

KIC 009077192

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})
009077192-01	OBS	No	1.145899	131.708353	356.2	5.748	8.6	12.8	0.56	4867	1.59	506.10
009077192-02	OBS	No	1.147708	132.416207	123.4	3.904	9.3	4.2	0.56	4867	0.66	505.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009077192-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_KIC_POS
009077192-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_KIC_POS

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

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

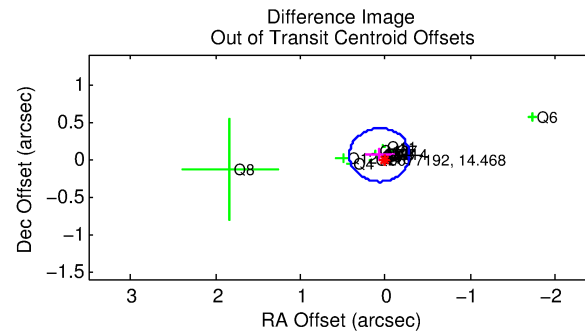
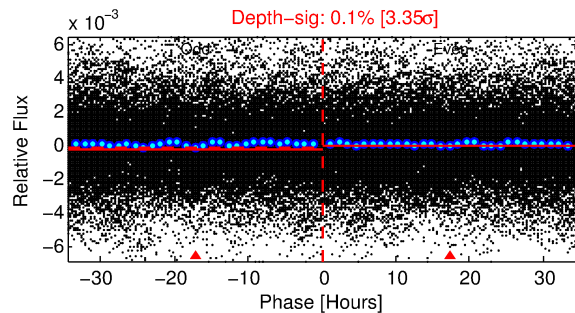
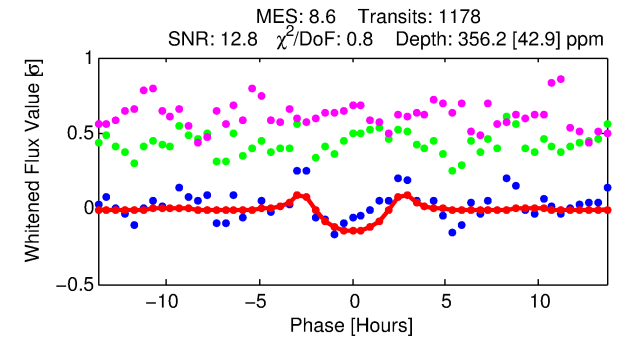
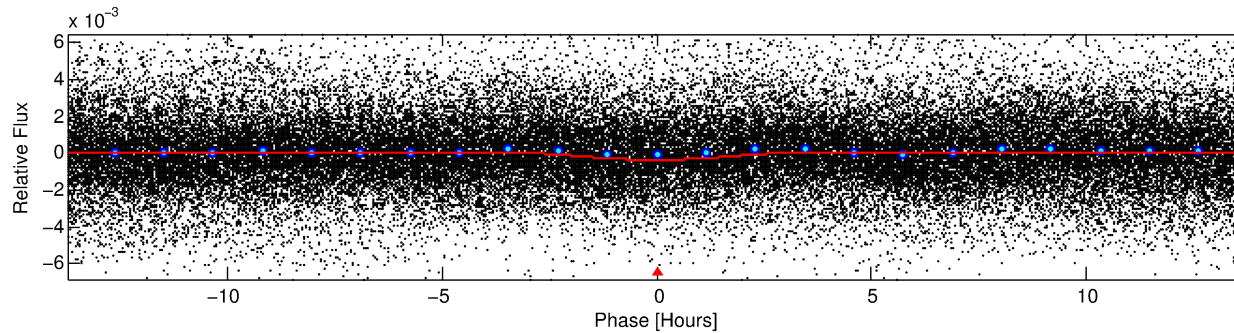
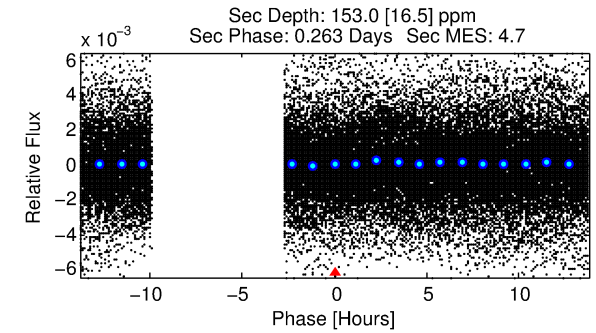
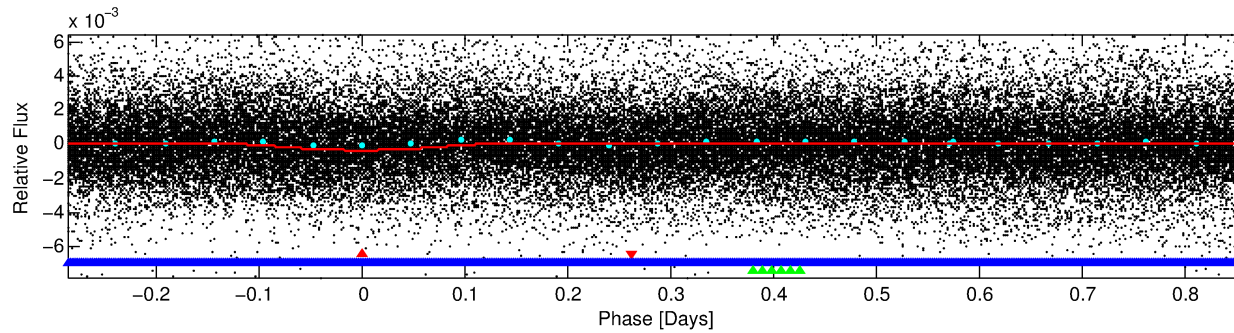
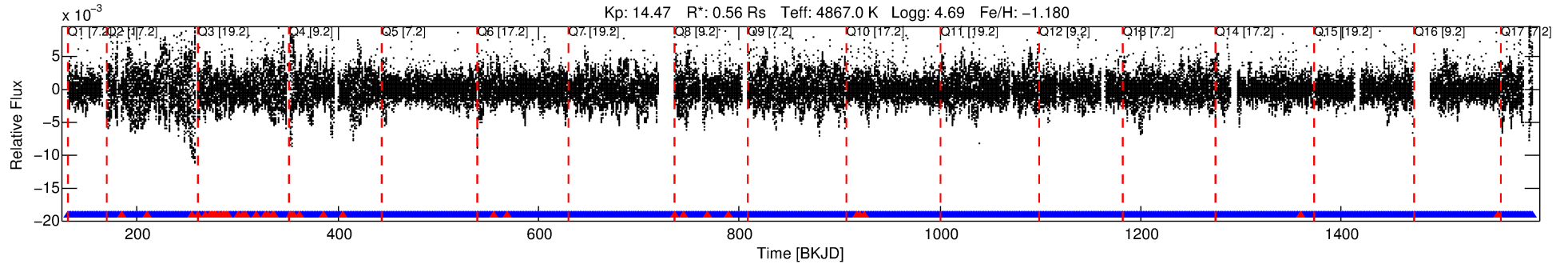
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009077192-01

No Significant Match Found

DV One-Page Summary

KIC: 9077192 Candidate: 1 of 3 Period: 1.146 d



DV Fit Results:

Period = 1.14590 [0.00001] d
Epoch = 131.7084 [0.0031] BKJD
Rp/R* = 0.0259 [0.0038]
a/R* = 1.10 [0.01]
b = 0.98 [0.01]
Seff = 506.10 [75.90]
Teff = 1209 [45] K
Rp = 1.59 [0.25] Re
a = 0.0177 [0.0010] AU
Ag = 10.44 [3.39] [2.79σ]
Teffp = 3362 [281] K [7.57σ]

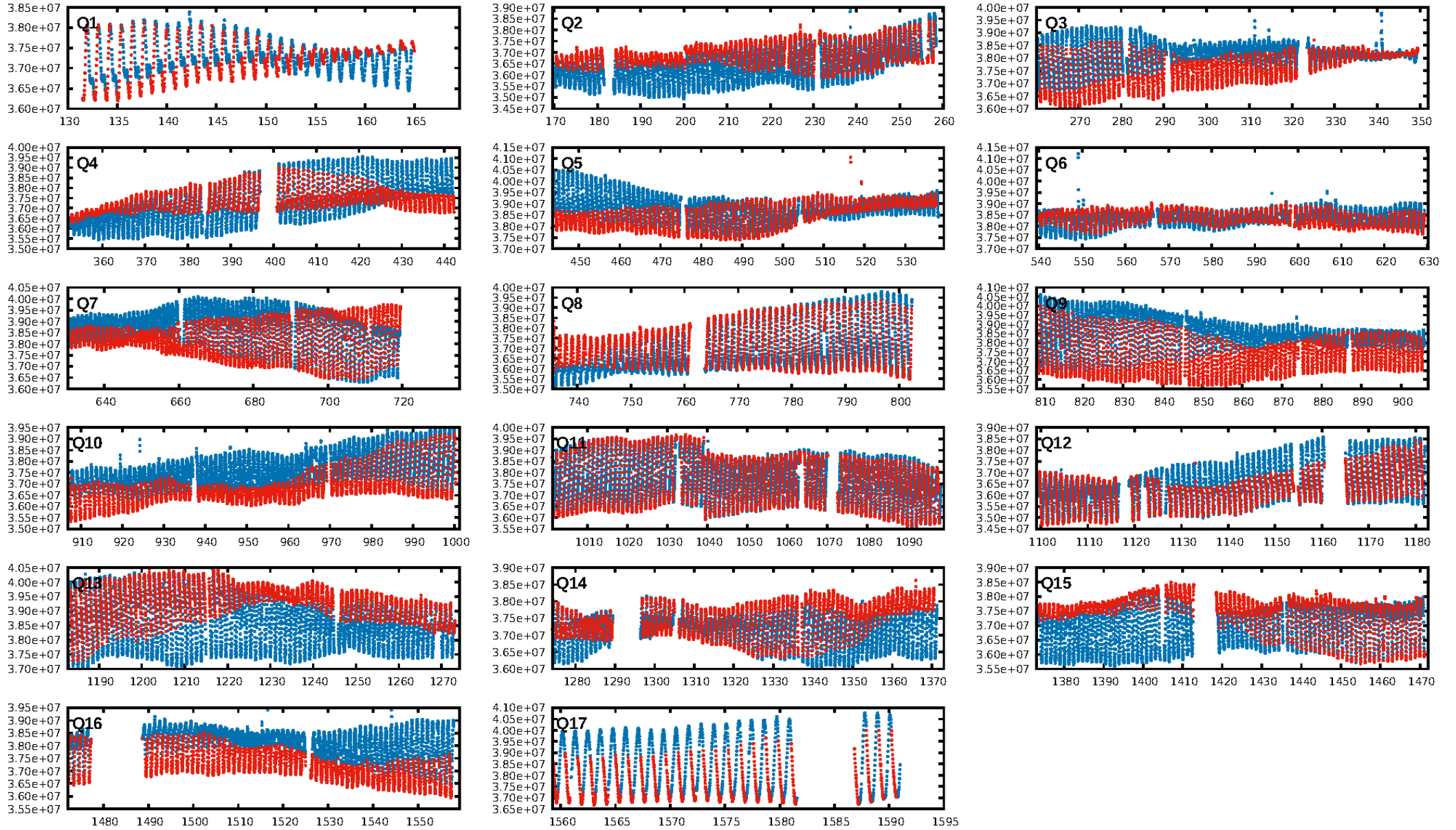
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.5% [0.01σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [1083/1124]
GhostDiagnostic-chr: 4.844
Centroid-sig: 92.4%
Centroid-so: 0.334 arcsec [2.24σ]
OotOffset-rm: 0.086 arcsec [0.73σ]
KicOffset-rm: 0.333 arcsec [4.28σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.12 [2/17]

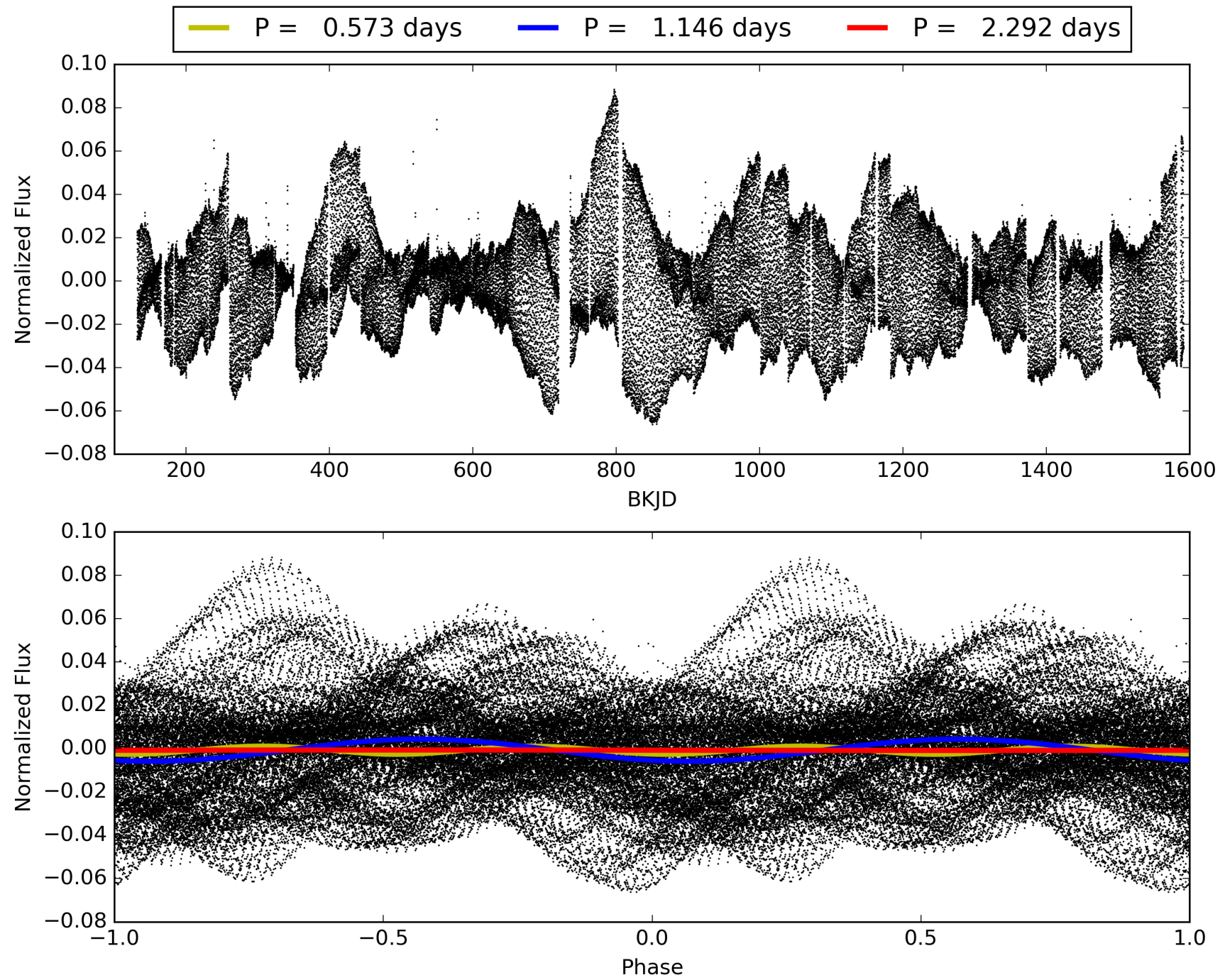
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:22:26 Z

