

KIC 006544977

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})
006544977-01	OBS	No	3.617860	132.420415	50.9	13.158	9.9	11.7	2.11	6469	2.90	2922.08
006544977-02	OBS	No	236.638495	189.717356	0.0	19.133	13.0	0.0	2.11	6469	0.01	11.09
006544977-03	OBS	No	3.618626	133.928819	32.5	8.728	10.9	11.6	2.11	6469	1.39	2921.25
006544977-04	OBS	No	1.809124	132.991768	26.0	10.753	10.6	11.4	2.11	6469	1.23	7362.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006544977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006544977-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006544977-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
006544977-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

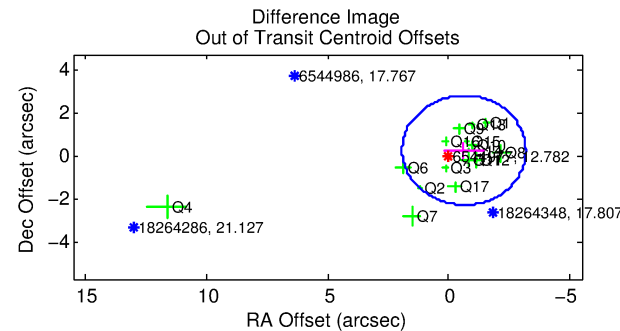
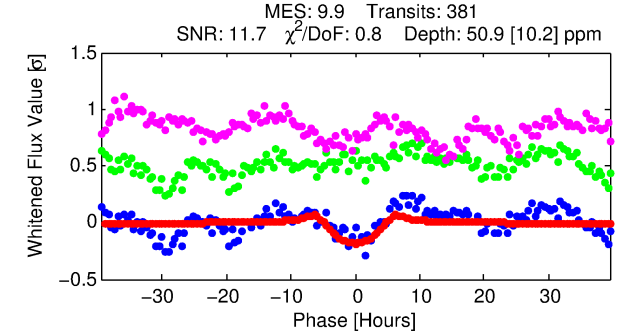
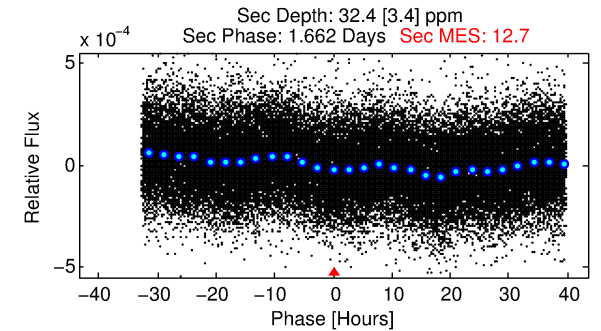
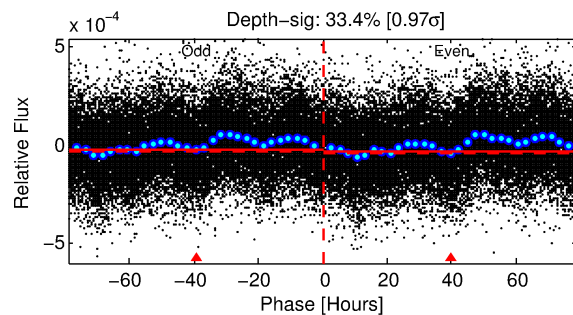
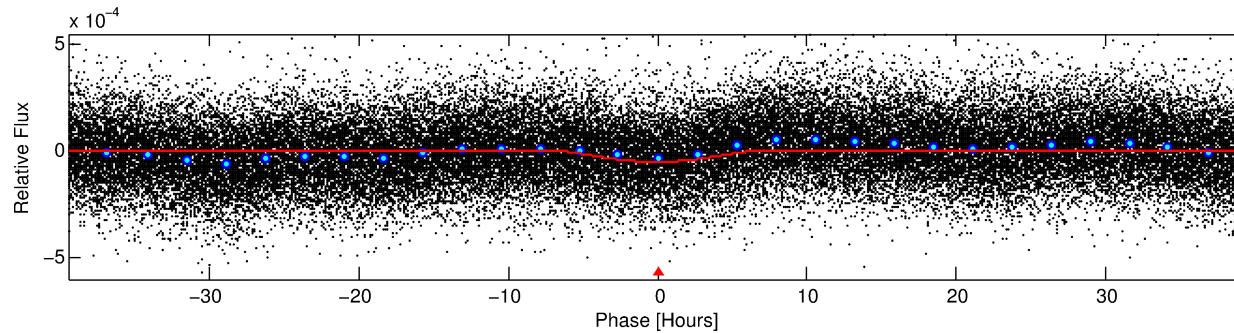
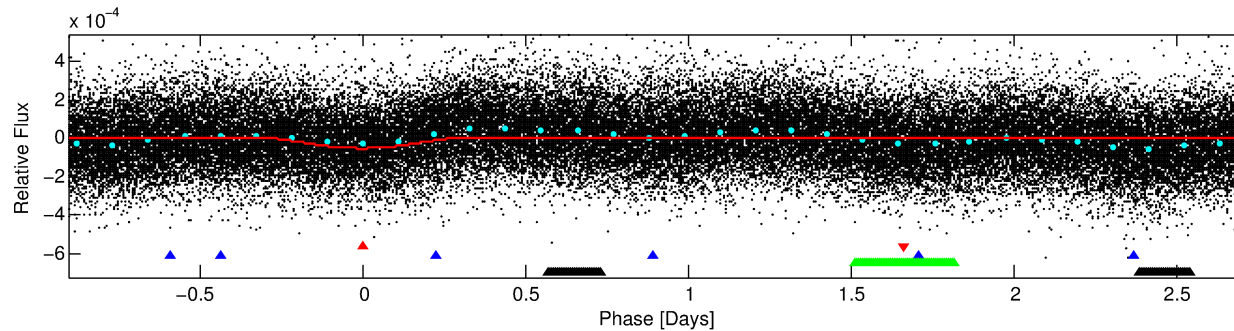
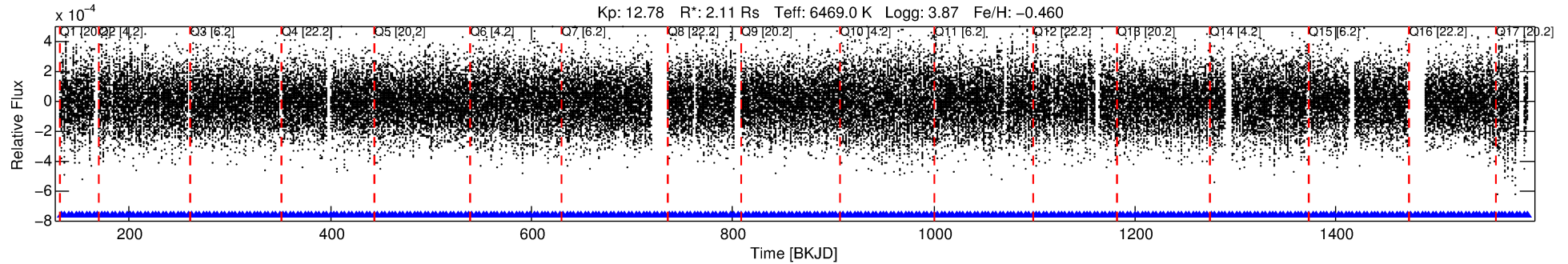
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006544977-01

No Significant Match Found

DV One-Page Summary

KIC: 6544977 Candidate: 1 of 4 Period: 3.618 d



DV Fit Results:

Period = 3.61786 [0.00008] d
Epoch = 132.4204 [0.0183] BKJD
Rp/R* = 0.0126 [0.0139]
a/R* = 1.06 [0.02]
b = 1.00 [0.02]
Seff = 2922.08 [1541.22]
Teq = 1875 [247] K
Rp = 2.90 [3.35] Re
a = 0.0489 [0.0160] AU
Ag = 5.05 [11.42] [0.35 σ]
Teffp = 4344 [2396] K [1.03 σ]

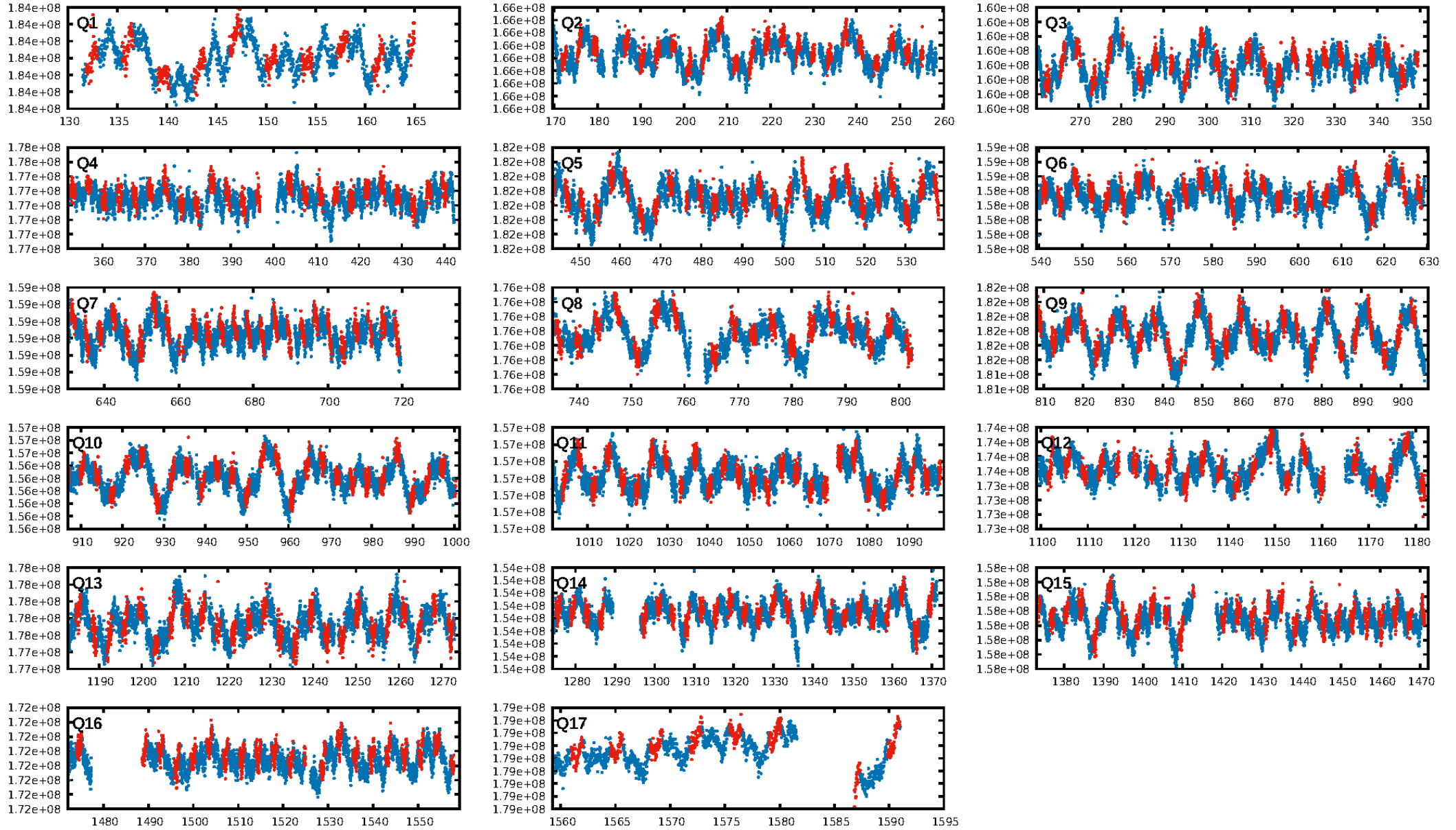
DV Diagnostic Results:

ShortPeriod-sig: 98.9% [2.55 σ]
LongPeriod-sig: 0.1% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [363/363]
GhostDiagnostic-chr: 1.431
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.686 arcsec [0.81 σ]
KicOffset-rm: 0.916 arcsec [1.22 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.62 [10/16]
DiffImageOverlap-fno: 0.00 [0/17]

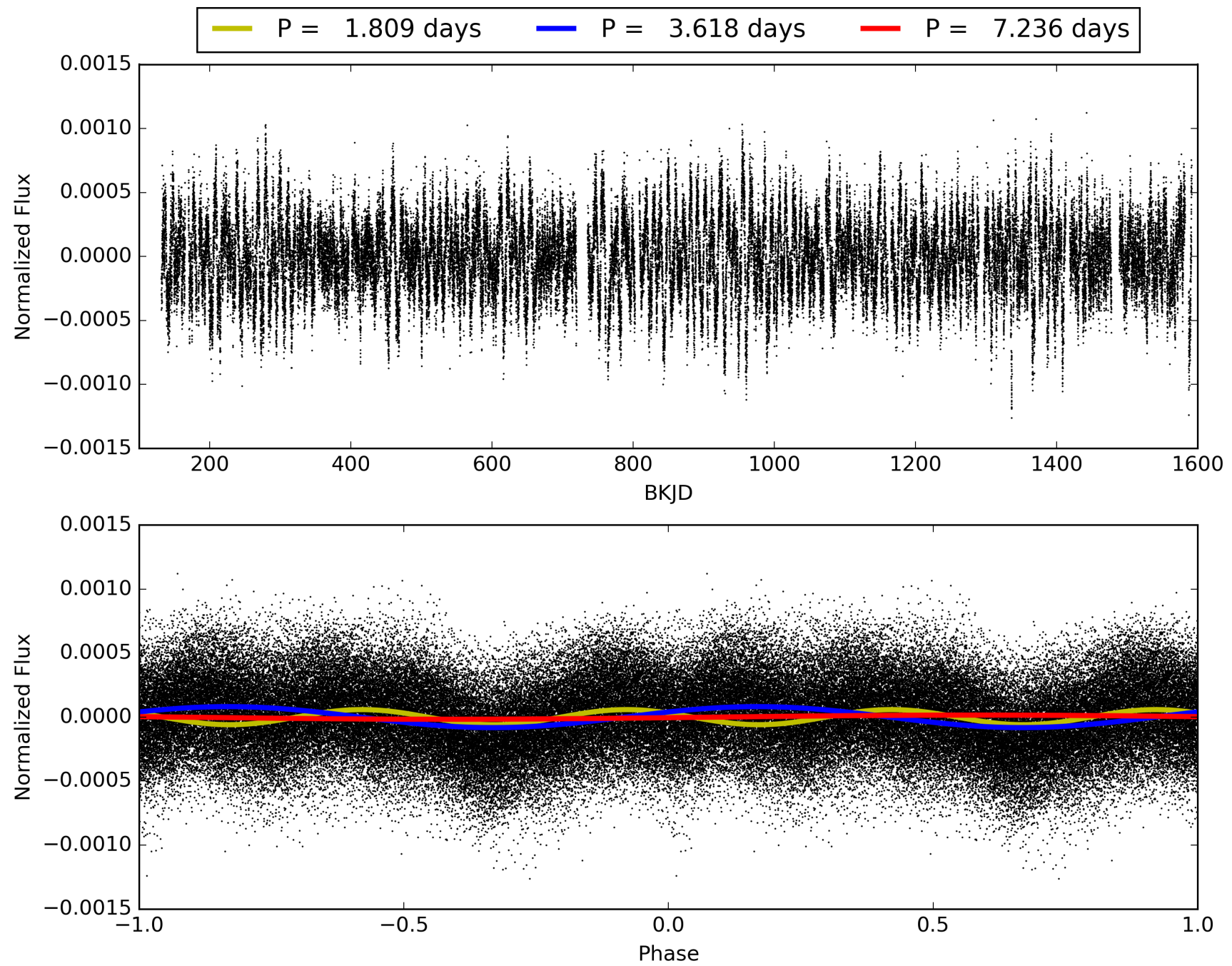
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006544977-01, PDC Light Curves

