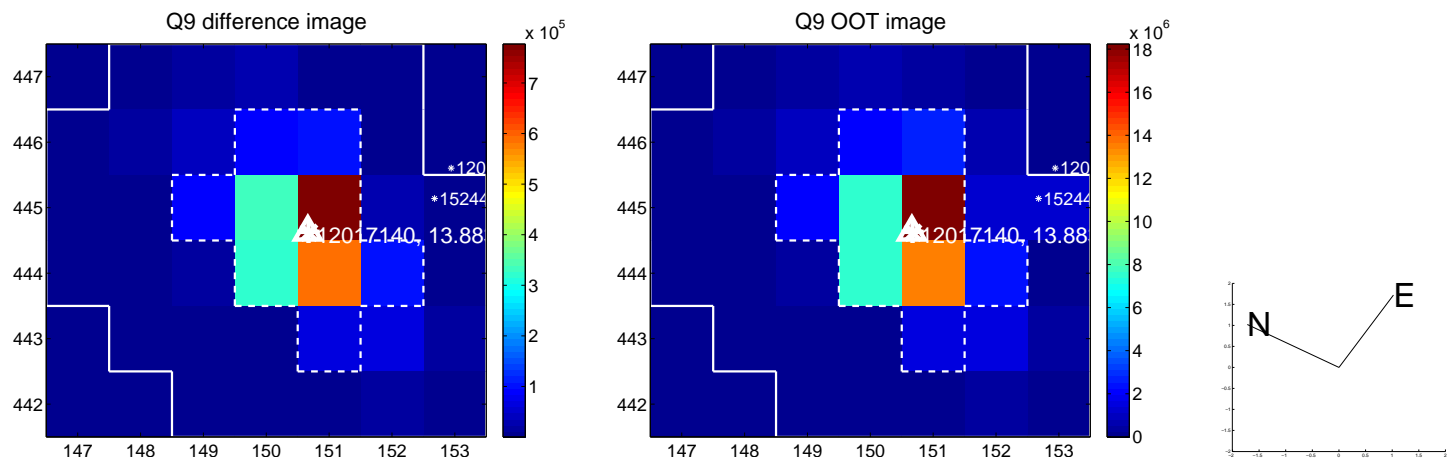
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



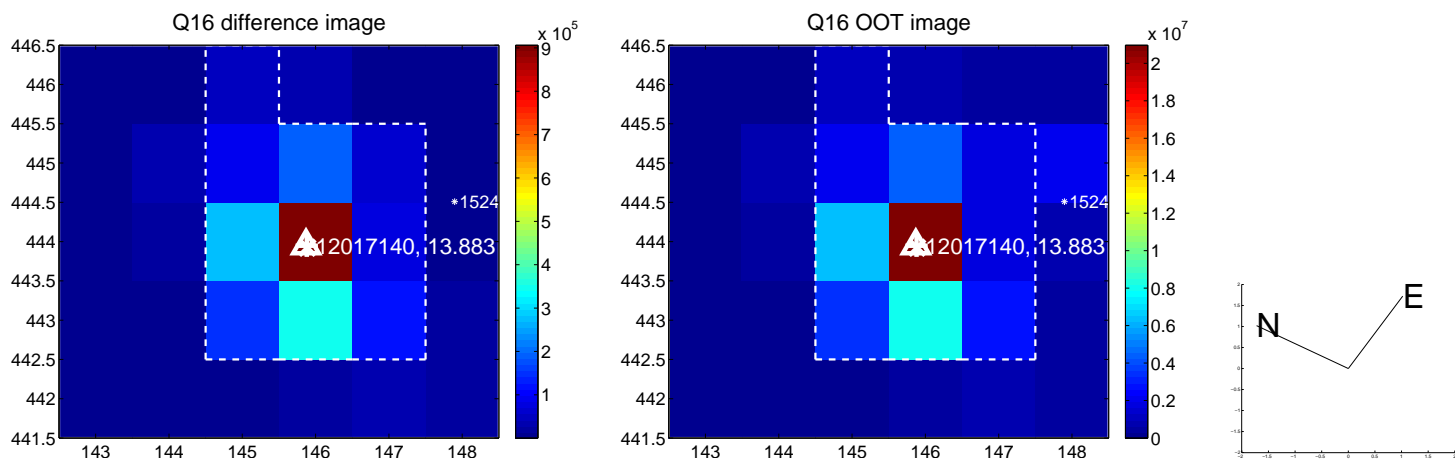
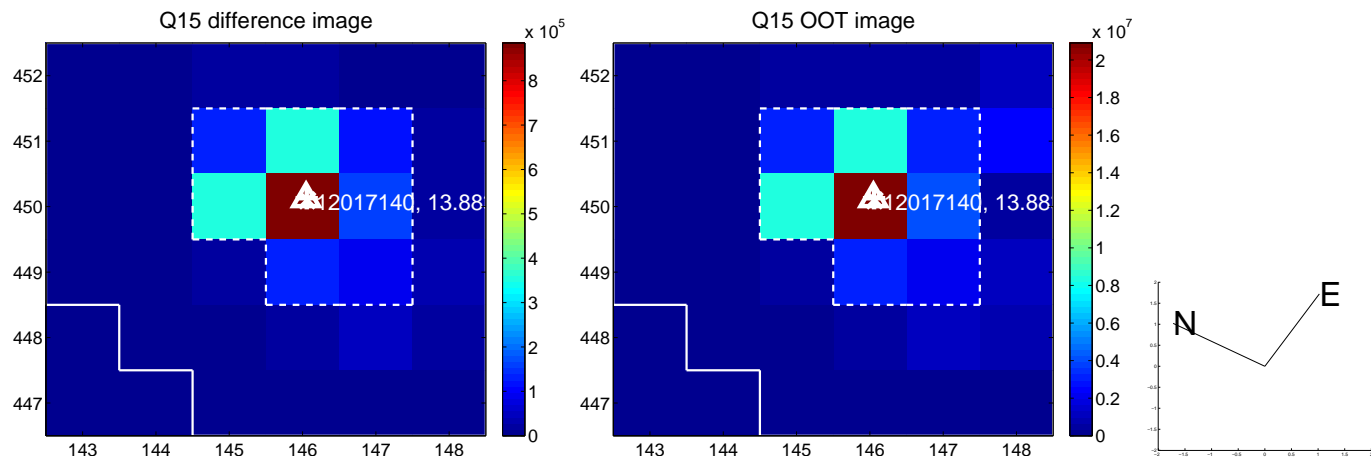
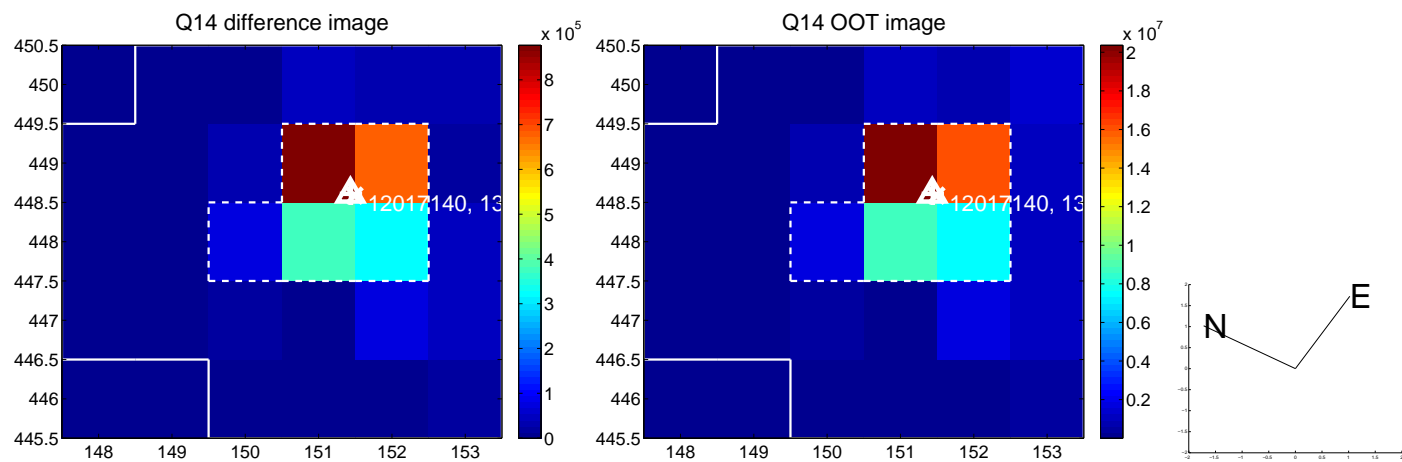
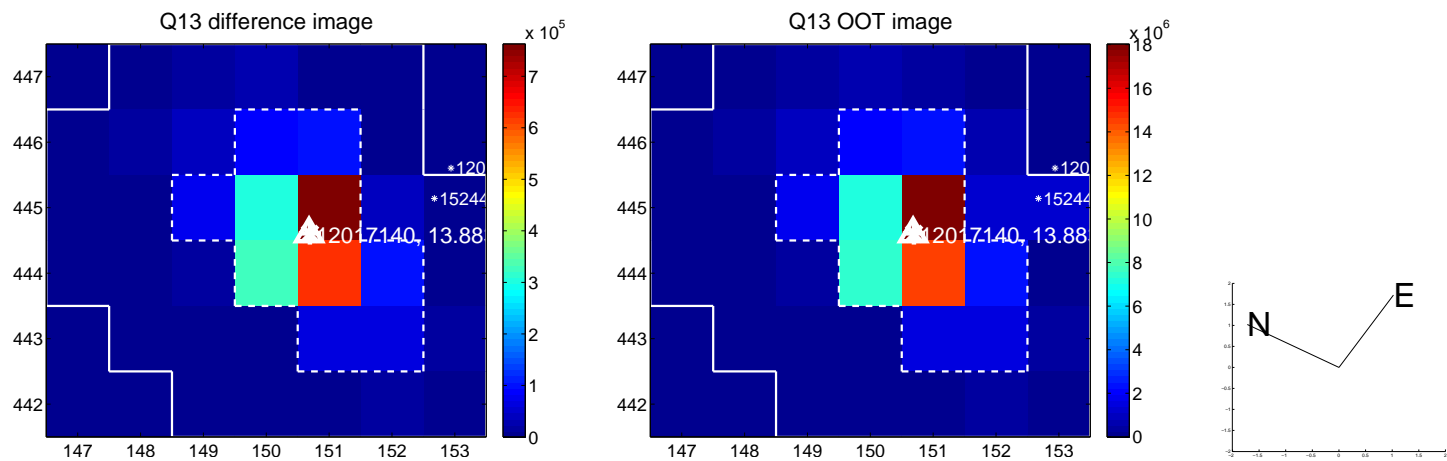
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



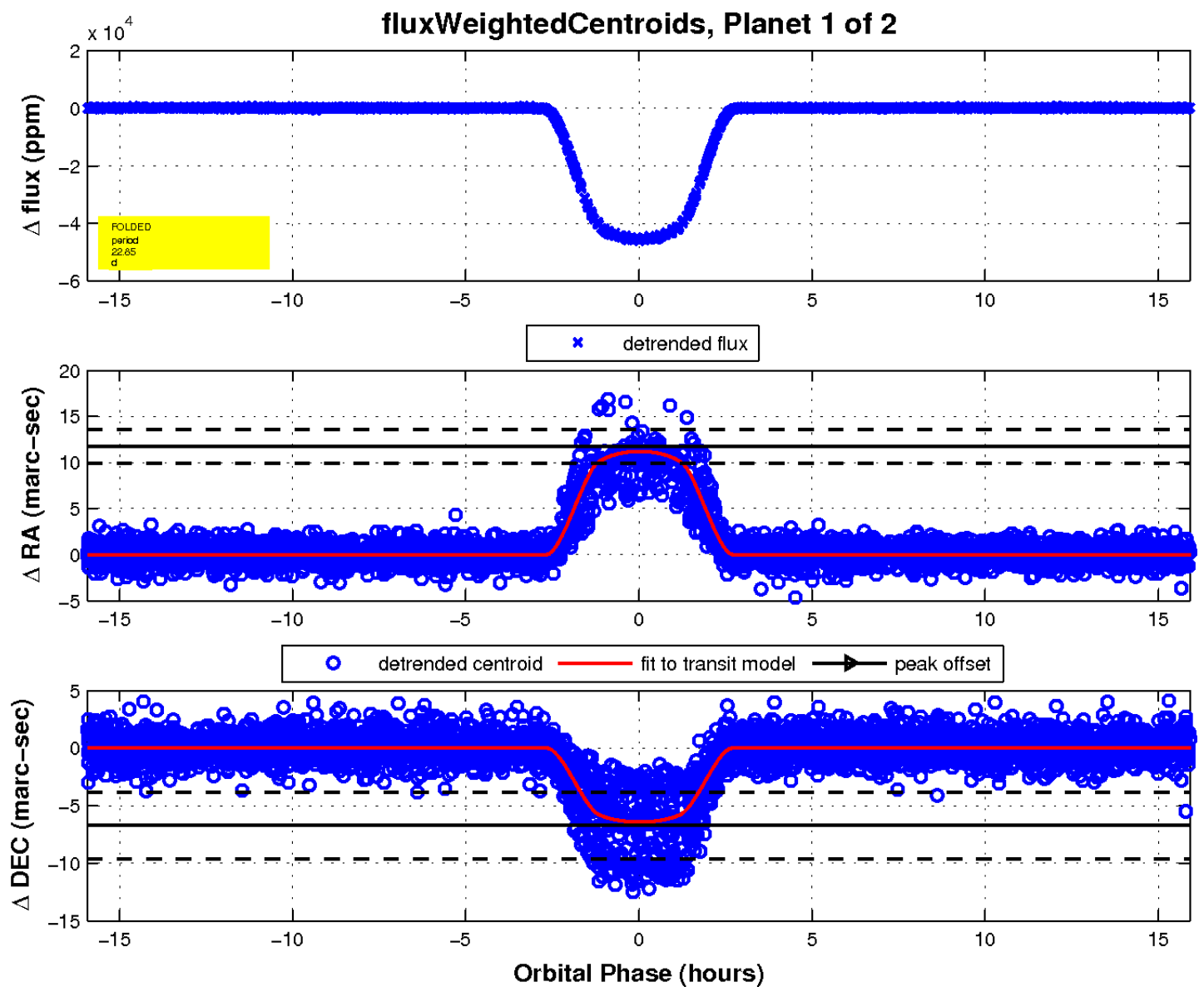
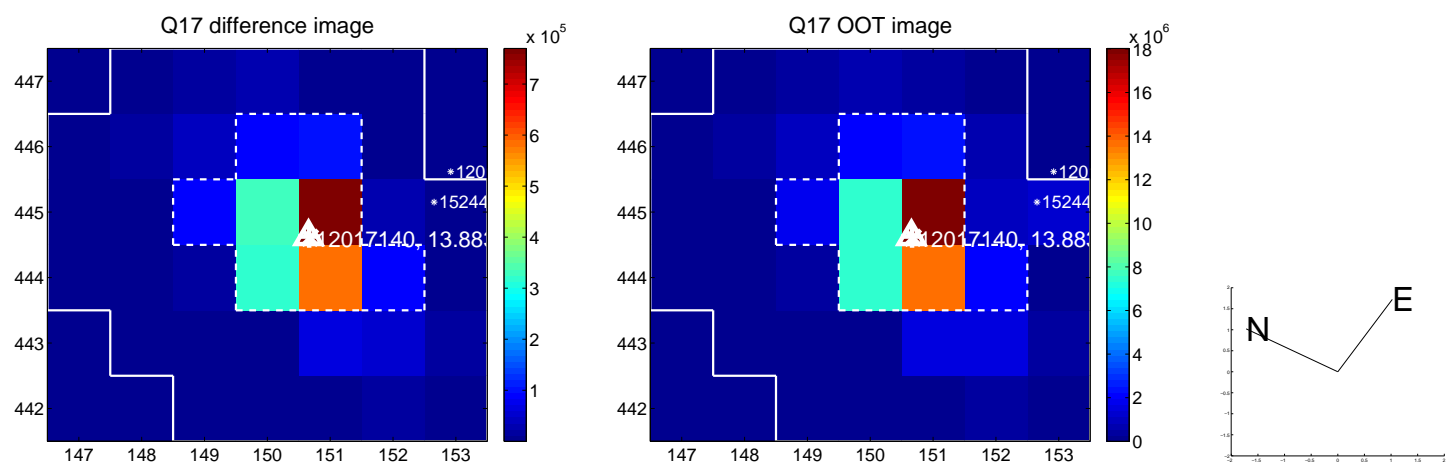
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