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

TCE 009077192-01, PDC Light Curves

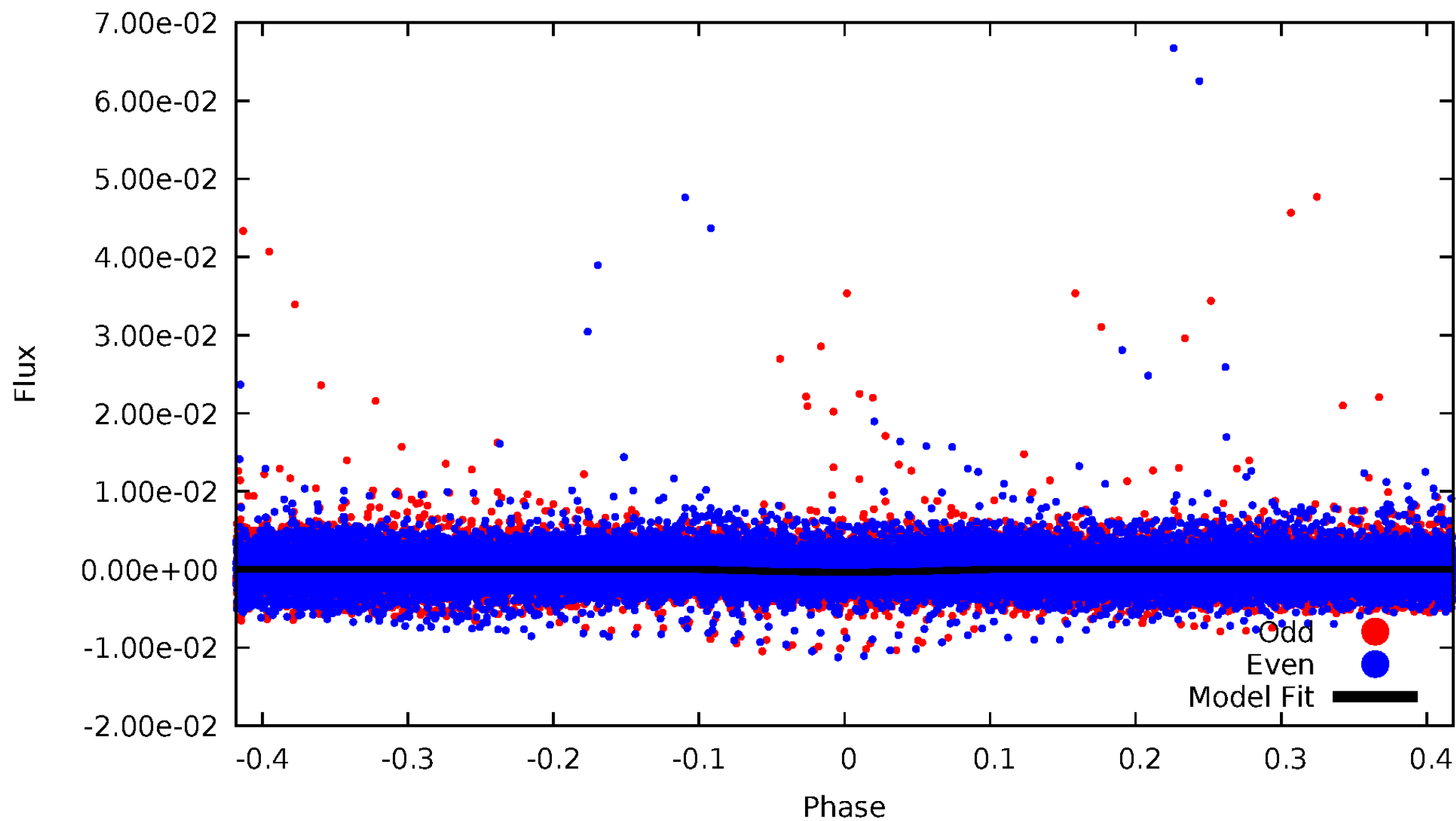


TCE 009077192-01



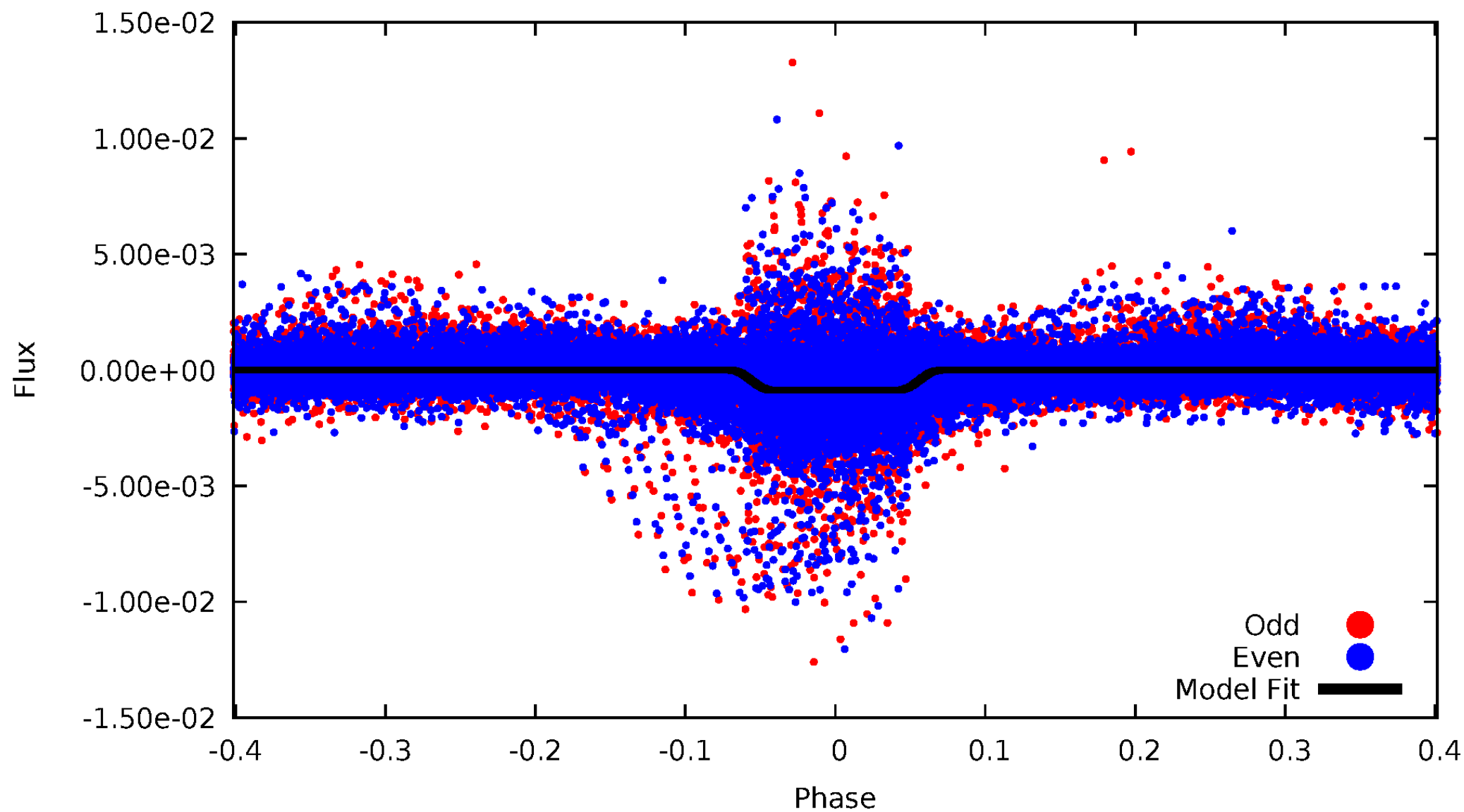
DV Odd/Even

TCE 009077192-01

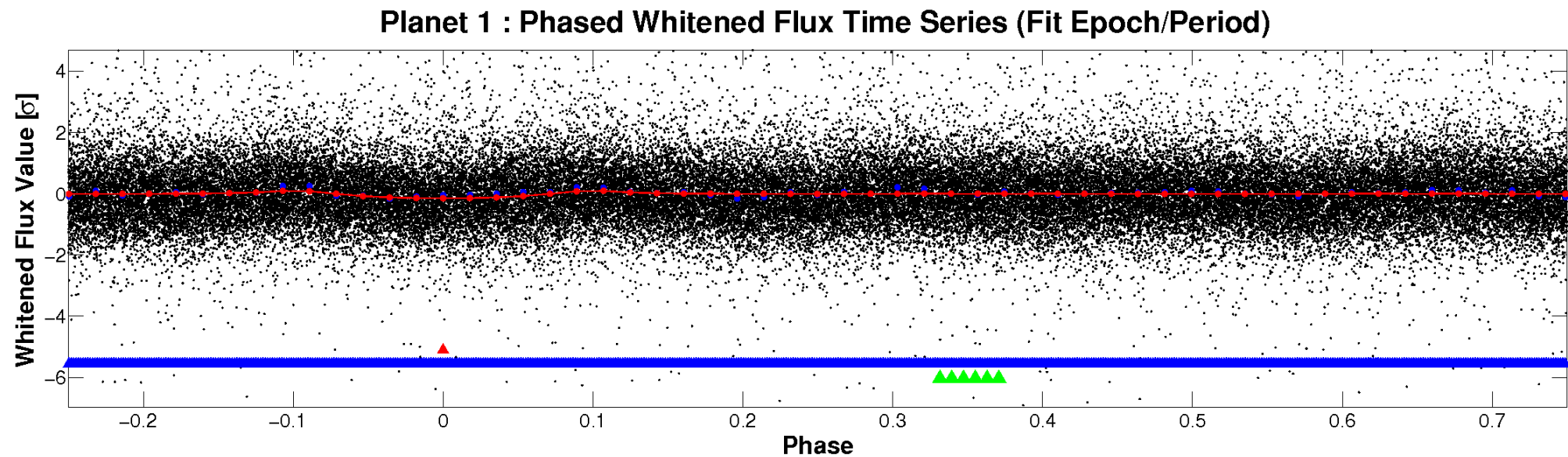
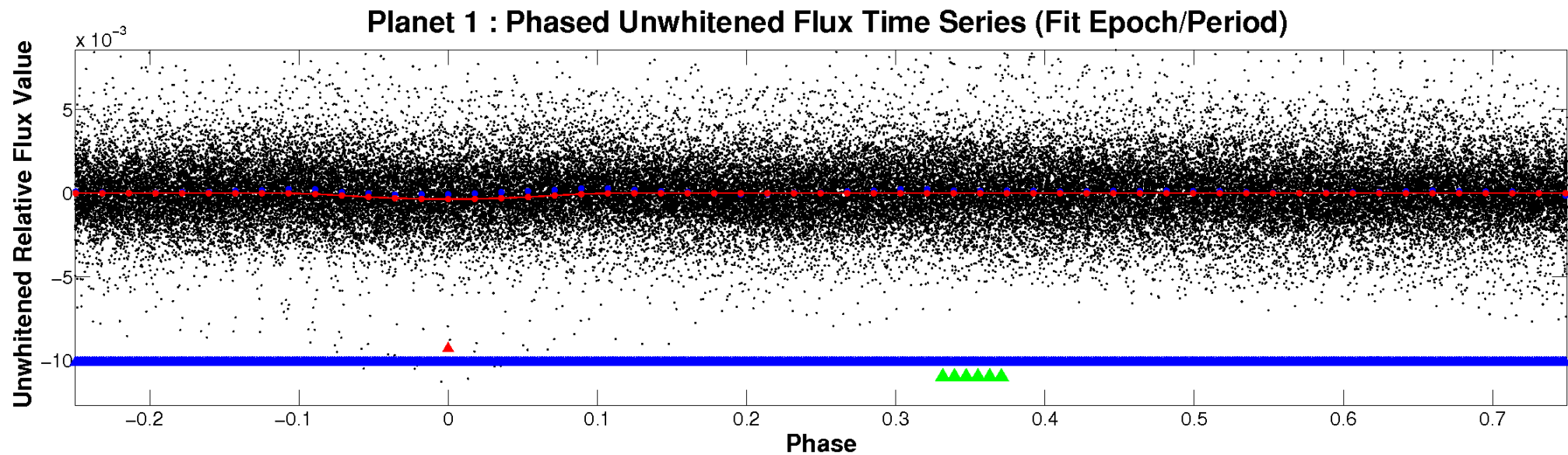


ALT Odd/Even

TCE 009077192-01

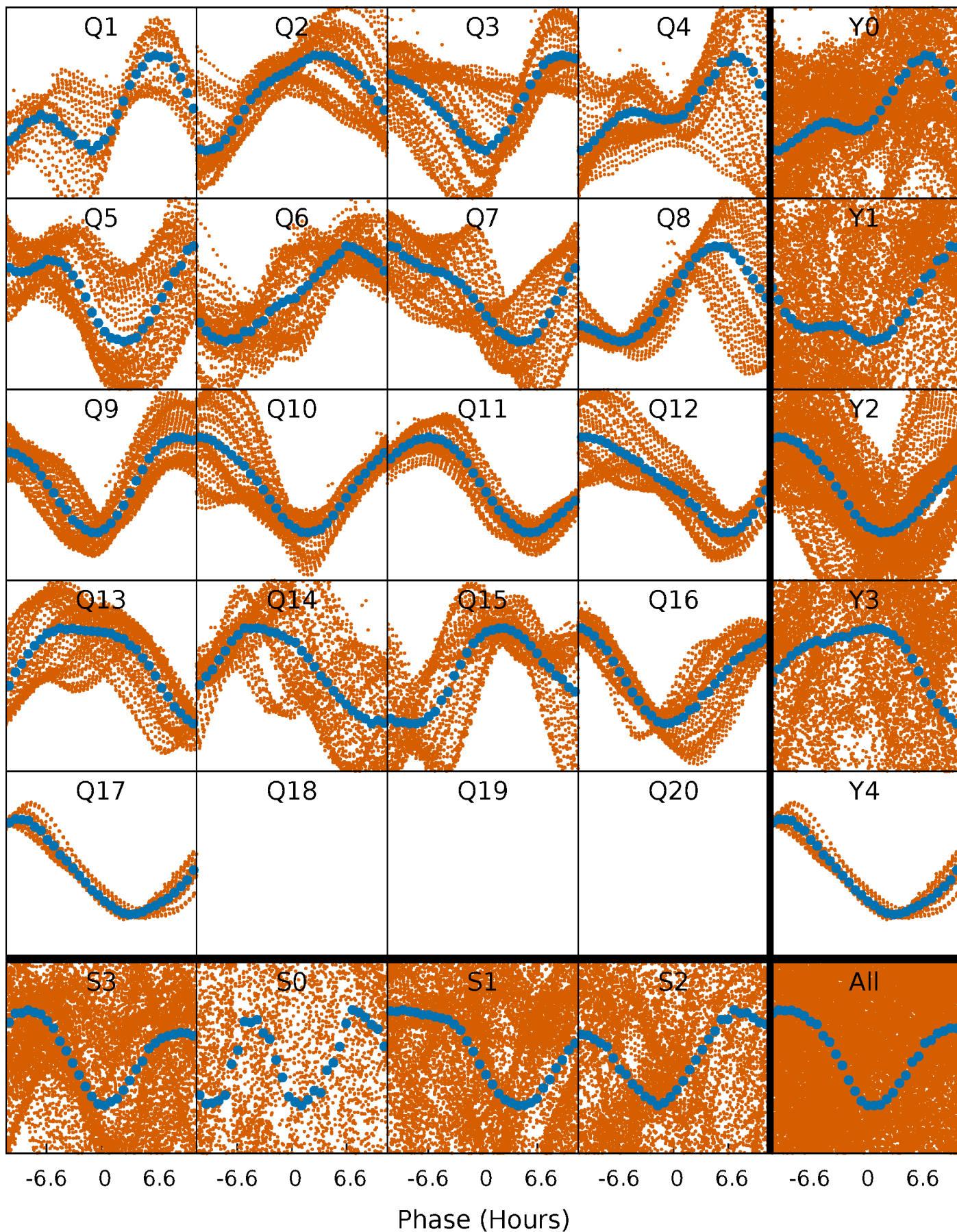


Non-Whitened Vs. Whitened Light Curve



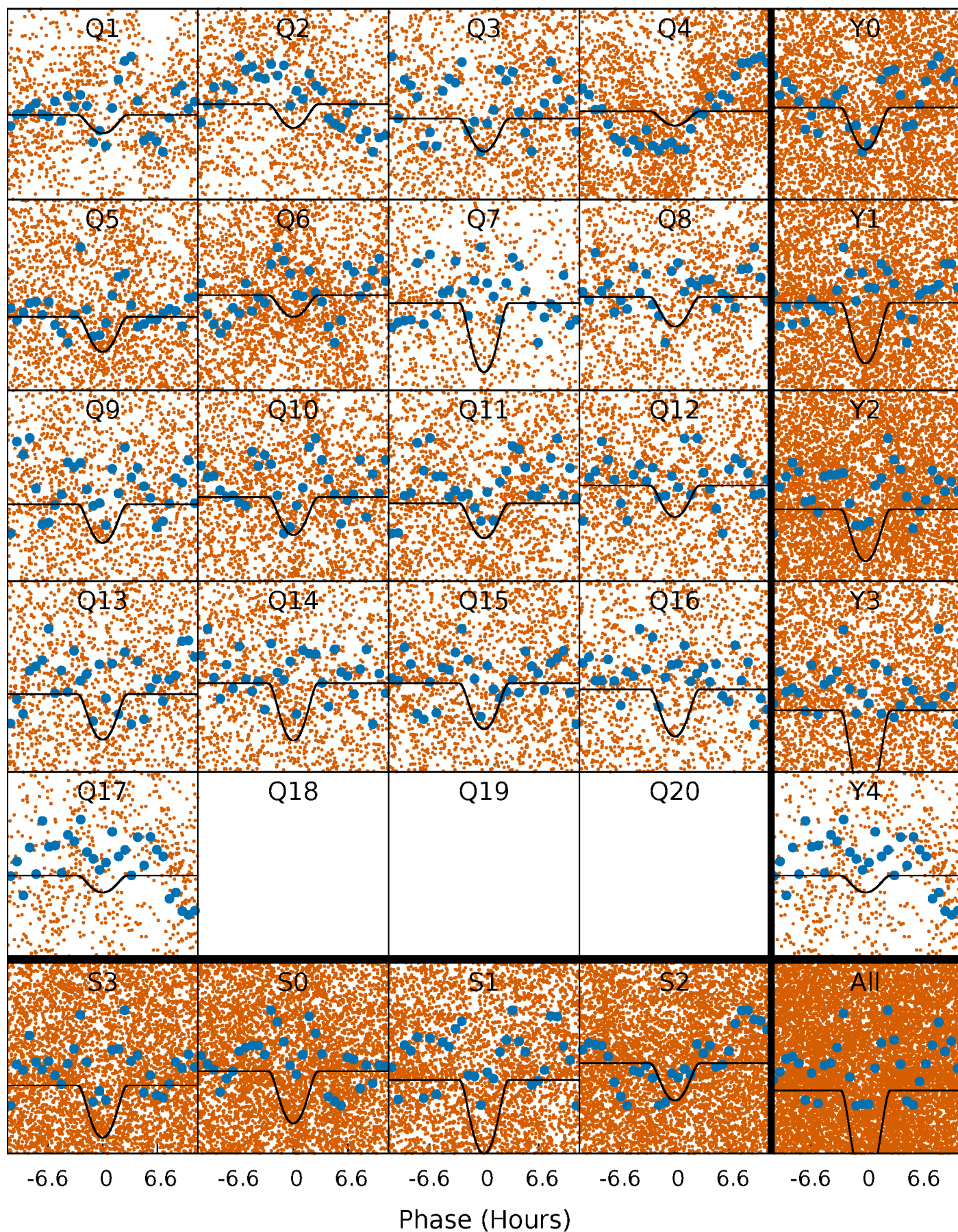
PDC Quarter-Phased Transit Curves

TCE 009077192-01 P= 1.145899 Days $T_0=131.708353$ (BKJD)



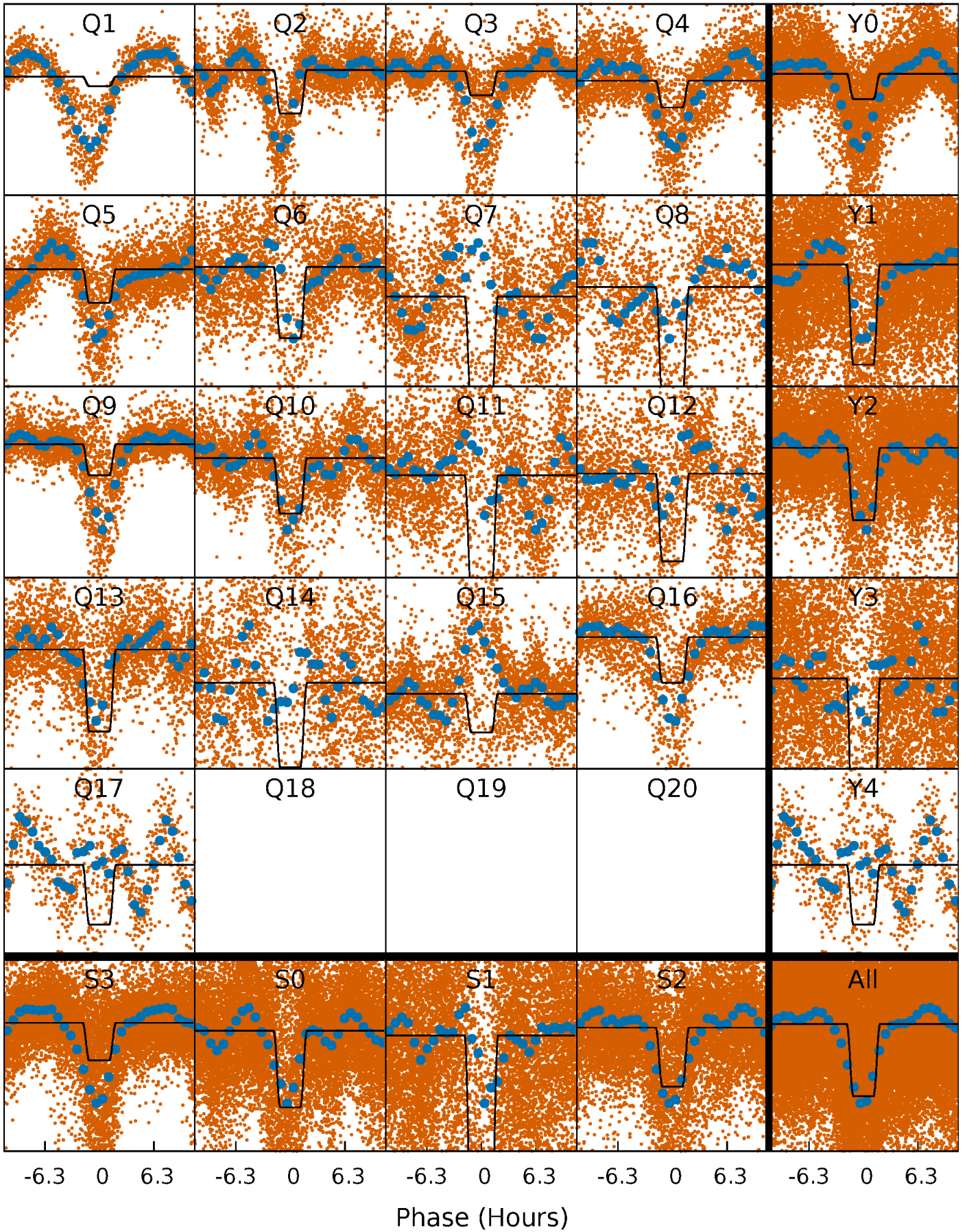
DV Quarter-Phased Transit Curves

TCE 009077192-01 P= 1.145899 Days $T_0=131.708353$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

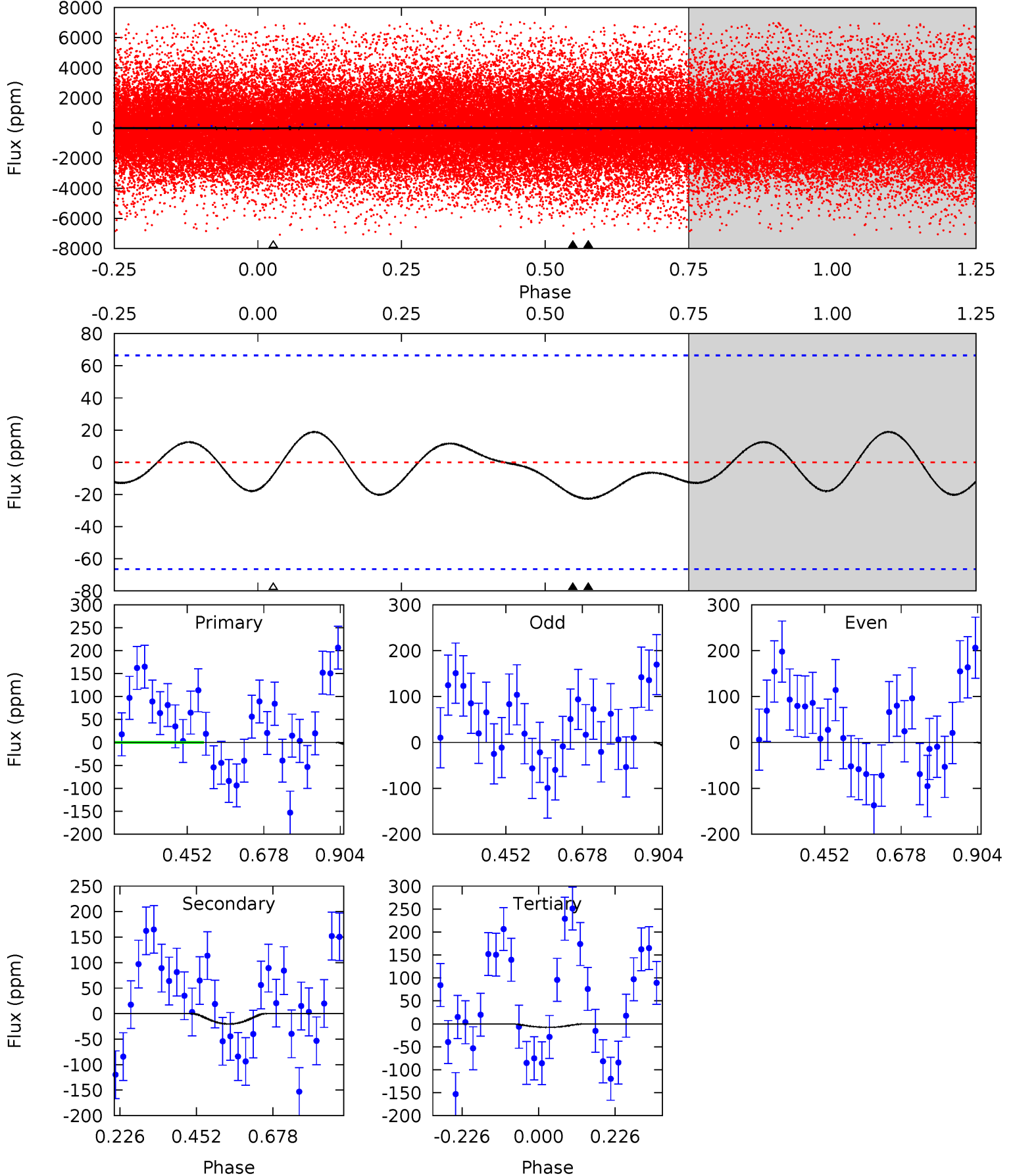
TCE 009077192-01 P= 1.145824 Days $T_0=131.743186$ (BKJD)



DV Model-Shift Uniqueness Test

009077192-01, P = 1.145899 Days, E = 130.562454 Days

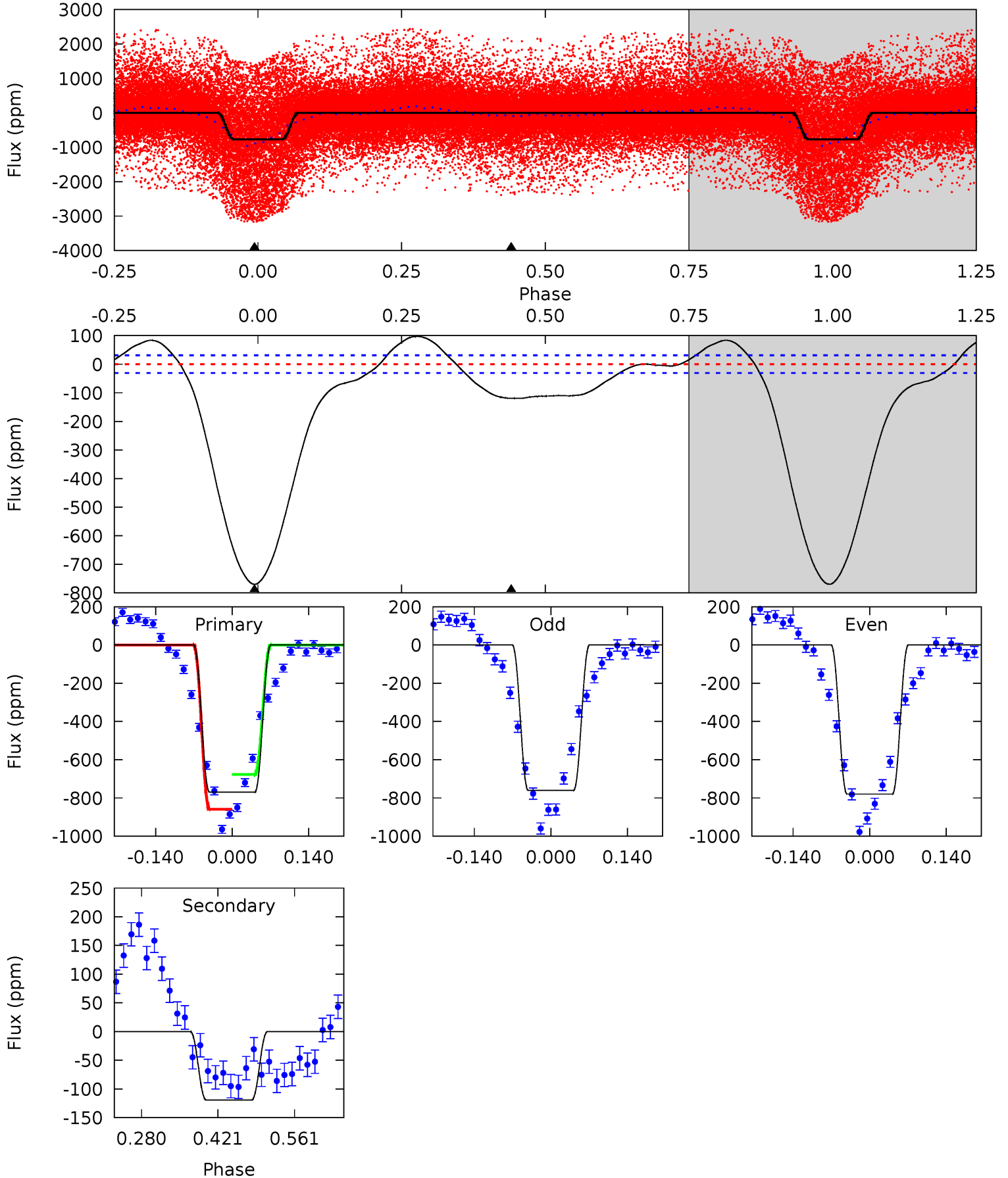
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.50	1.34	0.51	0	4.39	1.21	0.78	0.99	1.50	0.83	1.34	1.05	0.39	0.45	1.69