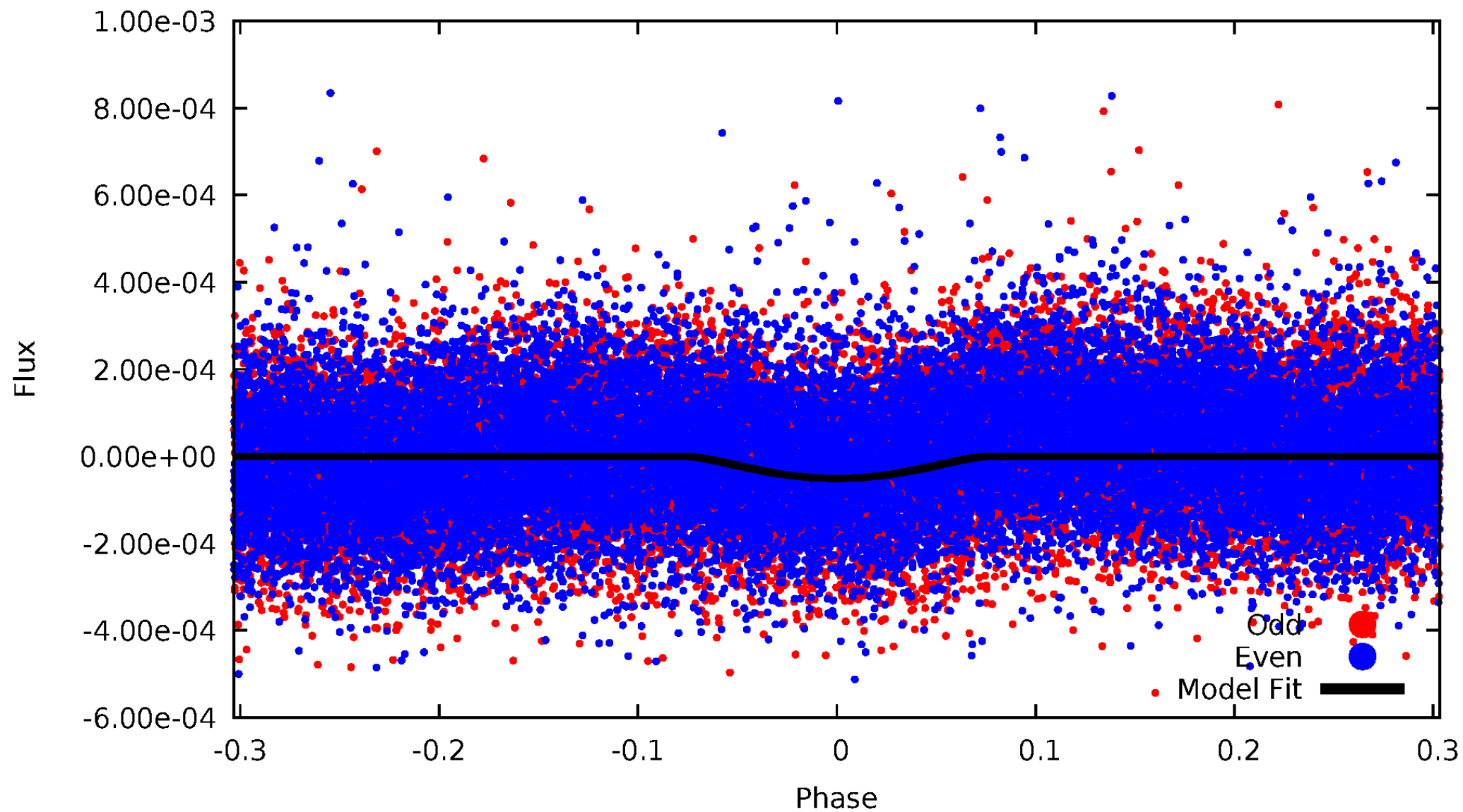


TCE 006544977-01



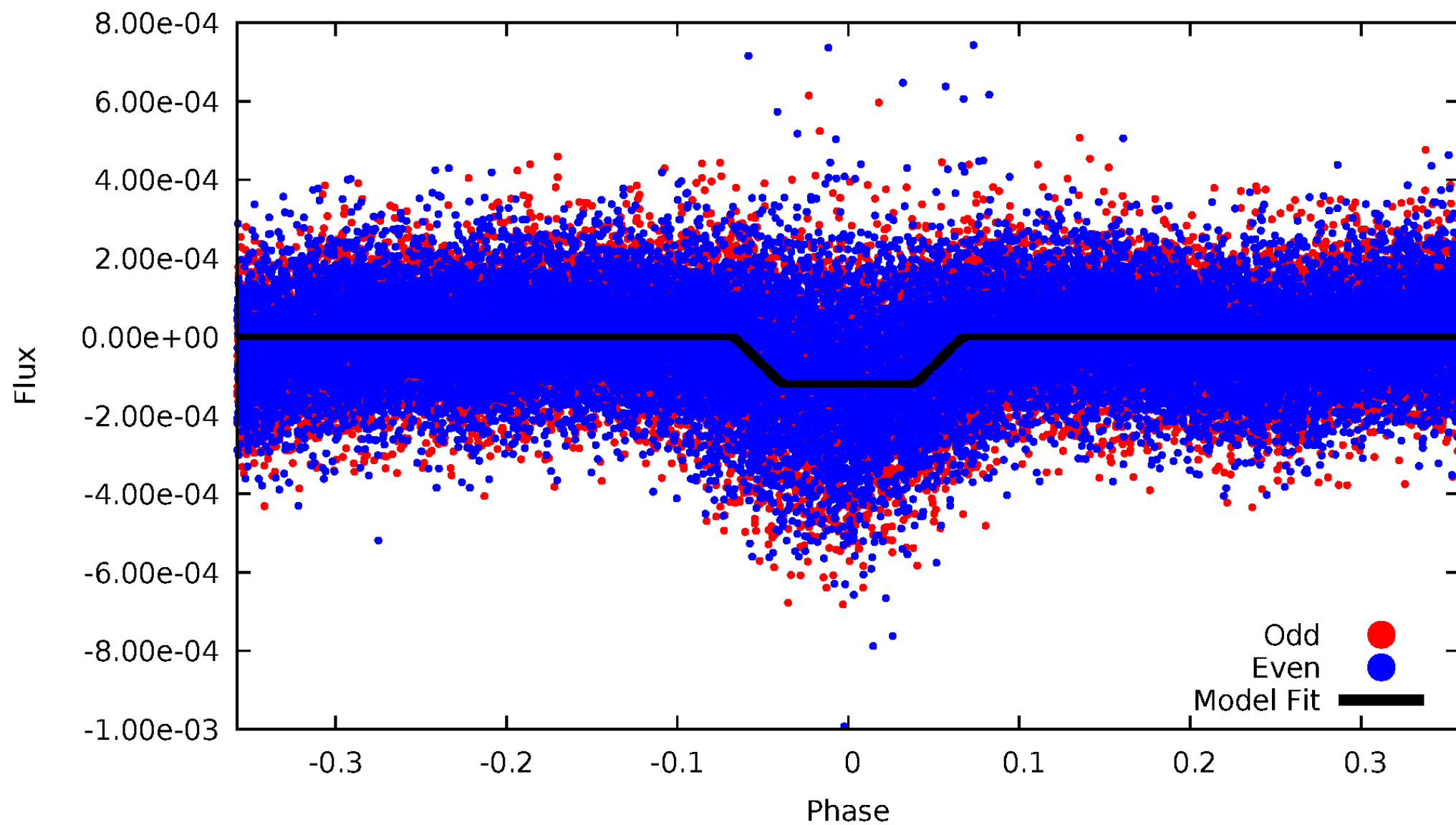
DV Odd/Even

TCE 006544977-01

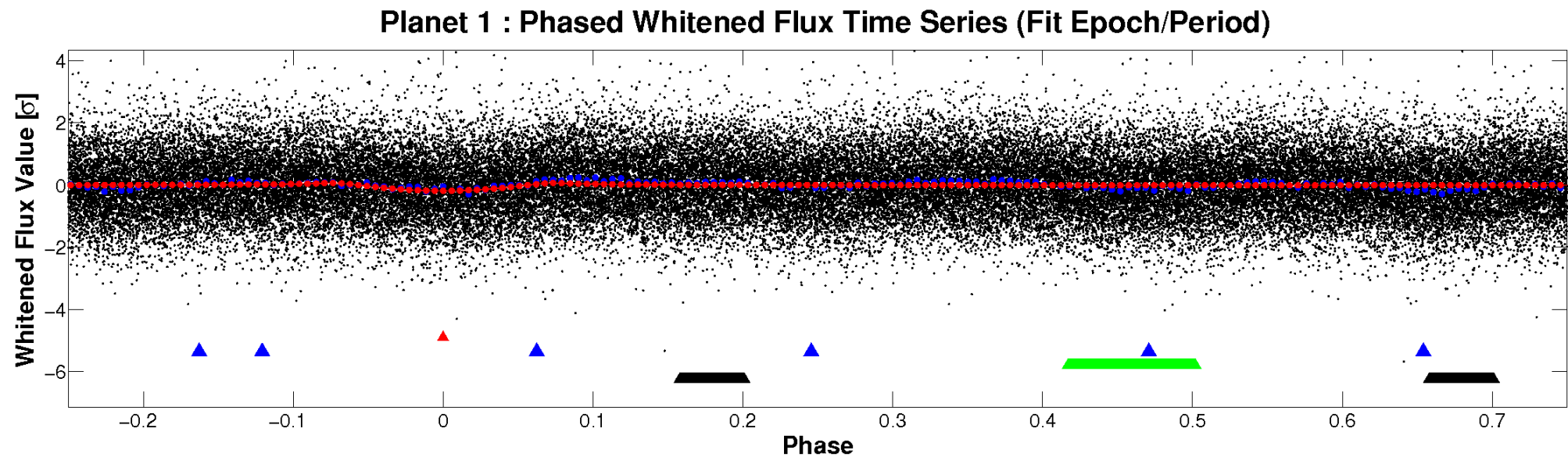
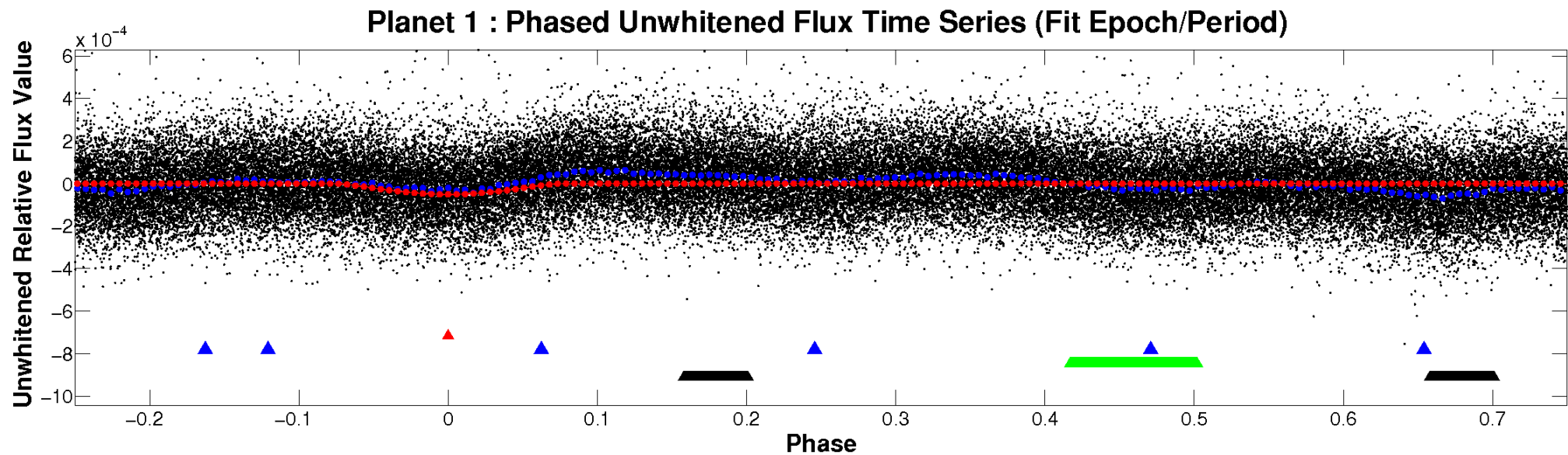


ALT Odd/Even

TCE 006544977-01

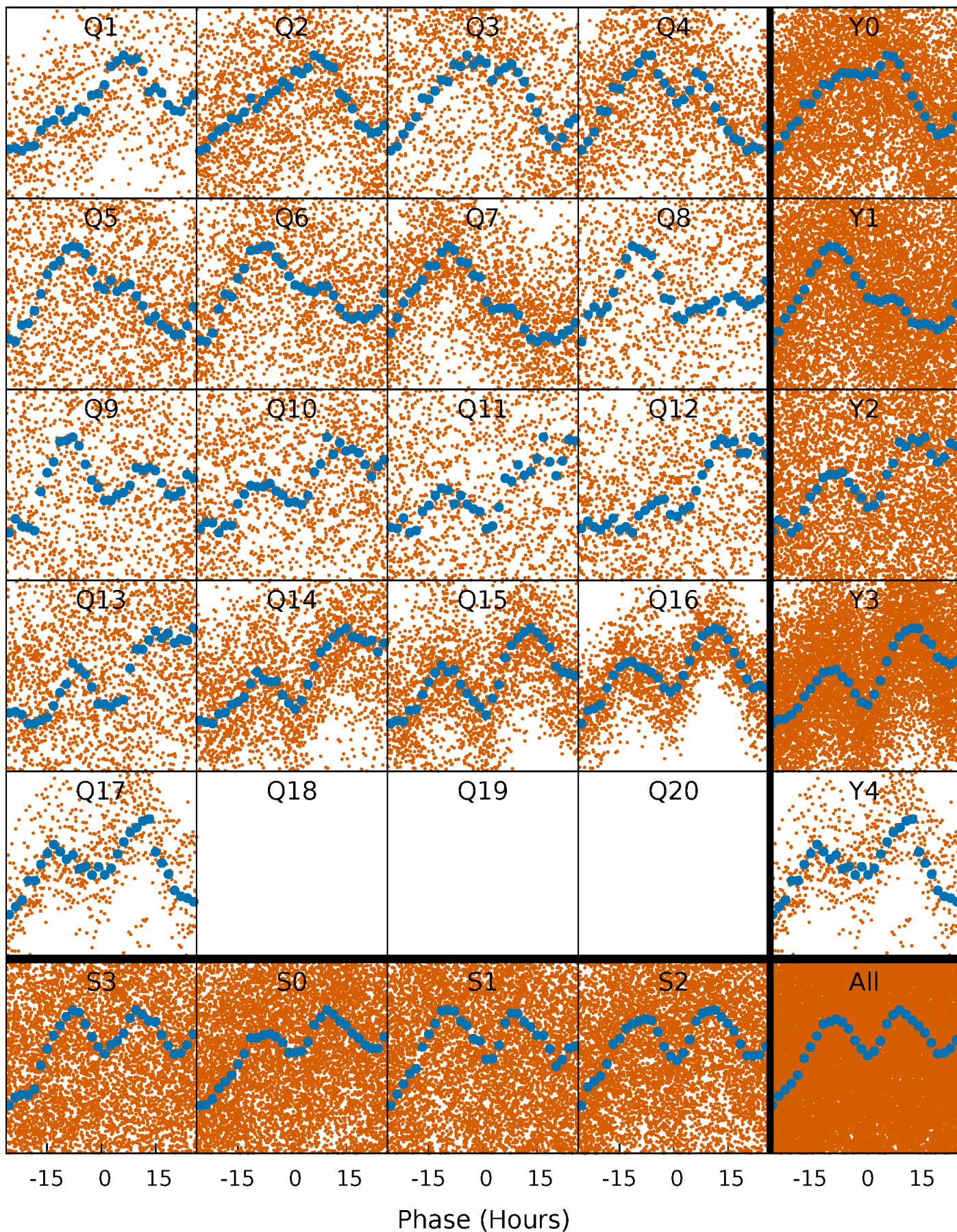


Non-Whitened Vs. Whitened Light Curve



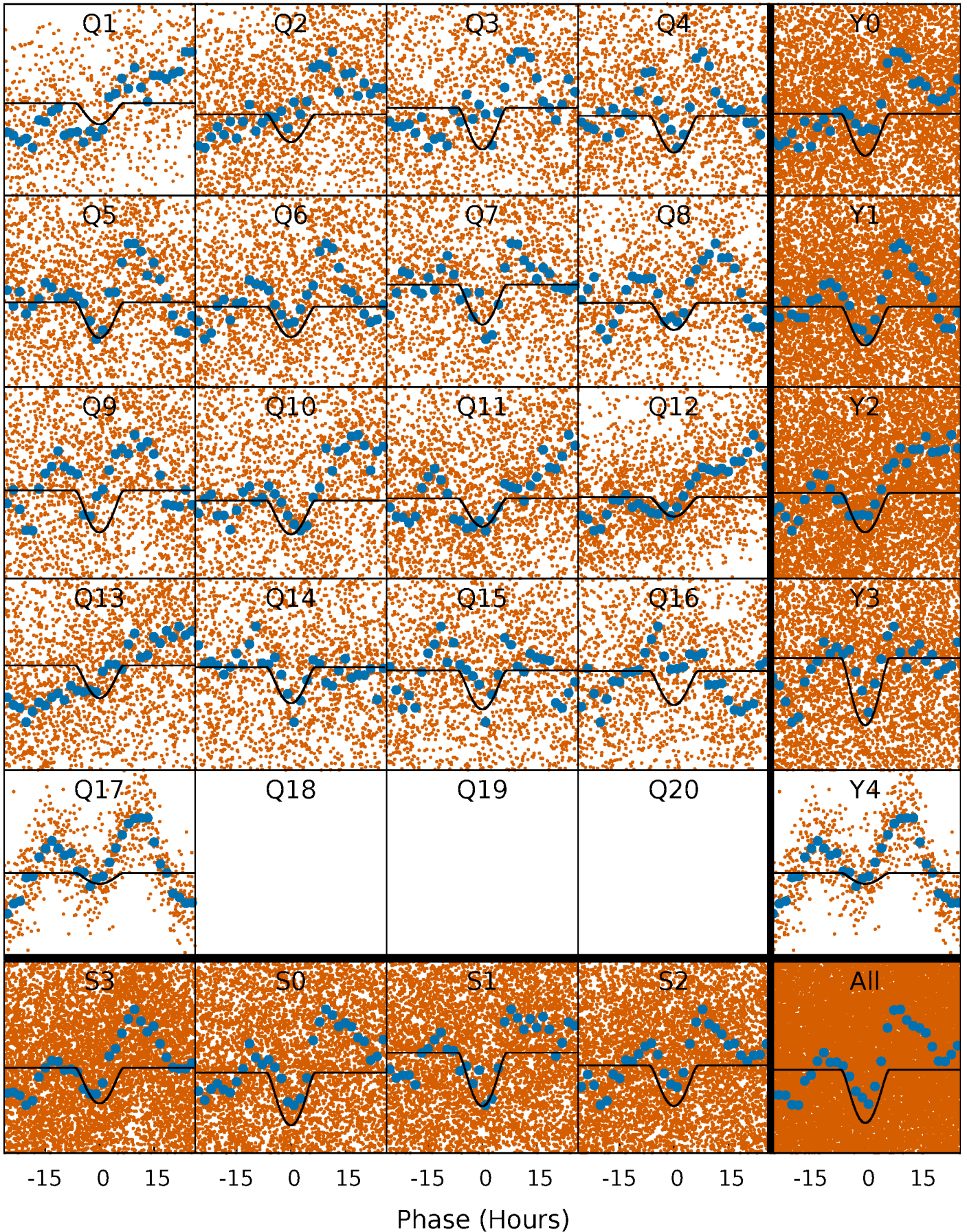
PDC Quarter-Phased Transit Curves

TCE 006544977-01 P= 3.617860 Days $T_0=132.420415$ (BKJD)



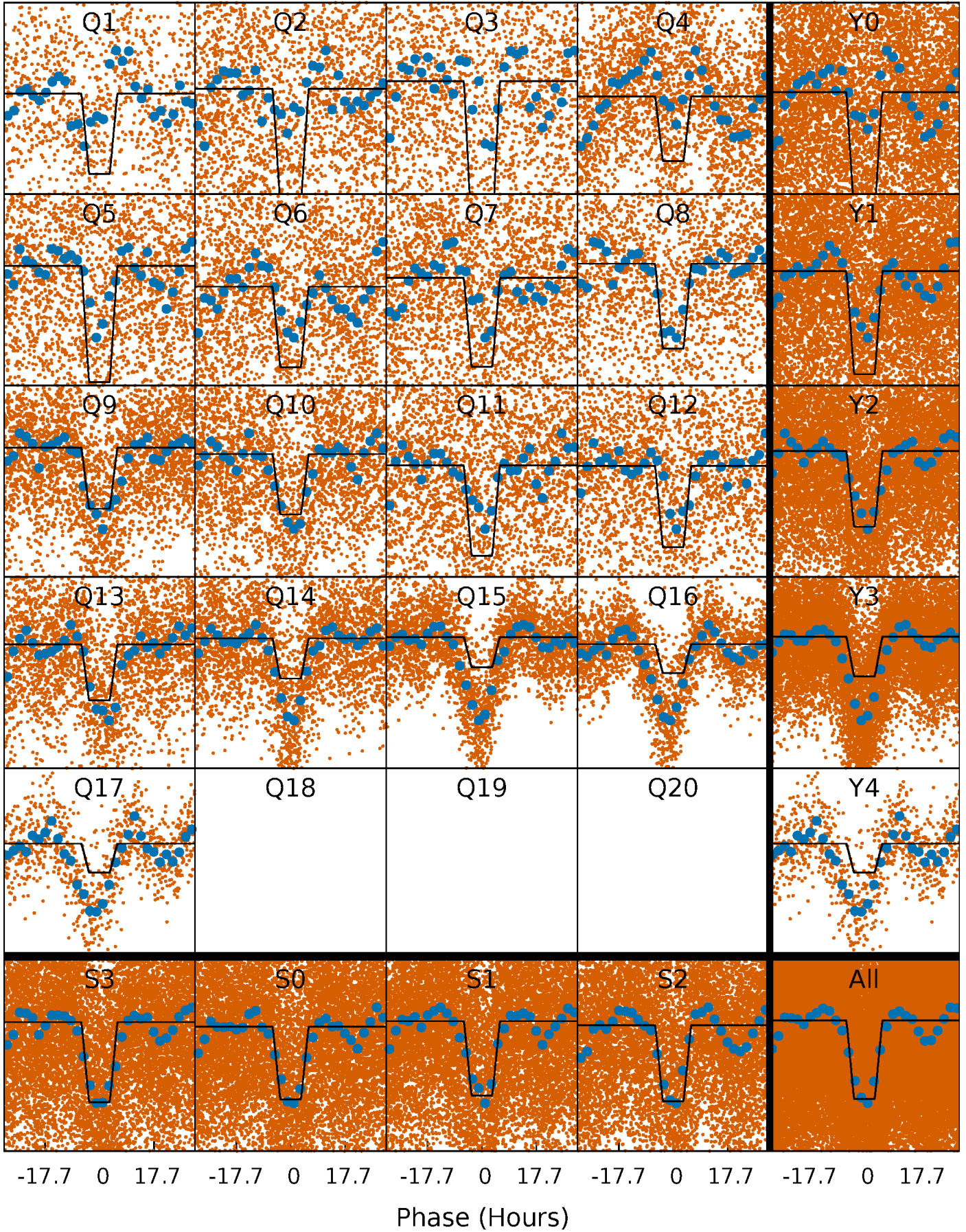
DV Quarter-Phased Transit Curves

TCE 006544977-01 P= 3.617860 Days $T_0=132.420415$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