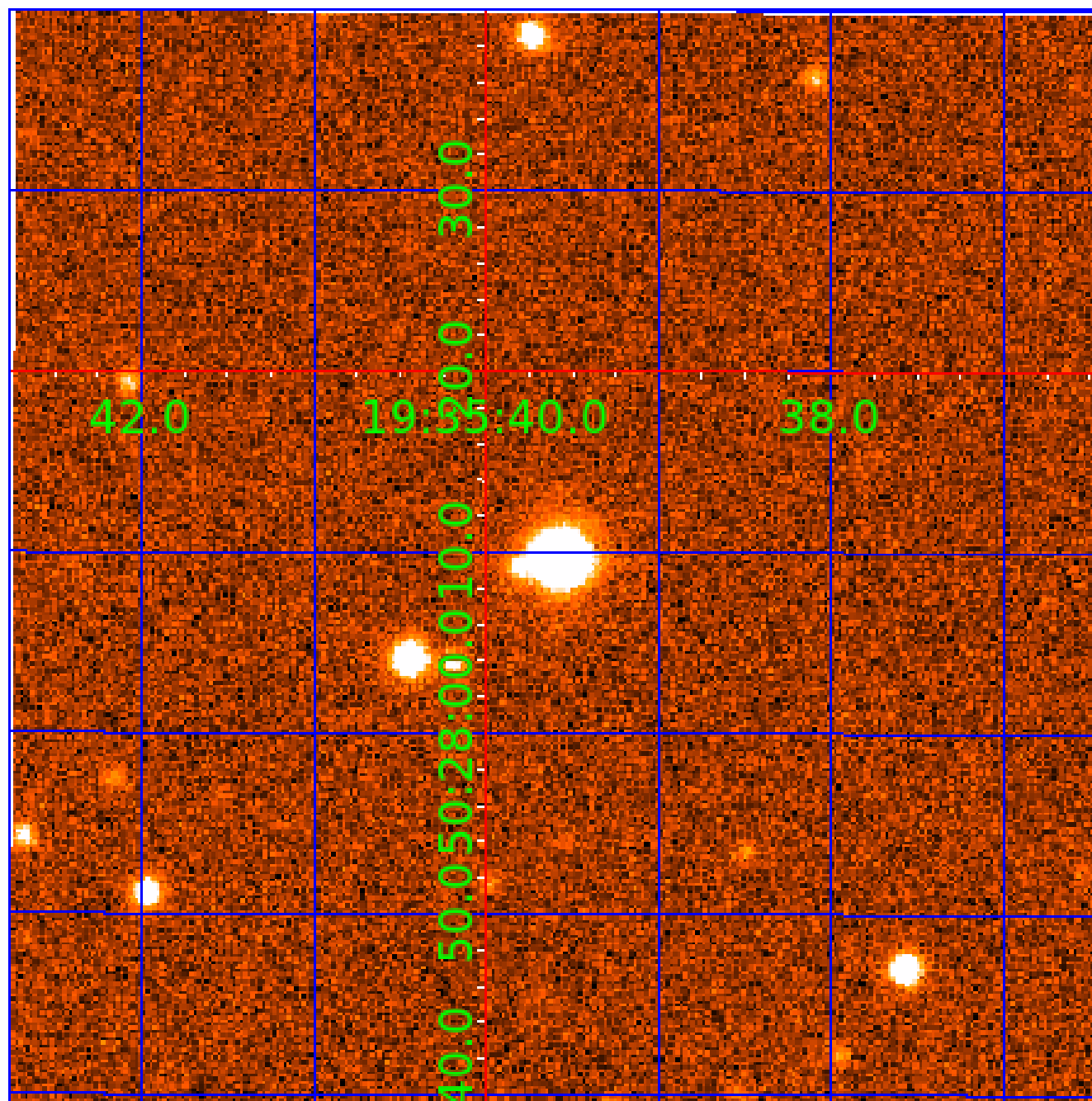


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012017140

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012017140-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
012017140-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

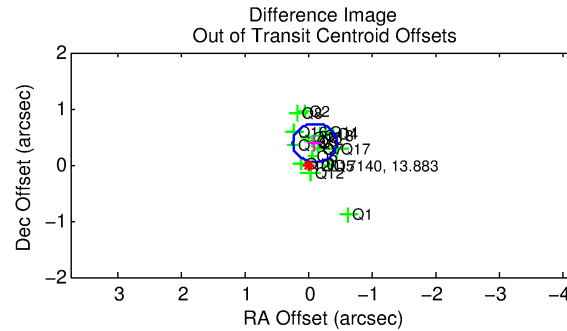
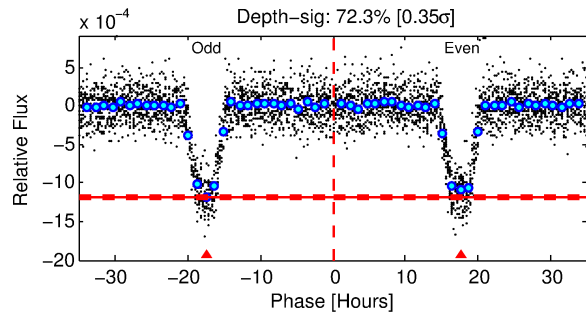
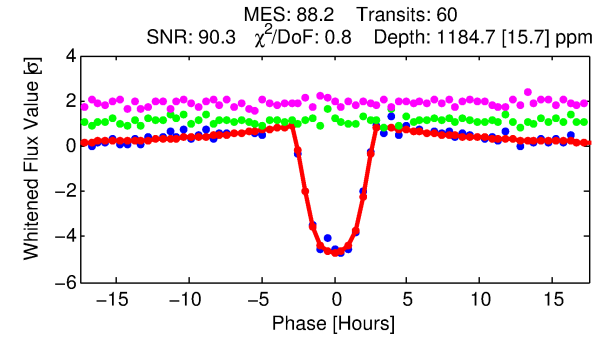
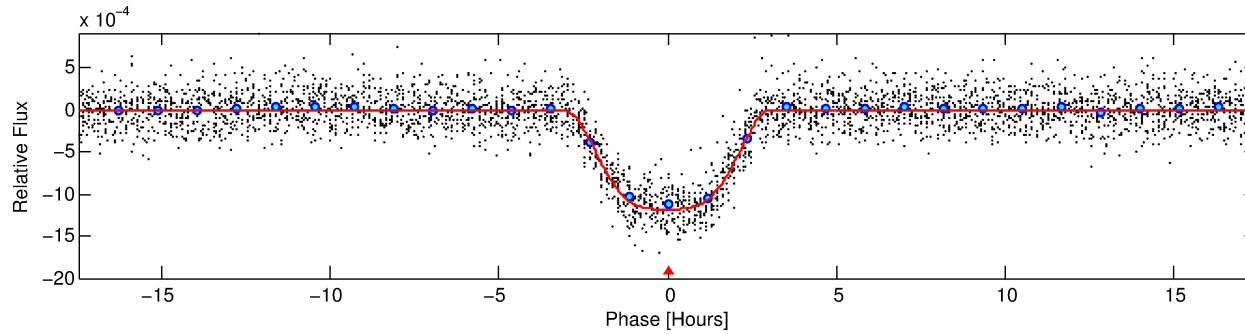
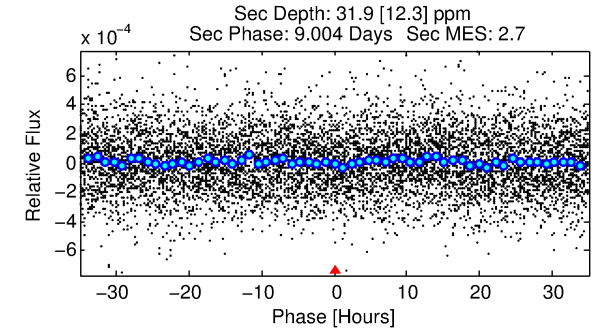
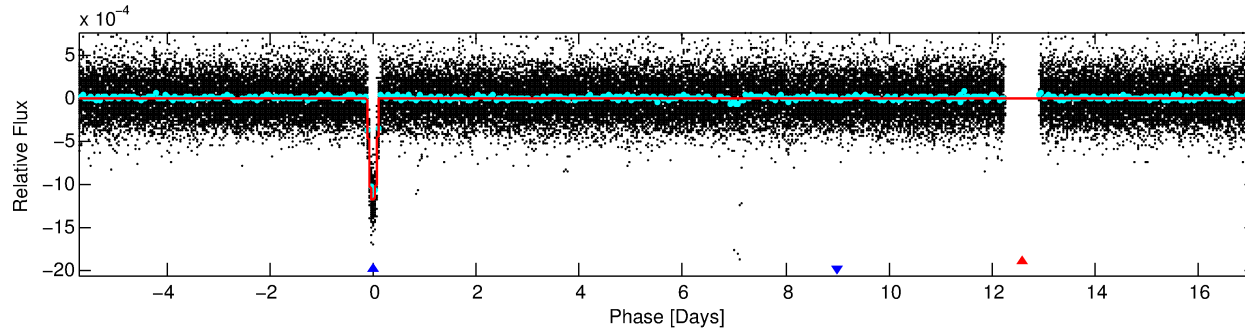
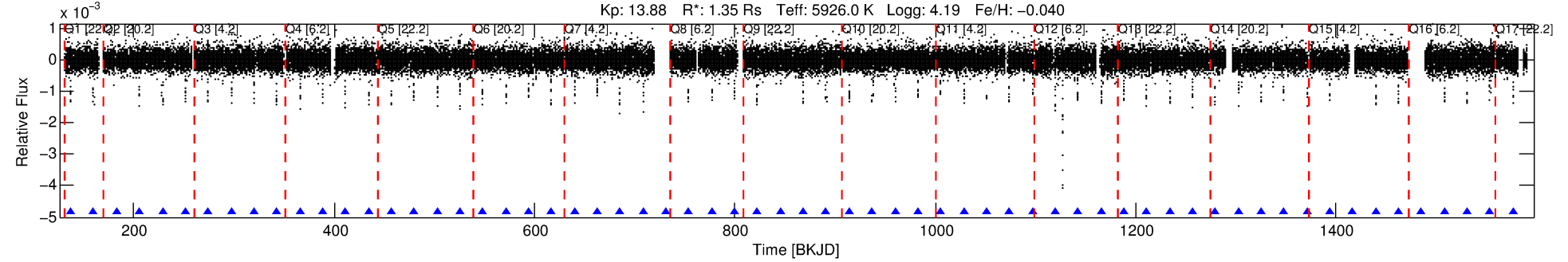
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012017140-02

No Significant Match Found

DV One-Page Summary

KIC: 12017140 Candidate: 2 of 2 Period: 22.845 d
KOI: K00358 Corr: No Ephemeris Match



DV Fit Results:

Period = 22.84519 [0.00004] d
Epoch = 137.3765 [0.0013] BKJD
Rp/R* = 0.0399 [0.0004]
a/R* = 12.78 [0.28]
b = 0.95 [0.00]
Seff = 79.92 [24.37]
Teq = 762 [58] K
Rp = 5.88 [1.13] Re
a = 0.1589 [0.0296] AU
Ag = 12.80 [6.24] [1.89σ]
Teffp = 2230 [217] K [6.53σ]