Alt Model-Shift Uniqueness Test

009077192-01, P = 1.145824 Days, E = 130.597362 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
111.8	17.3	0	0	4.49	1.47	7.81	111.8	111.8	17.3	17.3	1.40	1.18	0.11	13.1



Stellar Parameters For KIC 009077192

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4867^{+146}_{-146}	$4.690^{+0.052}_{-0.028}$	$-1.180^{+0.300}_{-0.300}$	$0.562^{+0.035}_{-0.035}$	$0.565^{+0.042}_{-0.021}$	$4.475^{+0.879}_{-0.504}$
	+3%/-3%	+1%/-1%	+25%/-25%	+6%/-6%	+7%/-4%	+20%/-11%
Source	PHO1	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 009077192-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 15	$1.60^{+0.23}_{-0.24}$	1685^{+54}_{-58}	2647^{+309}_{-4590}	$1.365^{+1.287}_{-1.133}$
Alt.	-119 ± 7	$1.78^{+0.26}_{-0.24}$	1683^{+56}_{-59}	3396^{+201}_{-167}	$6.534^{+2.378}_{-1.530}$

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

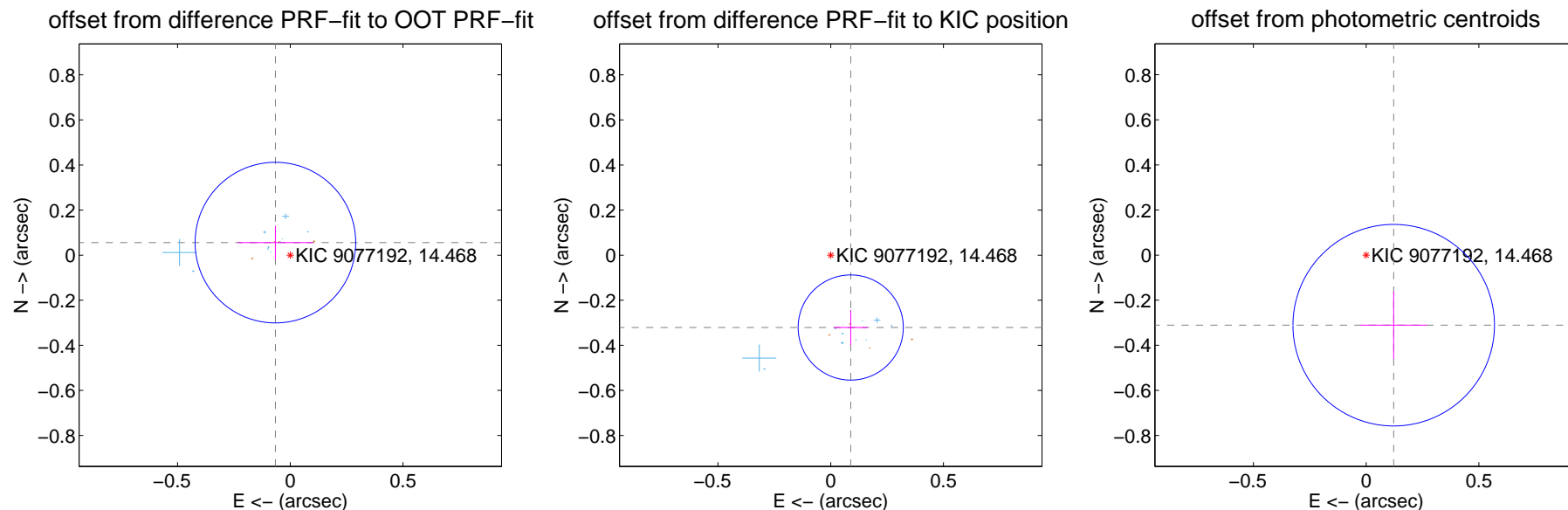
DV Centroid Data

Supplemental centroid analysis for 009077192-01. Kepler magnitude: 14.47. Transit SNR 12.78

There are 13 quarters with good PRF difference image offsets

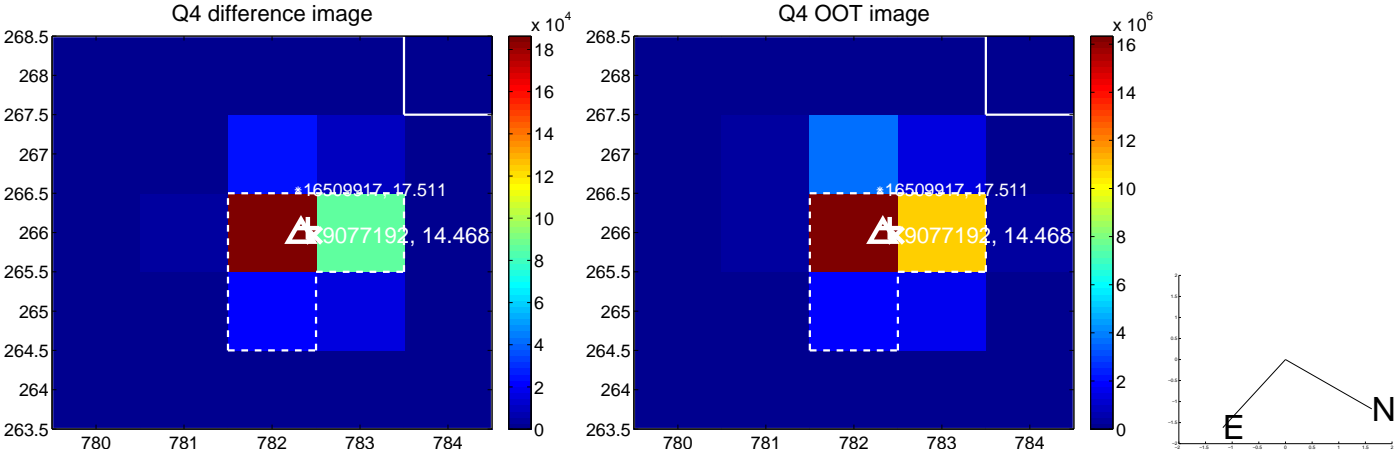
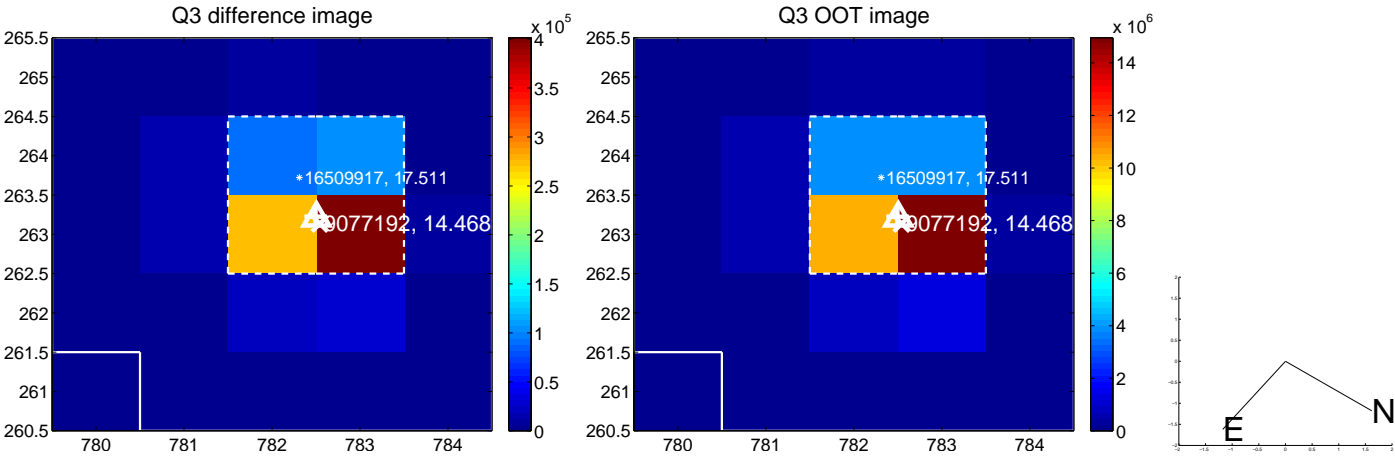
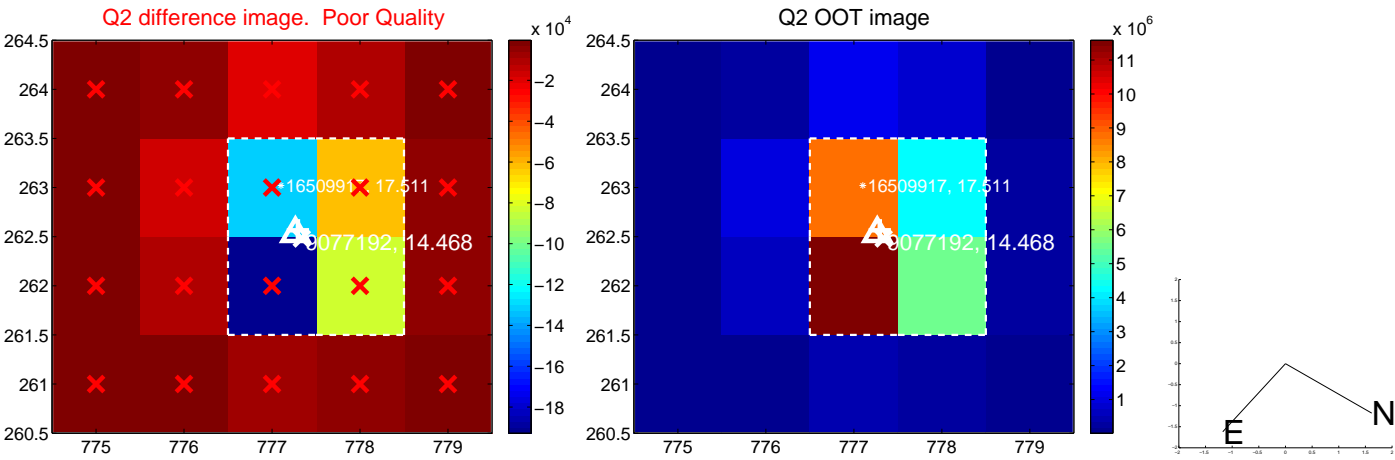
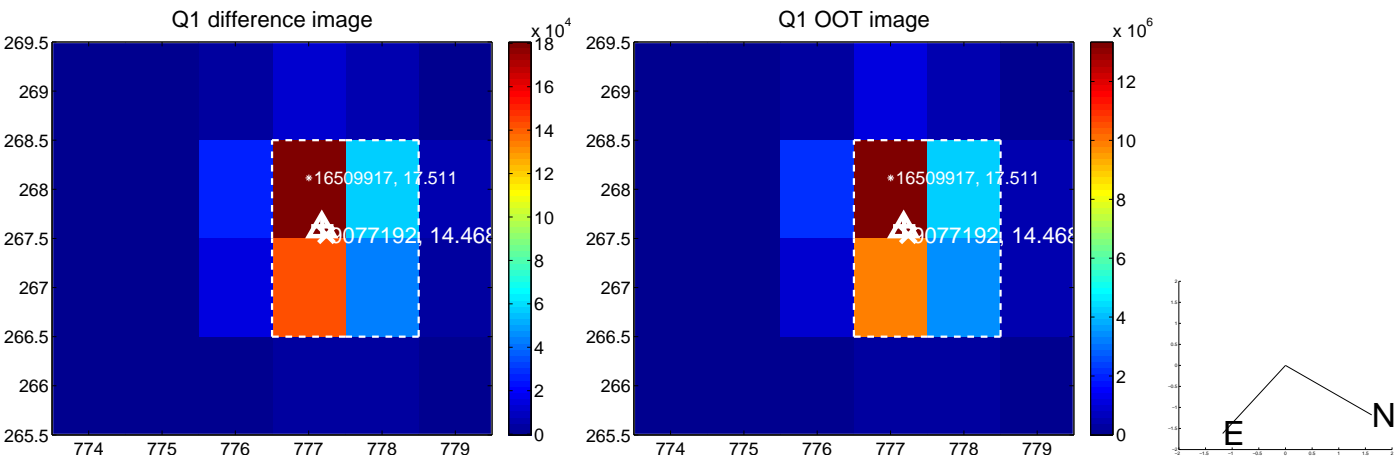
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.119	0.73	0.066 ± 0.167	0.056 ± 0.075
PRF-fit source offset from KIC position	0.333 ± 0.078	4.28	-0.089 ± 0.075	-0.321 ± 0.078
photometric centroid source offset	0.33 ± 0.15	2.24	-0.12 ± 0.15	-0.31 ± 0.15

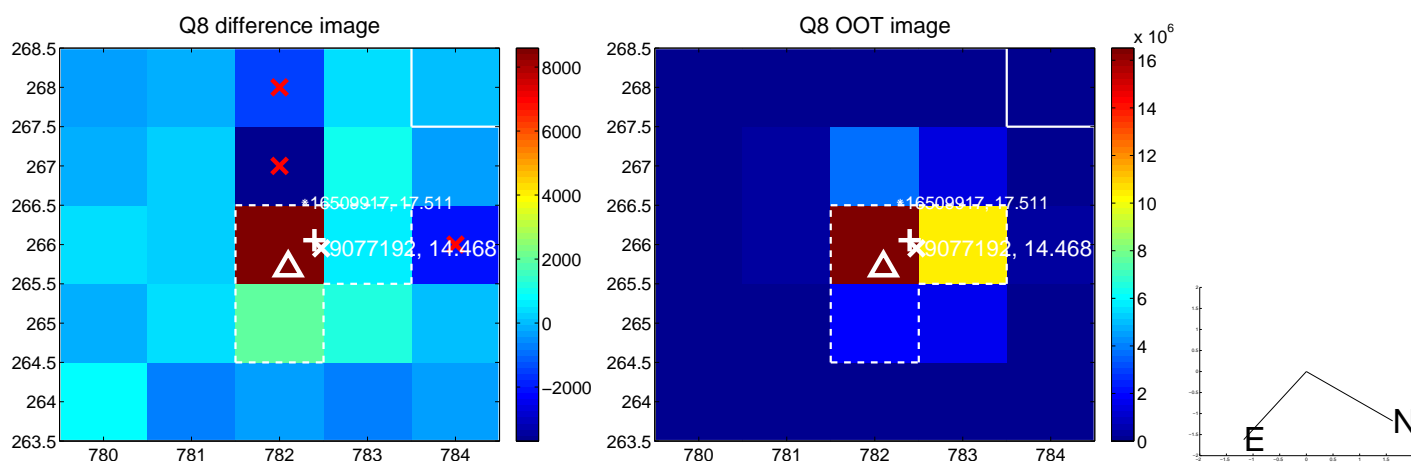
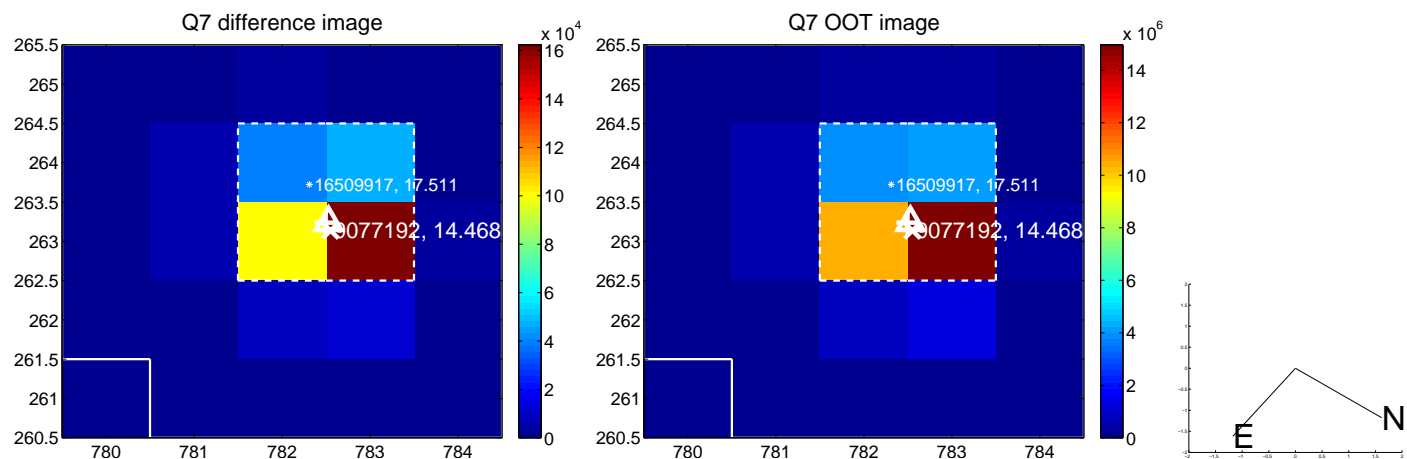
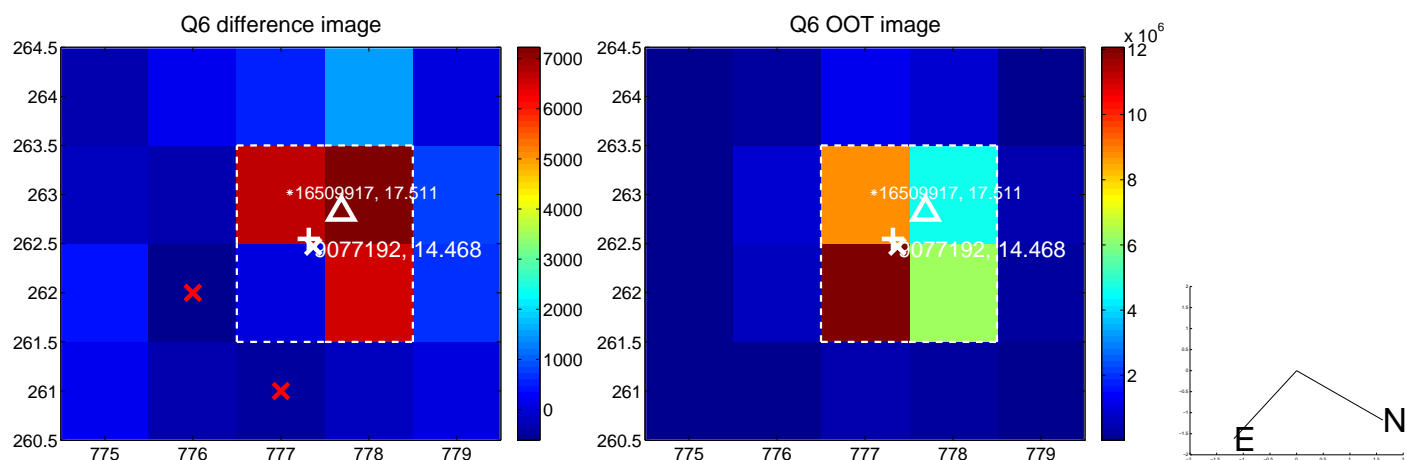
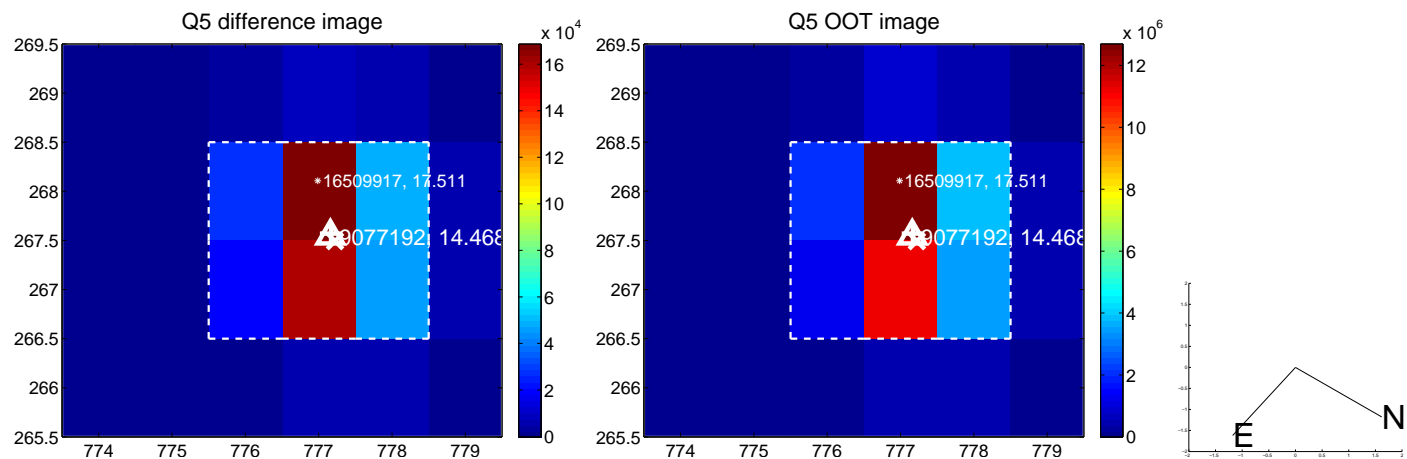