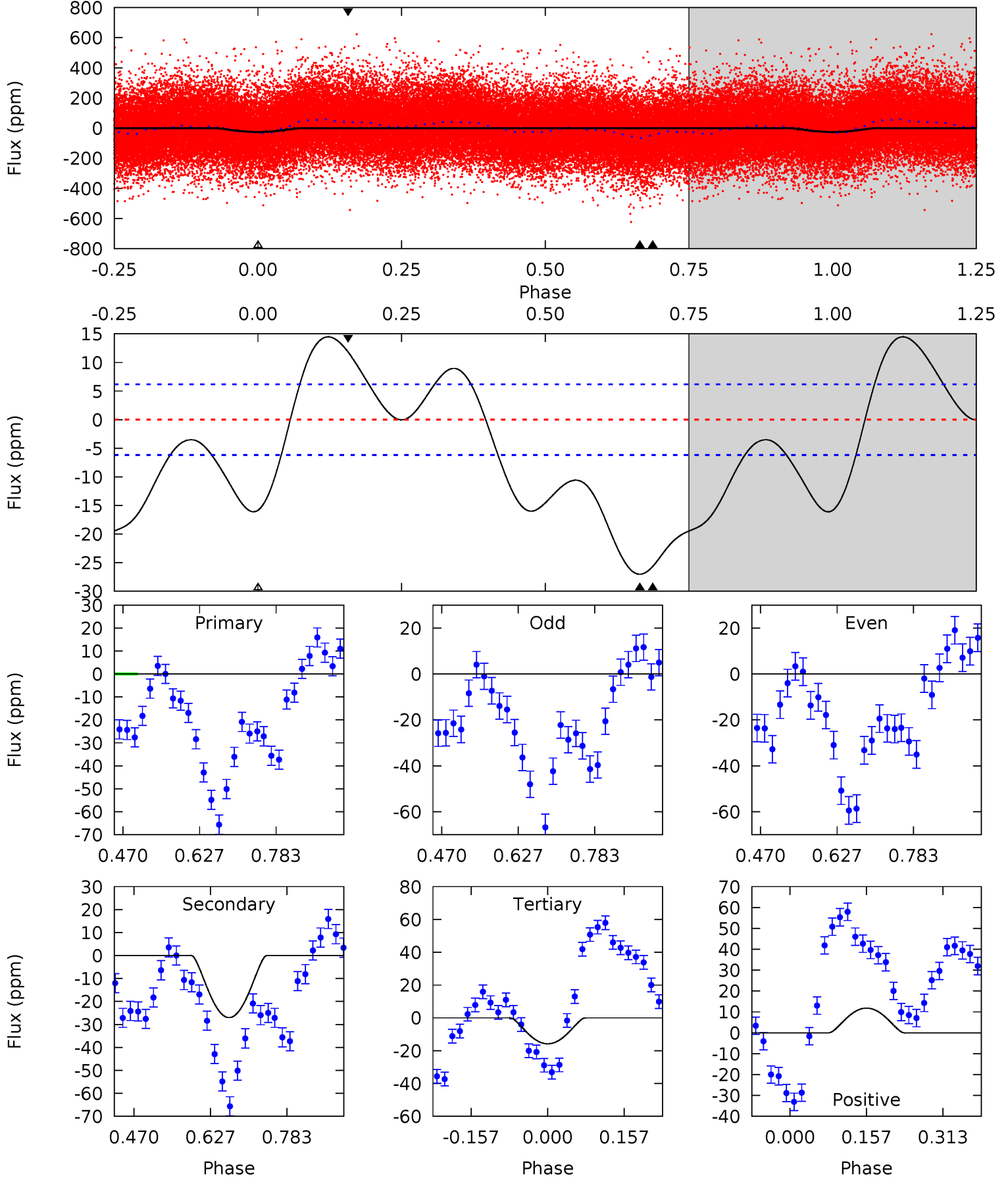
TCE 006544977-01 P= 3.618019 Days $T_0=132.418021$ (BKJD)



DV Model-Shift Uniqueness Test

006544977-01, P = 3.617860 Days, E = 128.802555 Days

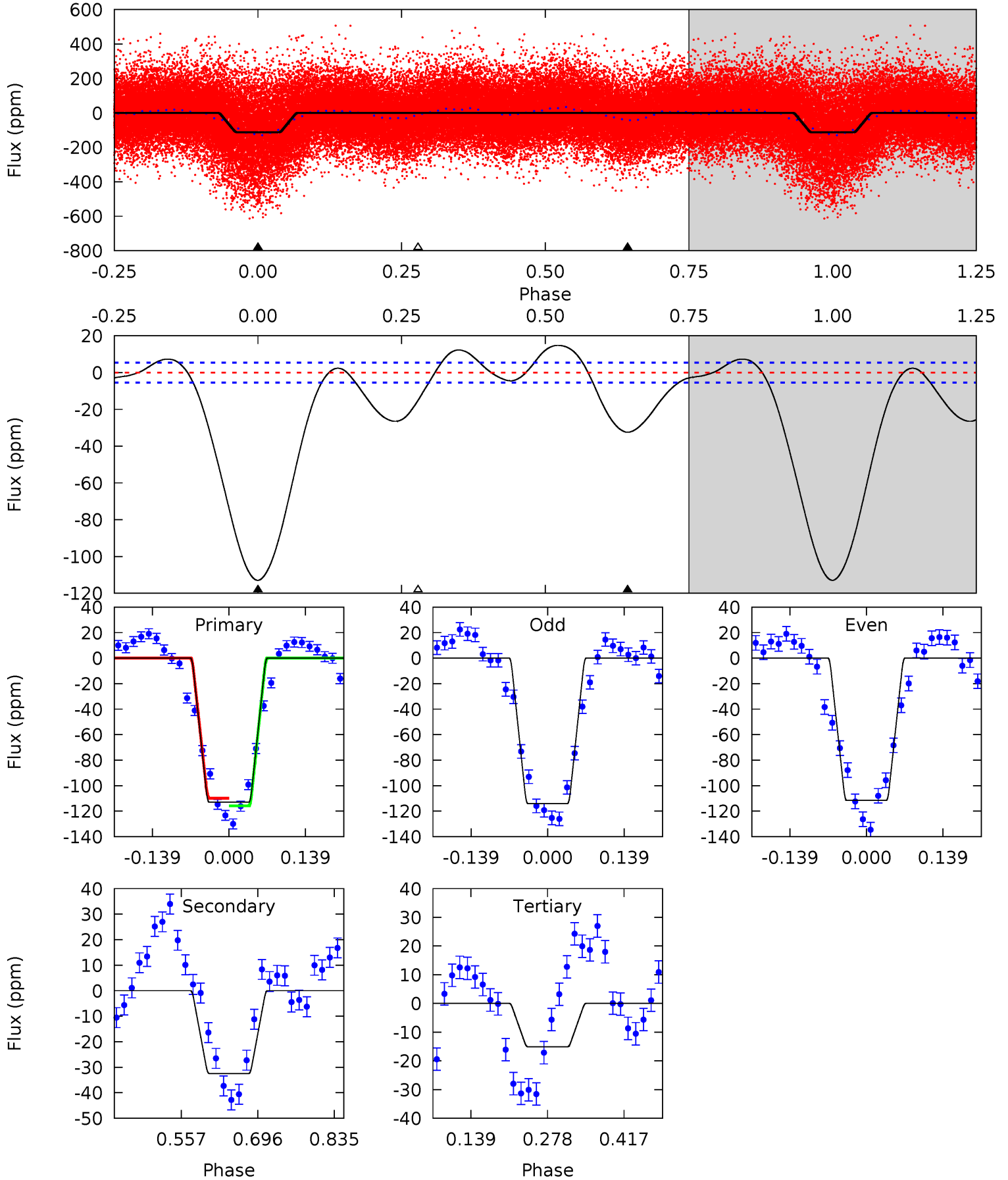
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	19.6	11.5	8.55	4.47	1.42	6.84	7.12	10.0	8.10	11.0	5.51	1.50	0.35	1.00



Alt Model-Shift Uniqueness Test

006544977-01, P = 3.618019 Days, E = 128.800002 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.3	27.1	12.6	0	4.50	1.48	9.58	81.7	94.3	14.5	27.1	1.02	1.13	0.12	2.49



Stellar Parameters For KIC 006544977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6469^{+156}_{-176}	$3.865^{+0.300}_{-0.100}$	$-0.460^{+0.300}_{-0.300}$	$2.109^{+0.397}_{-0.737}$	$1.189^{+0.227}_{-0.185}$	$0.179^{+0.344}_{-0.057}$
	+2%/-3%	+8%/-3%	+65%/-65%	+19%/-35%	+19%/-16%	+193%/-32%
Source	PHO1	FLK73	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 006544977-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-27 ± 1	$3.55^{+2.68}_{-2.31}$	2580^{+153}_{-226}	3892^{+2359}_{-731}	$2.897^{+20.582}_{-1.953}$
Alt.	-32 ± 1	$2.97^{+2.84}_{-2.00}$	2569^{+154}_{-204}	4348^{+2931}_{-996}	$4.917^{+40.793}_{-3.651}$

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 $A_{obs} \gg 1.0$

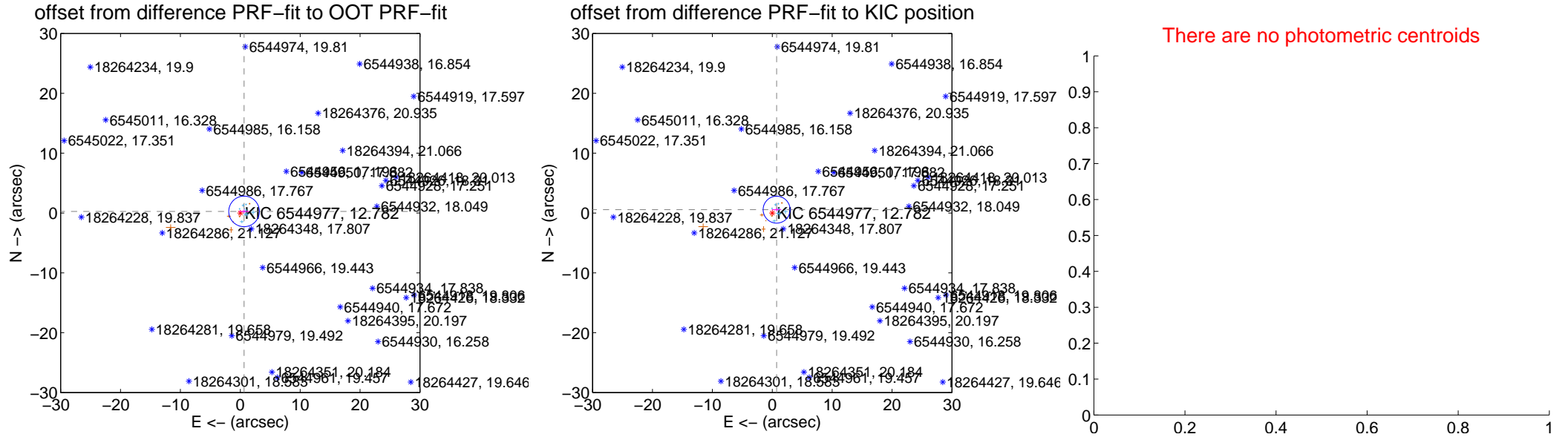
DV Centroid Data

Supplemental centroid analysis for 006544977-01. Kepler magnitude: 12.78. Transit SNR 11.73

There are 10 quarters with good PRF difference image offsets

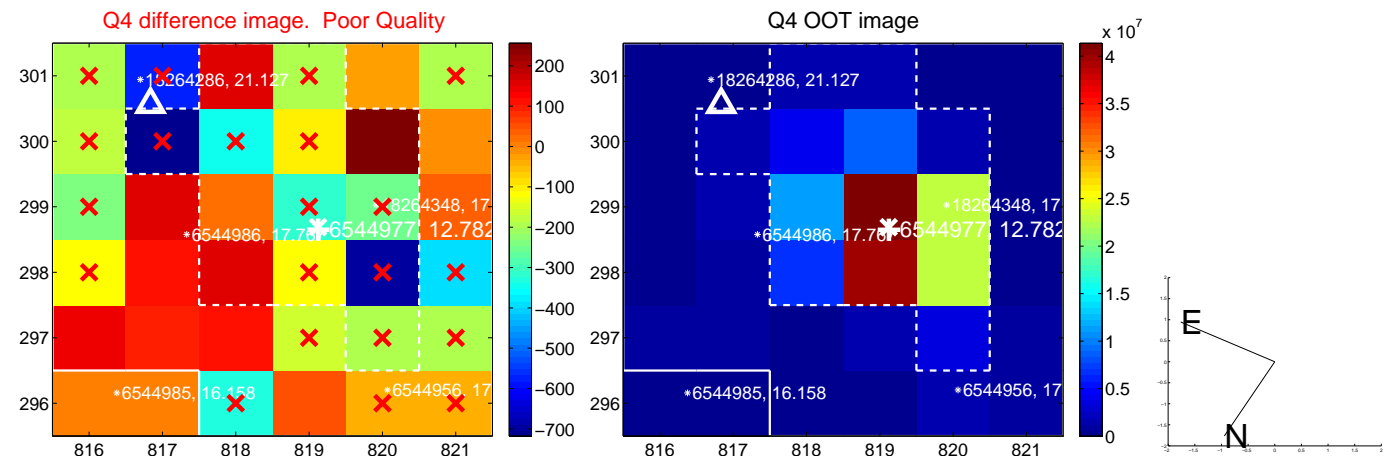
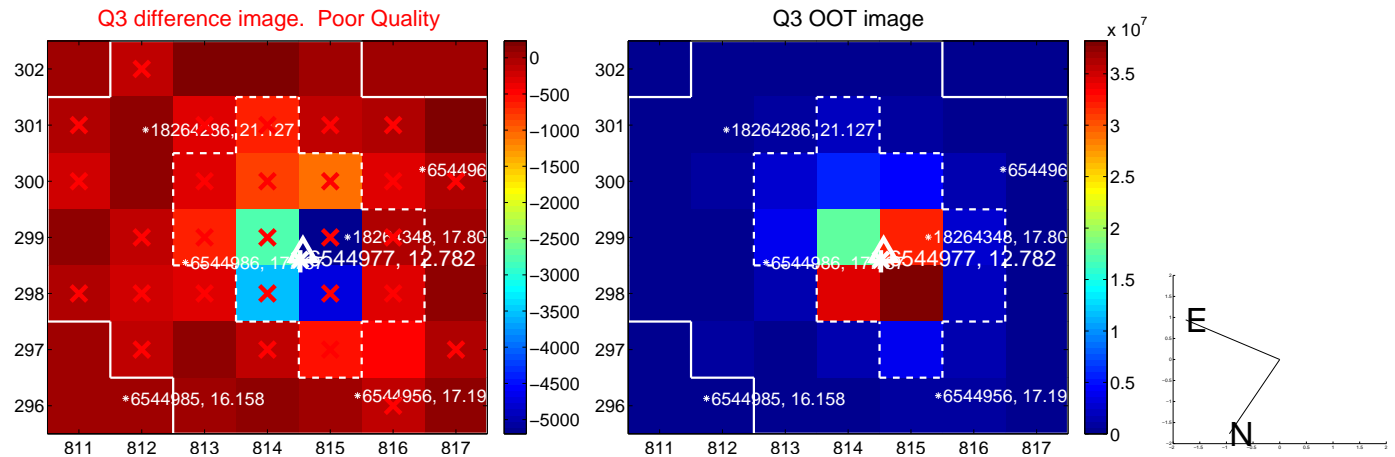
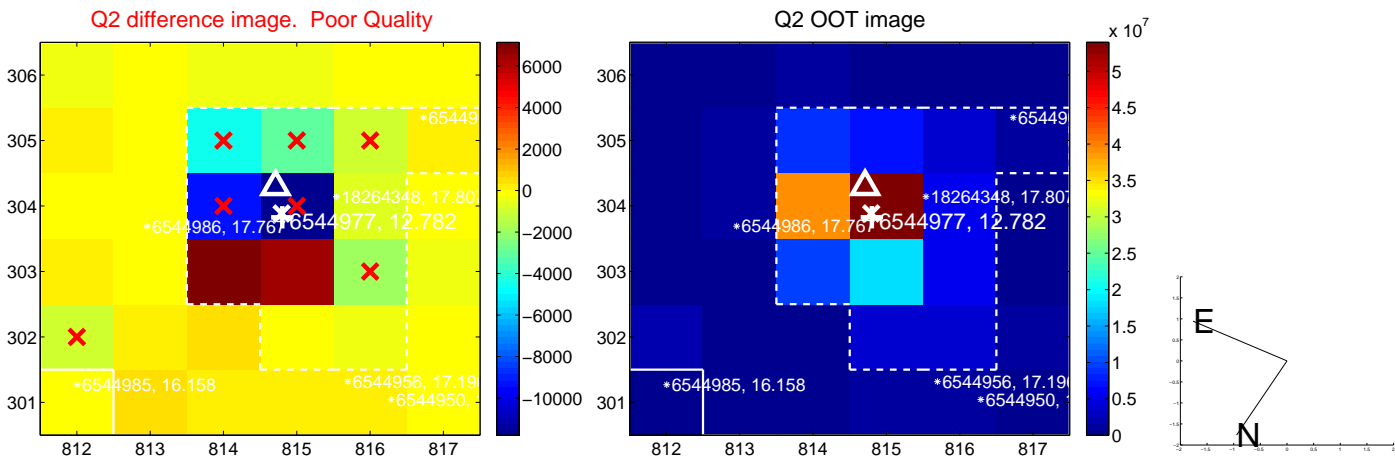
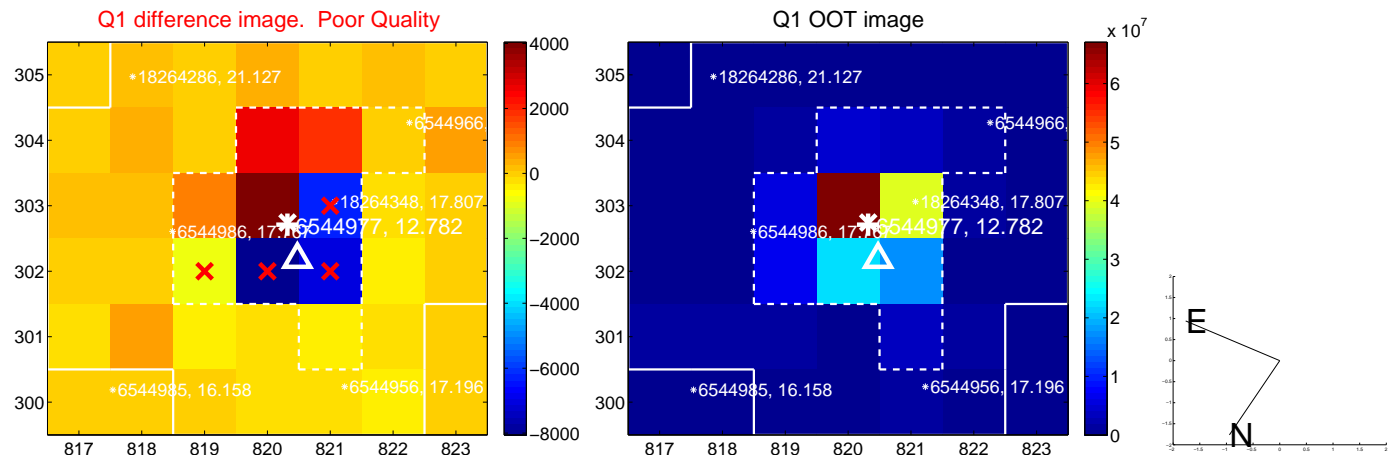
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.686 ± 0.852	0.81	-0.632 ± 0.835	0.268 ± 0.337
PRF-fit source offset from KIC position	0.916 ± 0.750	1.22	-0.727 ± 0.787	0.558 ± 0.311
photometric centroid source offset	—	—	—	—