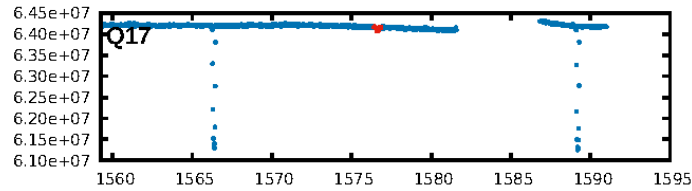
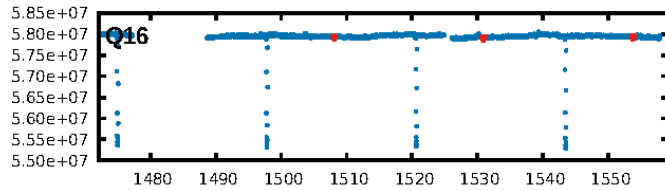
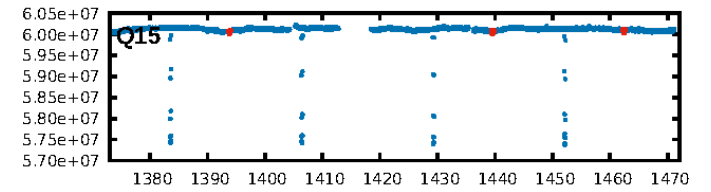
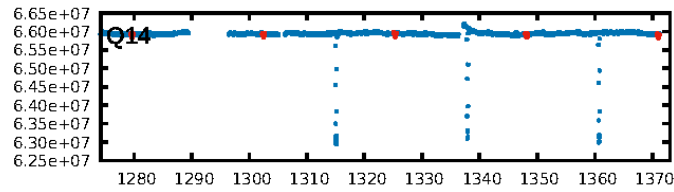
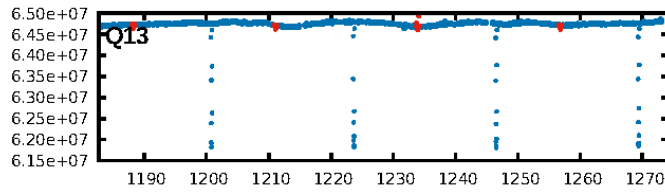
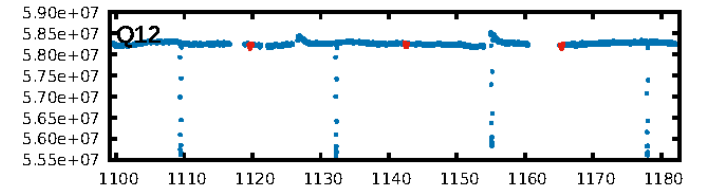
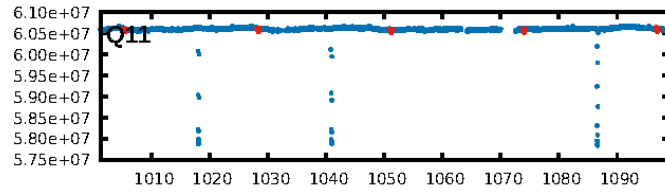
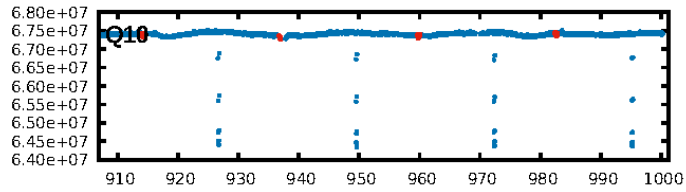
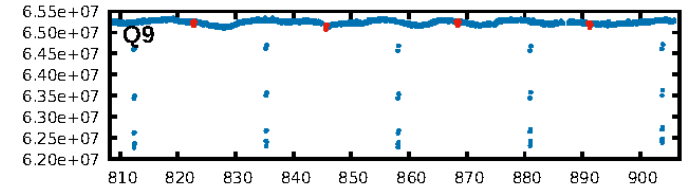
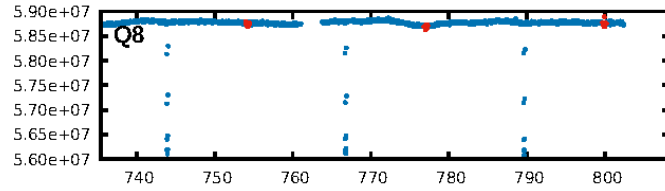
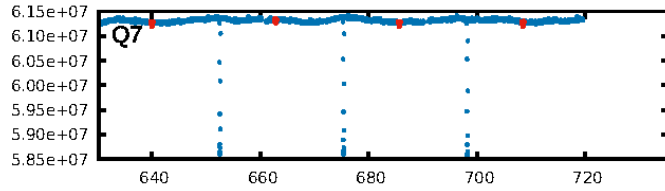
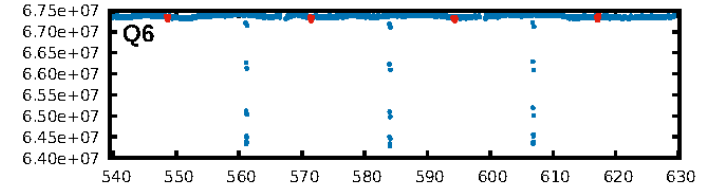
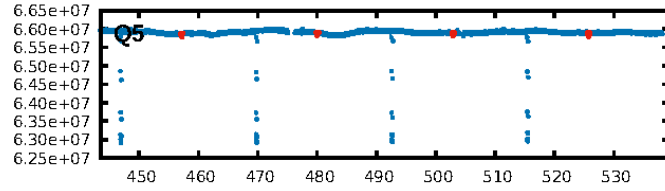
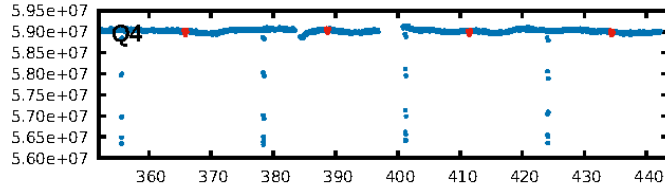
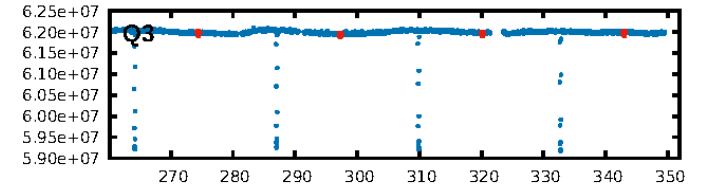
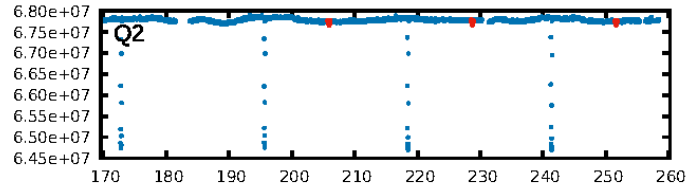
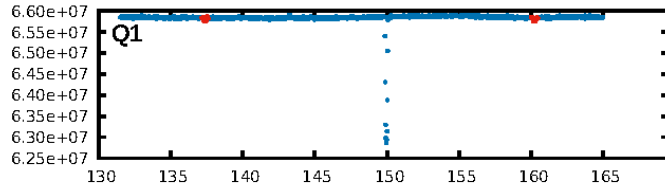
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 97.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [57/57]
GhostDiagnostic-chr: 6.591
Centroid-sig: 0.0%
Centroid-so: 0.436 arcsec [3.24σ]
OotOffset-rm: 0.399 arcsec [3.48σ]
KicOffset-rm: 0.480 arcsec [3.86σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

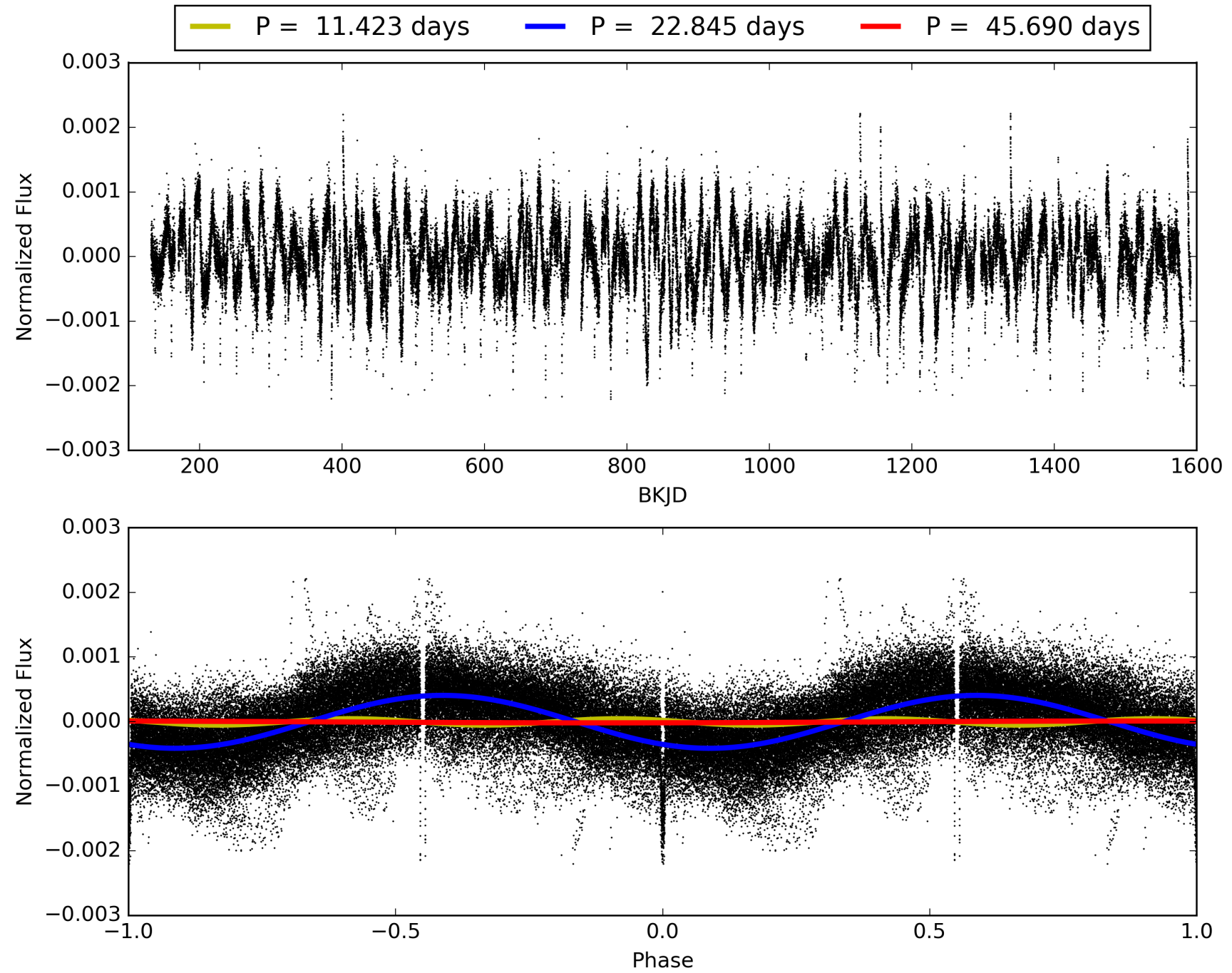
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:07:32 Z