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

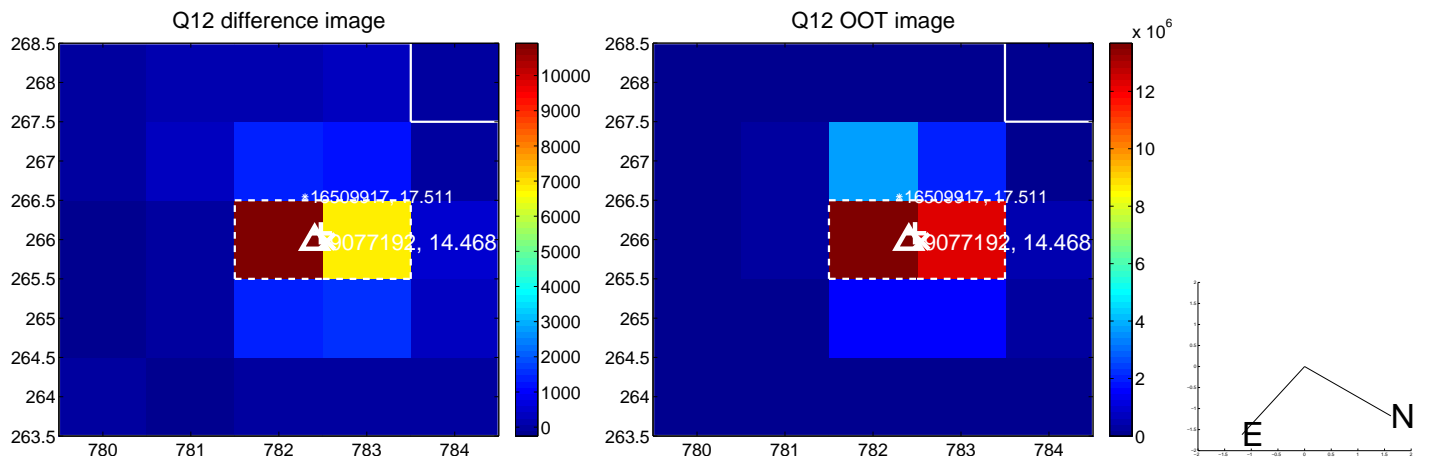
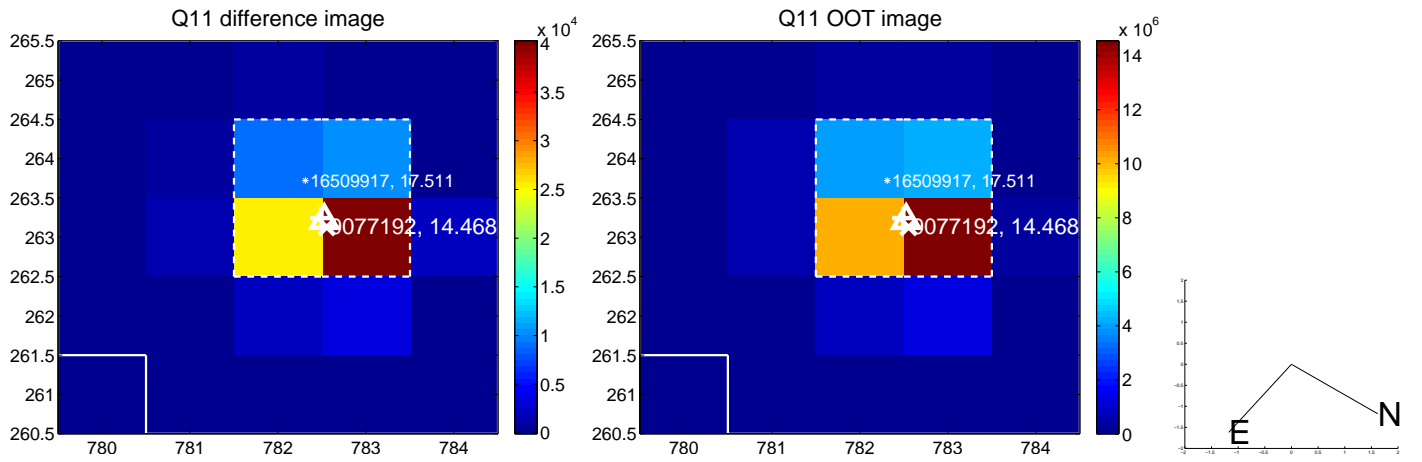
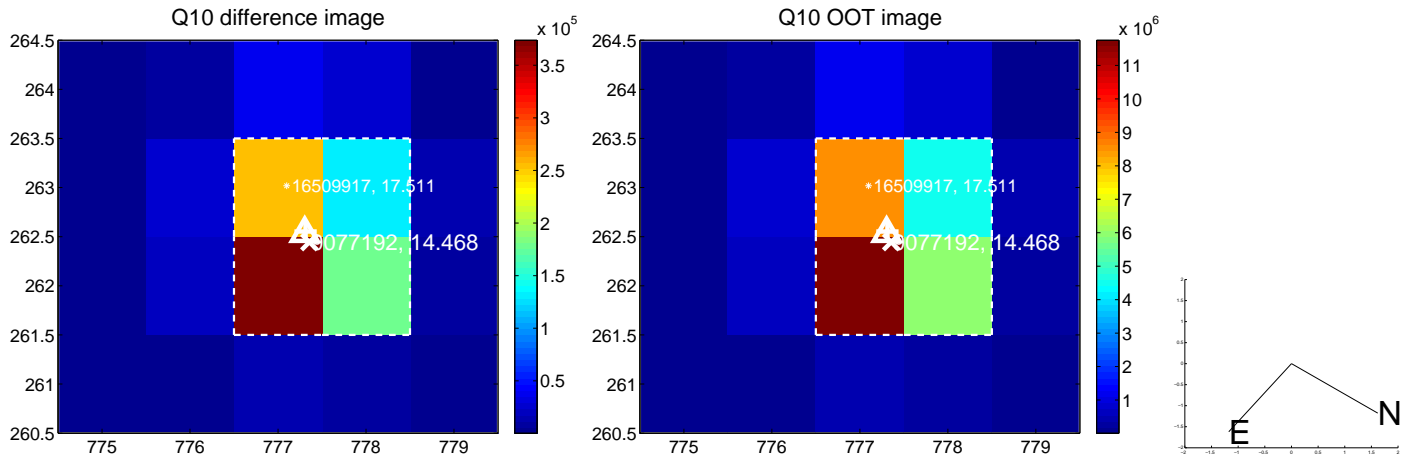
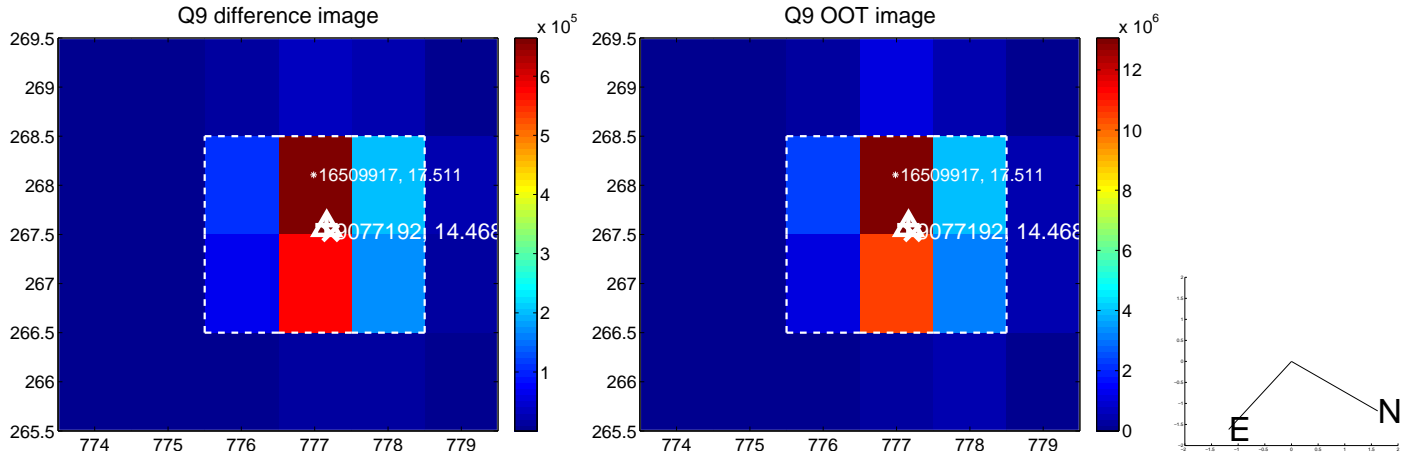
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



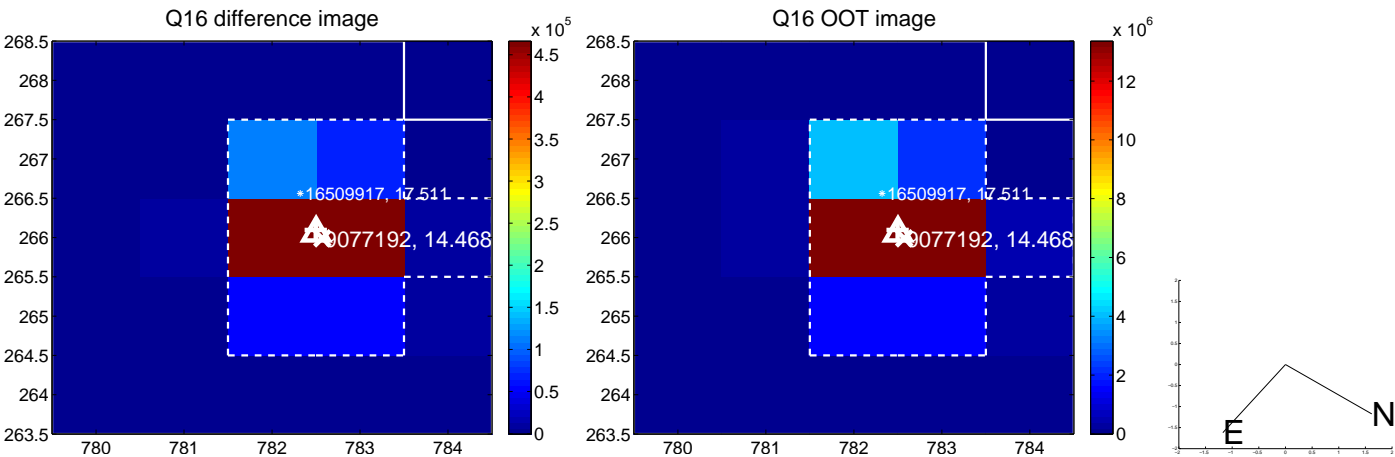
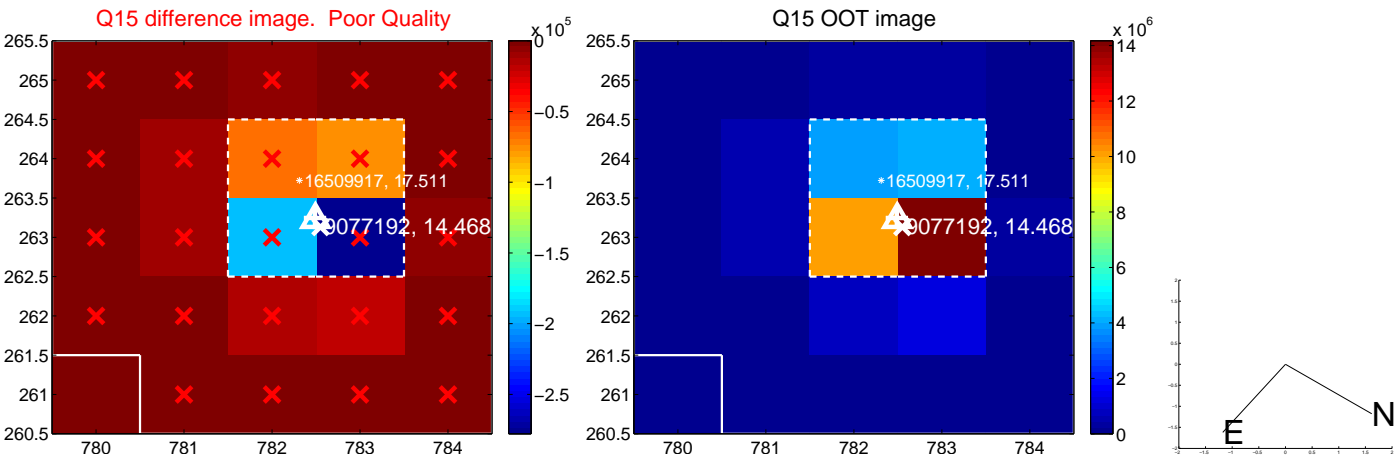
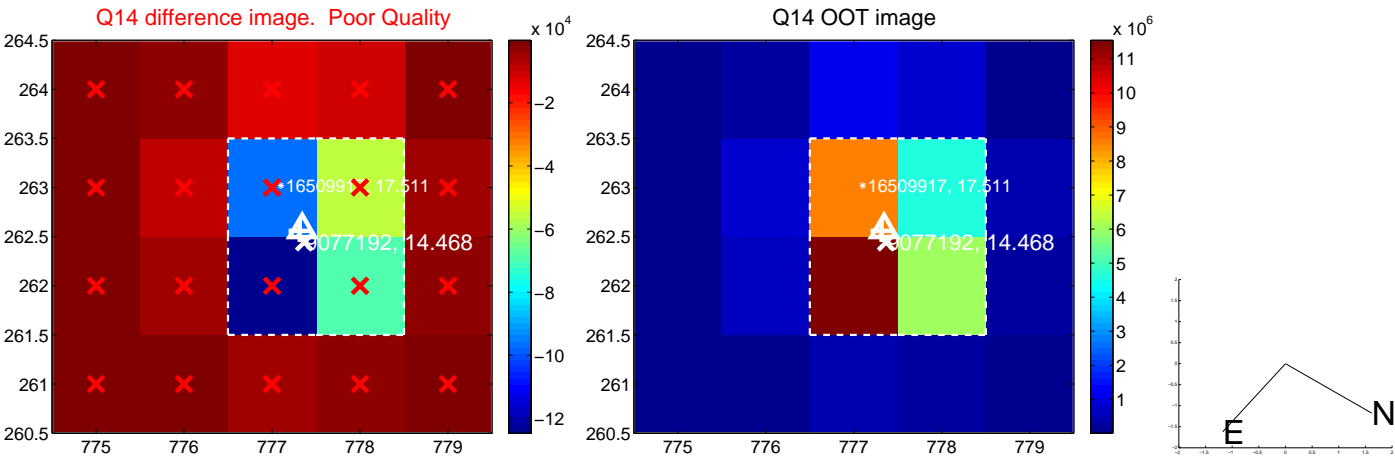
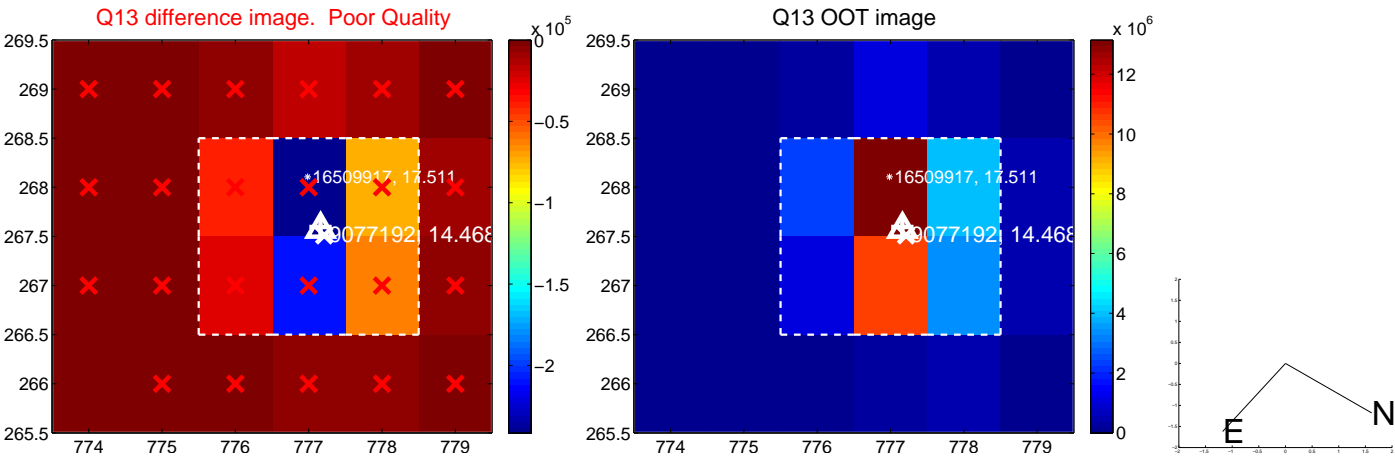
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



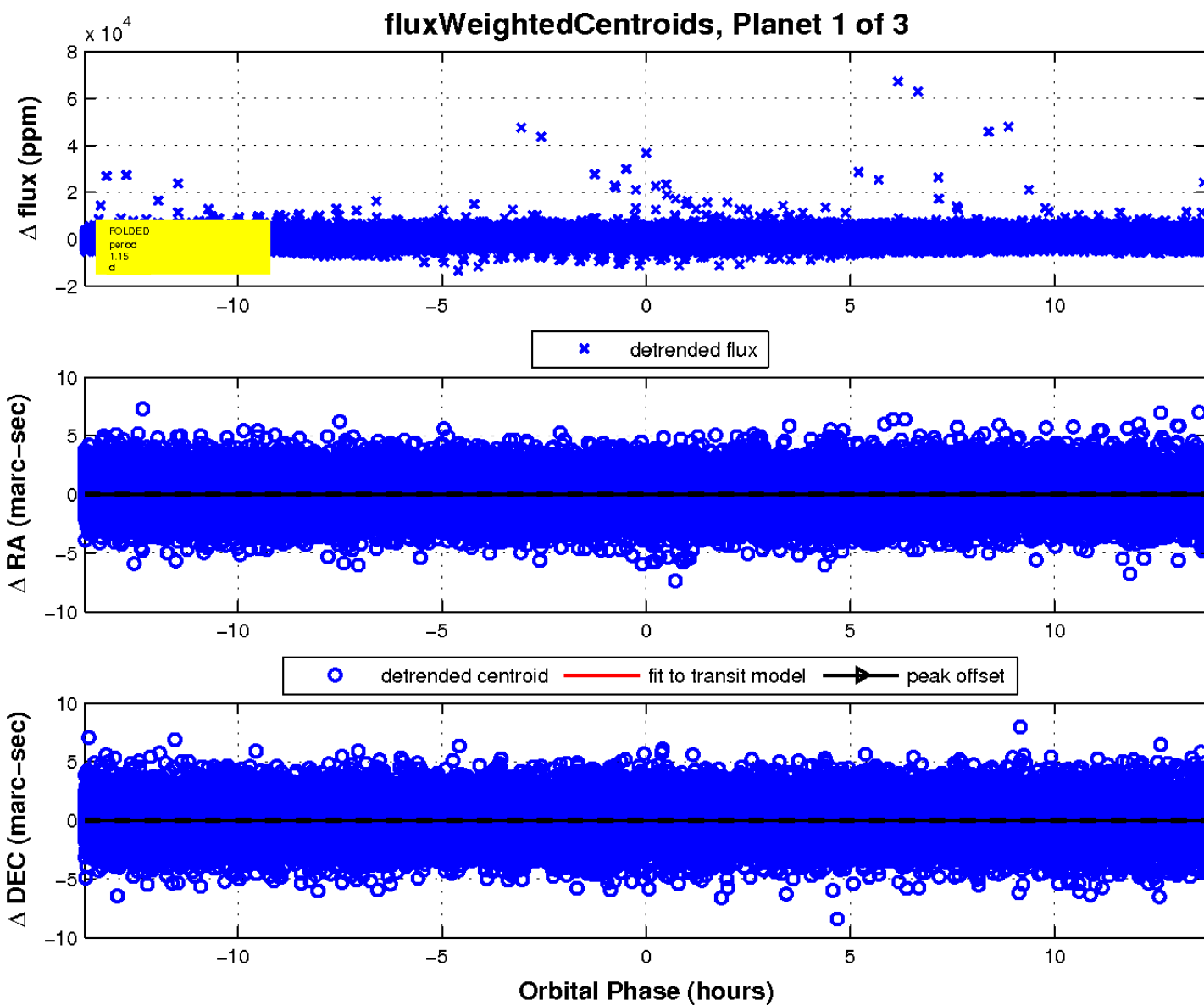
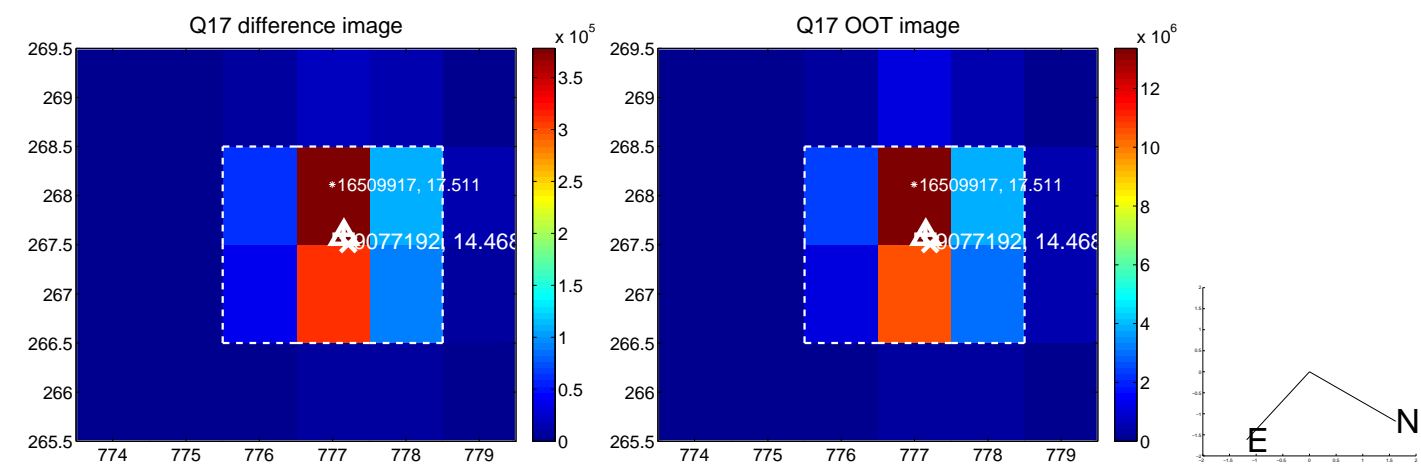
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