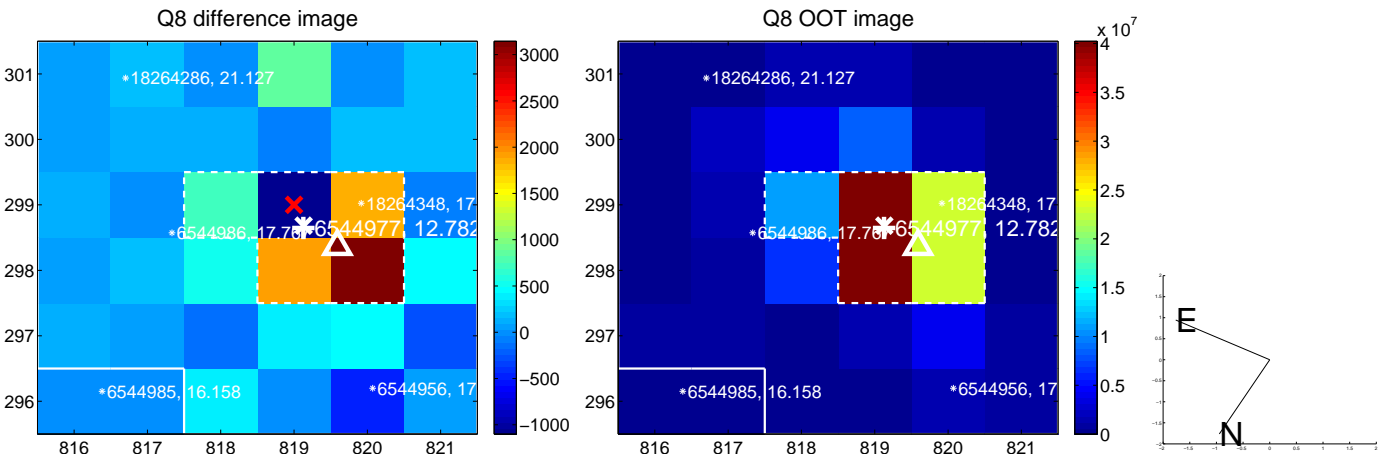
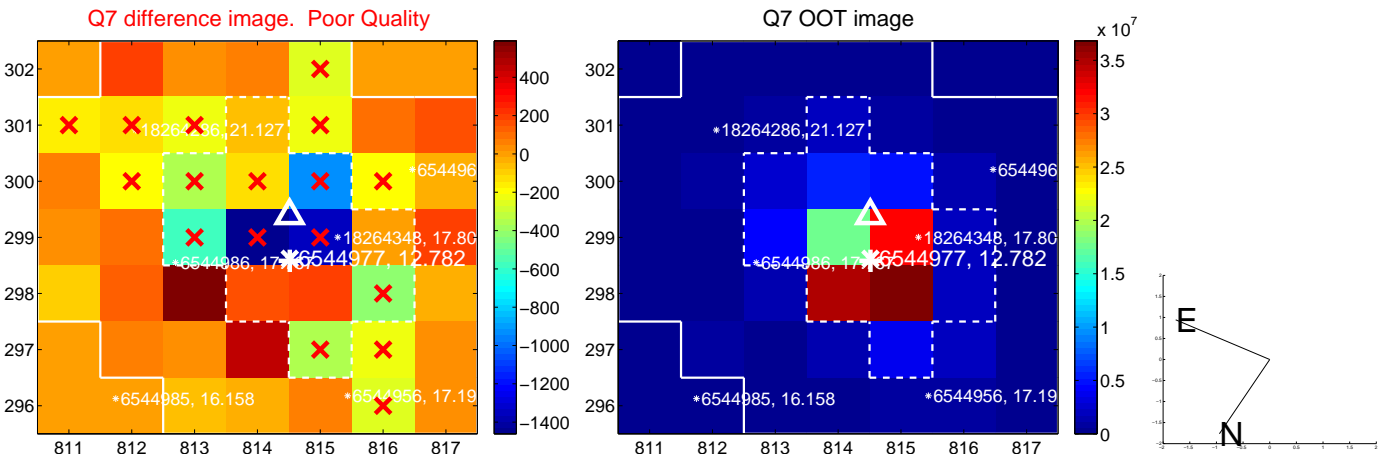
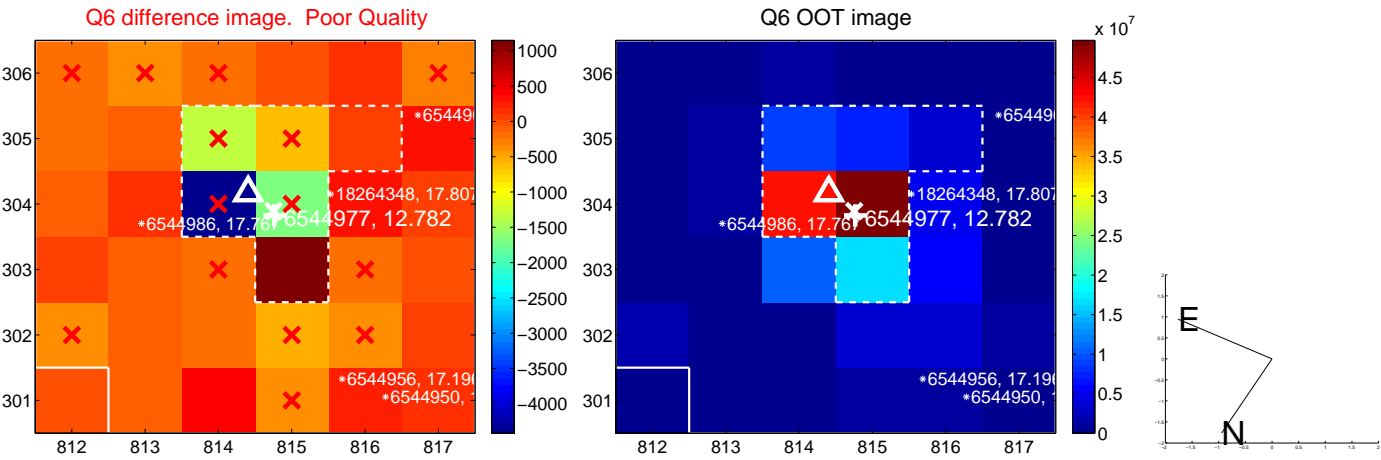
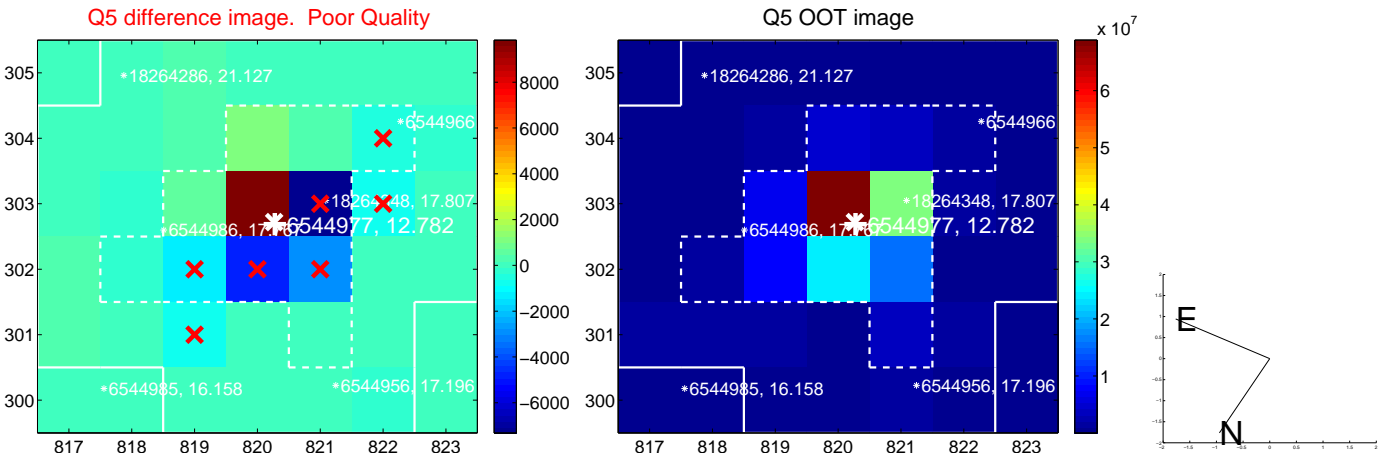


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

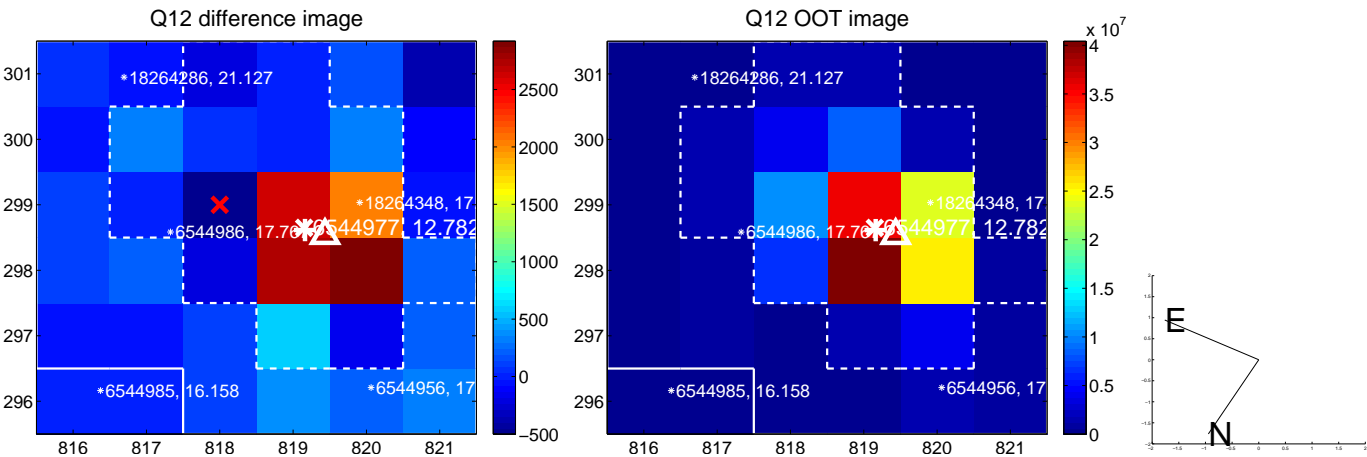
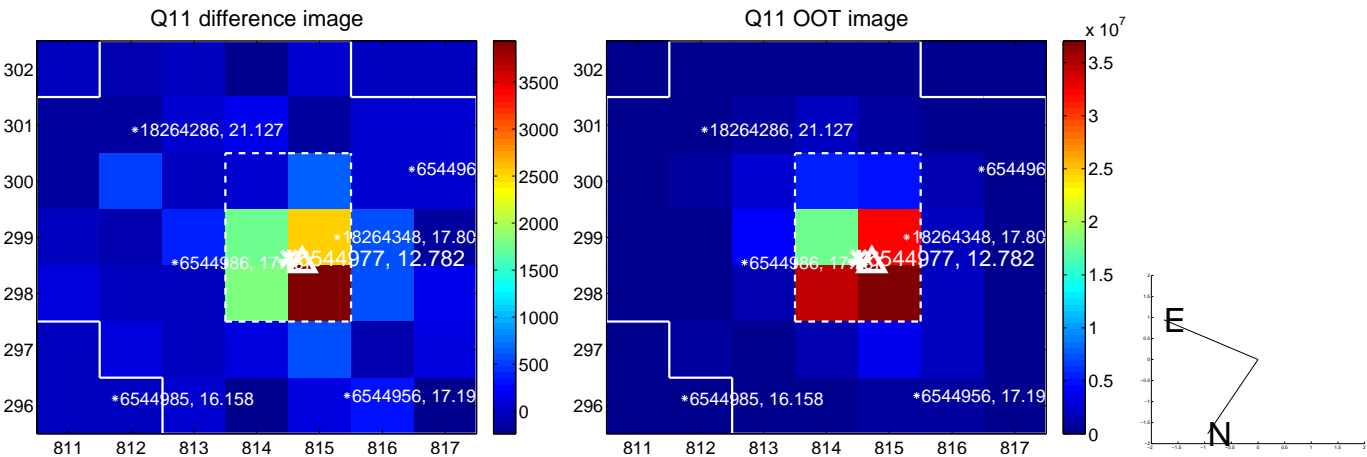
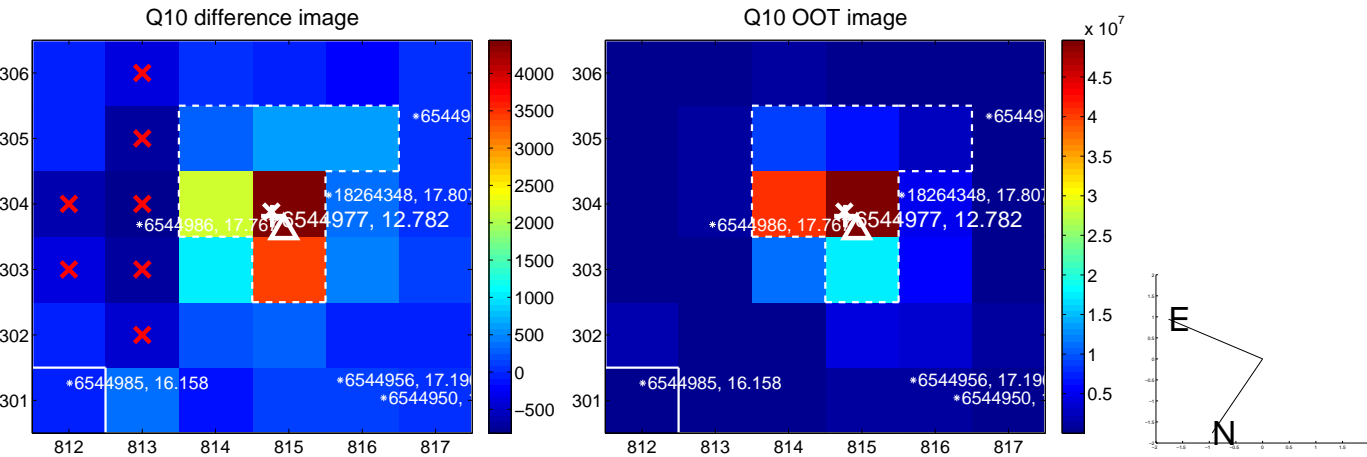
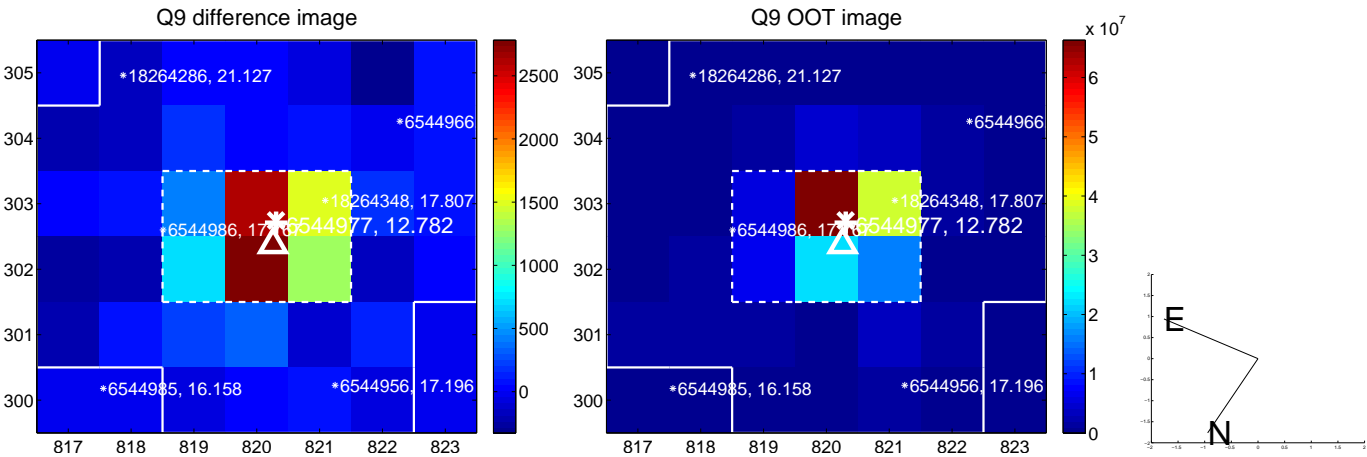
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



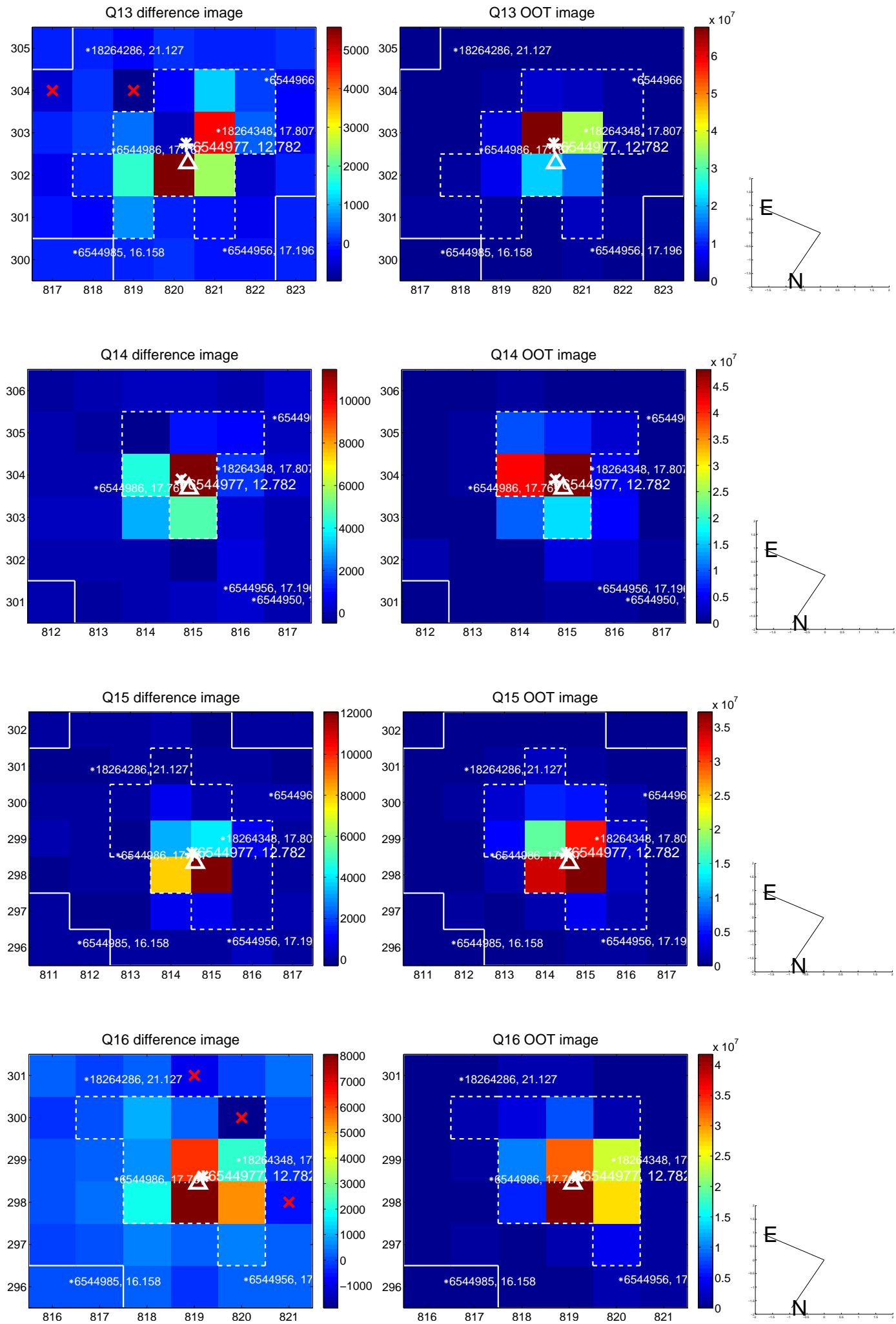
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



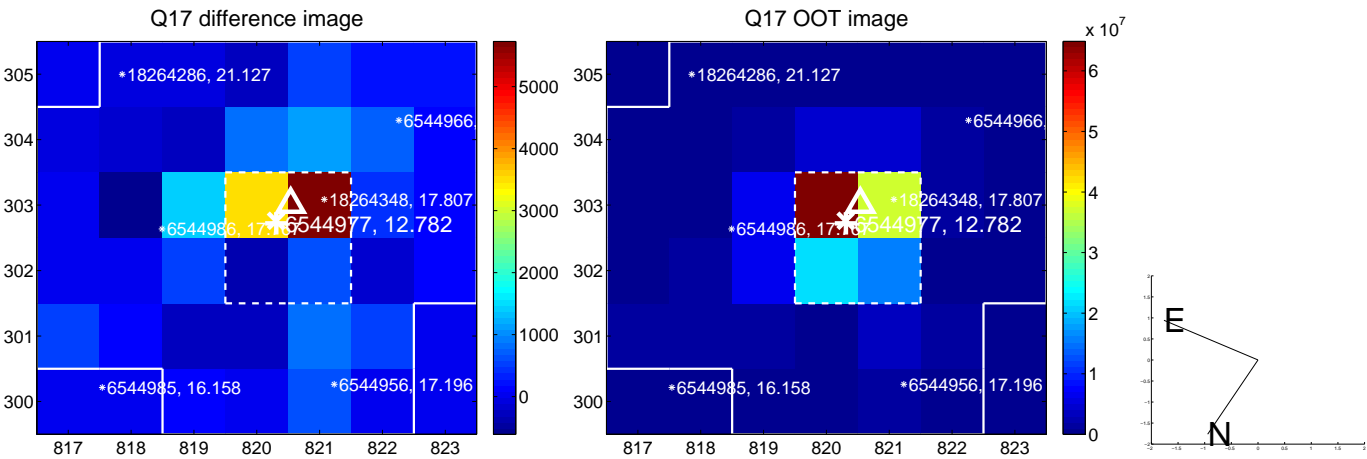
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