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

TCE 012017140-02, PDC Light Curves

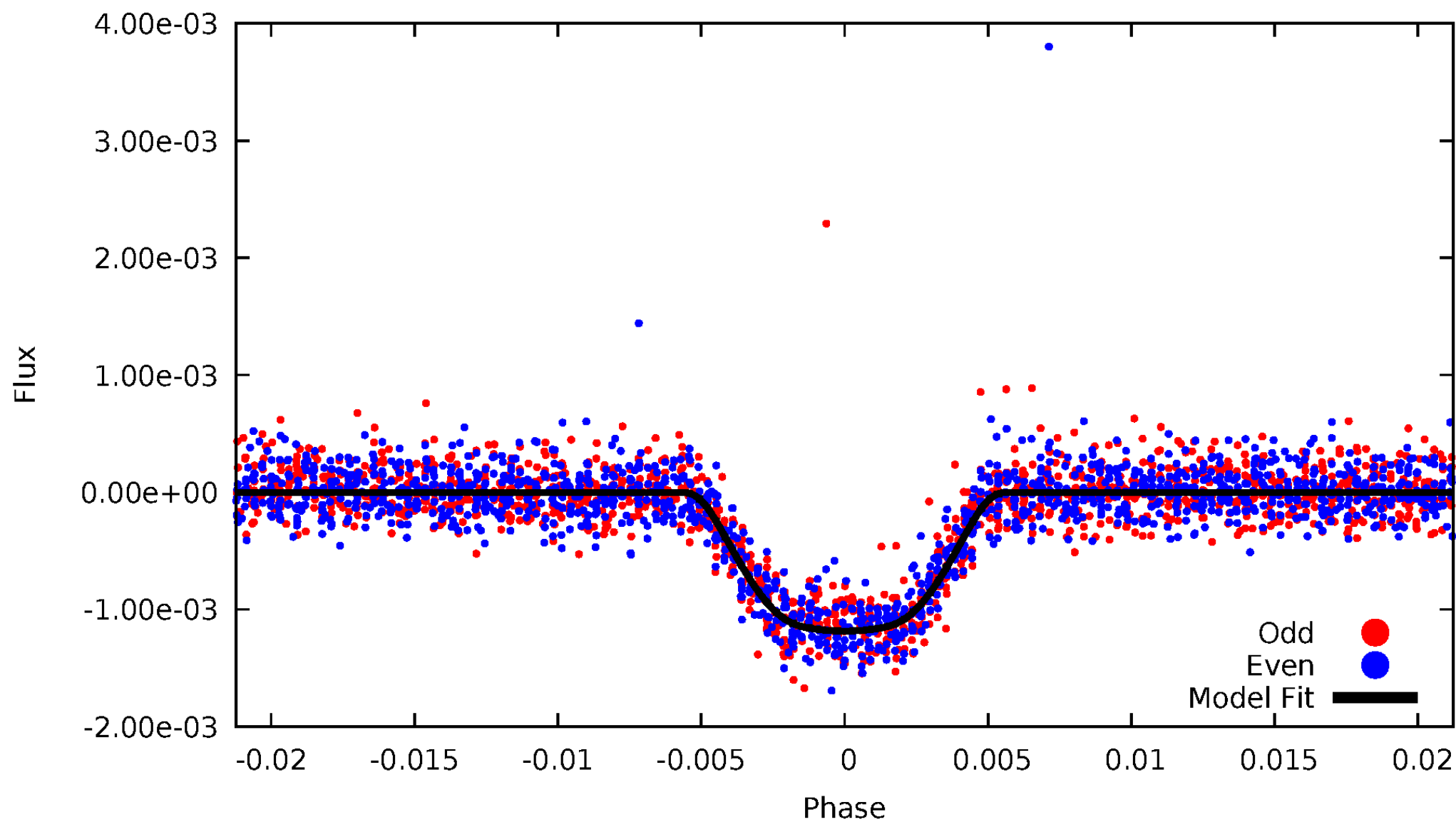


TCE 012017140-02



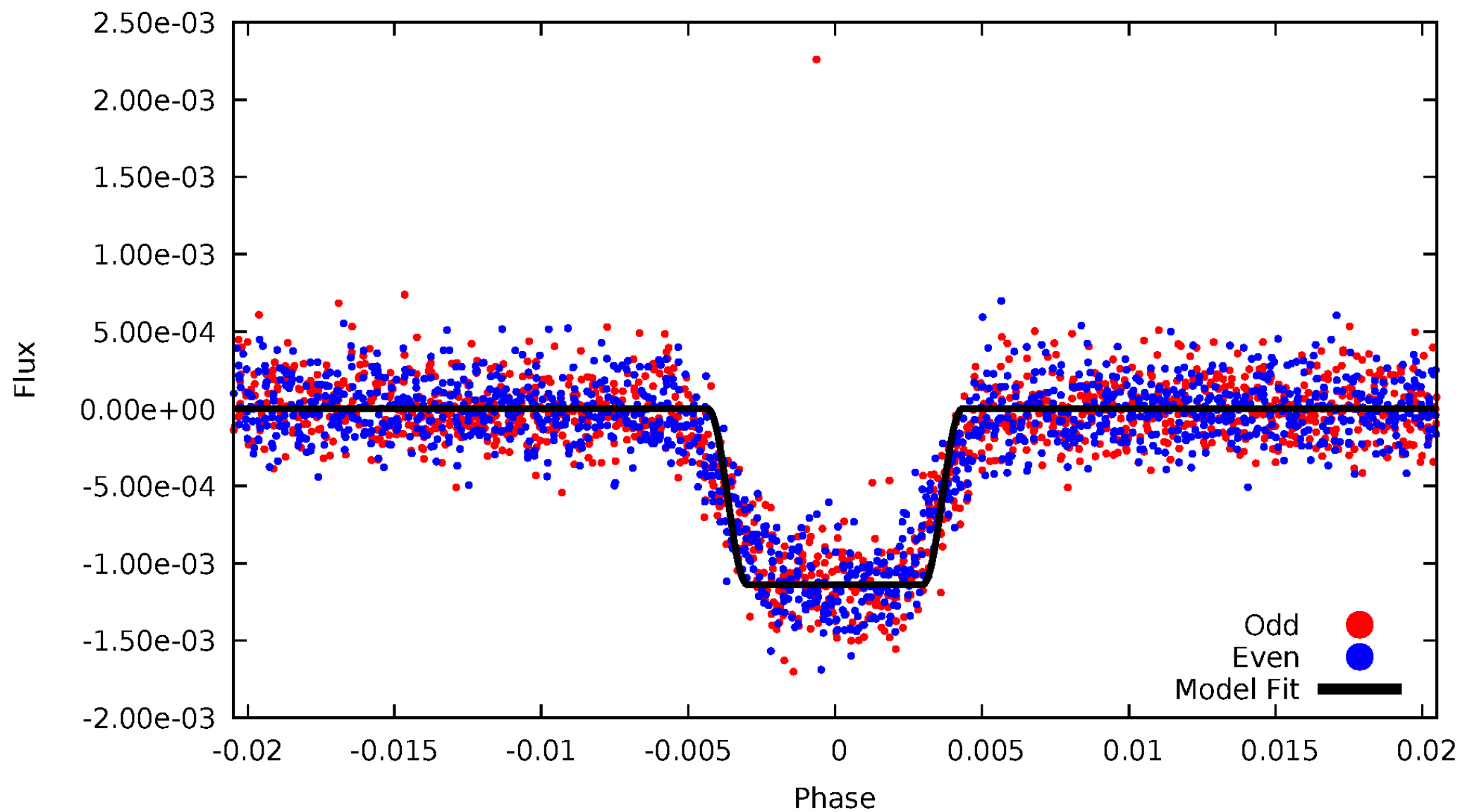
DV Odd/Even

TCE 012017140-02



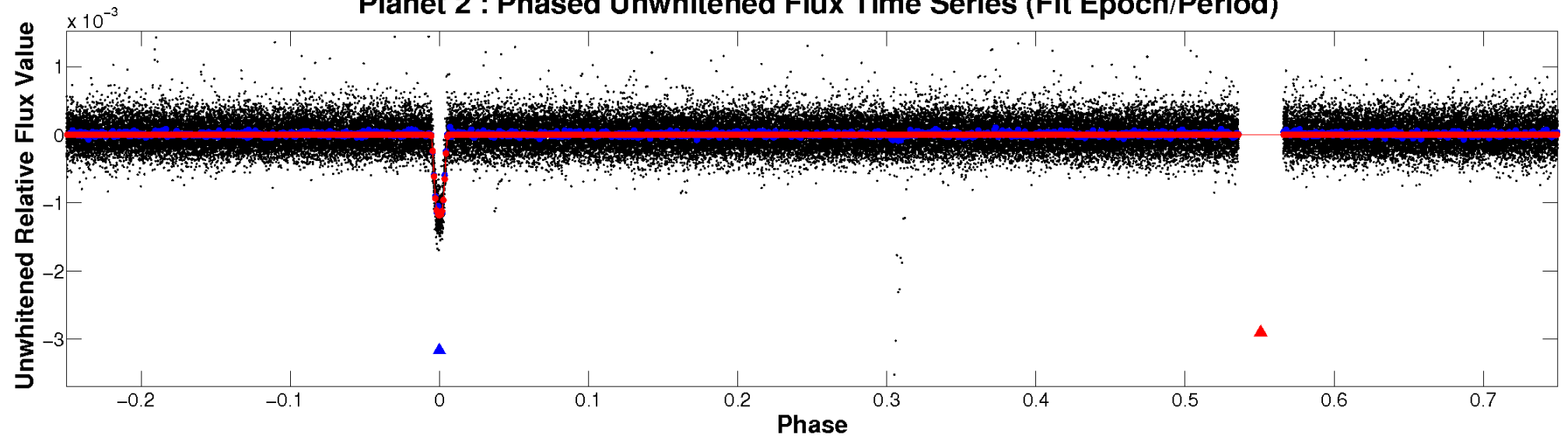
ALT Odd/Even

TCE 012017140-02

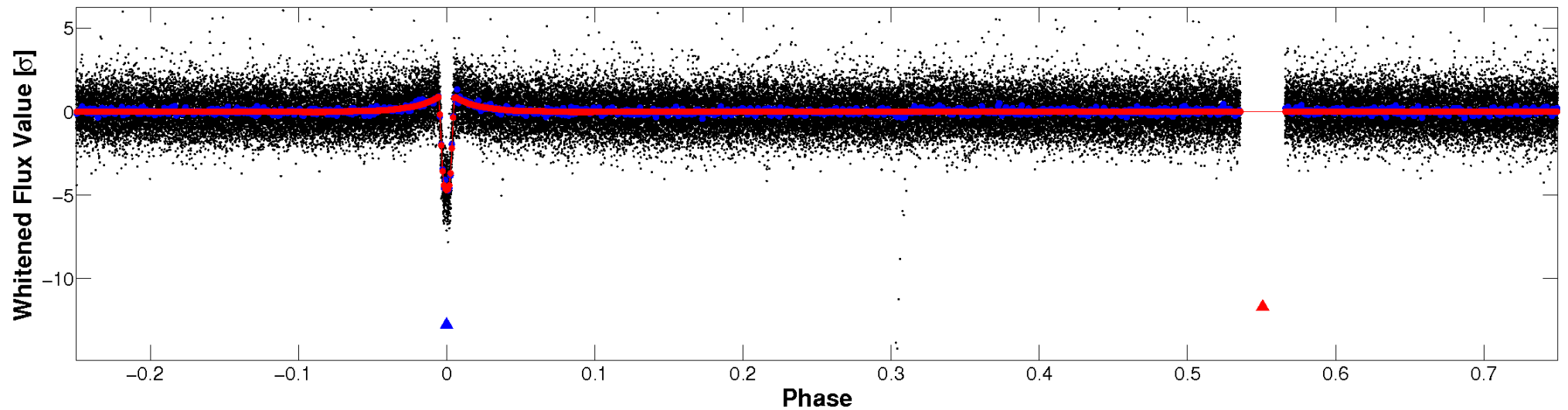


Non-Whitened Vs. Whitened Light Curve

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

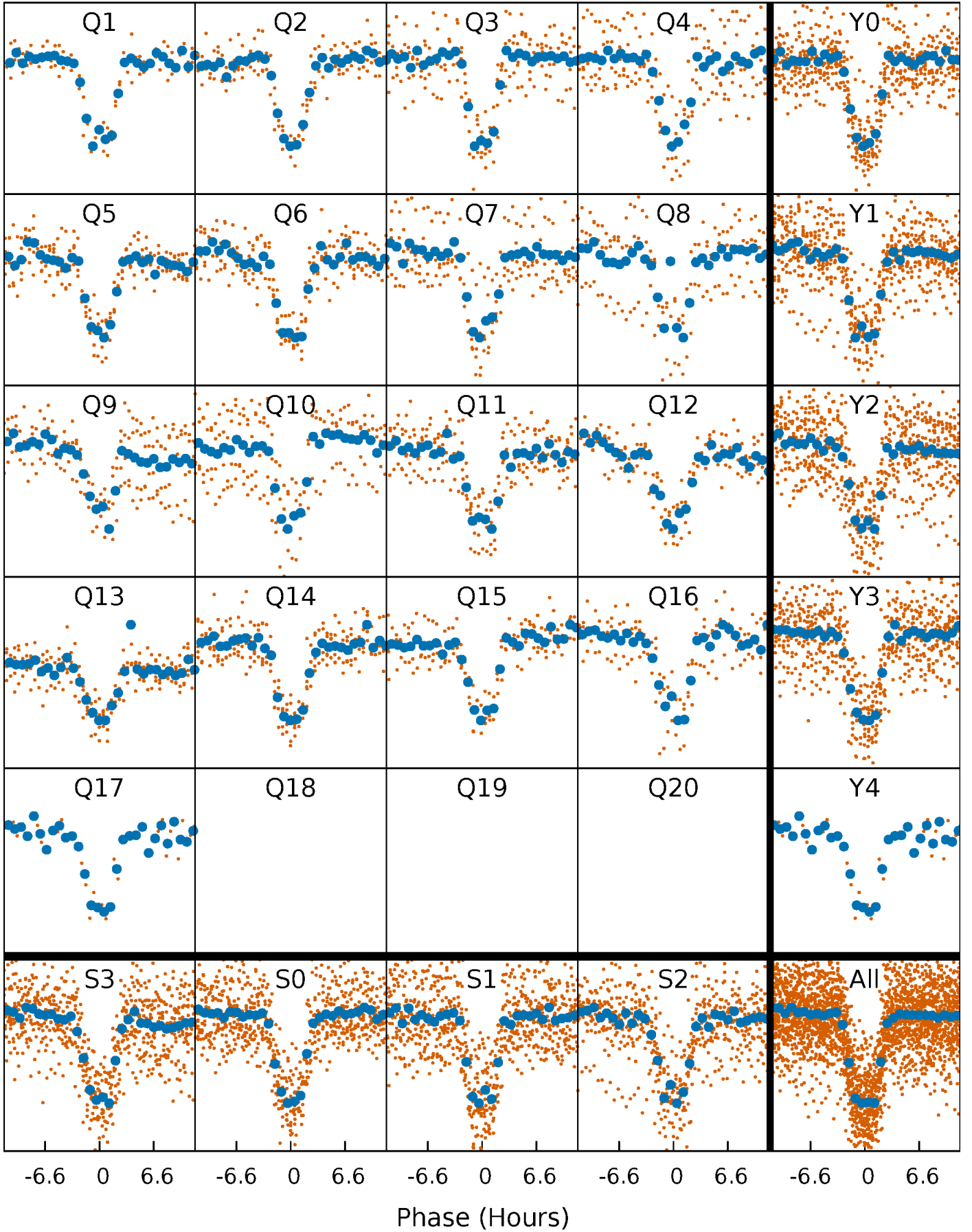


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



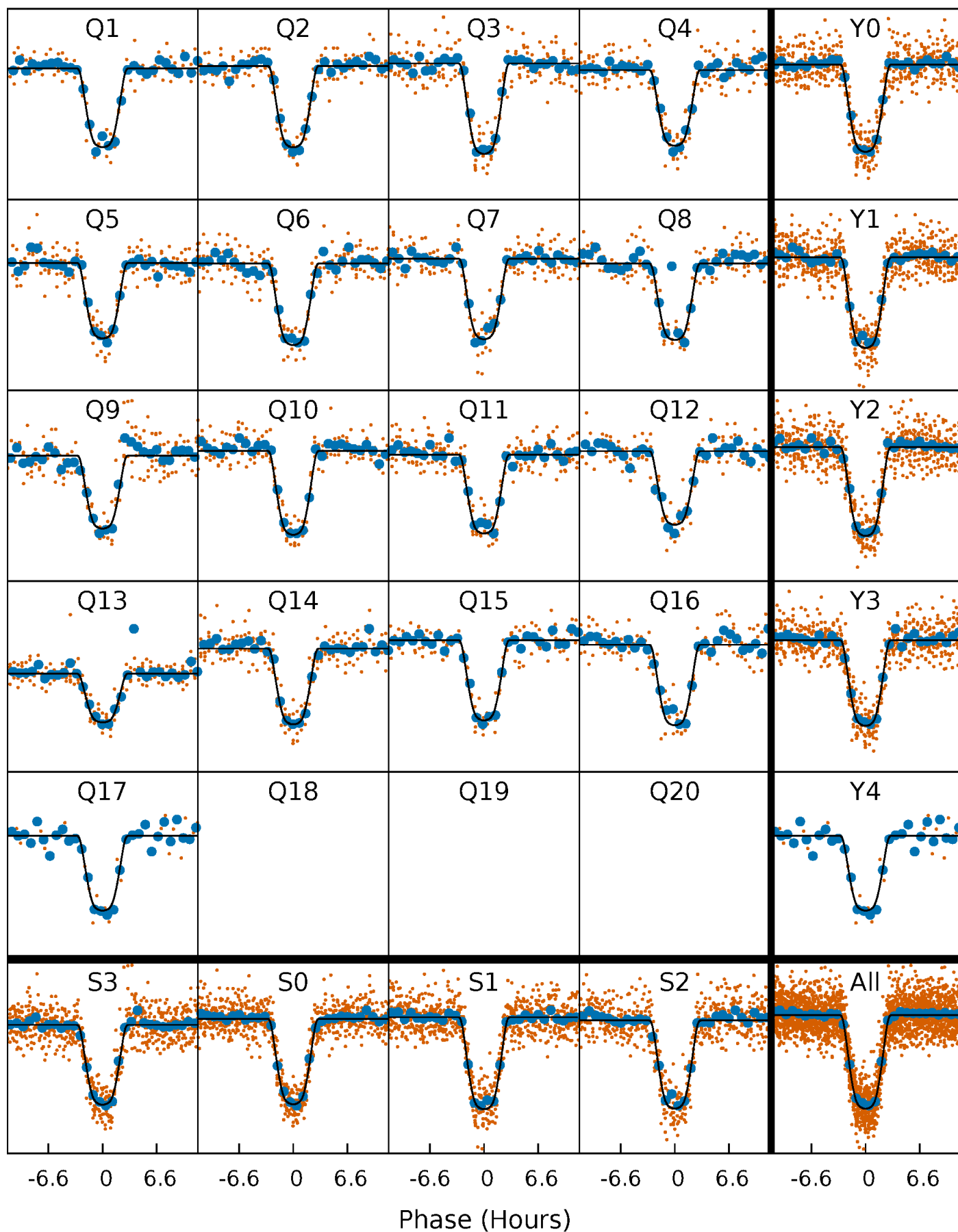
PDC Quarter-Phased Transit Curves