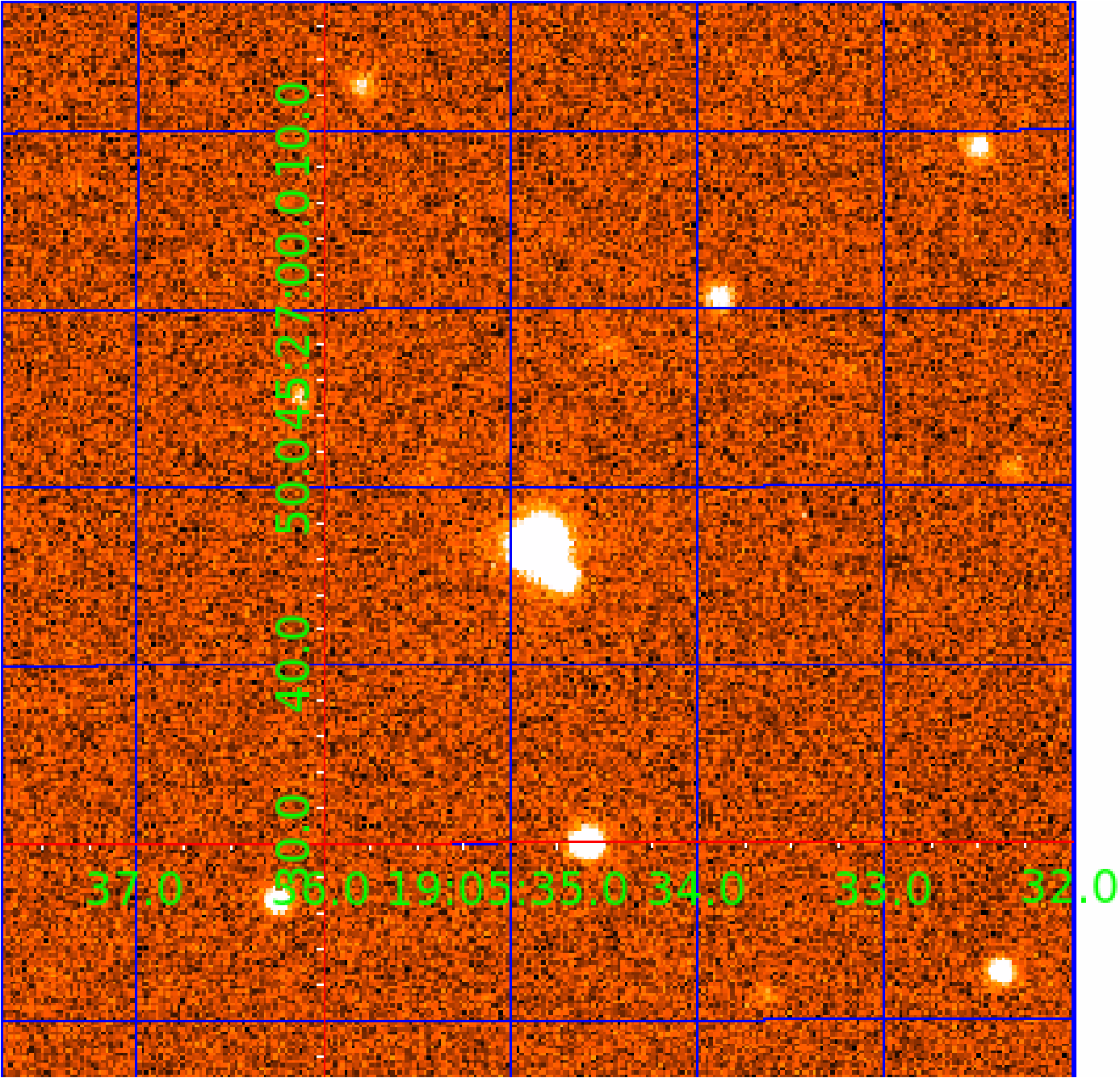


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009077192

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})
009077192-01	OBS	No	1.145899	131.708353	356.2	5.748	8.6	12.8	0.56	4867	1.59	506.10
009077192-02	OBS	No	1.147708	132.416207	123.4	3.904	9.3	4.2	0.56	4867	0.66	505.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009077192-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_KIC_POS
009077192-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_KIC_POS

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

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

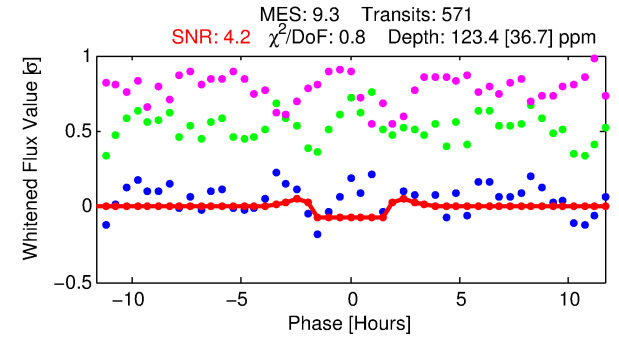
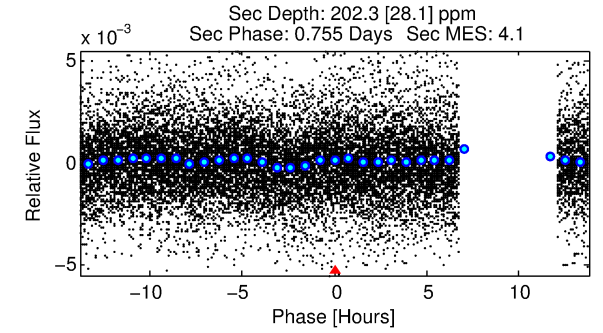
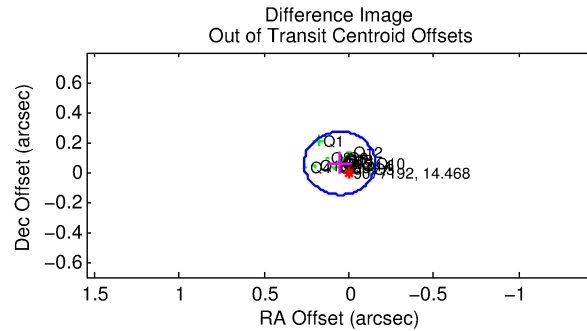
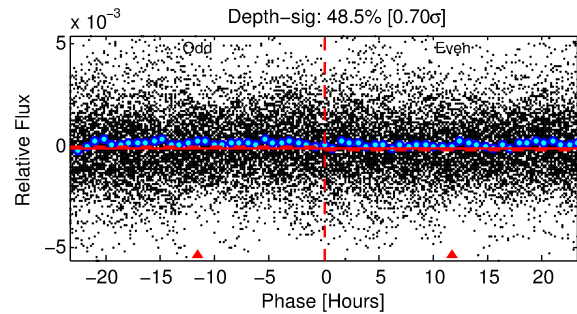
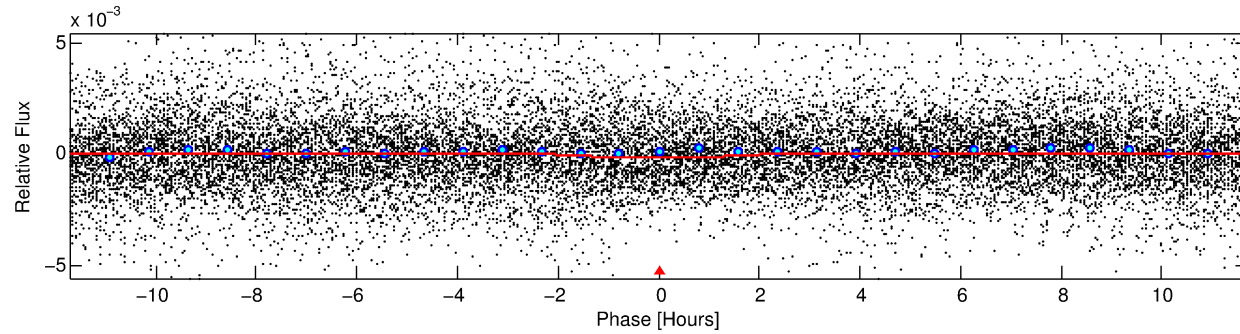
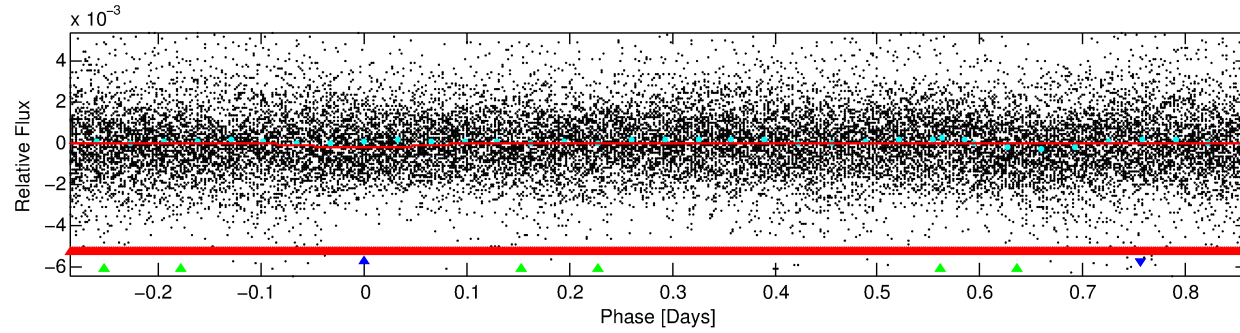
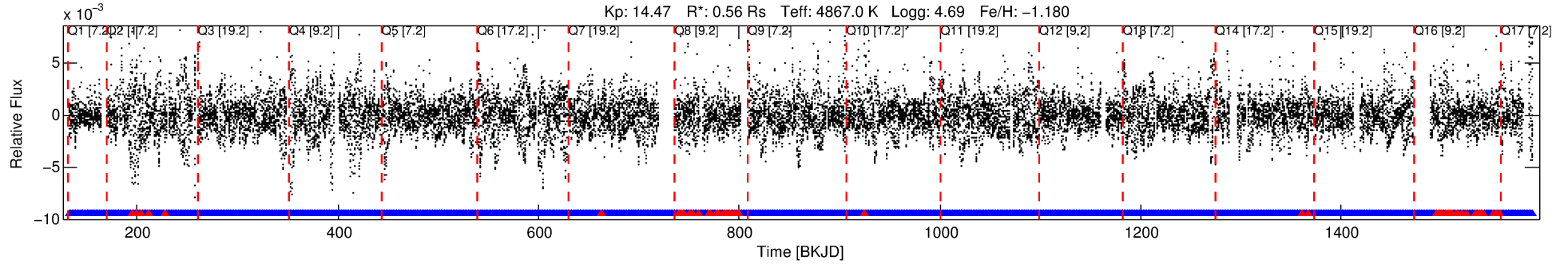
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009077192-02

No Significant Match Found

DV One-Page Summary

KIC: 9077192 Candidate: 2 of 3 Period: 1.148 d



DV Fit Results:

Period = 1.14771 [0.00002] d
Epoch = 132.4162 [0.0045] BKJD
Rp/R* = 0.0107 [0.0114]
a/R* = 1.91 [6.01]
b = 0.65 [3.92]
Seff = 505.04 [75.74]
Teq = 1209 [45] K
Rp = 0.66 [0.70] Re
a = 0.0177 [0.0010] AU
Ag = 81.48 [174.73] [0.46 σ]
Teffp = 5615 [3013] K [1.46 σ]

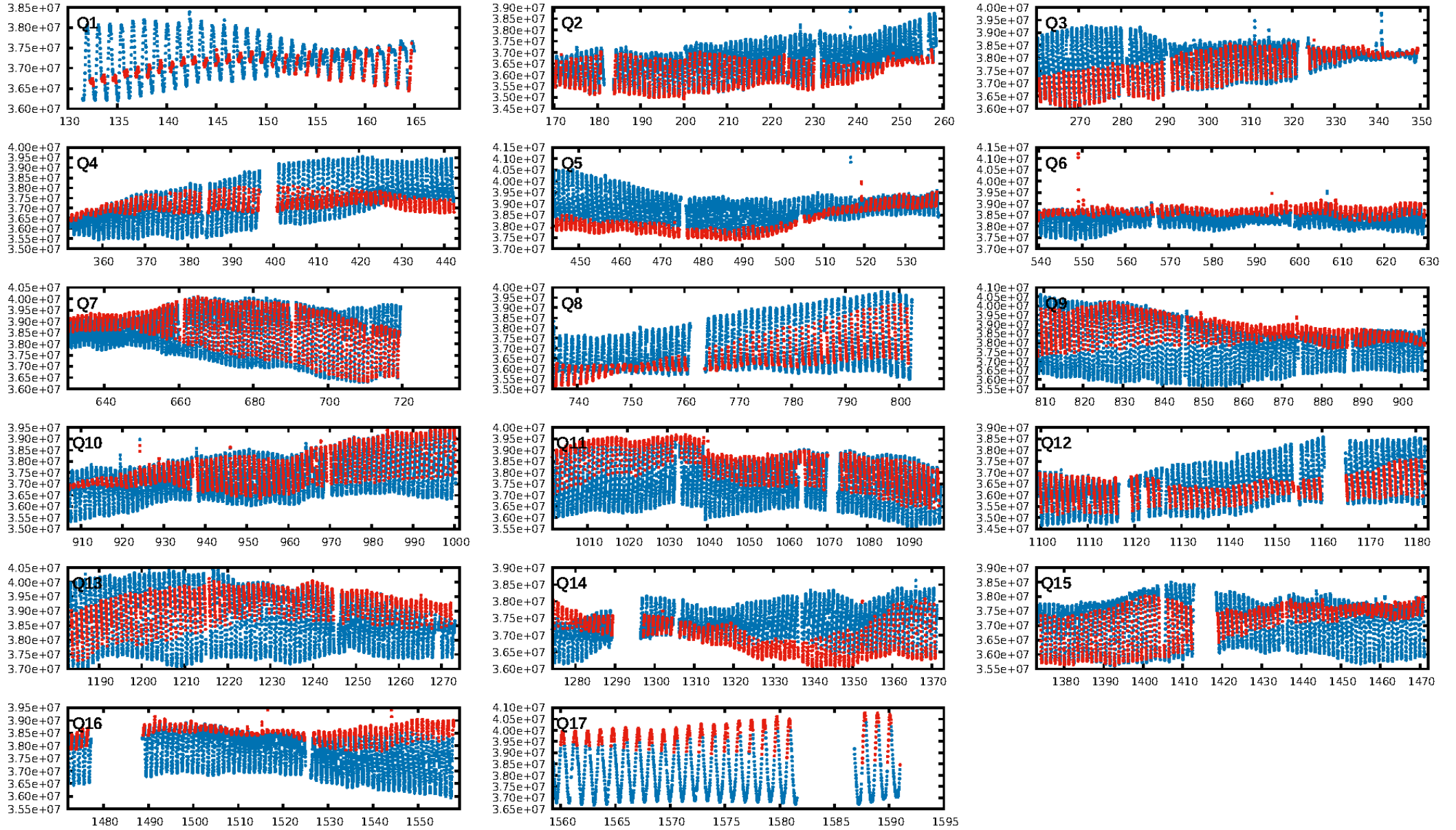
DV Diagnostic Results:

ShortPeriod-sig: 0.5% [0.01 σ]
LongPeriod-sig: 100.0% [480.94 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.90 [468/520]
GhostDiagnostic-chr: -2.736
Centroid-sig: 0.0%
Centroid-so: 1.405 arcsec [3.50 σ]
OotOffset-rm: 0.081 arcsec [1.15 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.381 arcsec [5.55 σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.41 [7/17]
DiffImageOverlap-fno: 0.24 [4/17]

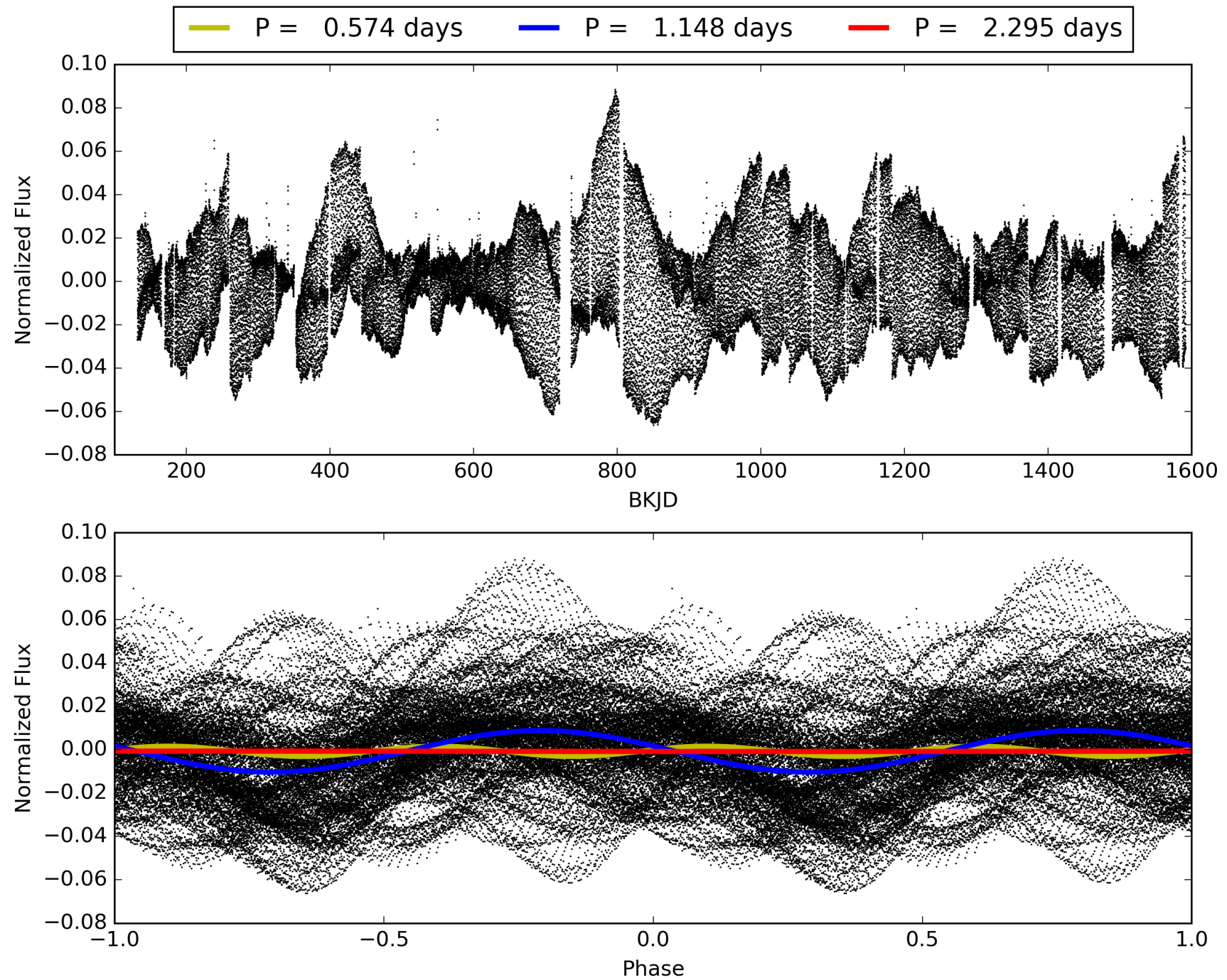
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:22:39 Z