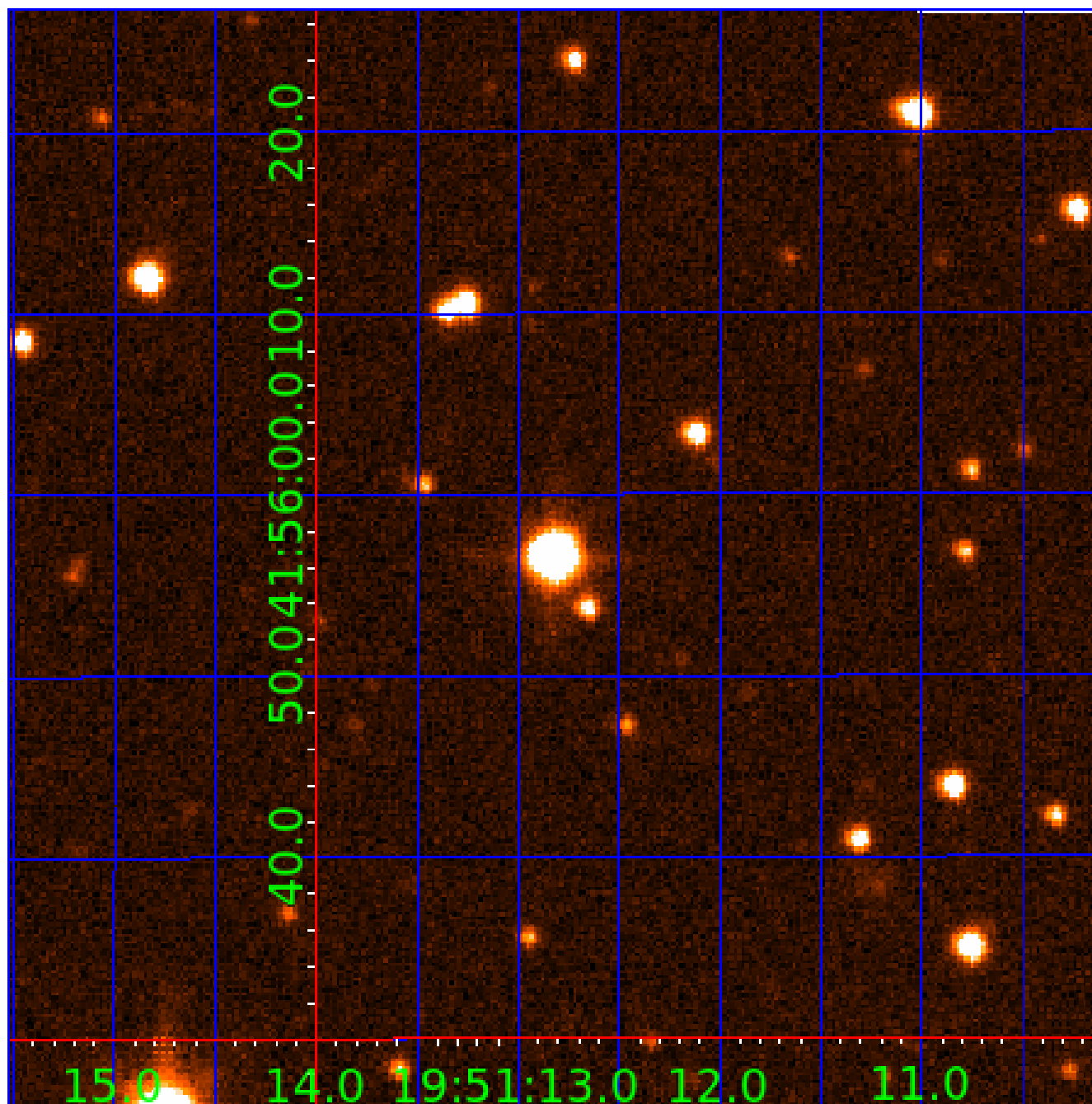
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006544977

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})
006544977-01	OBS	No	3.617860	132.420415	50.9	13.158	9.9	11.7	2.11	6469	2.90	2922.08
006544977-02	OBS	No	236.638495	189.717356	0.0	19.133	13.0	0.0	2.11	6469	0.01	11.09
006544977-03	OBS	No	3.618626	133.928819	32.5	8.728	10.9	11.6	2.11	6469	1.39	2921.25
006544977-04	OBS	No	1.809124	132.991768	26.0	10.753	10.6	11.4	2.11	6469	1.23	7362.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006544977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006544977-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006544977-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
006544977-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

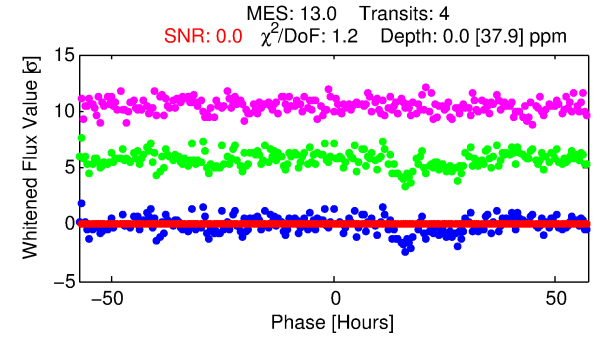
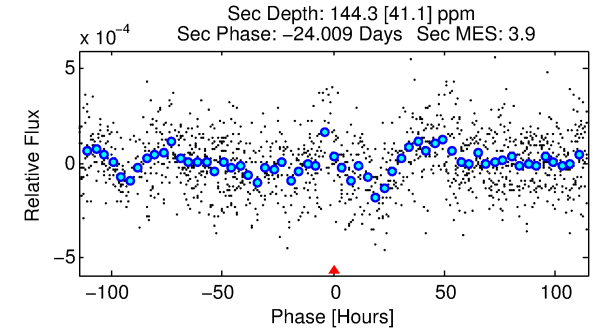
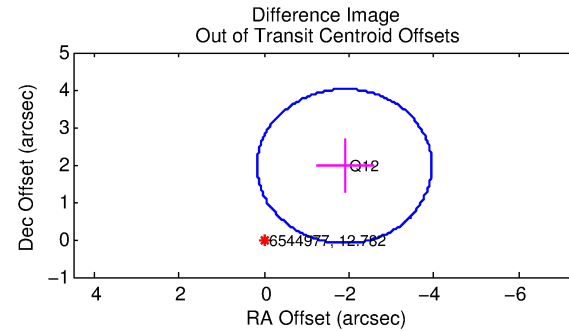
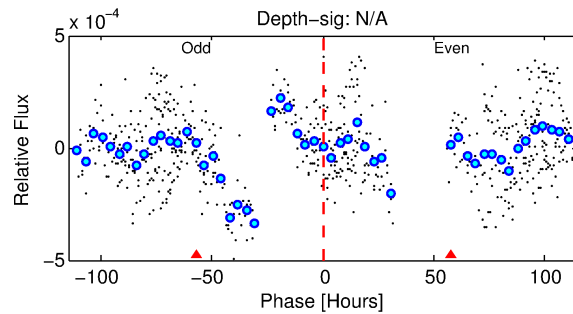
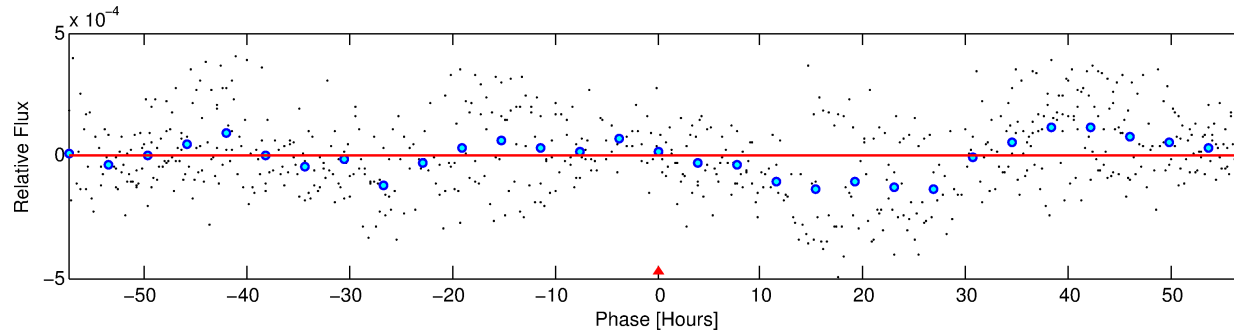
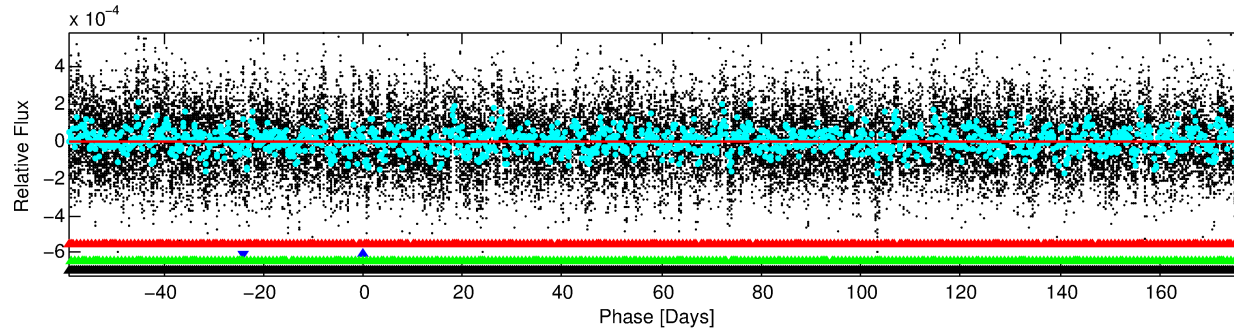
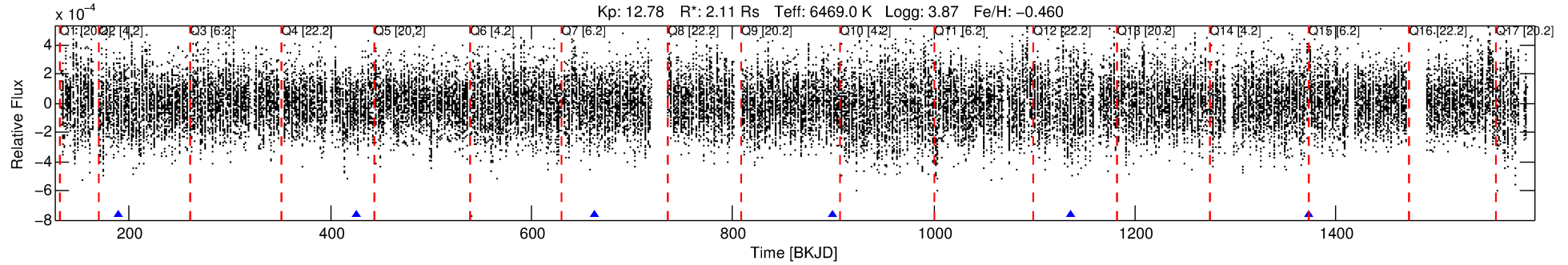
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006544977-02

No Significant Match Found

DV One-Page Summary

KIC: 6544977 Candidate: 2 of 4 Period: 236.638 d



DV Fit Results:

Period = 236.63850 [2172.12673] d
Epoch = 189.7174 [1755.6445] BKJD
Rp/R* = 0.0000 [0.5432]
a/R* = 40.31 [642563.50]
b = 0.90 [805.47]
Seff = 11.09 [135.83]
Teq = 465 [1425] K
Rp = 0.01 [125.02] Re
a = 0.7934 [4.8619] AU
Ag = 590467174.53 [16052194620659.72] [0.000]
Teff = 112144 [762177697] K [0.000]

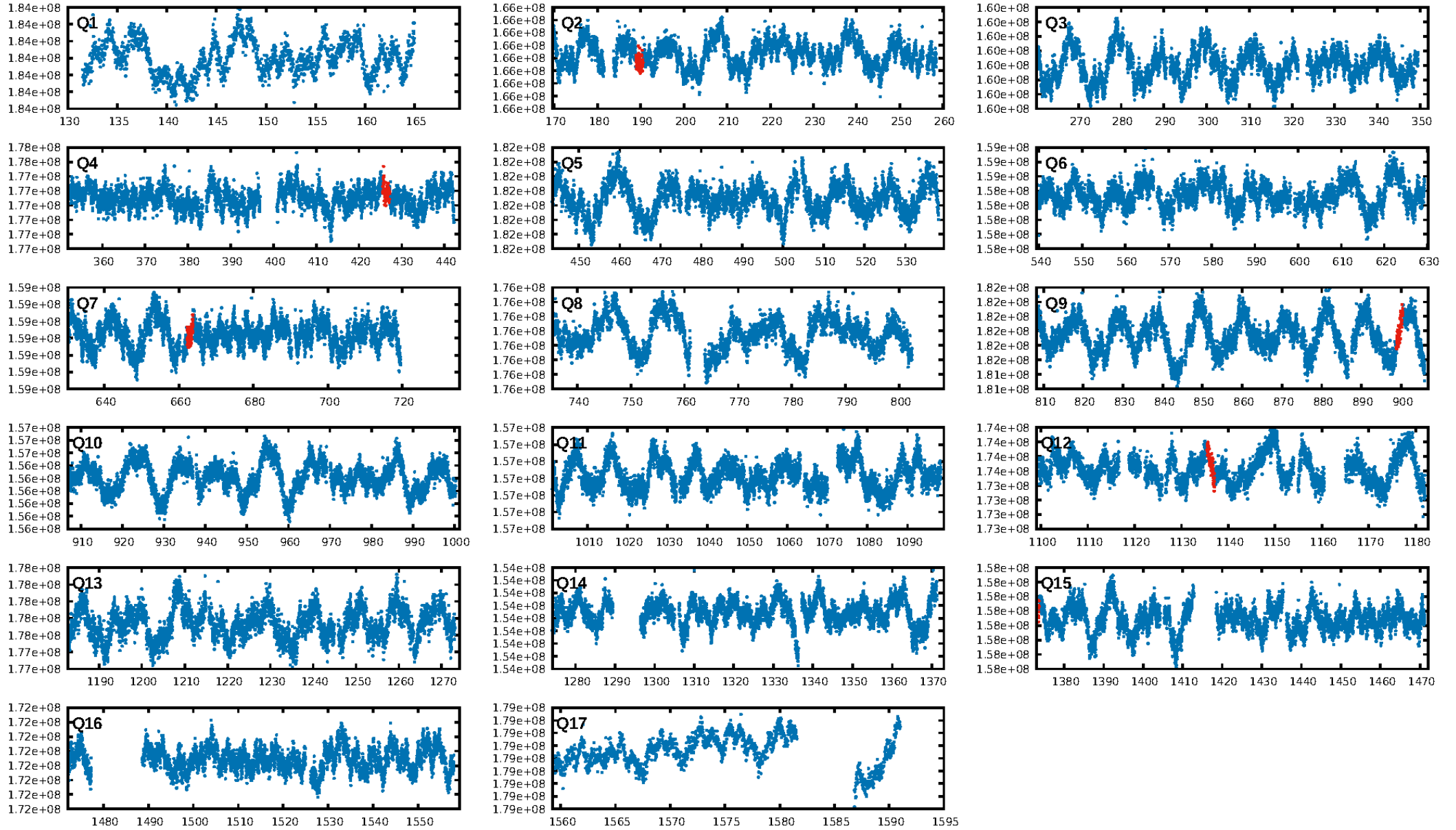
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [265.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.729 arcsec [3.98σ]
KicOffset-rm: 2.871 arcsec [4.18σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/4]

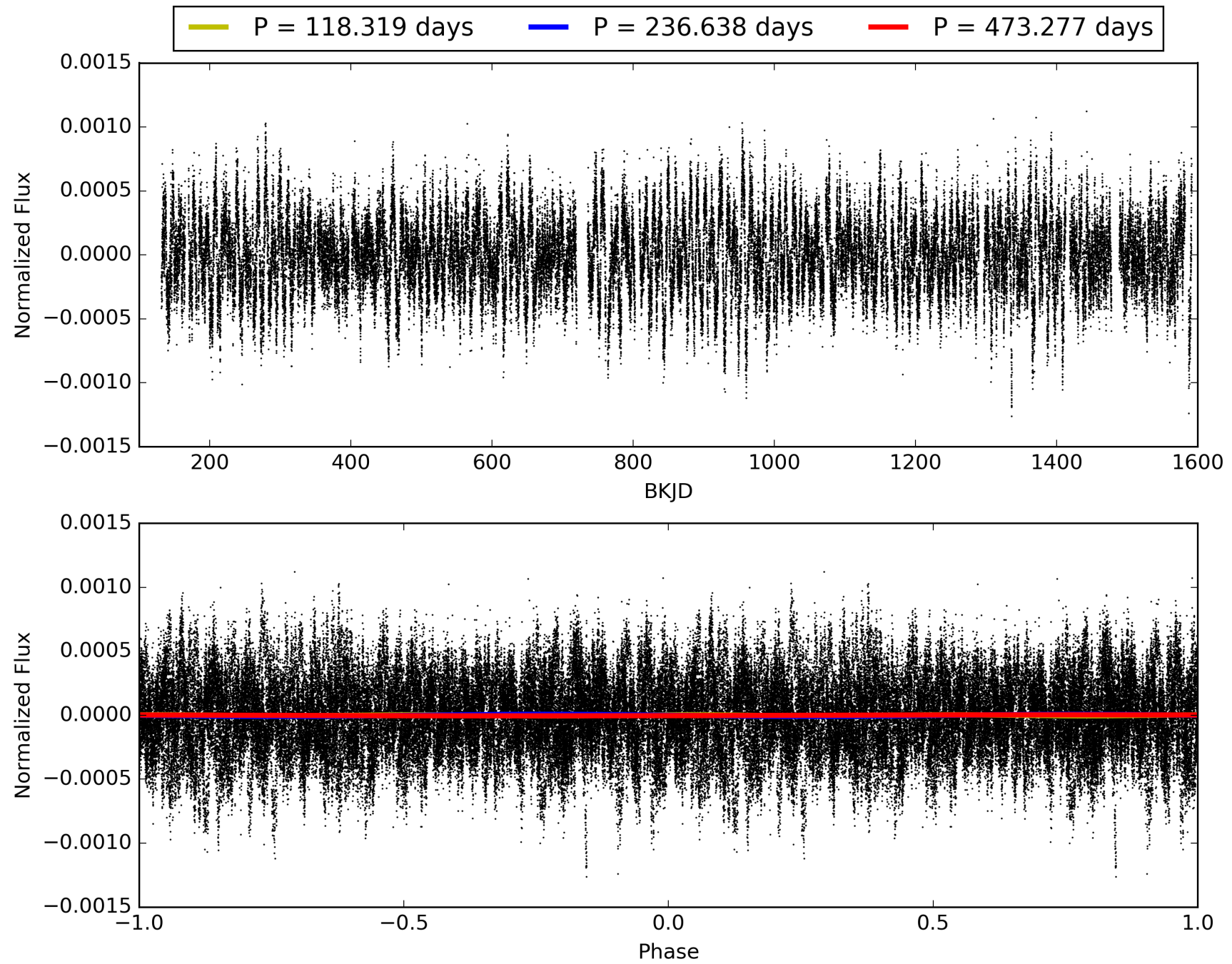
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:33:05 Z