TCE 012017140-02 P= 22.845189 Days $T_0=137.376476$ (BKJD)



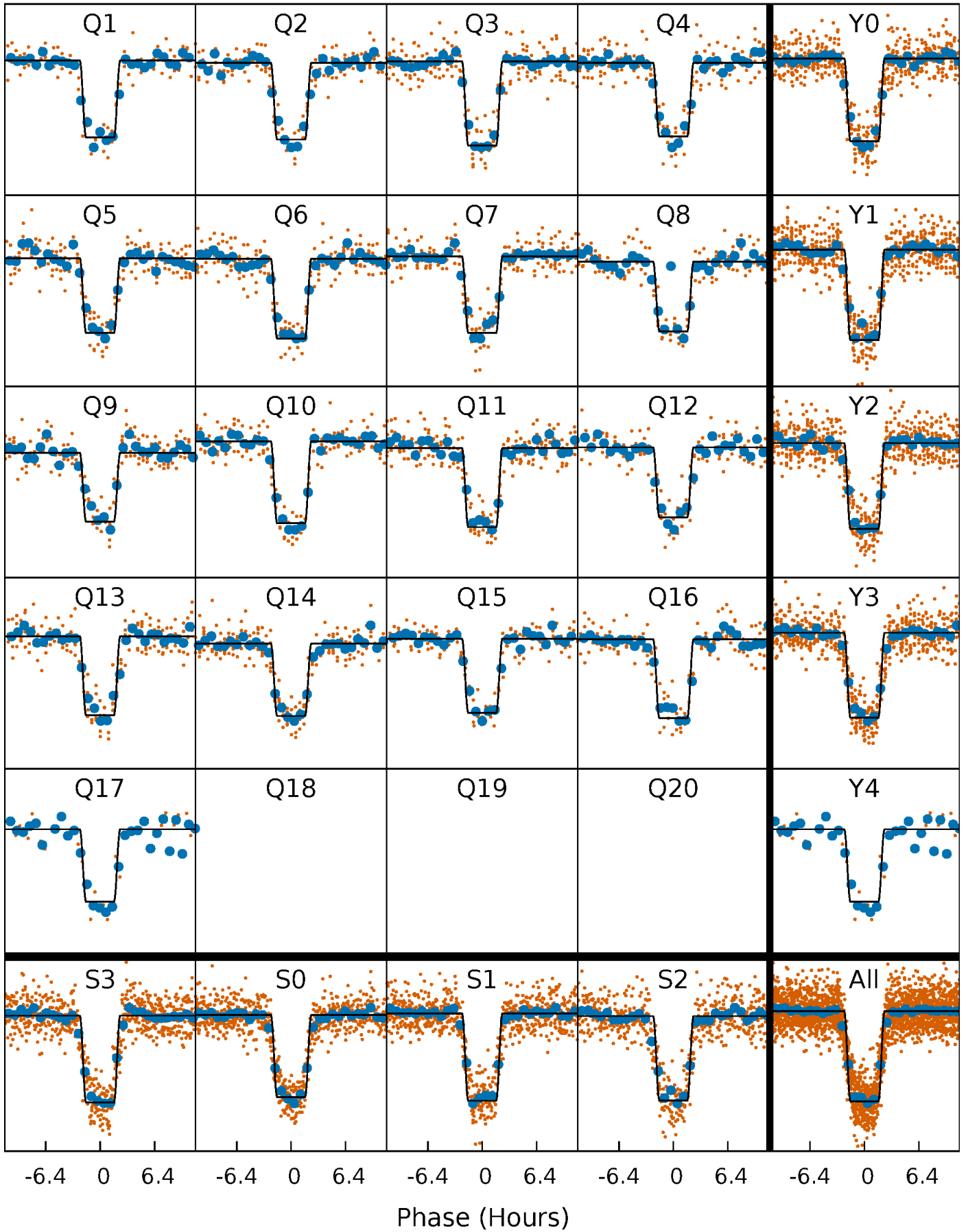
DV Quarter-Phased Transit Curves

TCE 012017140-02 P= 22.845189 Days $T_0=137.376476$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

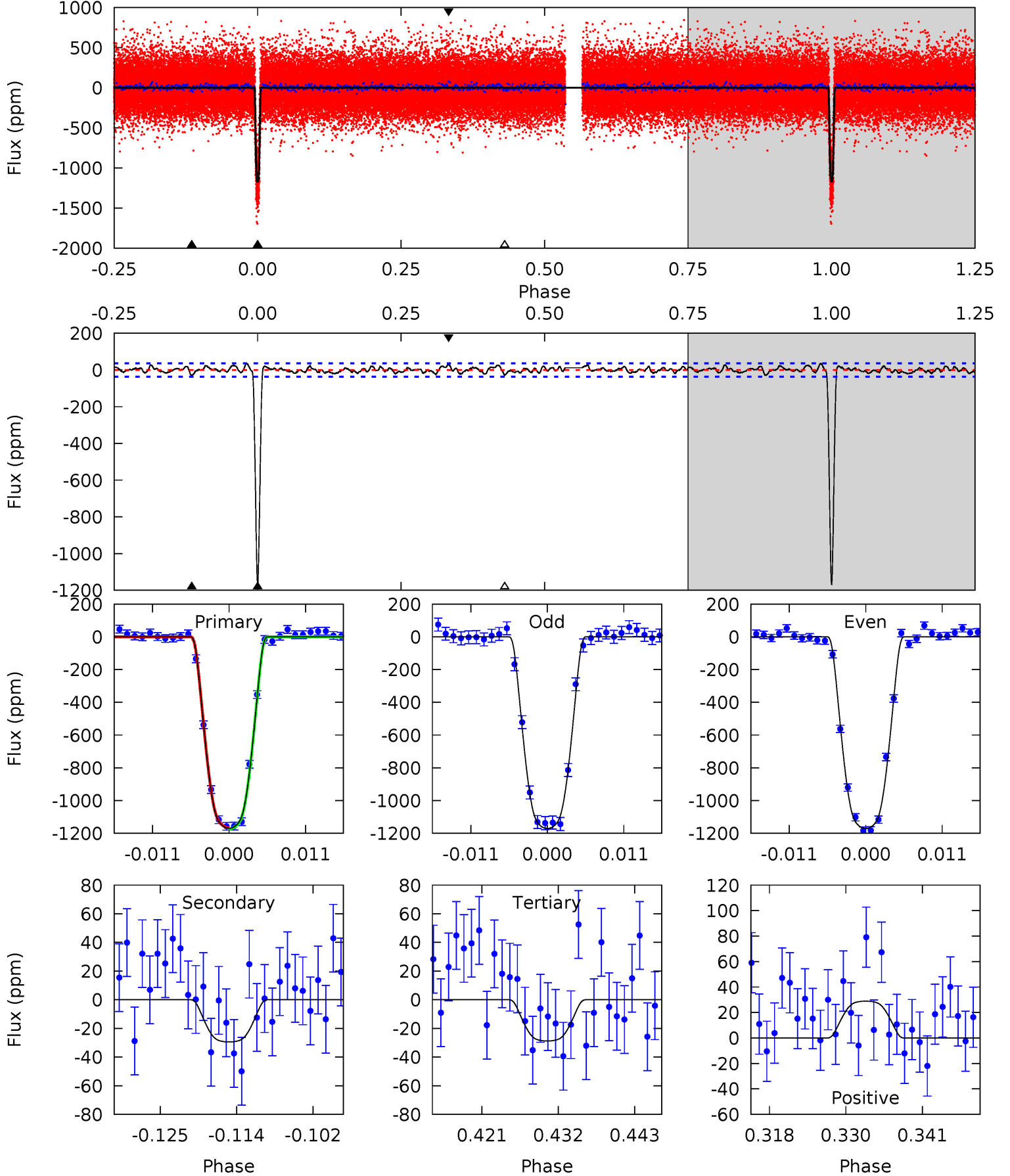
TCE 012017140-02 P= 22.845096 Days $T_0=137.379179$ (BKJD)



DV Model-Shift Uniqueness Test

012017140-02, P = 22.845189 Days, E = 114.531287 Days

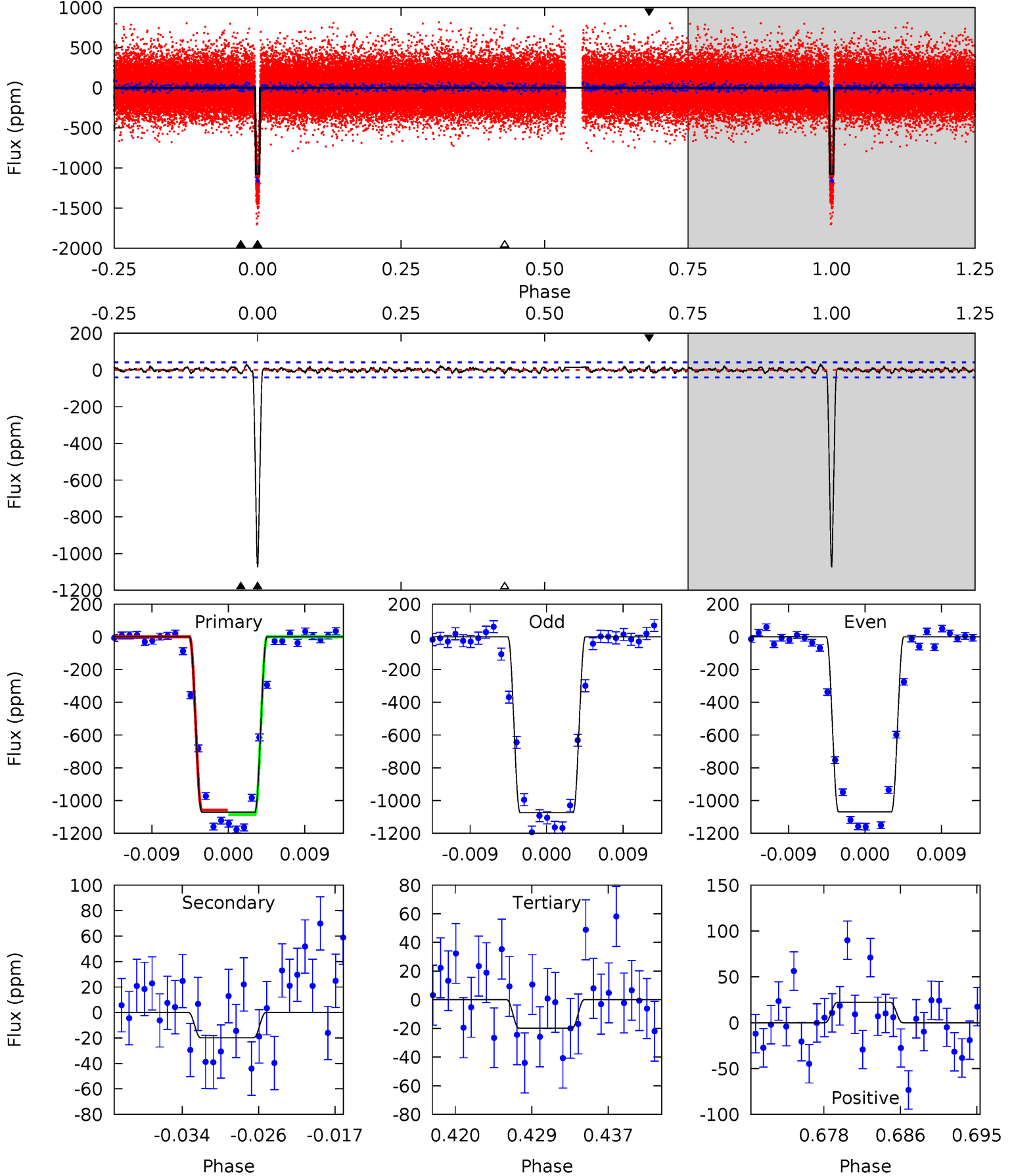
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
160.7	4.05	3.95	3.97	5.00	2.53	1.54	156.8	156.8	0.09	0.07	0.02	0.98	0.03	0.46