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

TCE 009077192-02, PDC Light Curves

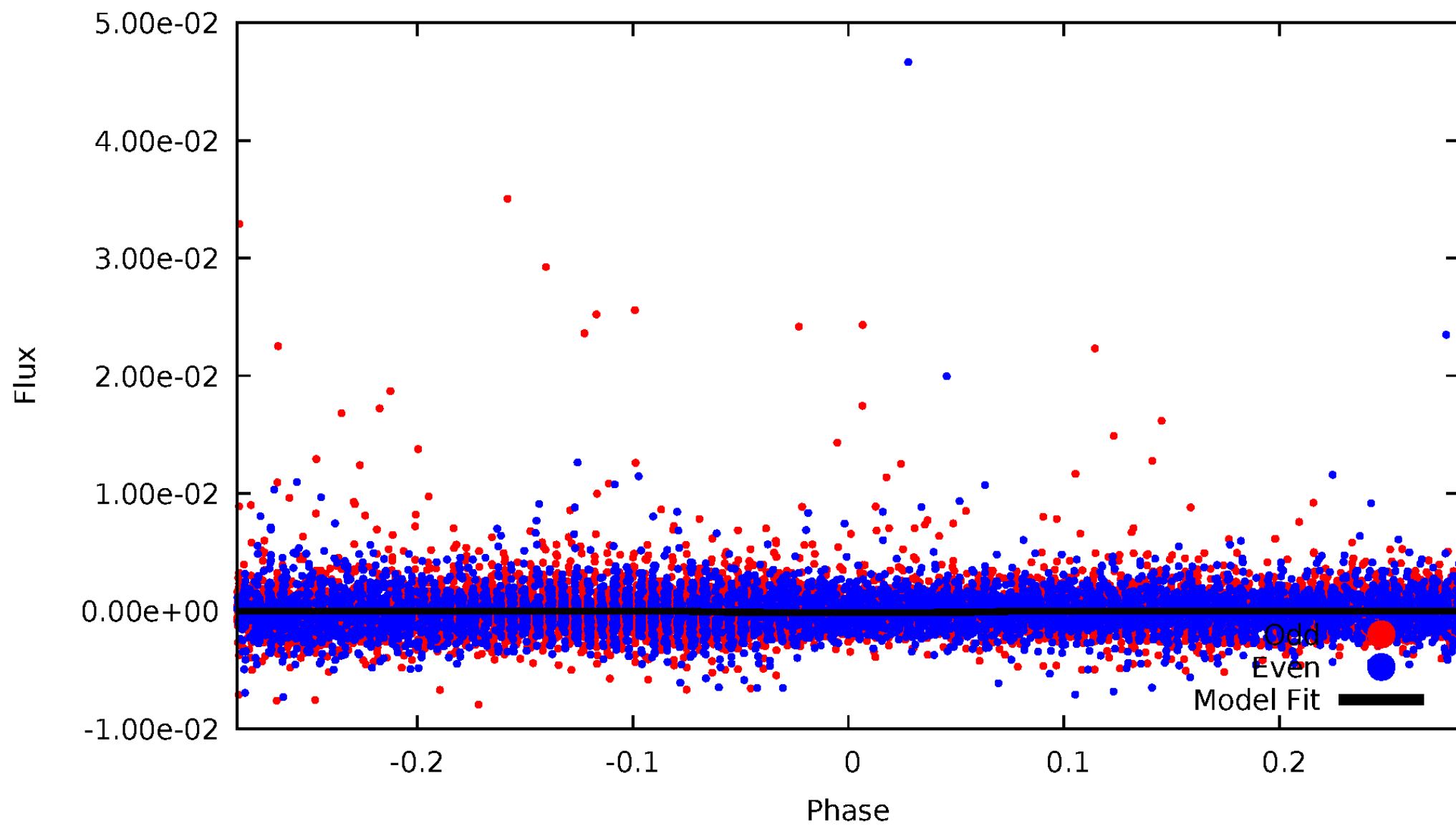


TCE 009077192-02



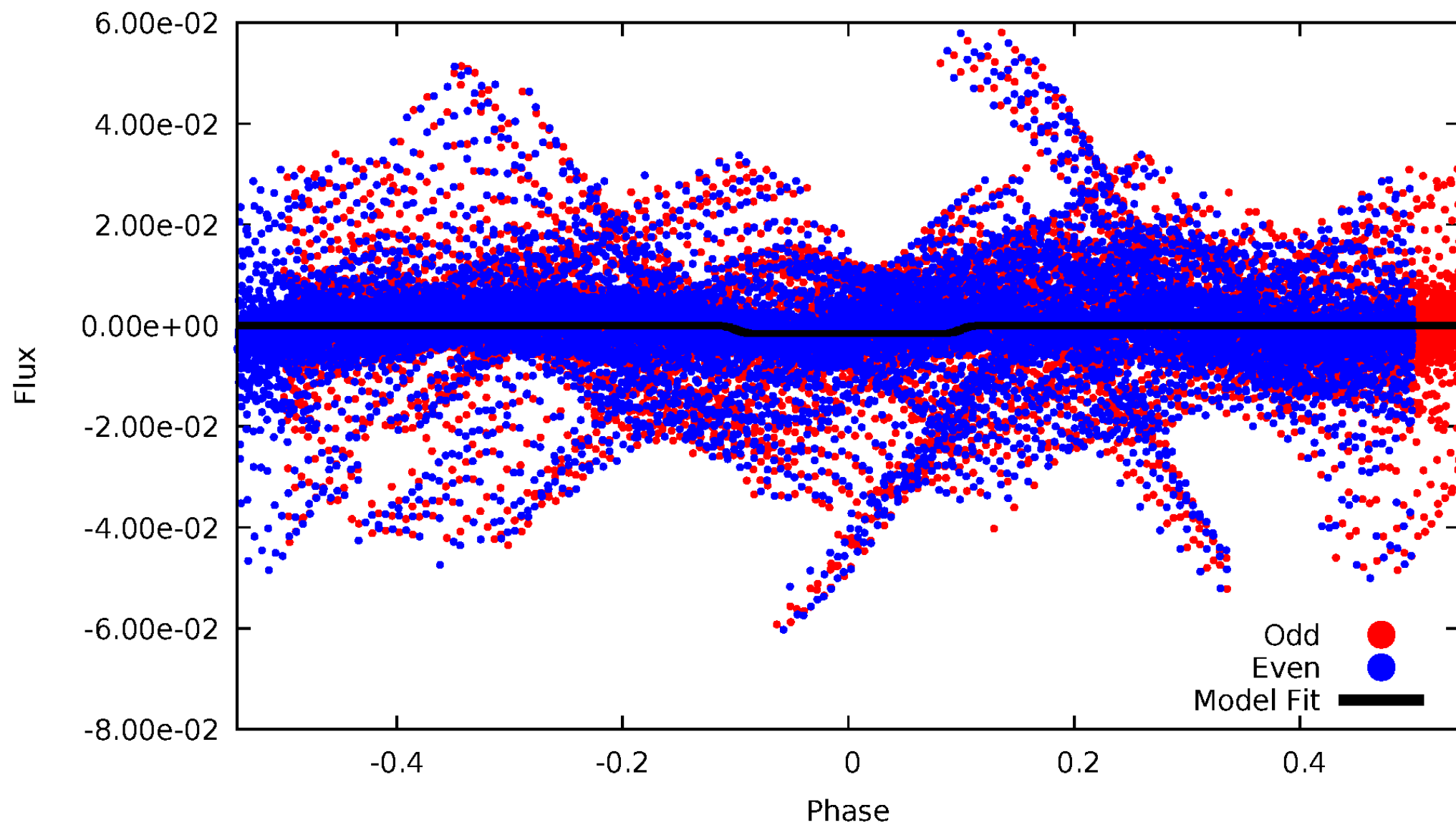
DV Odd/Even

TCE 009077192-02



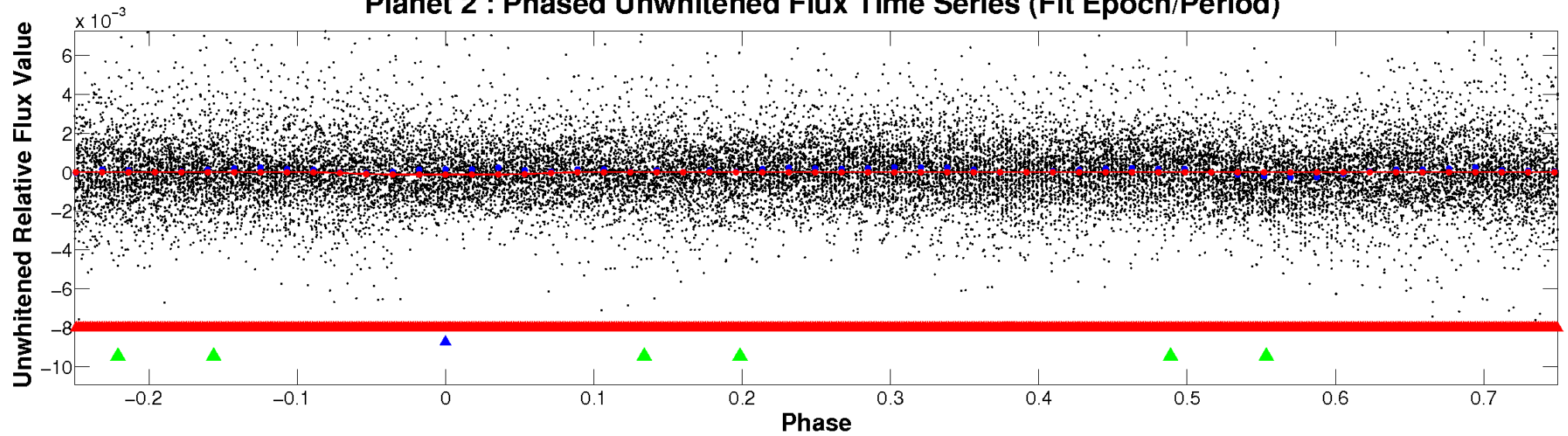
ALT Odd/Even

TCE 009077192-02

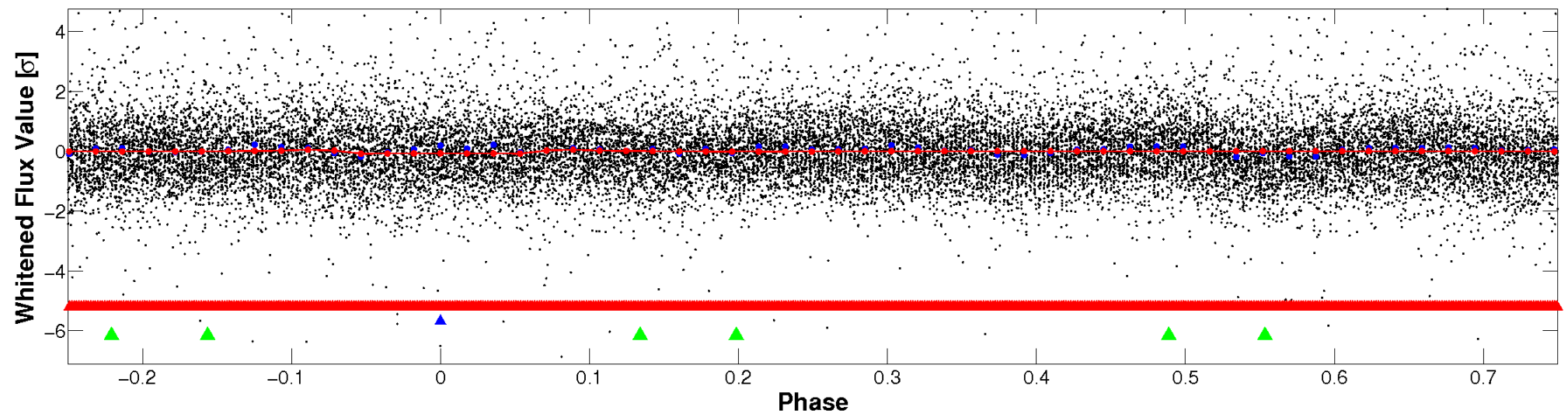


Non-Whitened Vs. Whitened Light Curve

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

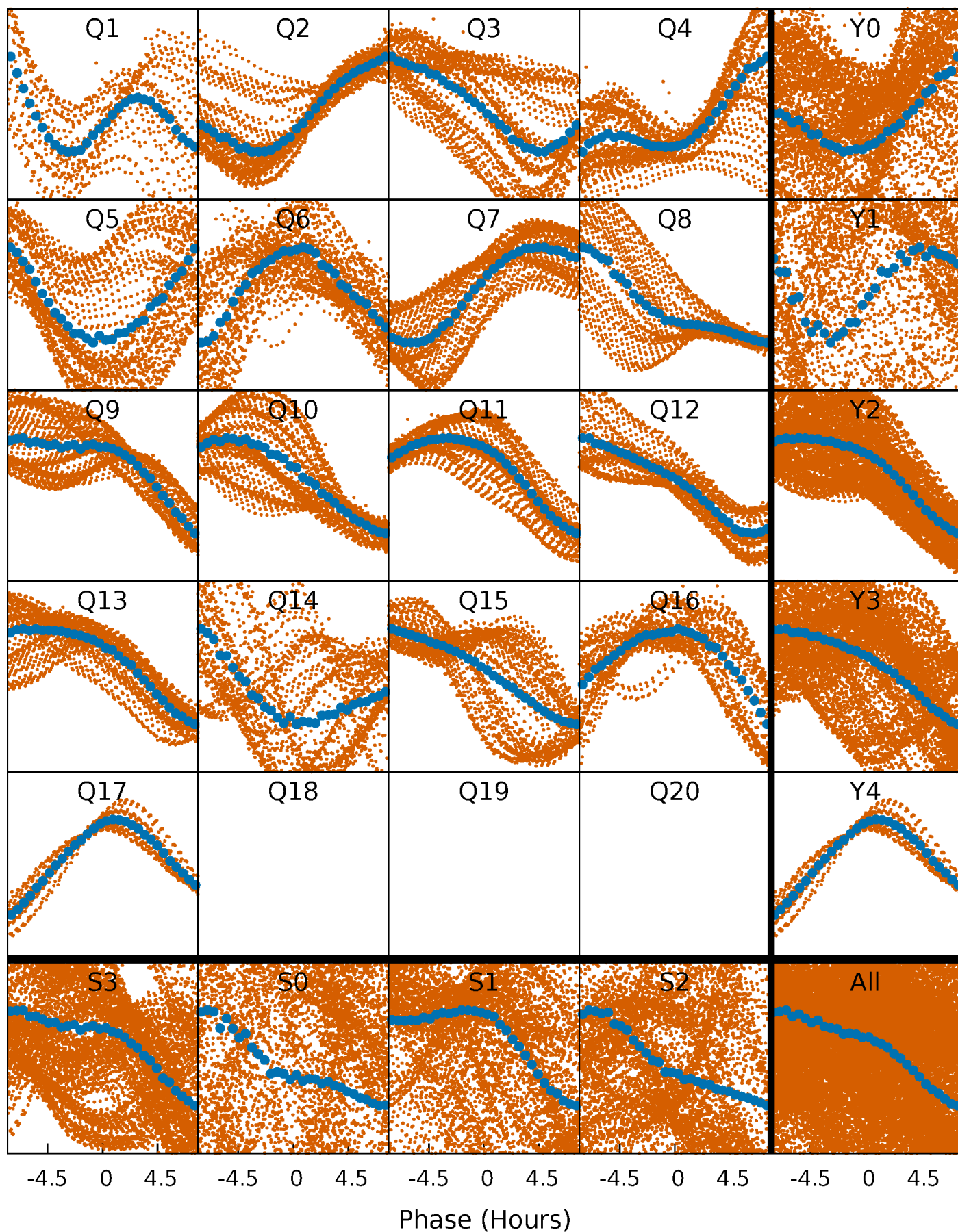


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



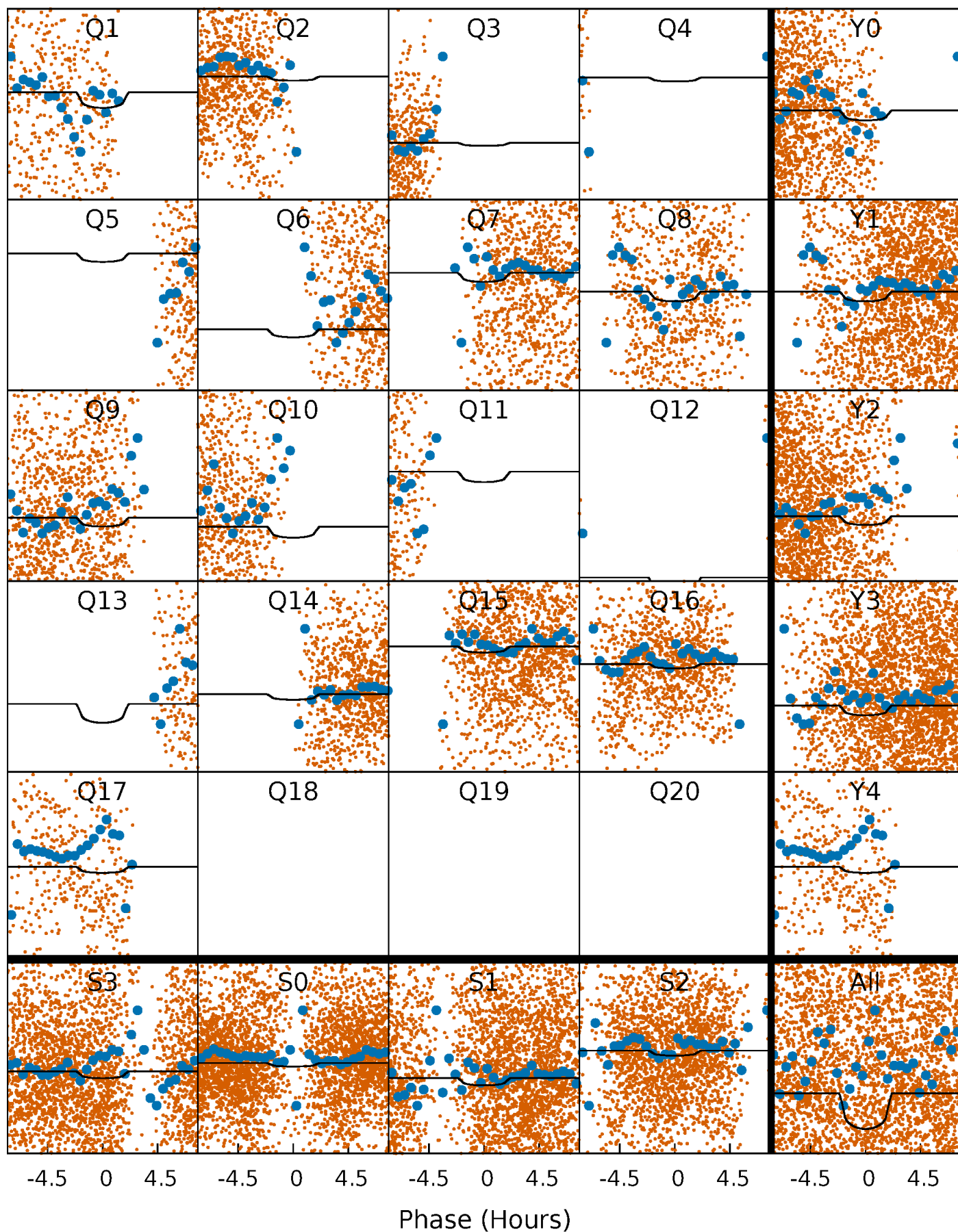
PDC Quarter-Phased Transit Curves

TCE 009077192-02 P= 1.147708 Days $T_0=132.416207$ (BKJD)



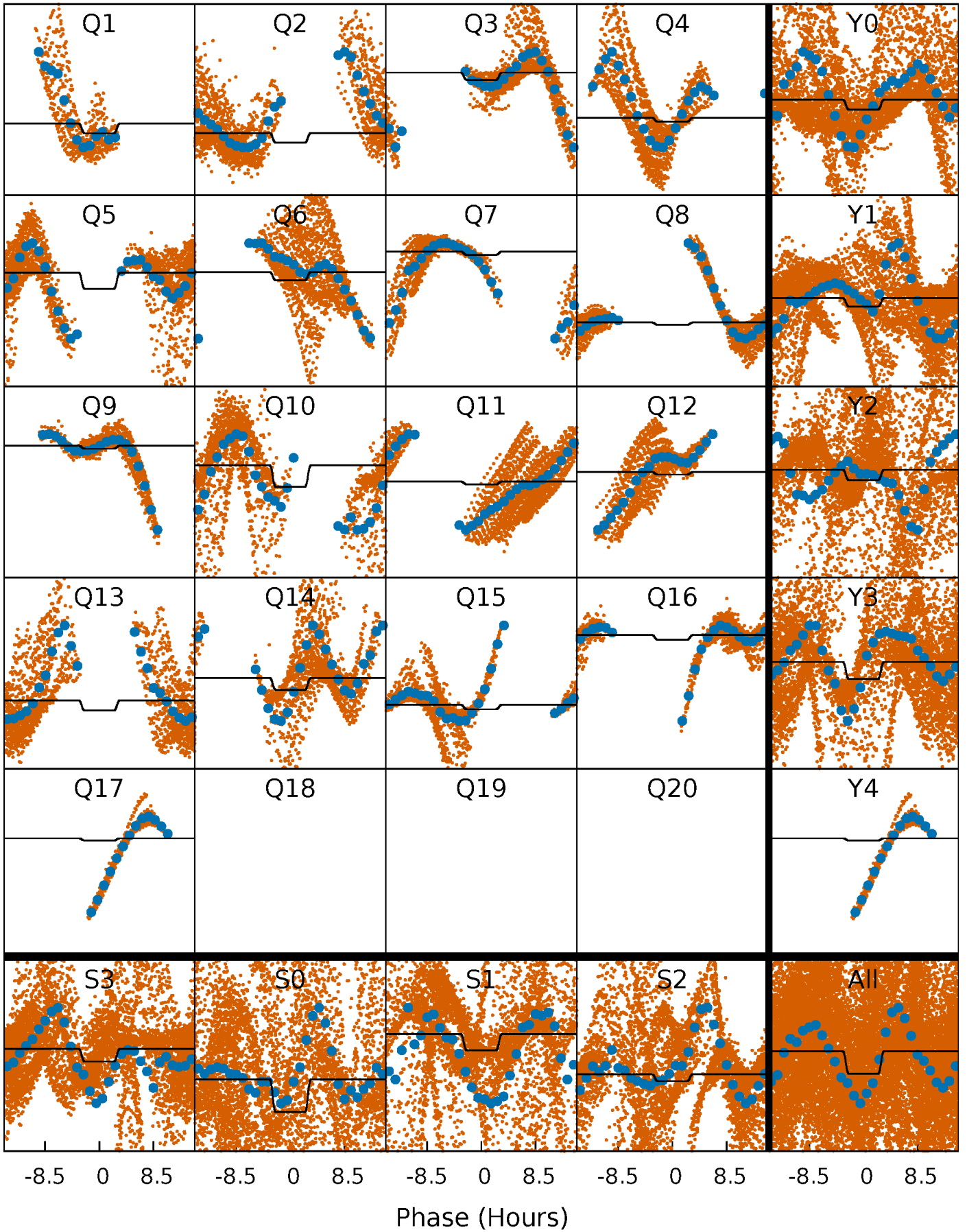
DV Quarter-Phased Transit Curves

TCE 009077192-02 $P = 1.147708$ Days $T_0 = 132.416207$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

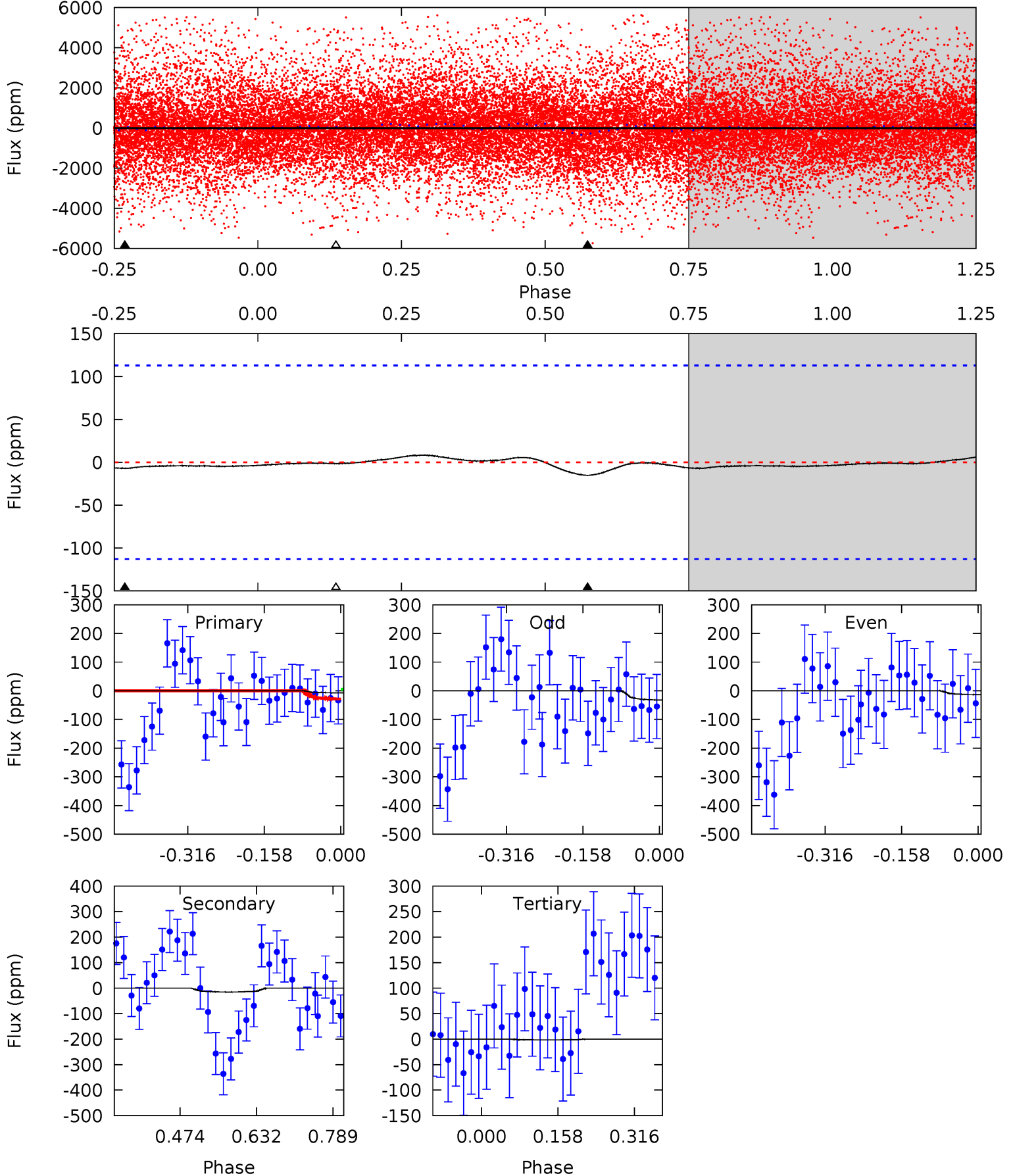
TCE 009077192-02 $P = 1.151199$ Days $T_0 = 132.348665$ (BKJD)