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

TCE 006544977-02, PDC Light Curves

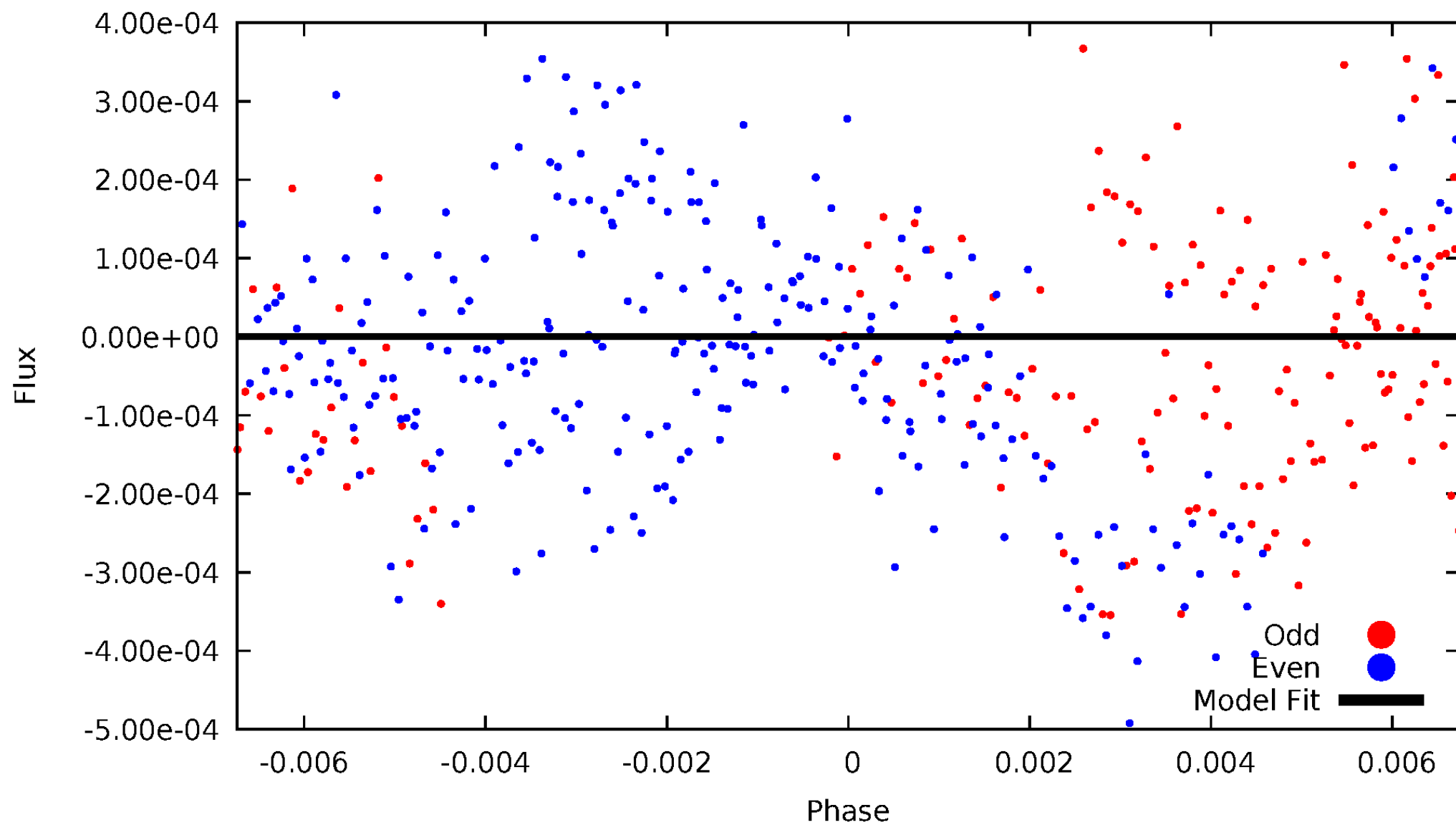


TCE 006544977-02



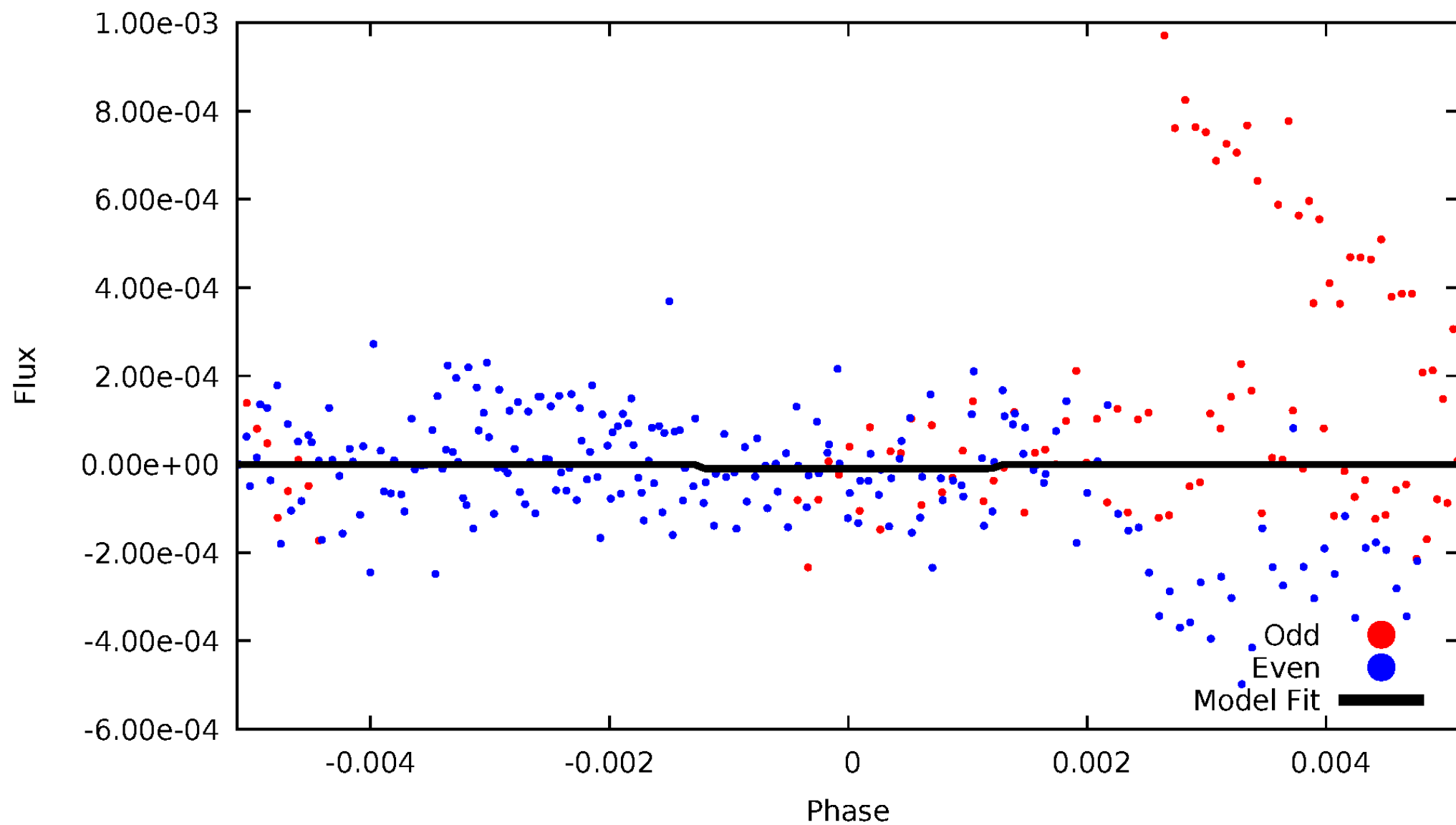
DV Odd/Even

TCE 006544977-02



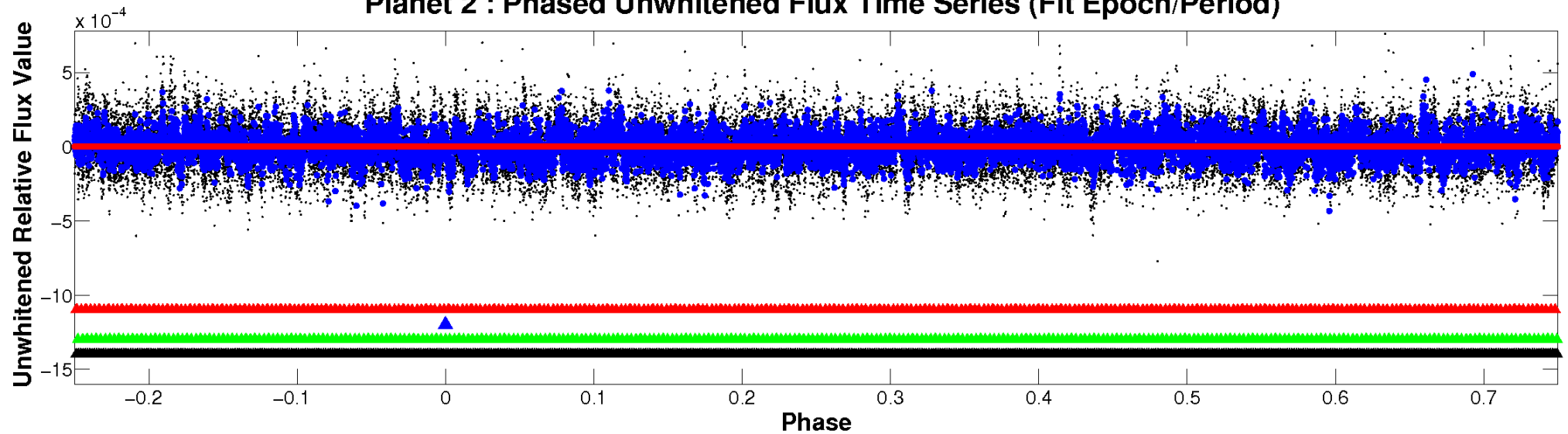
ALT Odd/Even

TCE 006544977-02

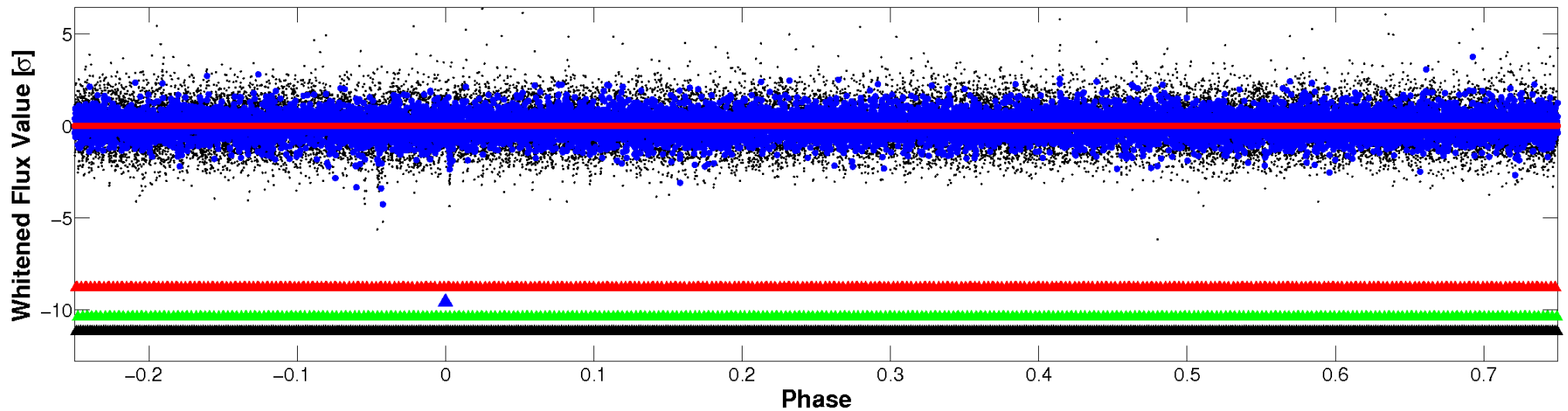


Non-Whitened Vs. Whitened Light Curve

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

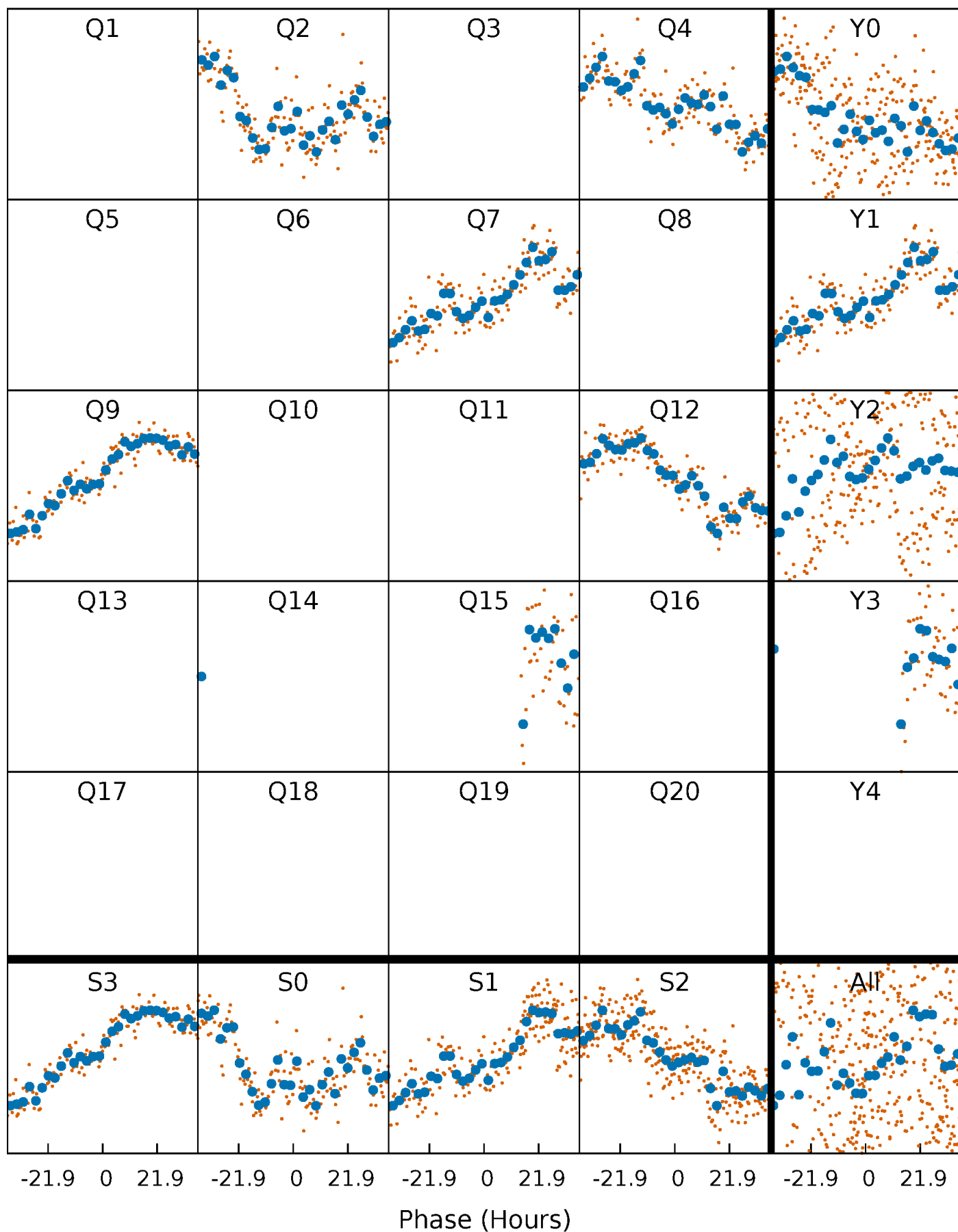


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



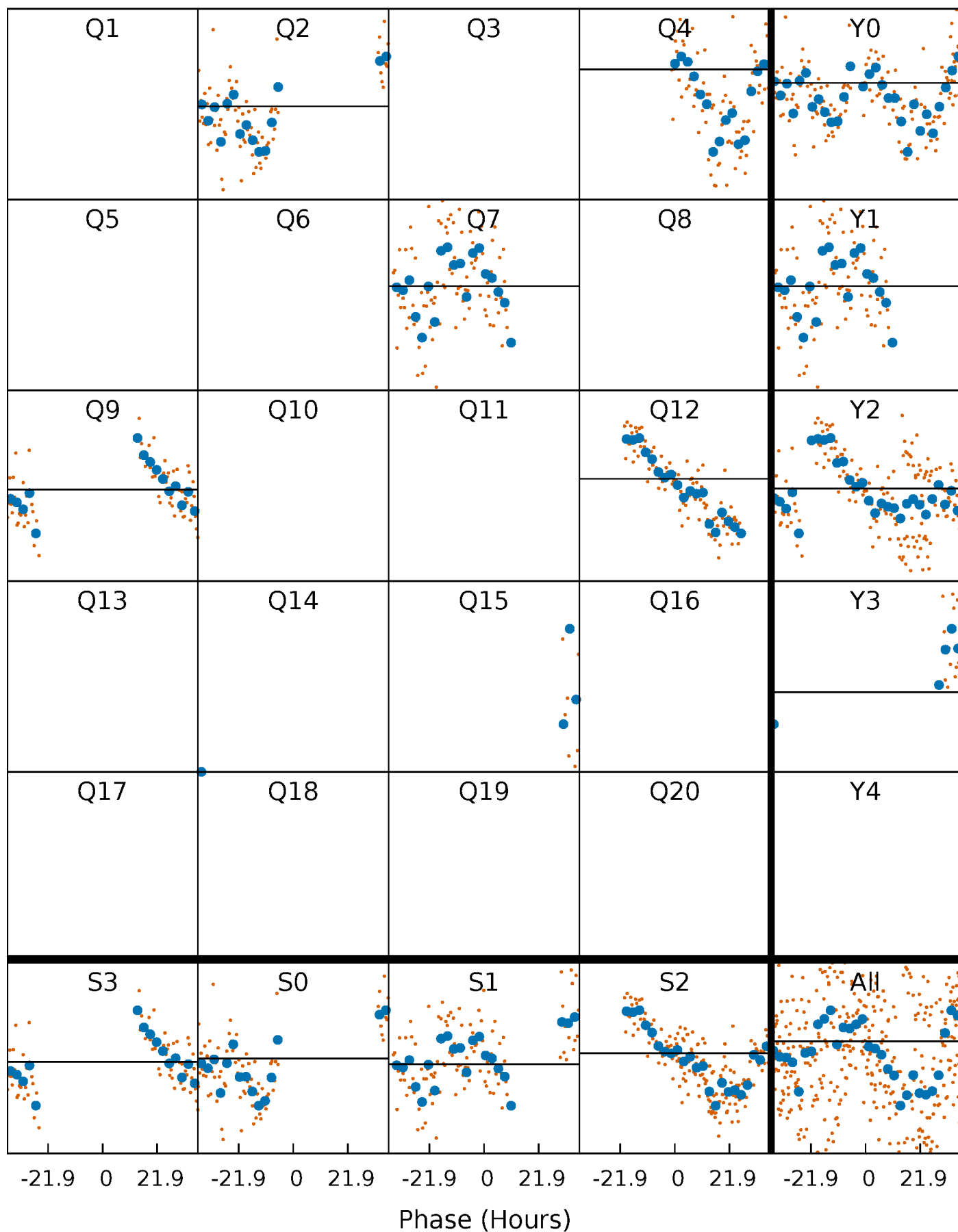
PDC Quarter-Phased Transit Curves

TCE 006544977-02 $P=236.638495$ Days $T_0=189.717356$ (BKJD)



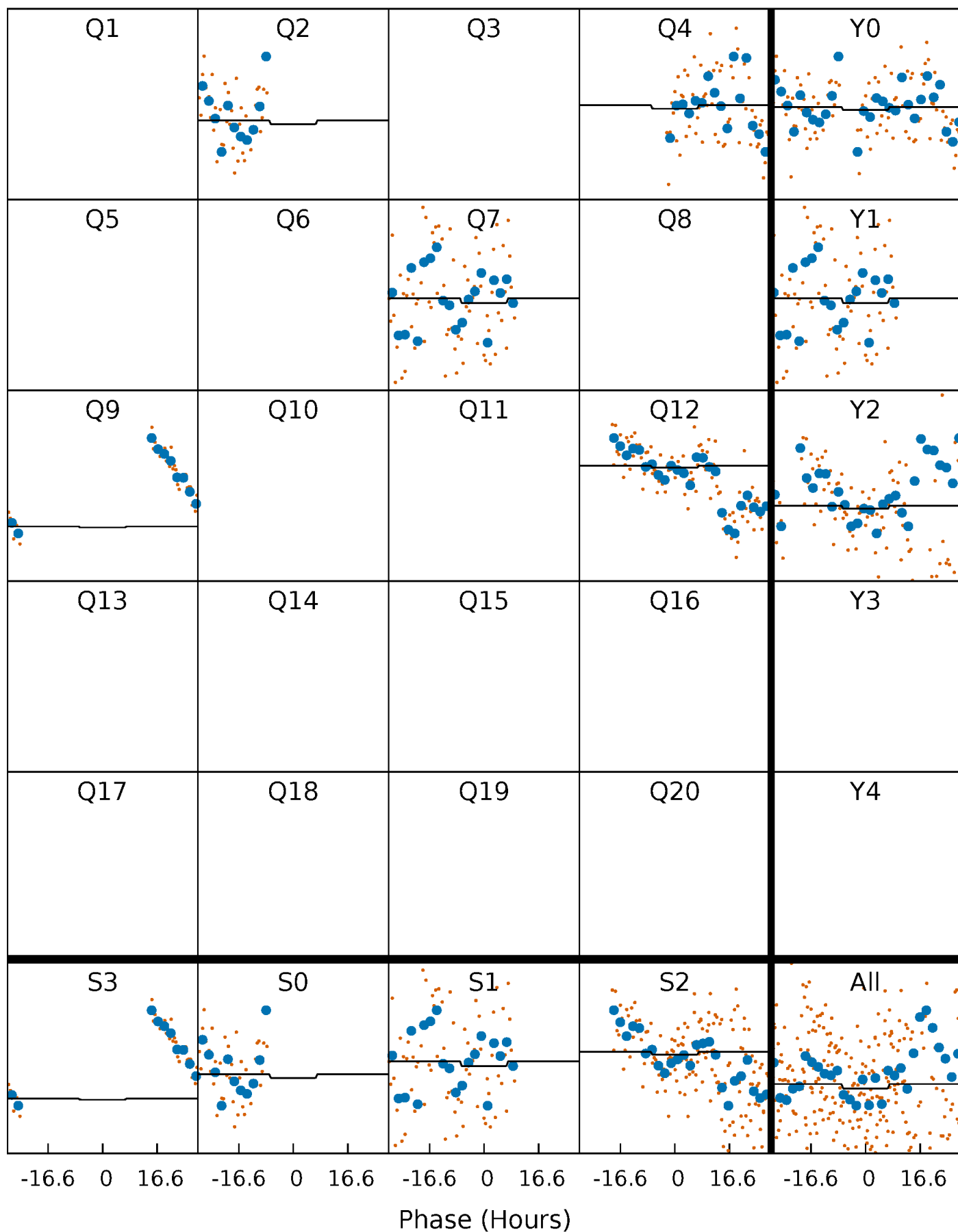
DV Quarter-Phased Transit Curves

TCE 006544977-02 P=236.638495 Days $T_0=189.717356$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