Alt Model-Shift Uniqueness Test

012017140-02, P = 22.845096 Days, E = 114.534083 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
133.2	2.47	2.46	2.75	5.06	2.63	0.93	130.7	130.5	0.00	-0.29	0.26	0.99	0.03	1.76



Stellar Parameters For KIC 012017140

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5926^{+70}_{-88}	$4.187^{+0.176}_{-0.108}$	$-0.040^{+0.150}_{-0.150}$	$1.351^{+0.212}_{-0.260}$	$1.024^{+0.090}_{-0.074}$	$0.585^{+0.487}_{-0.194}$
	+1%/-1%	+4%/-3%	+375%/-375%	+16%/-19%	+9%/-7%	+83%/-33%
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 012017140-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-29 ± 7	$5.82^{+0.55}_{-0.56}$	1057^{+48}_{-55}	2885^{+95}_{-124}	12^{+5}_{-3}
Alt.	-20 ± 8	$4.96^{+0.47}_{-0.50}$	1062^{+47}_{-57}	2856^{+141}_{-185}	11^{+6}_{-5}

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

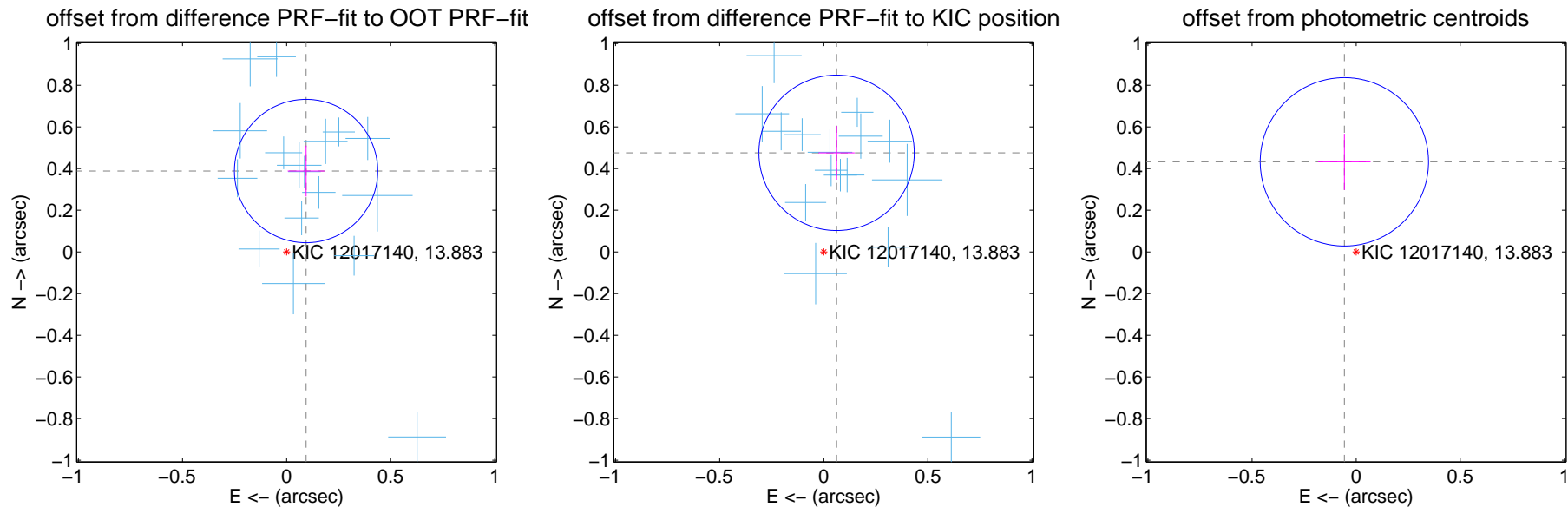
DV Centroid Data

Supplemental centroid analysis for 012017140-02. Kepler magnitude: 13.88. Transit SNR 90.31

There are 17 quarters with good PRF difference image offsets

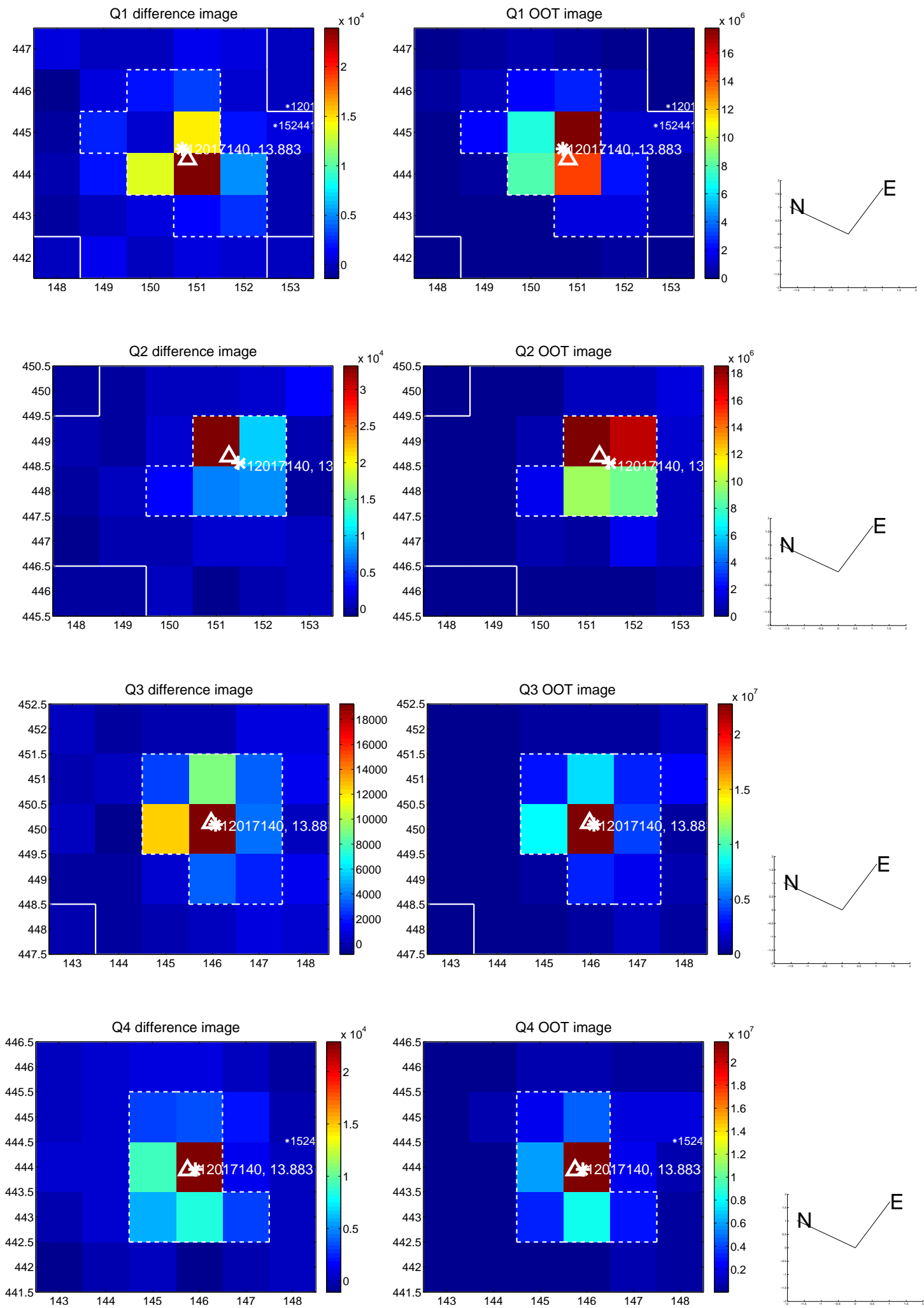
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.399 ± 0.115	3.48	-0.094 ± 0.088	0.388 ± 0.122
PRF-fit source offset from KIC position	0.480 ± 0.124	3.86	-0.062 ± 0.087	0.476 ± 0.129
photometric centroid source offset	0.44 ± 0.13	3.24	0.06 ± 0.13	0.43 ± 0.13