DV Model-Shift Uniqueness Test

009077192-02, P = 1.147708 Days, E = 131.268499 Days

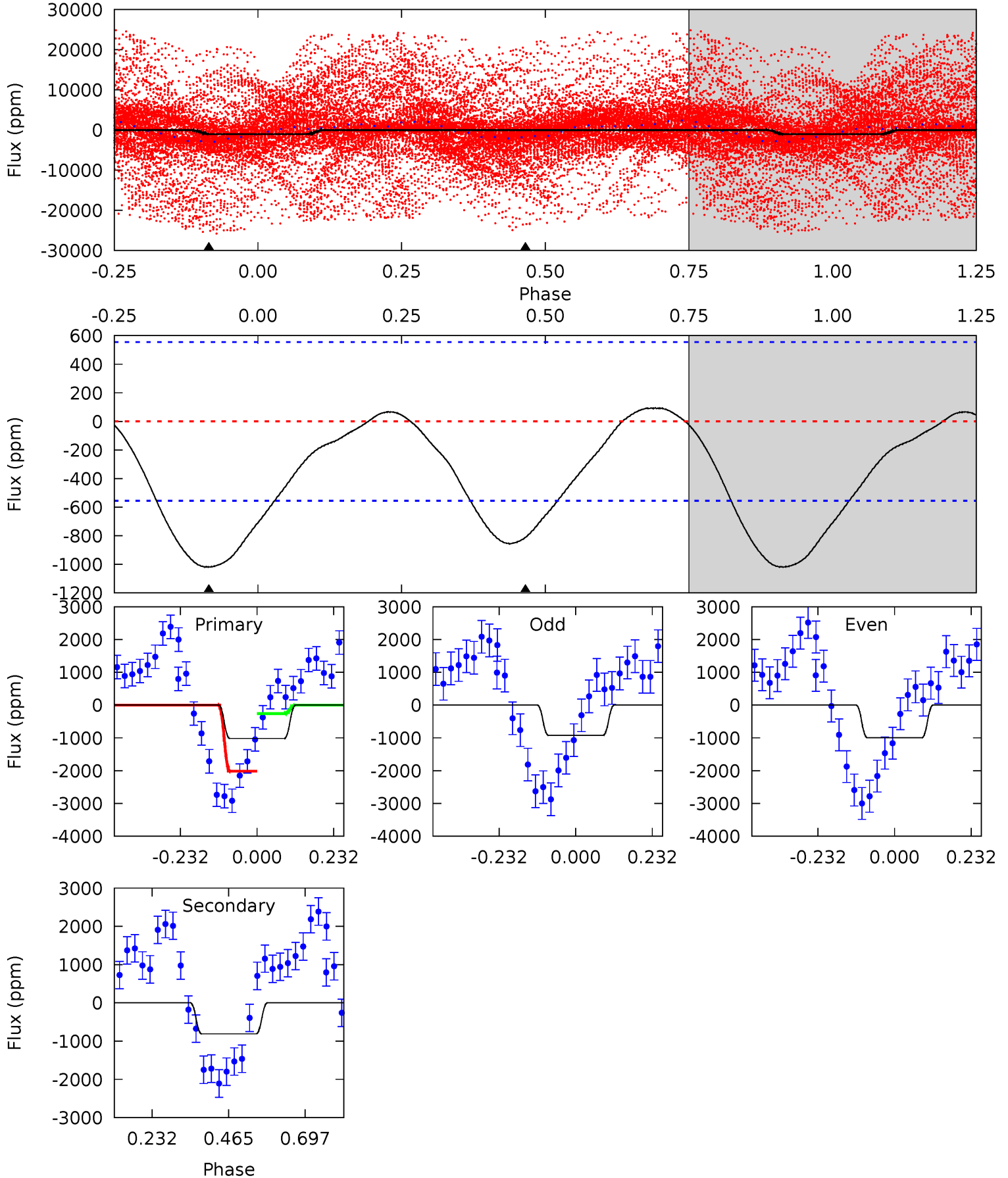
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.28	0.60	0.06	0	4.47	1.41	0.15	0.22	0.28	0.54	0.60	0.37	-2.94	0.35	0.46



Alt Model-Shift Uniqueness Test

009077192-02, P = 1.151199 Days, E = 131.197466 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.06	6.41	0	0	4.38	1.19	0.53	8.06	8.06	6.41	6.41	0.29	2.27	0.08	8.16



Stellar Parameters For KIC 009077192

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4867^{+146}_{-146}	$4.690^{+0.052}_{-0.028}$	$-1.180^{+0.300}_{-0.300}$	$0.562^{+0.035}_{-0.035}$	$0.565^{+0.042}_{-0.021}$	$4.475^{+0.879}_{-0.504}$
	+3%/-3%	+1%/-1%	+25%/-25%	+6%/-6%	+7%/-4%	+20%/-11%
Source	PHO1	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 009077192-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-15 ± 25	$0.83^{+0.59}_{-0.50}$	1681^{+58}_{-50}	3007^{+1223}_{-5965}	$3.072^{+19.961}_{-5.152}$
Alt.	-811 ± 127	$2.46^{+0.66}_{-0.69}$	1678^{+54}_{-59}	4240^{+612}_{-392}	24^{+23}_{-10}

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

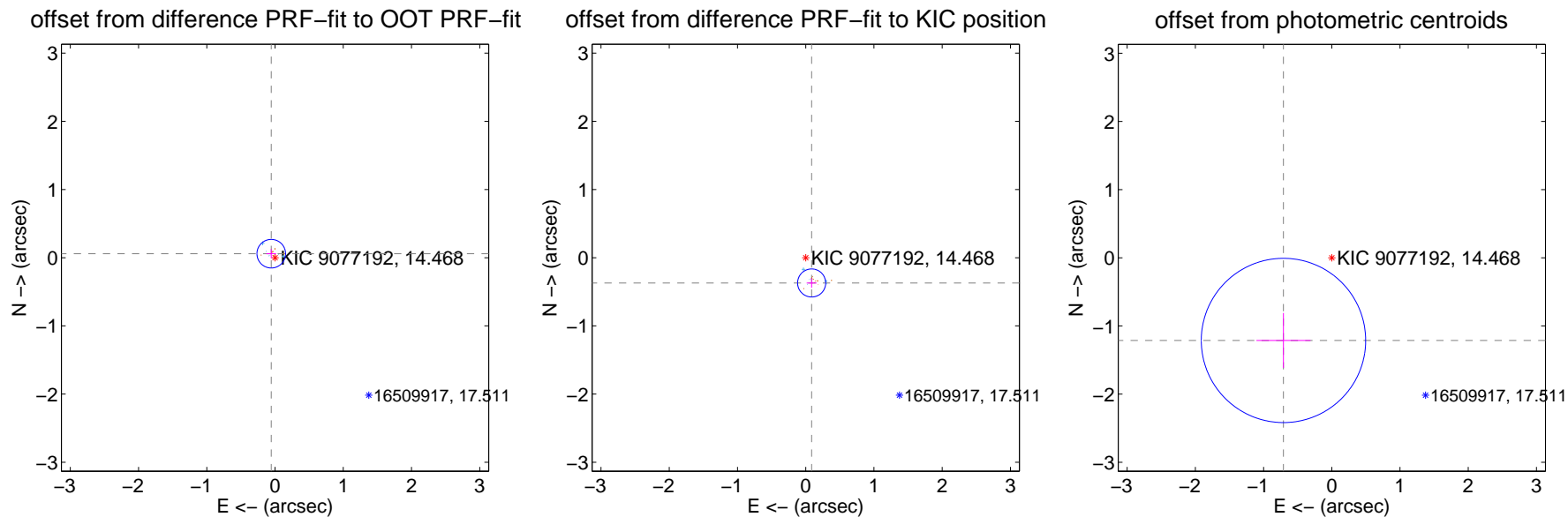
DV Centroid Data

Supplemental centroid analysis for 009077192-02. Kepler magnitude: 14.47. Transit SNR 4.20

There are 7 quarters with good PRF difference image offsets

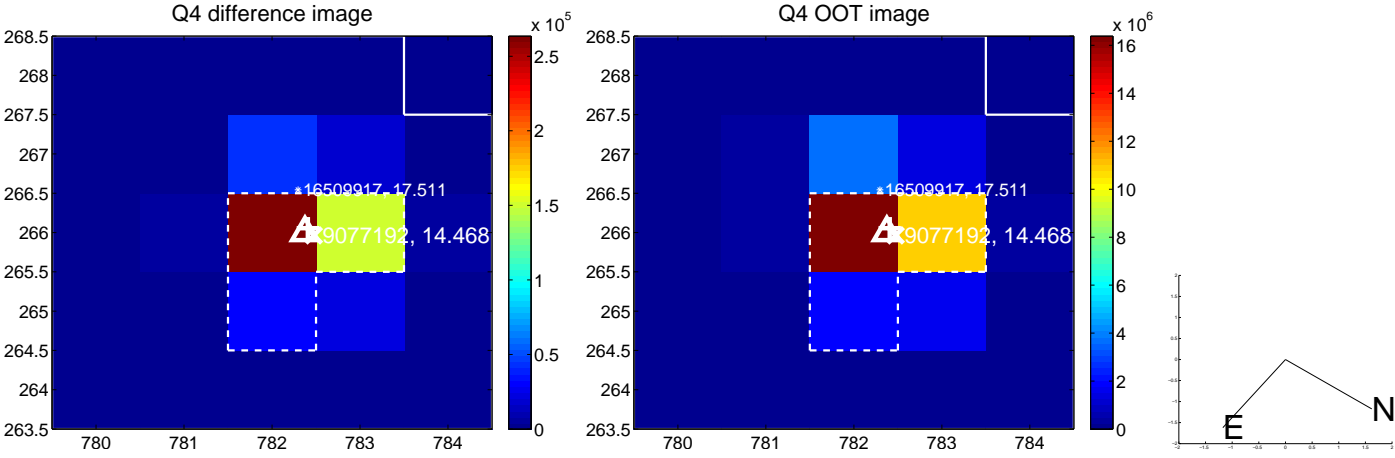
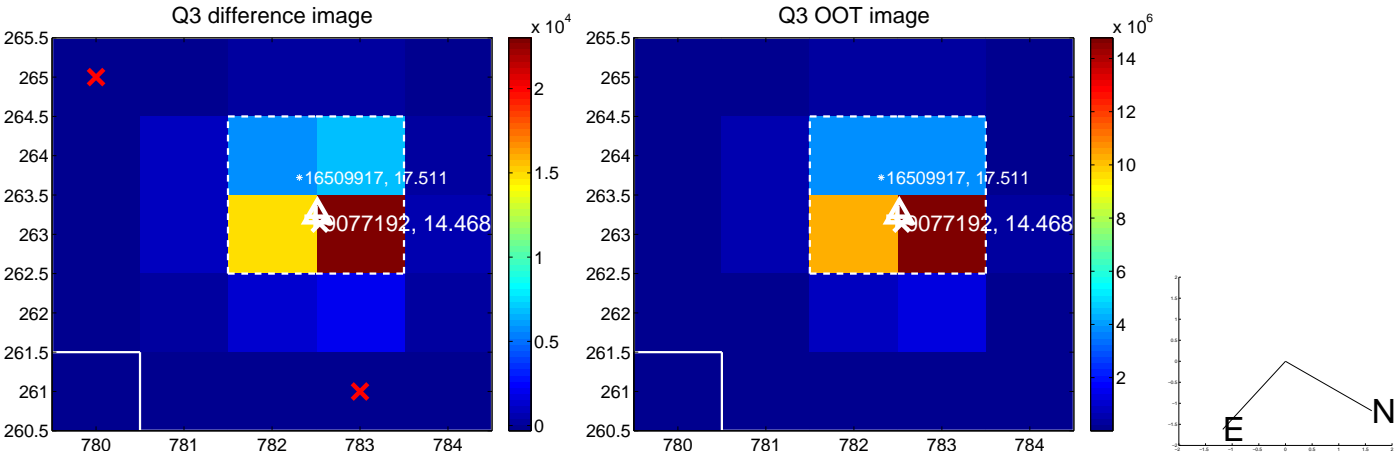
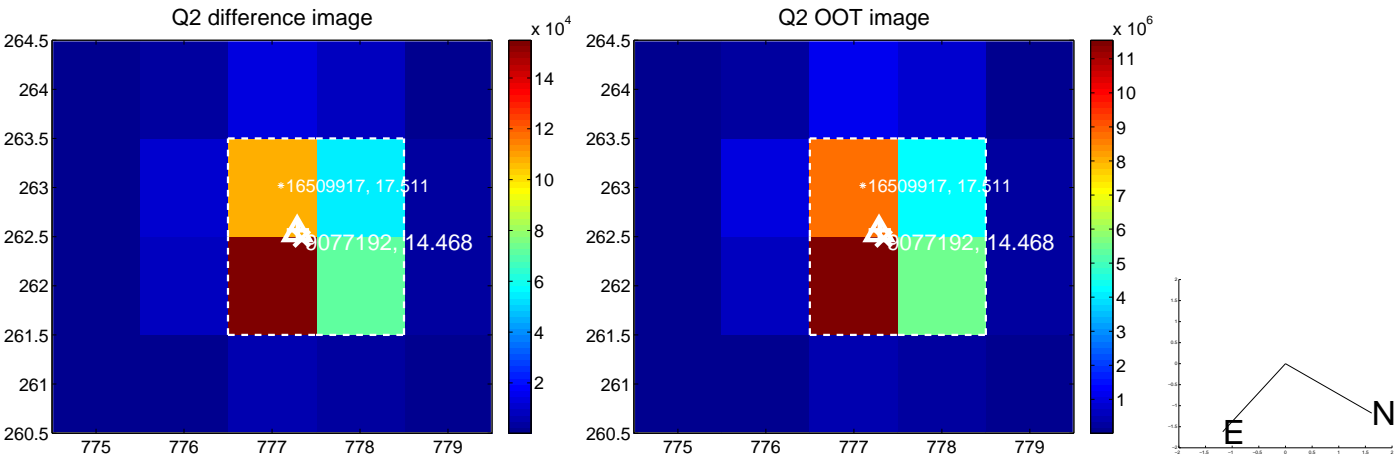
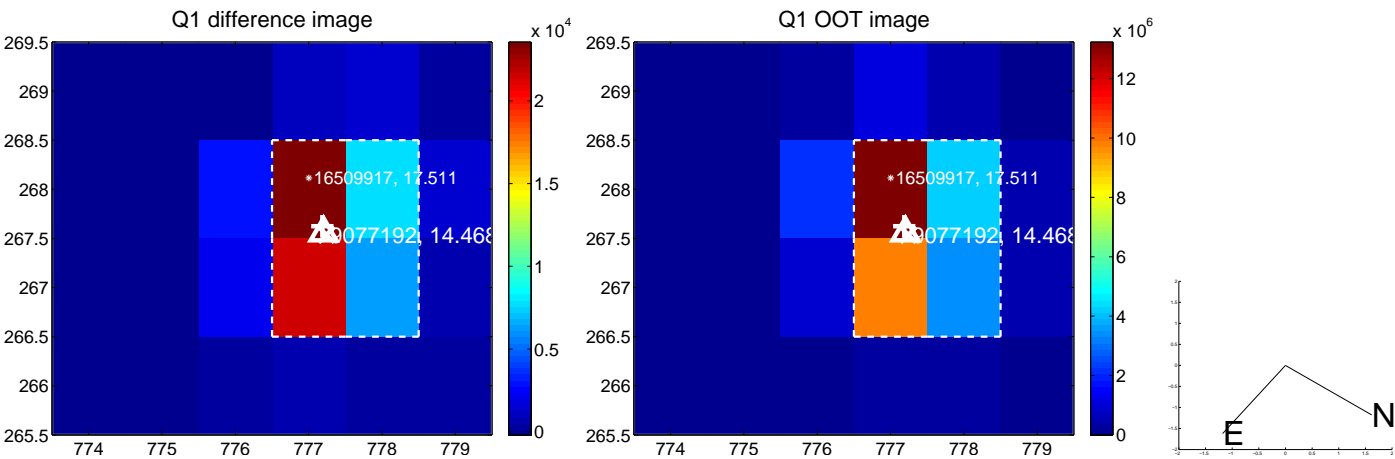
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.081 ± 0.070	1.15	0.055 ± 0.072	0.059 ± 0.068
PRF-fit source offset from KIC position	0.381 ± 0.069	5.55	-0.087 ± 0.073	-0.371 ± 0.068
photometric centroid source offset	1.40 ± 0.40	3.50	0.71 ± 0.40	-1.21 ± 0.40

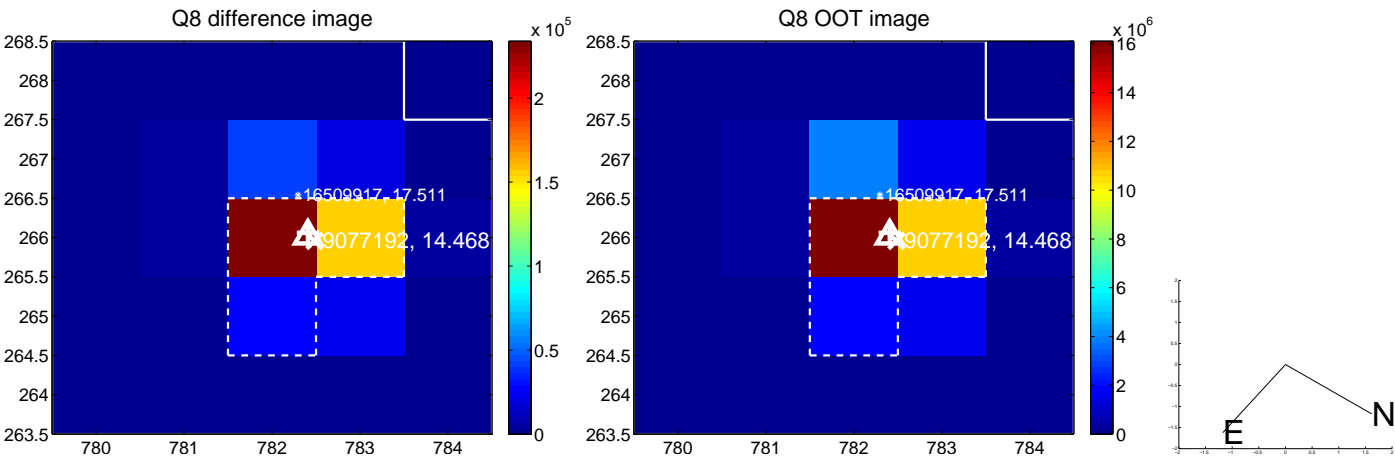
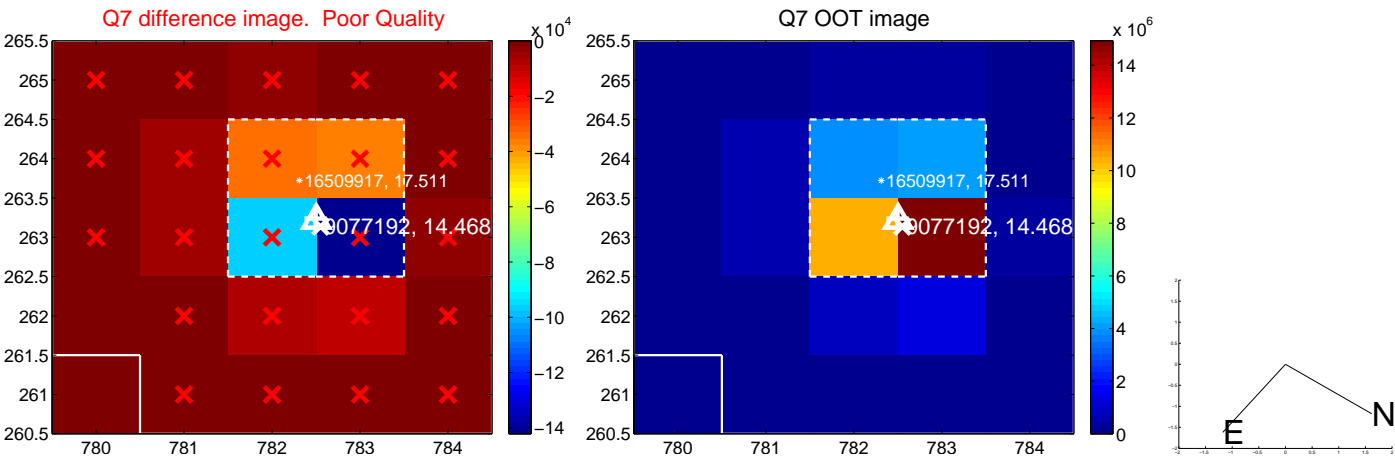
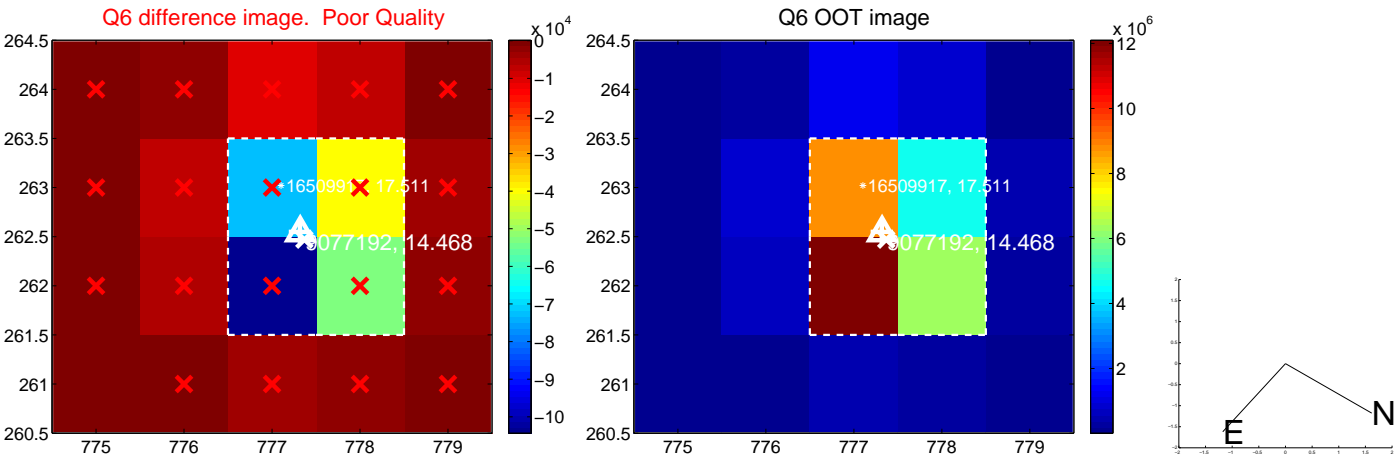
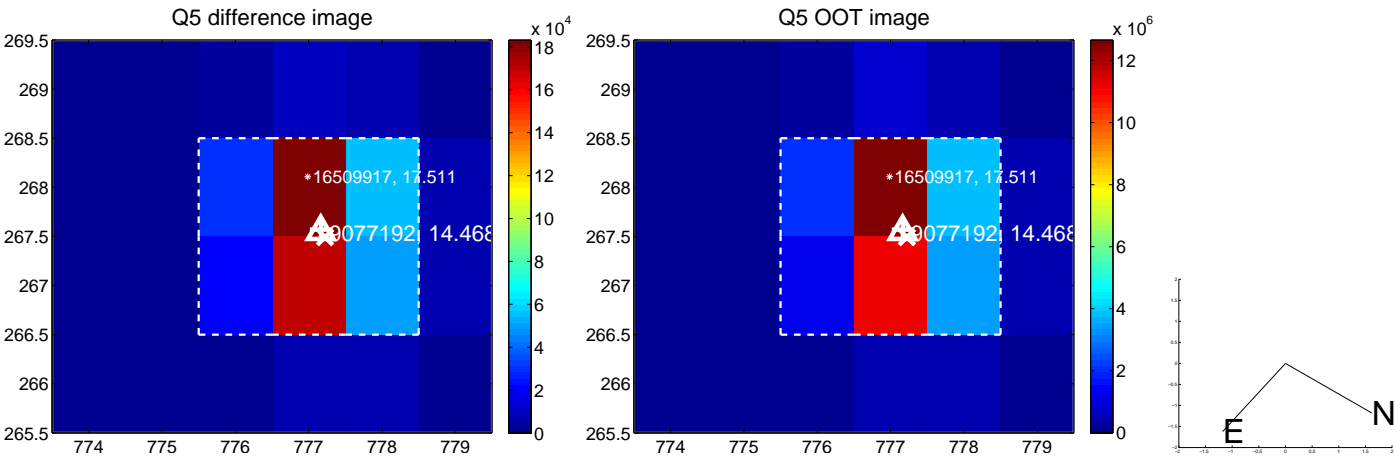