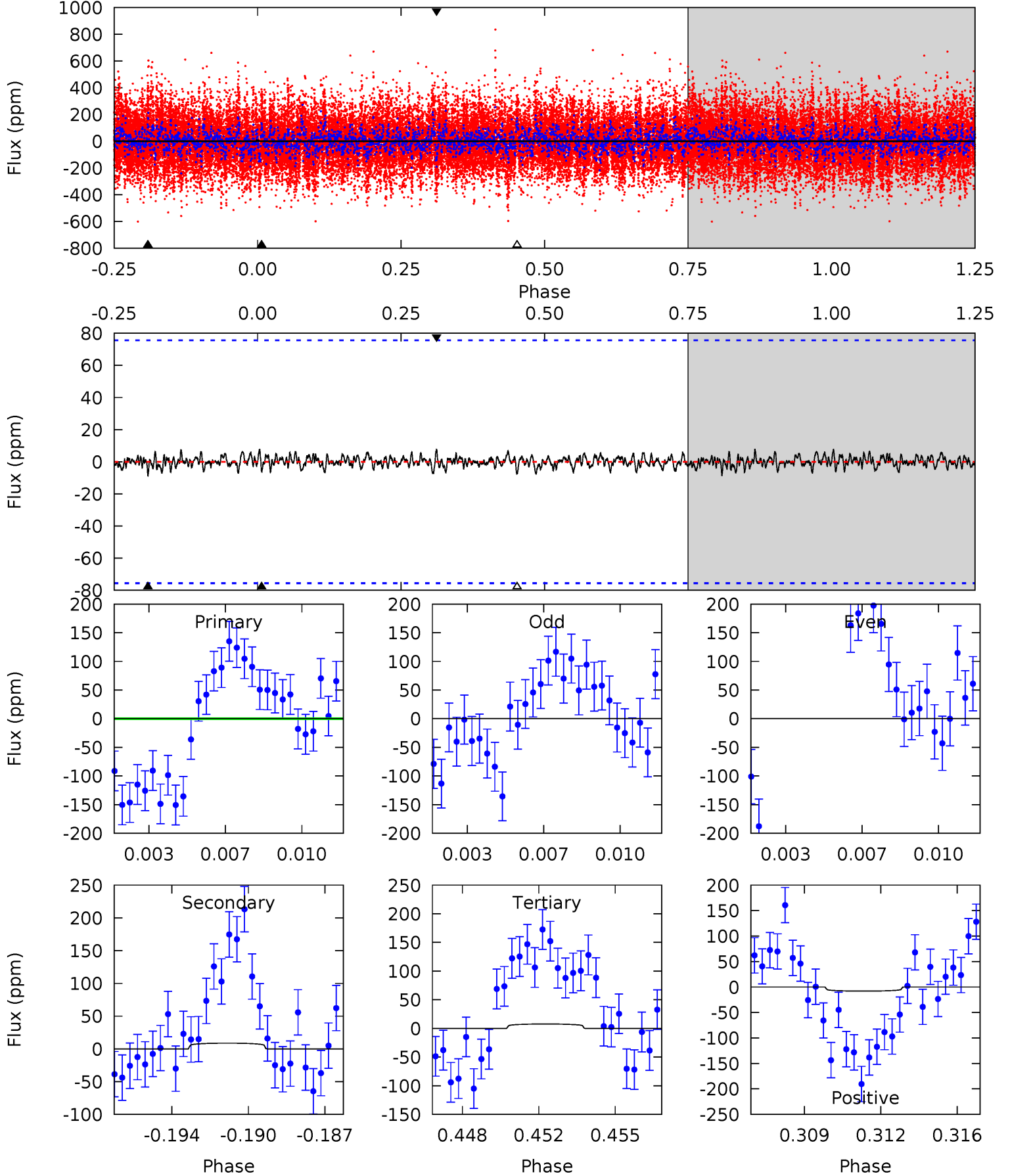
TCE 006544977-02 P=236.607002 Days $T_0=189.797929$ (BKJD)



DV Model-Shift Uniqueness Test

006544977-02, P = 236.638495 Days, E = 189.717356 Days

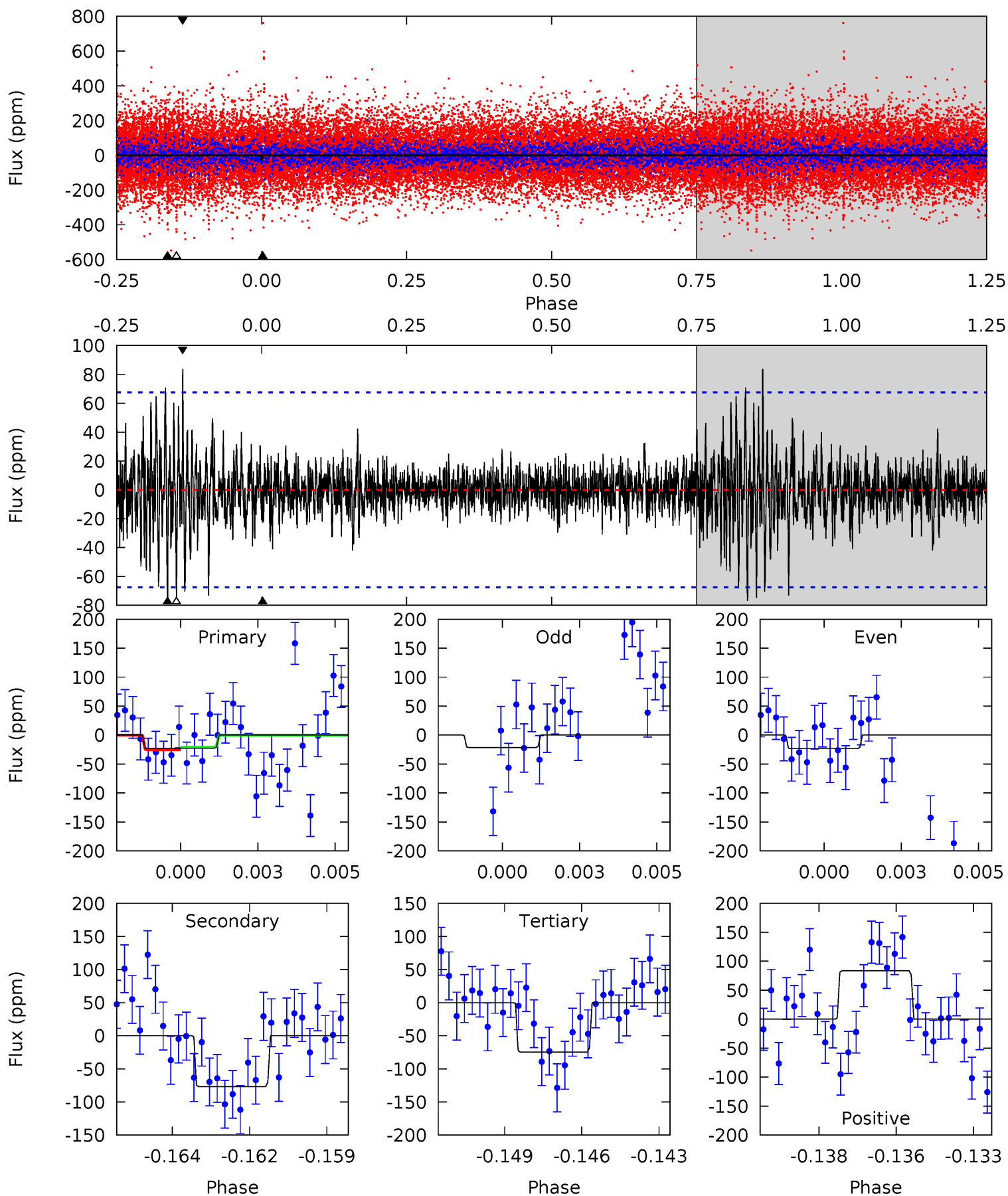
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.42	0.61	0.53	0.55	5.23	2.93	0.18	-0.11	-0.13	0.08	0.06	0.36	0.93	0.47	0.59



Alt Model-Shift Uniqueness Test

006544977-02, P = 236.607002 Days, E = 189.797929 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.78	6.02	5.84	6.54	5.28	3.01	1.18	-4.06	-4.76	0.17	-0.52	0.07	1.05	0.52	0.17



Stellar Parameters For KIC 006544977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6469^{+156}_{-176}	$3.865^{+0.300}_{-0.100}$	$-0.460^{+0.300}_{-0.300}$	$2.109^{+0.397}_{-0.737}$	$1.189^{+0.227}_{-0.185}$	$0.179^{+0.344}_{-0.057}$
	+2%/-3%	+8%/-3%	+65%/-65%	+19%/-35%	+19%/-16%	+193%/-32%
Source	PHO1	FLK73	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 006544977-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-9 ± 14	$76.42^{+79.99}_{-52.44}$	337^{+162}_{-76}	1511^{+466}_{-3167}	$1.996^{+44.615}_{-5.904}$
Alt.	-77 ± 13	$79.20^{+92.14}_{-54.24}$	334^{+177}_{-73}	1991^{+626}_{-293}	50^{+576}_{-44}

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

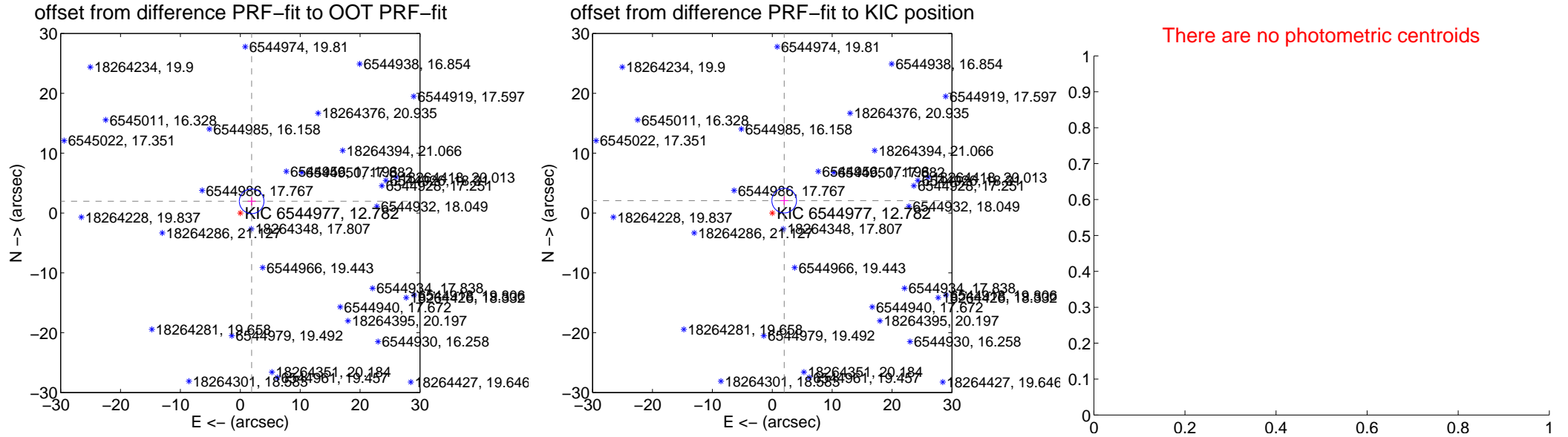
DV Centroid Data

Supplemental centroid analysis for 006544977-02. Kepler magnitude: 12.78. Transit SNR 0.00

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.729 \pm 0.686	3.98	-1.899 \pm 0.663	1.960 \pm 0.708
PRF-fit source offset from KIC position	2.871 \pm 0.686	4.18	-1.992 \pm 0.663	2.067 \pm 0.708
photometric centroid source offset	—	—	—	—



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.

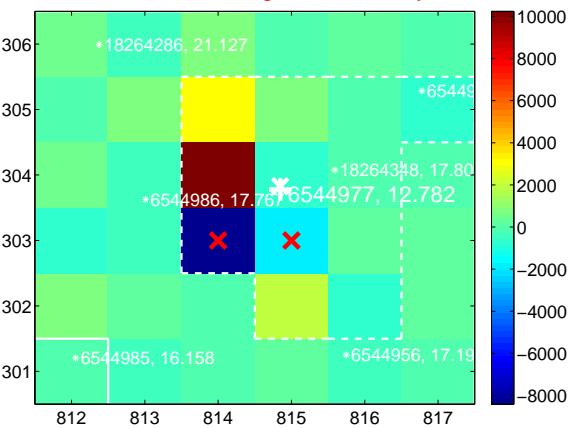
Q1 no difference image



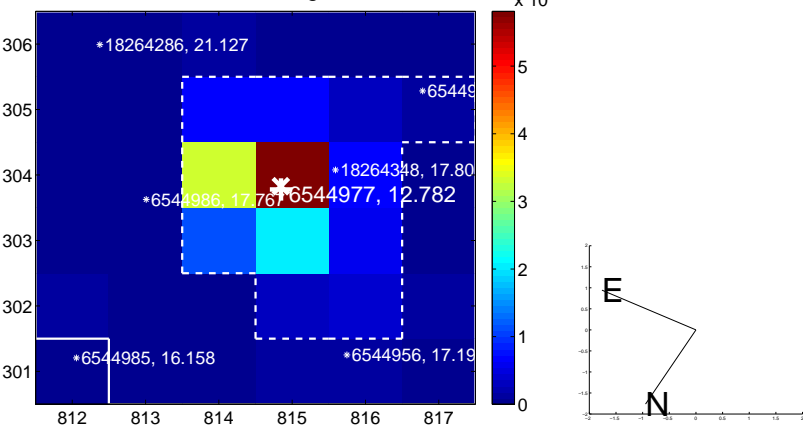
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



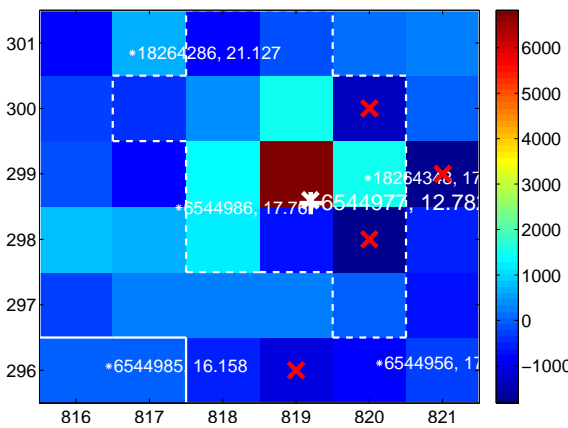
Q3 no difference image



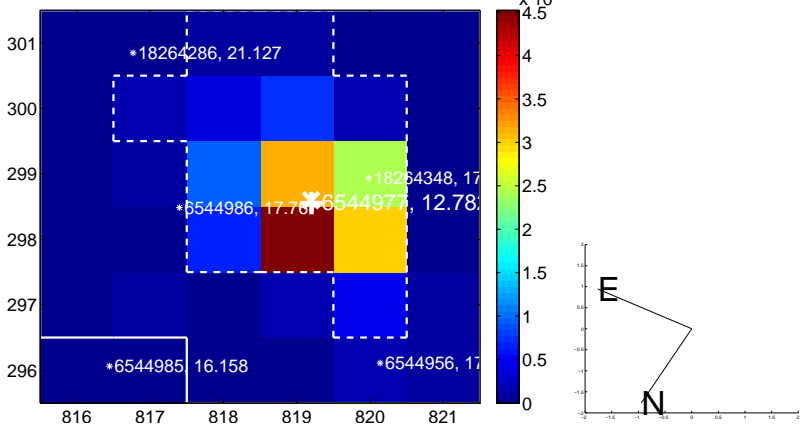
Q3 no OOT image



Q4 difference image. Poor Quality



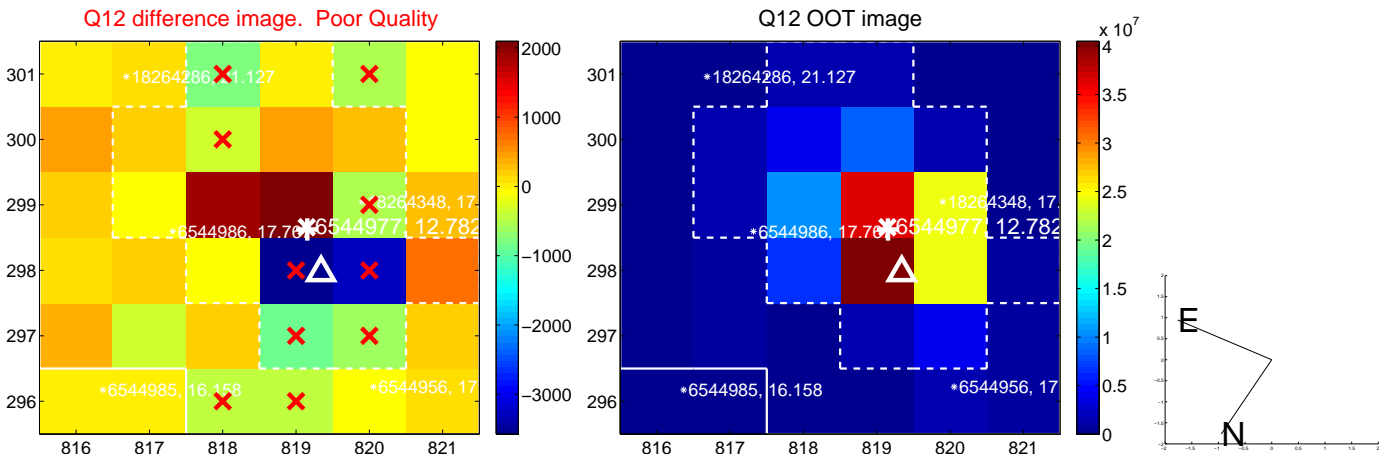
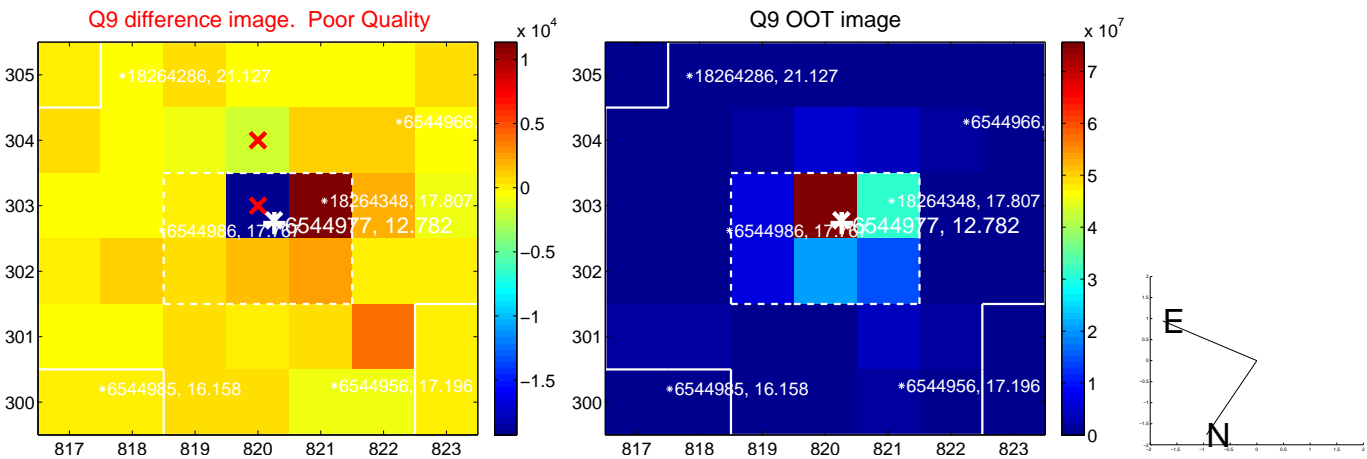
Q4 OOT image



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.