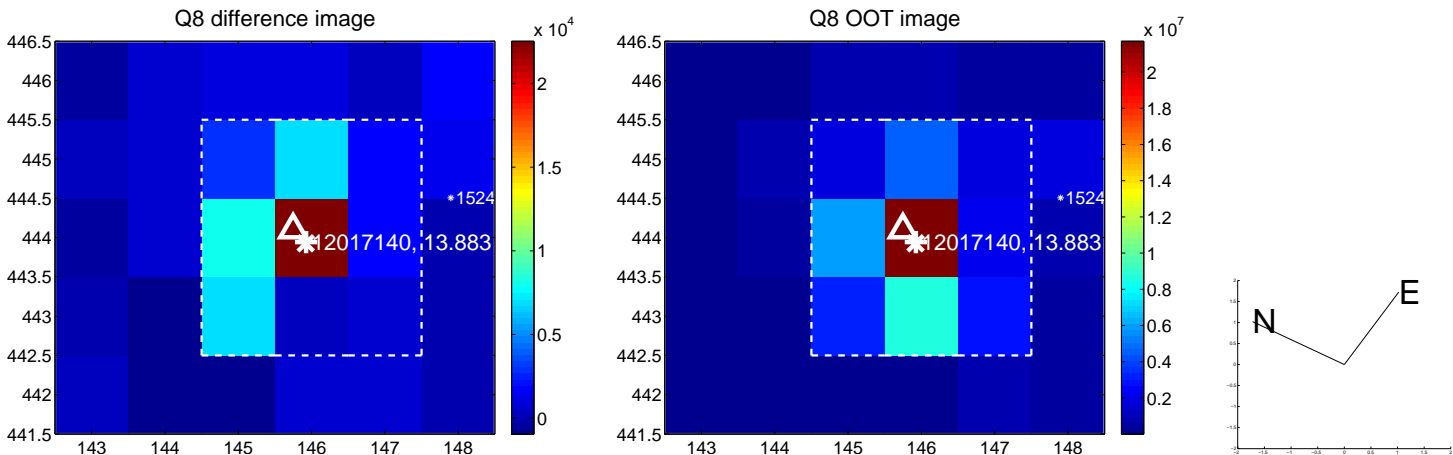
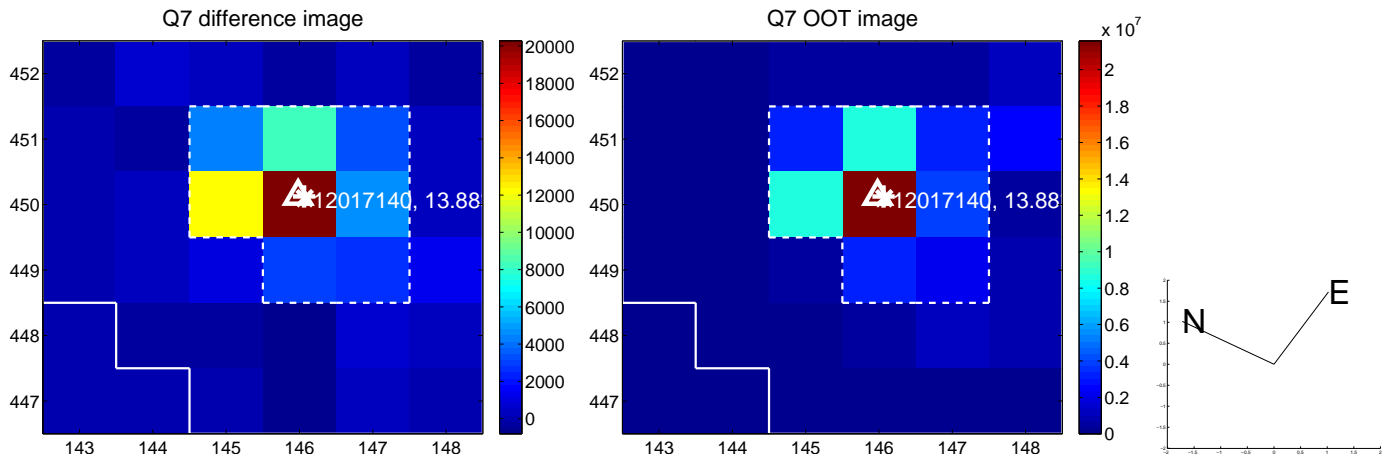
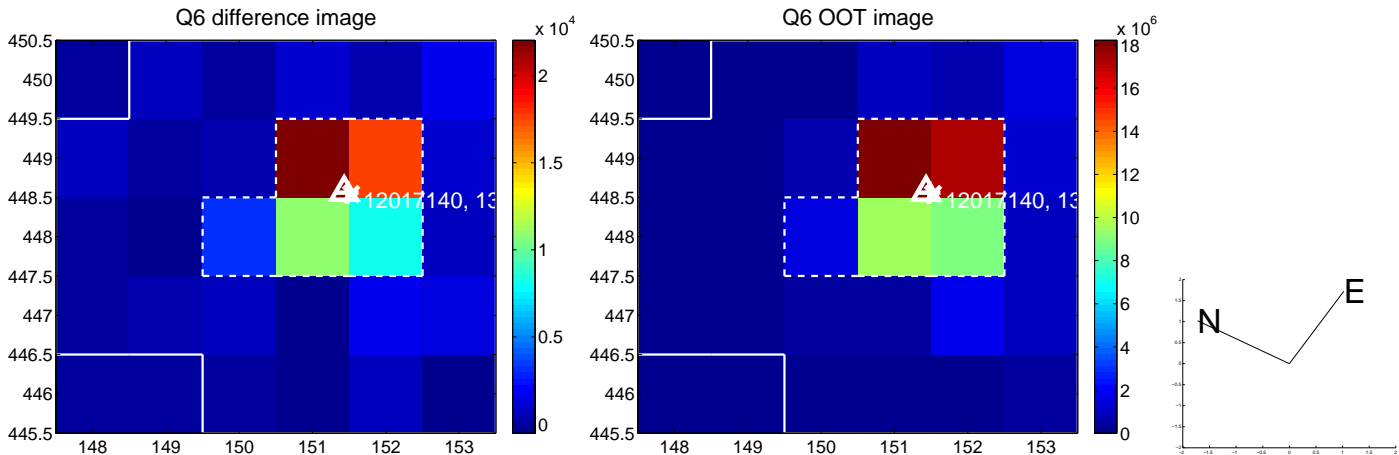
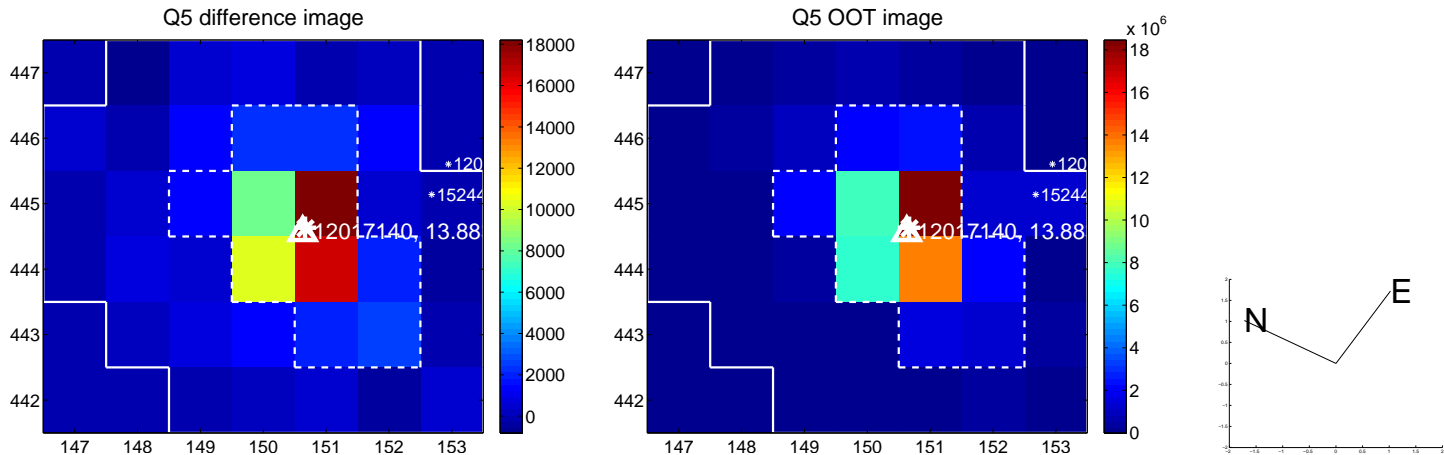


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

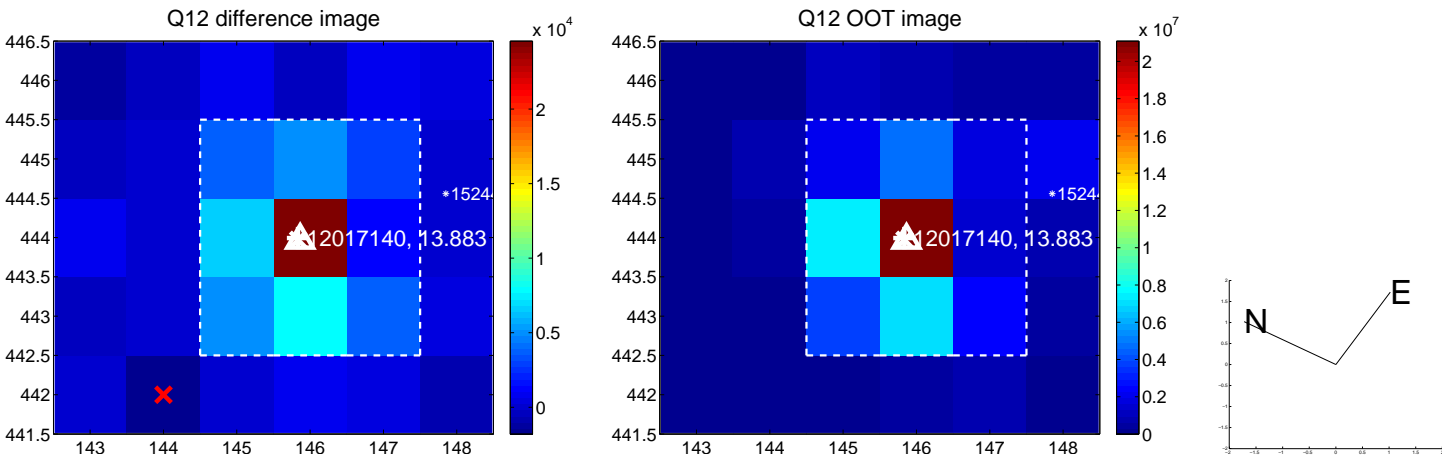
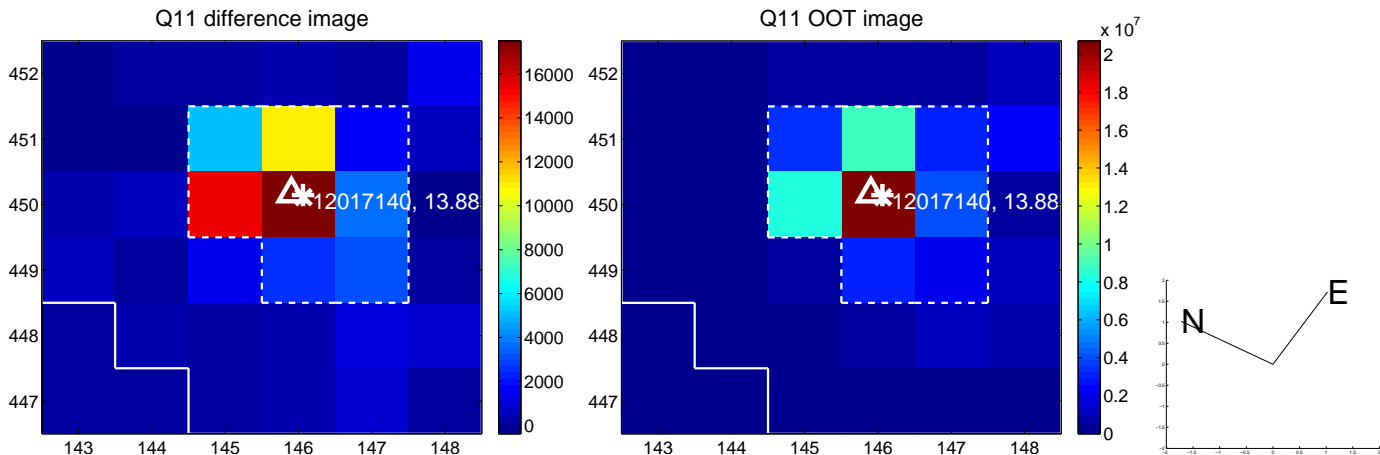
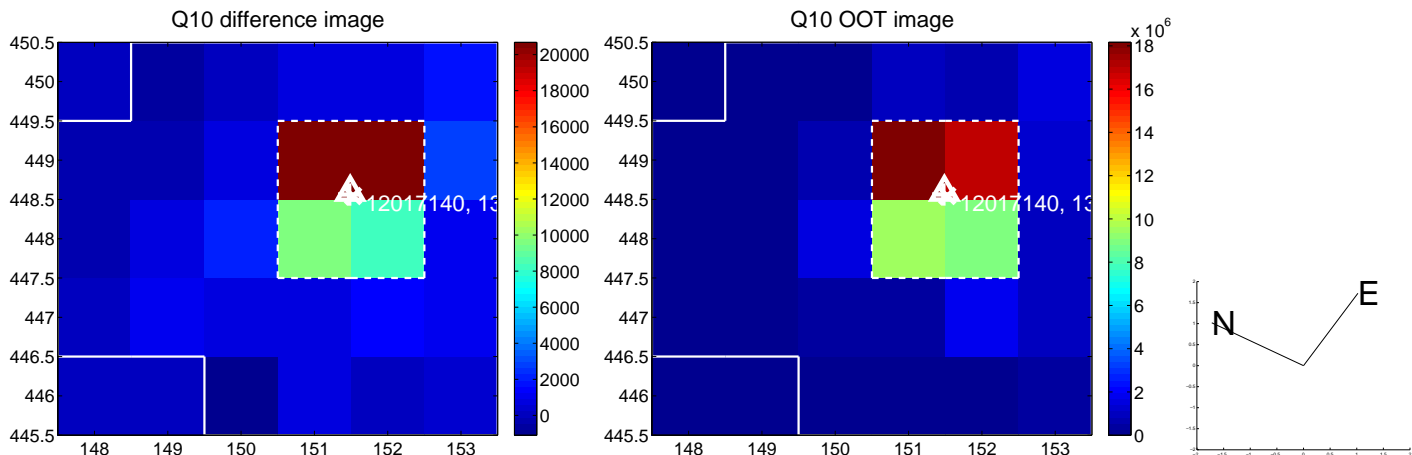
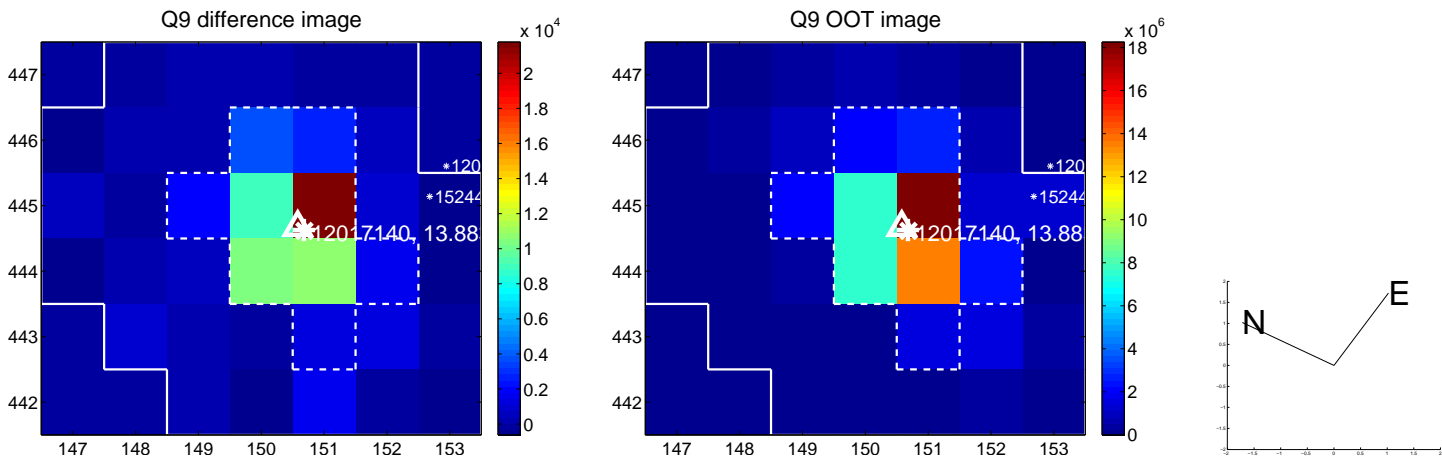
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