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

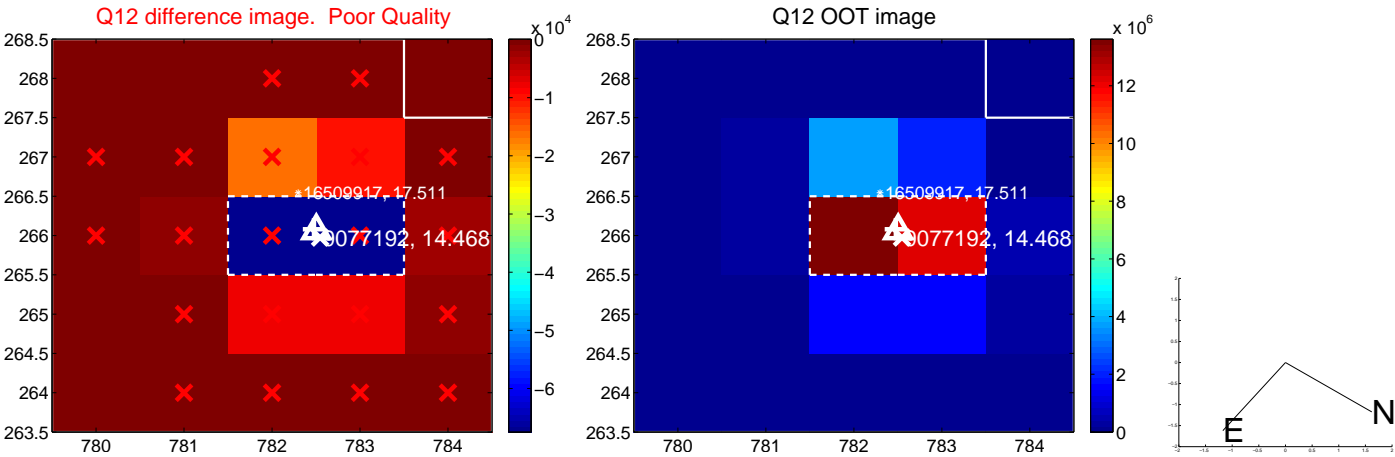
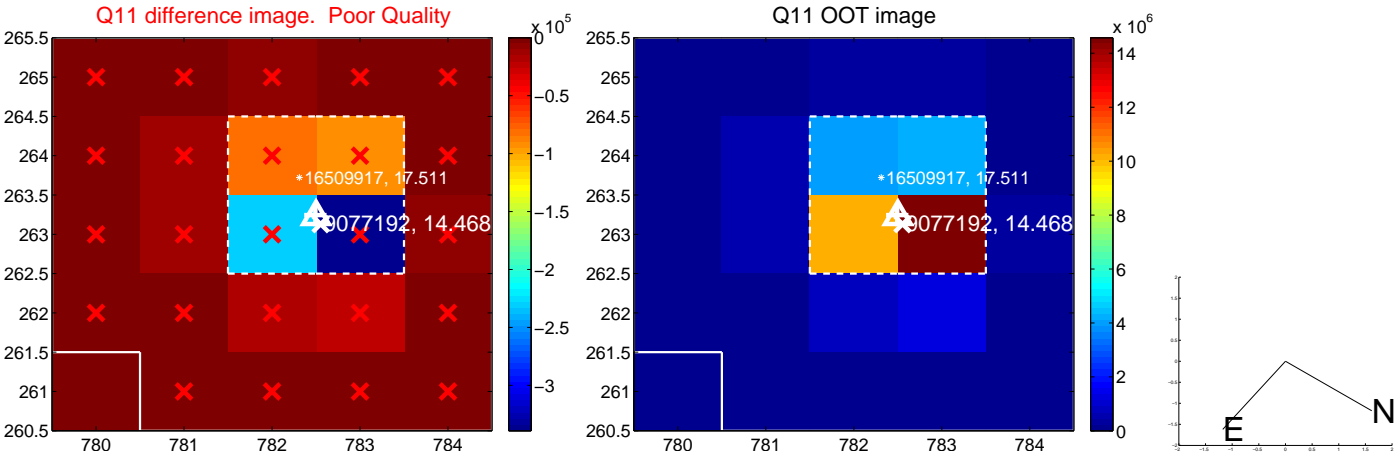
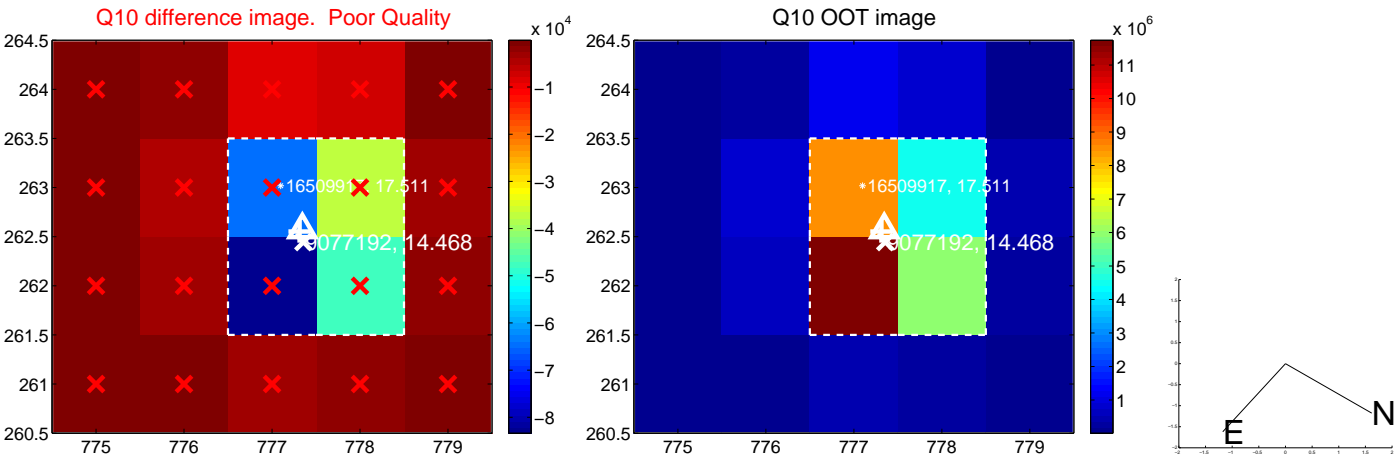
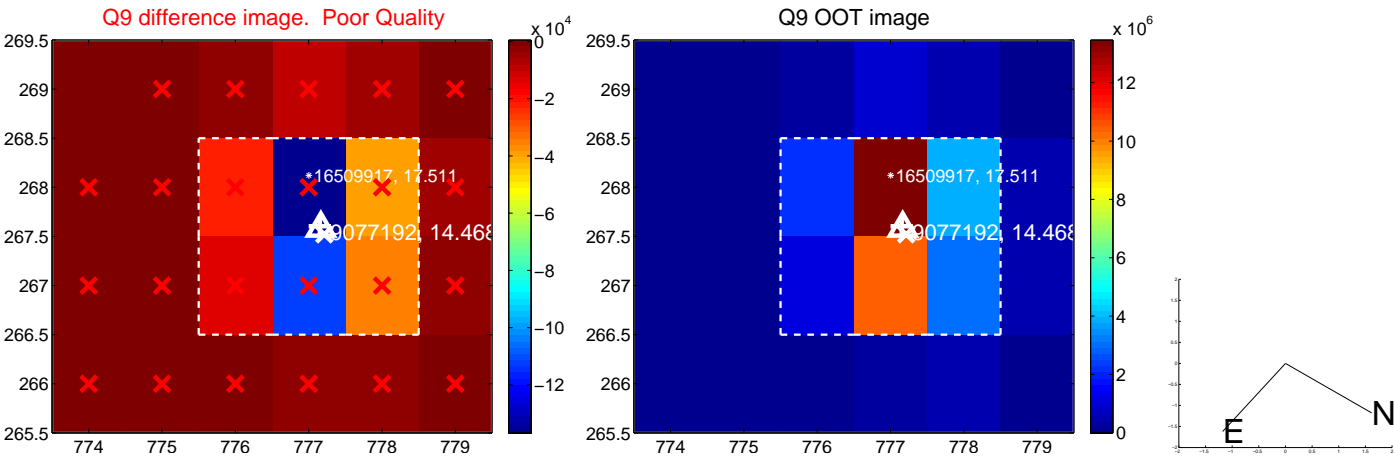
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



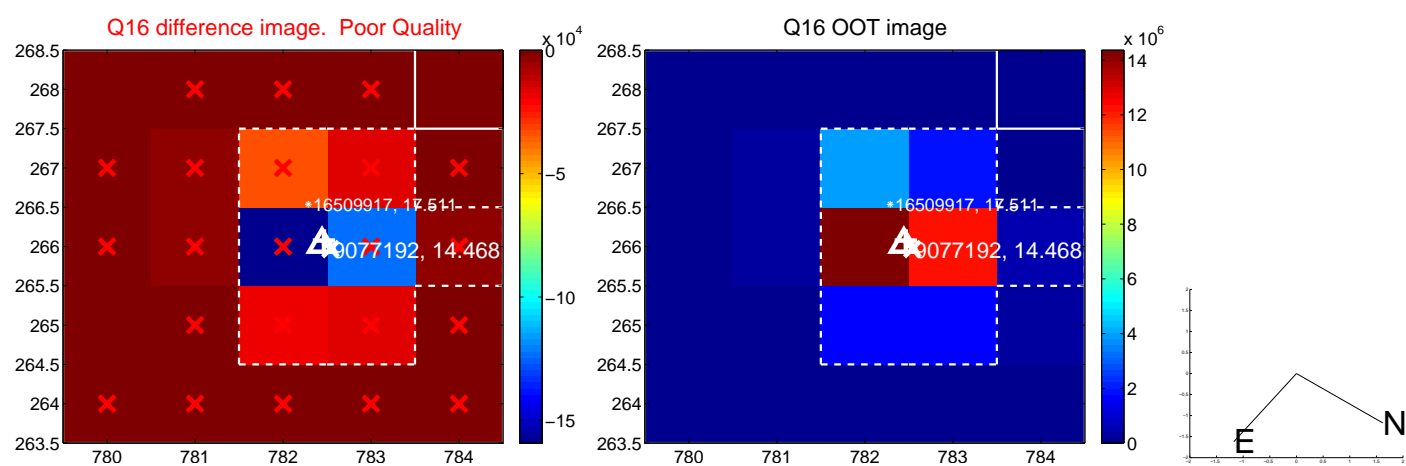
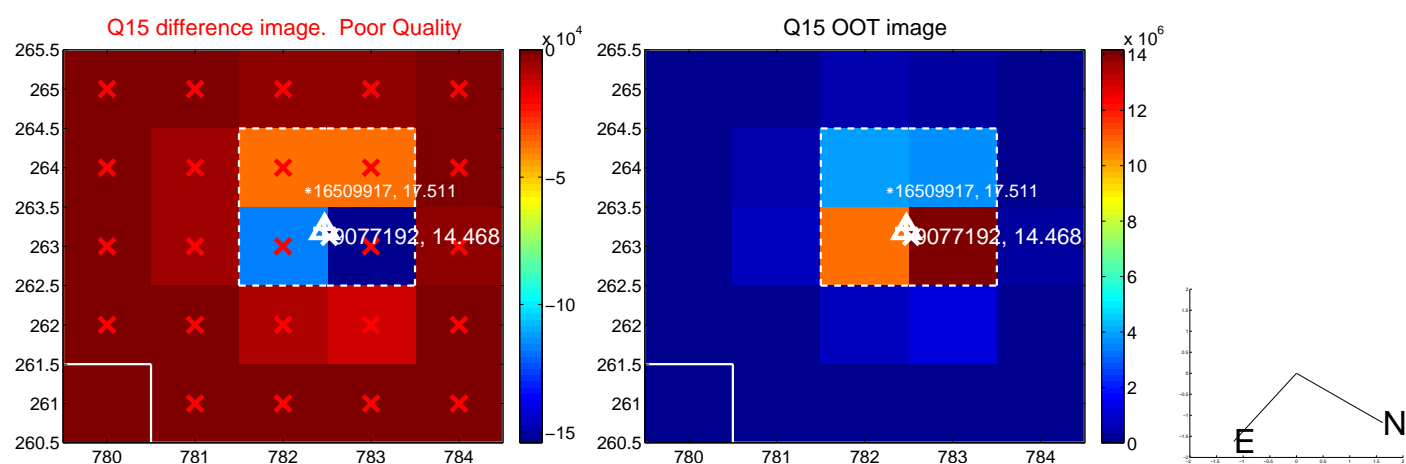
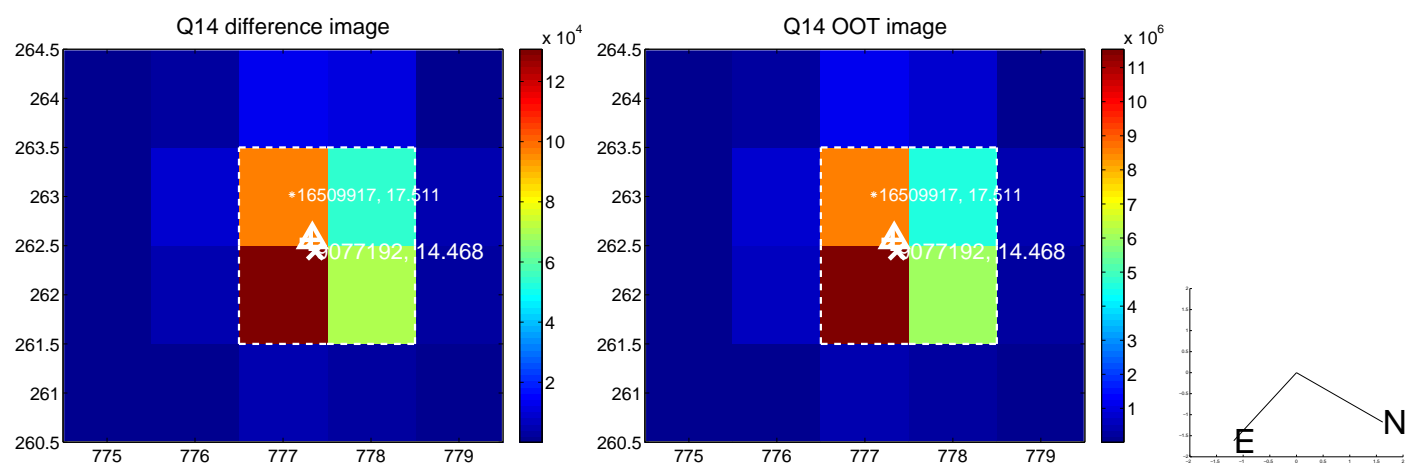
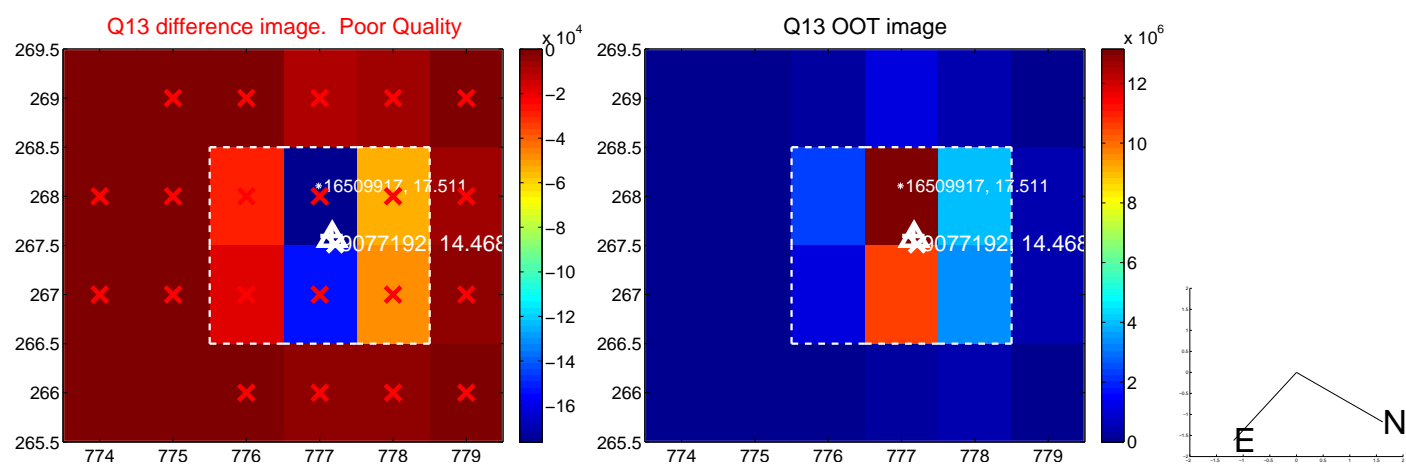
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



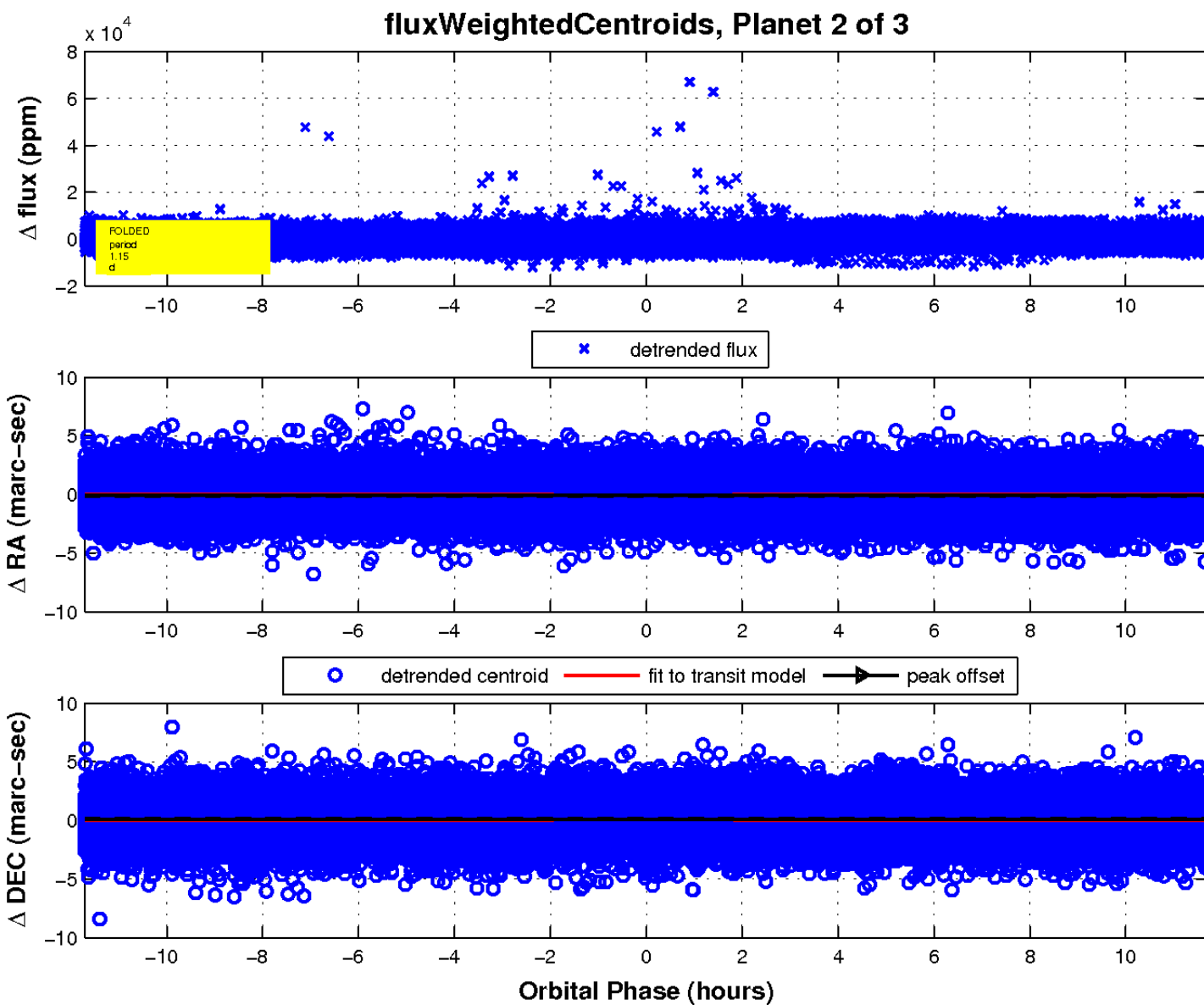
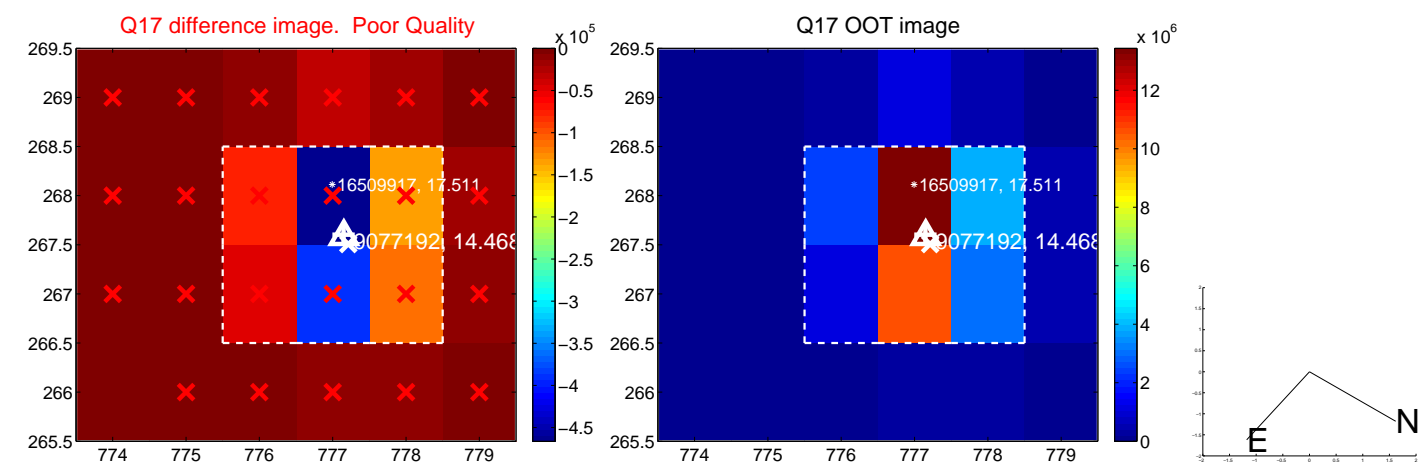
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