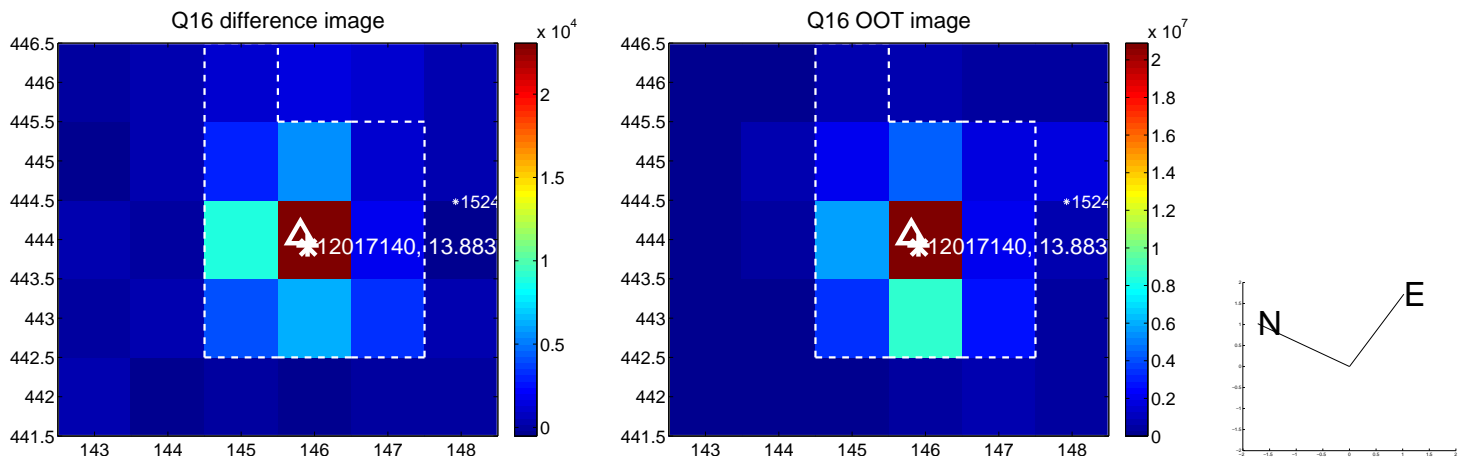
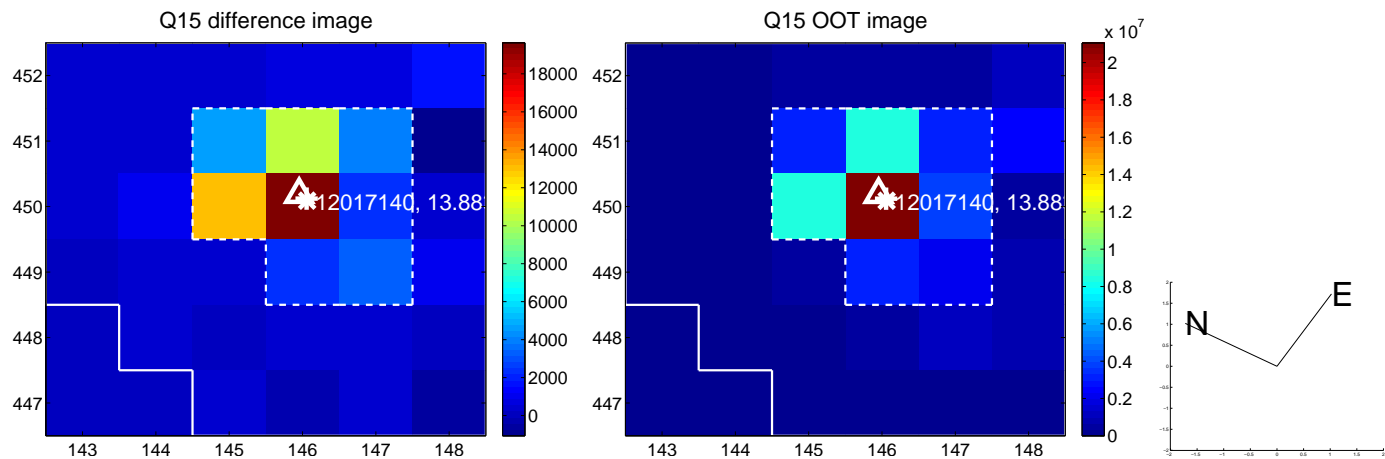
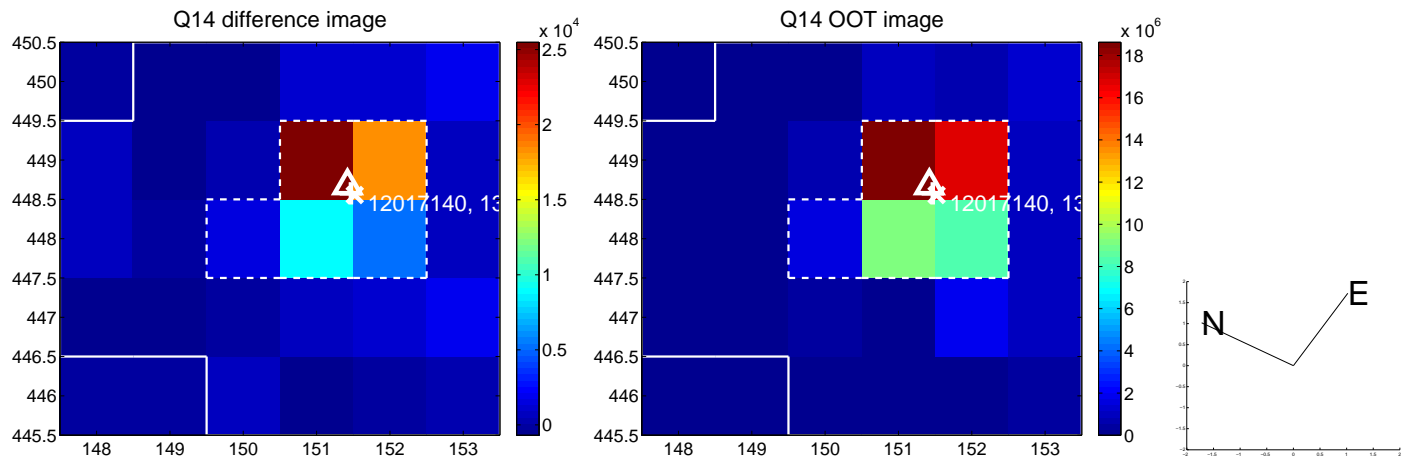
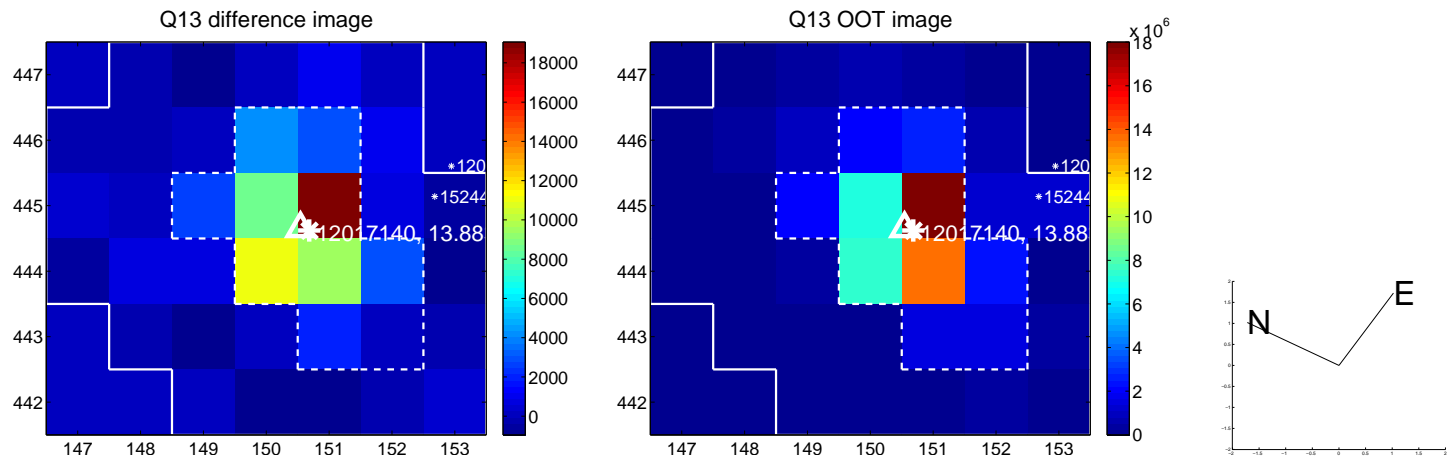
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



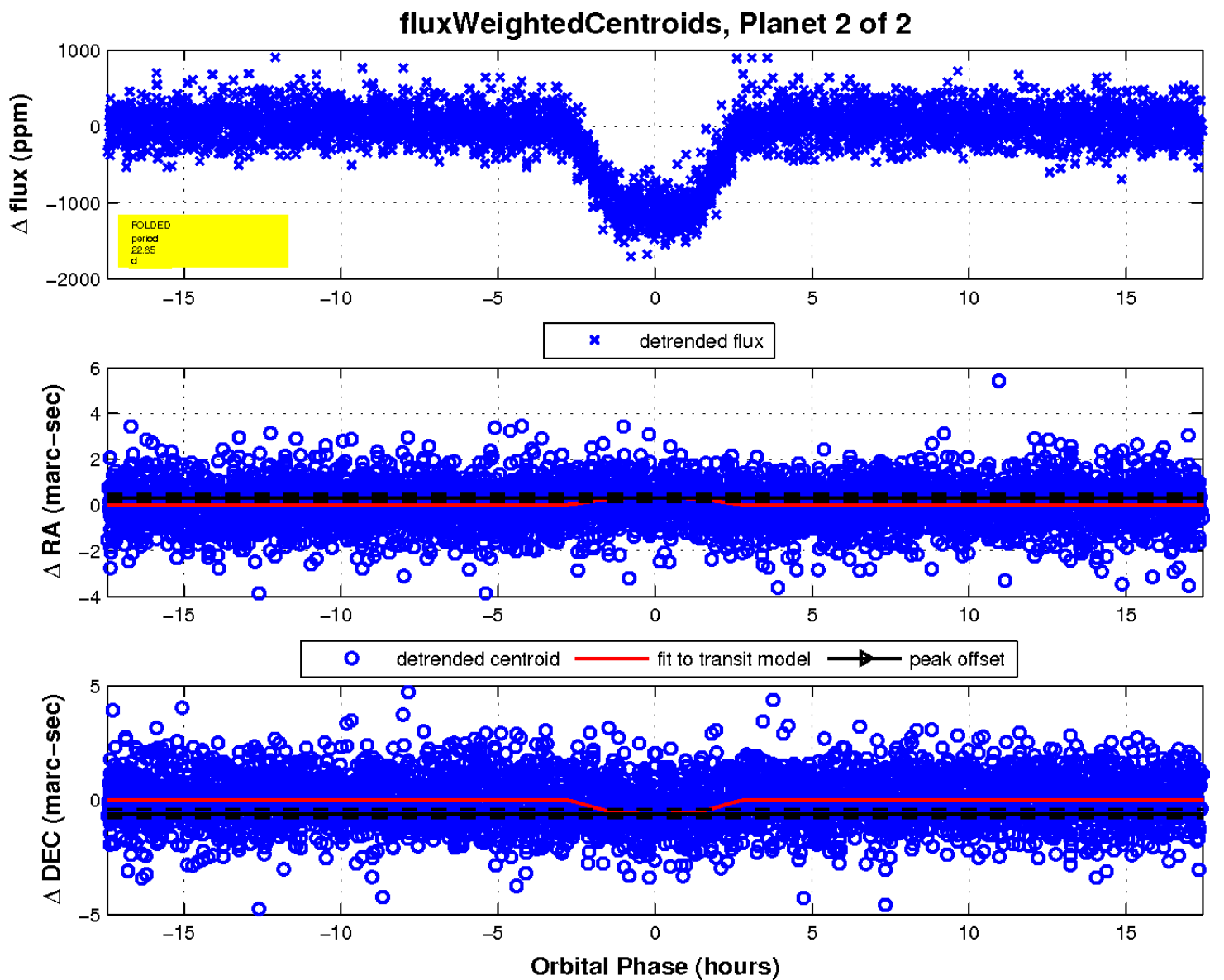
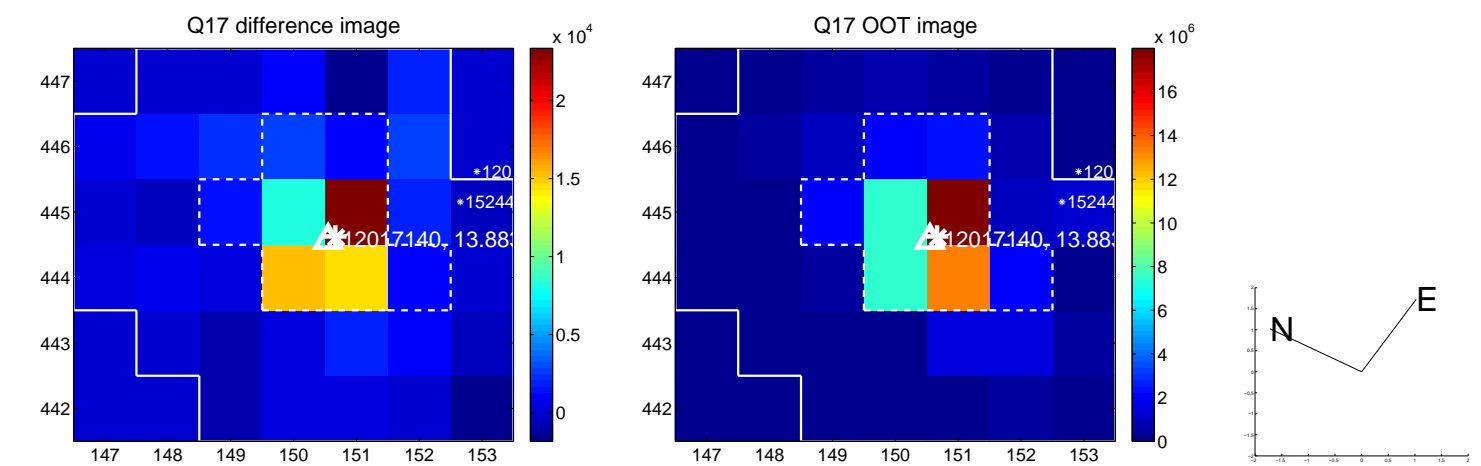
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image

Declination