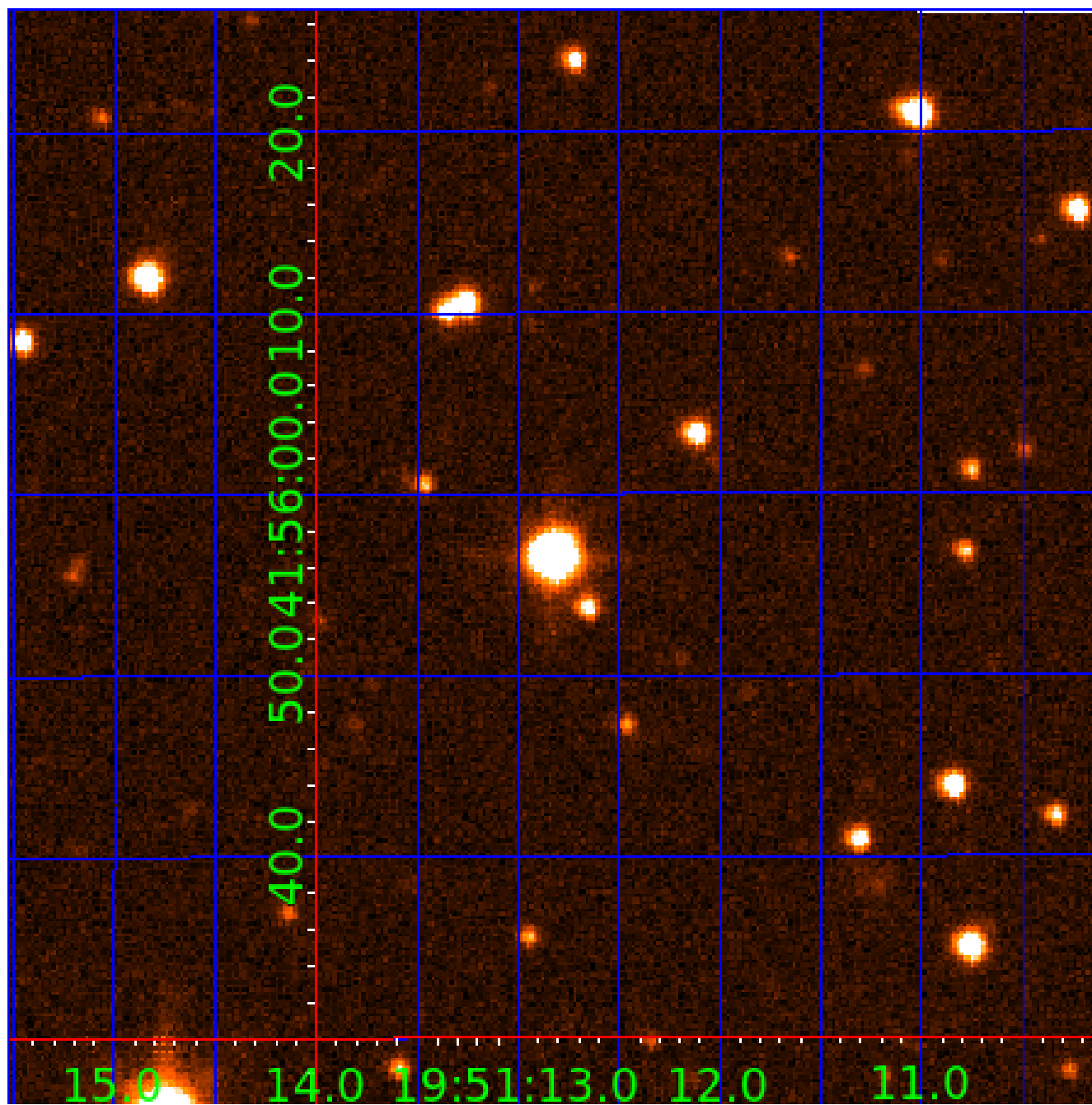
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006544977

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})
006544977-01	OBS	No	3.617860	132.420415	50.9	13.158	9.9	11.7	2.11	6469	2.90	2922.08
006544977-02	OBS	No	236.638495	189.717356	0.0	19.133	13.0	0.0	2.11	6469	0.01	11.09
006544977-03	OBS	No	3.618626	133.928819	32.5	8.728	10.9	11.6	2.11	6469	1.39	2921.25
006544977-04	OBS	No	1.809124	132.991768	26.0	10.753	10.6	11.4	2.11	6469	1.23	7362.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006544977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006544977-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006544977-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
006544977-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

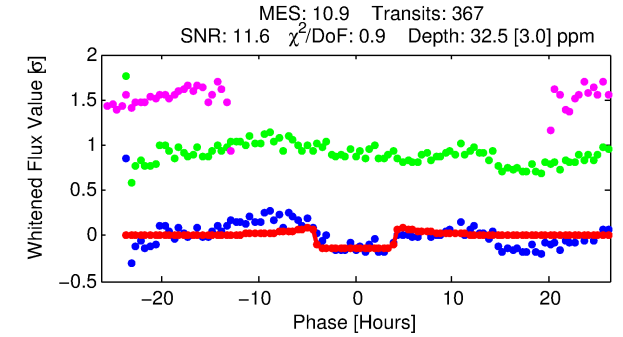
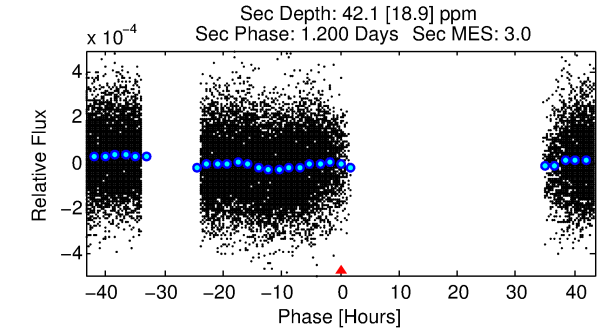
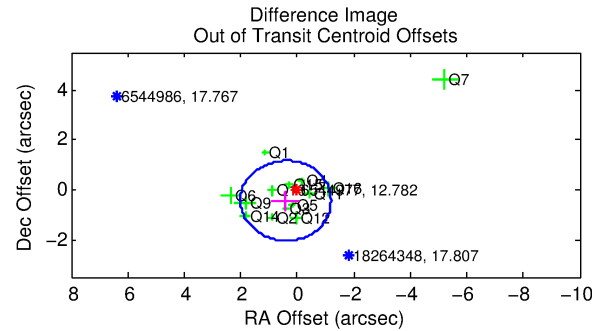
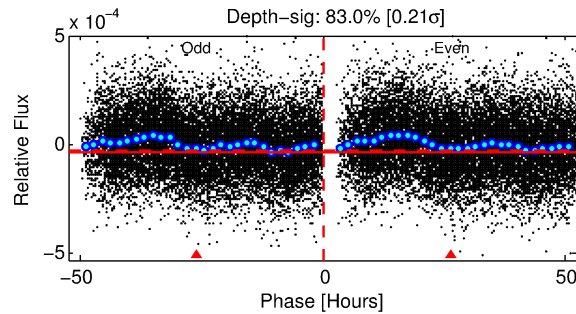
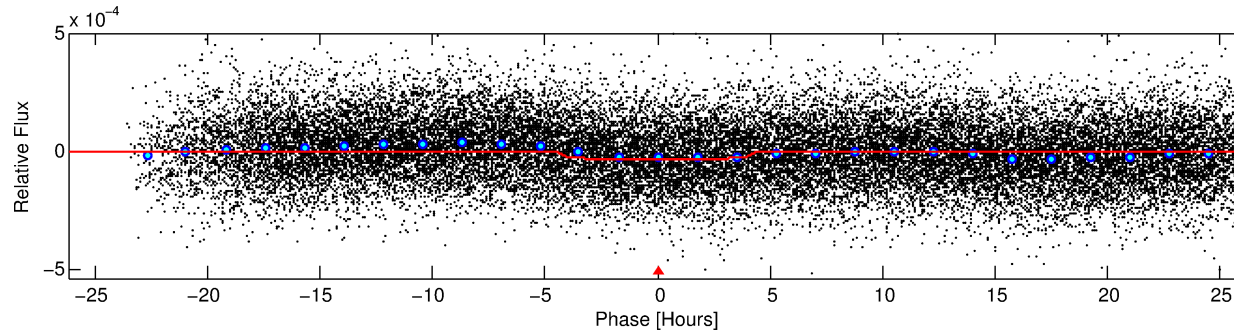
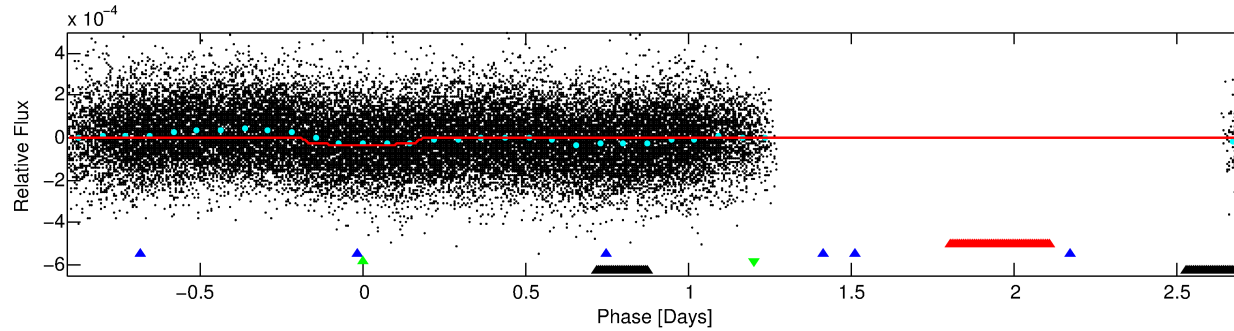
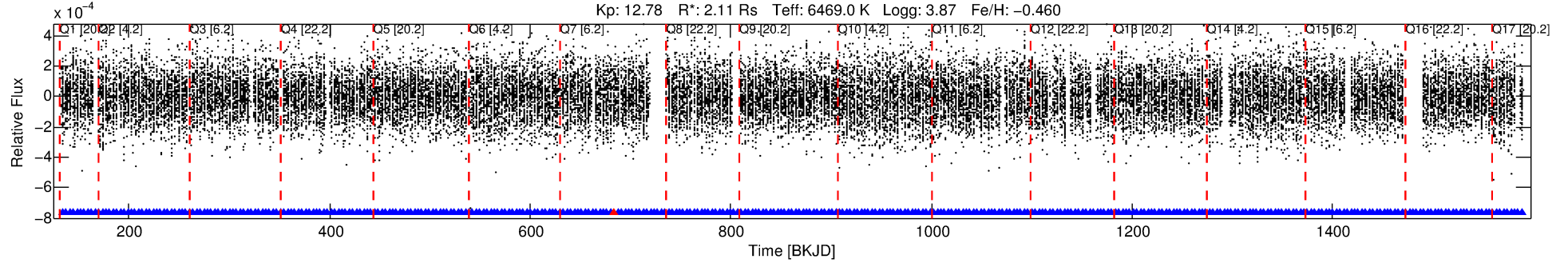
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006544977-03

No Significant Match Found

DV One-Page Summary

KIC: 6544977 Candidate: 3 of 4 Period: 3.619 d



DV Fit Results:

Period = 3.61863 [0.00003] d
Epoch = 133.9288 [0.0054] BKJD
Rp/R* = 0.0061 [0.0010]
a/R* = 1.74 [1.07]
b = 0.89 [0.21]
Seff = 2921.25 [1540.79]
Teq = 1875 [247] K
Rp = 1.39 [0.54] Re
a = 0.0489 [0.0160] AU
Ag = 28.46 [21.61] [1.27 σ]
Teffp = 6694 [950] K [4.91 σ]

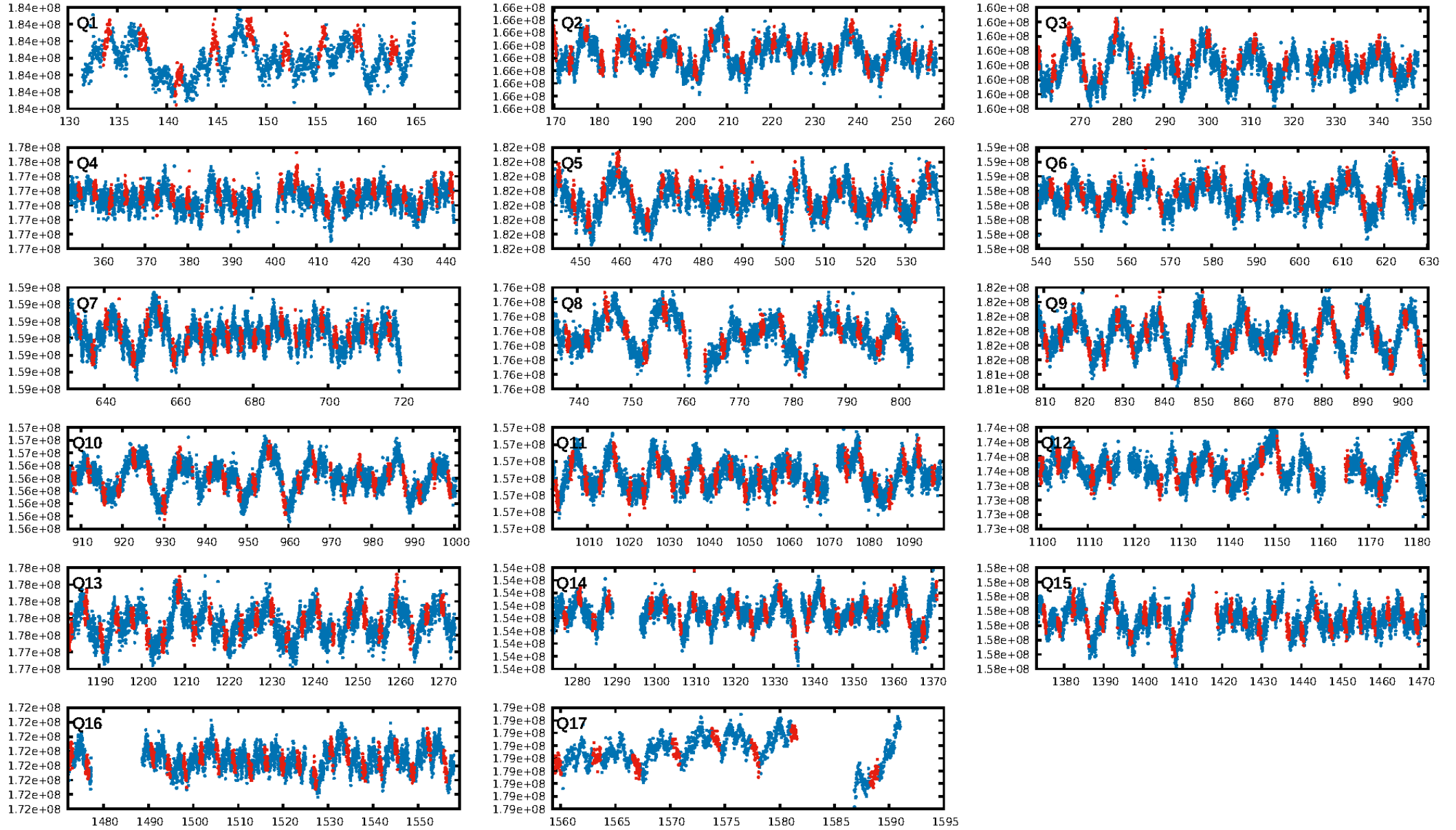
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00 σ]
LongPeriod-sig: 100.0% [265.93 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [349/350]
GhostDiagnostic-chr: 5.308
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.603 arcsec [1.13 σ]
KicOffset-rm: 0.429 arcsec [0.76 σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.29 [4/14]
DiffImageOverlap-fno: 0.00 [0/17]

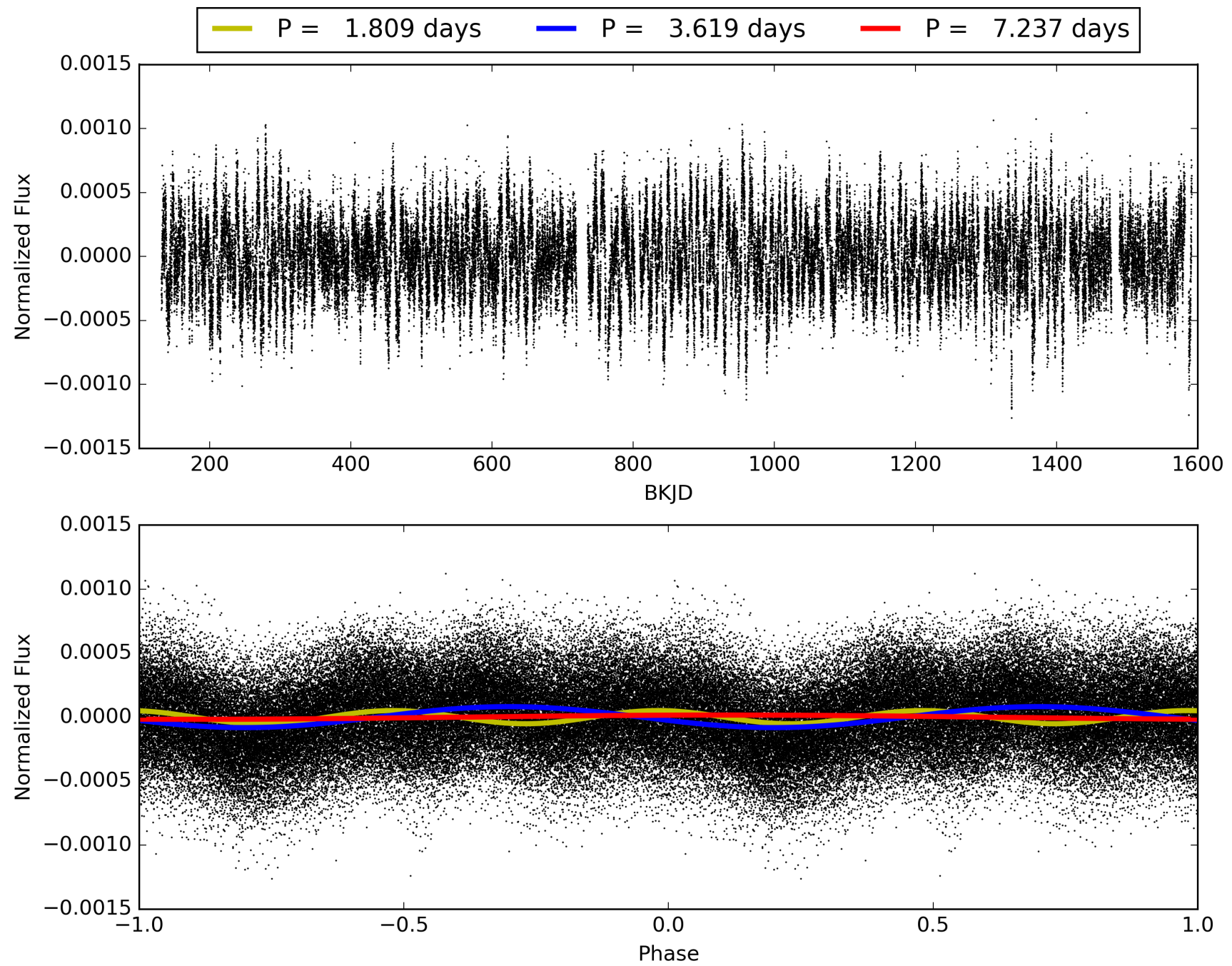
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:33:11 Z

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

TCE 006544977-03, PDC Light Curves

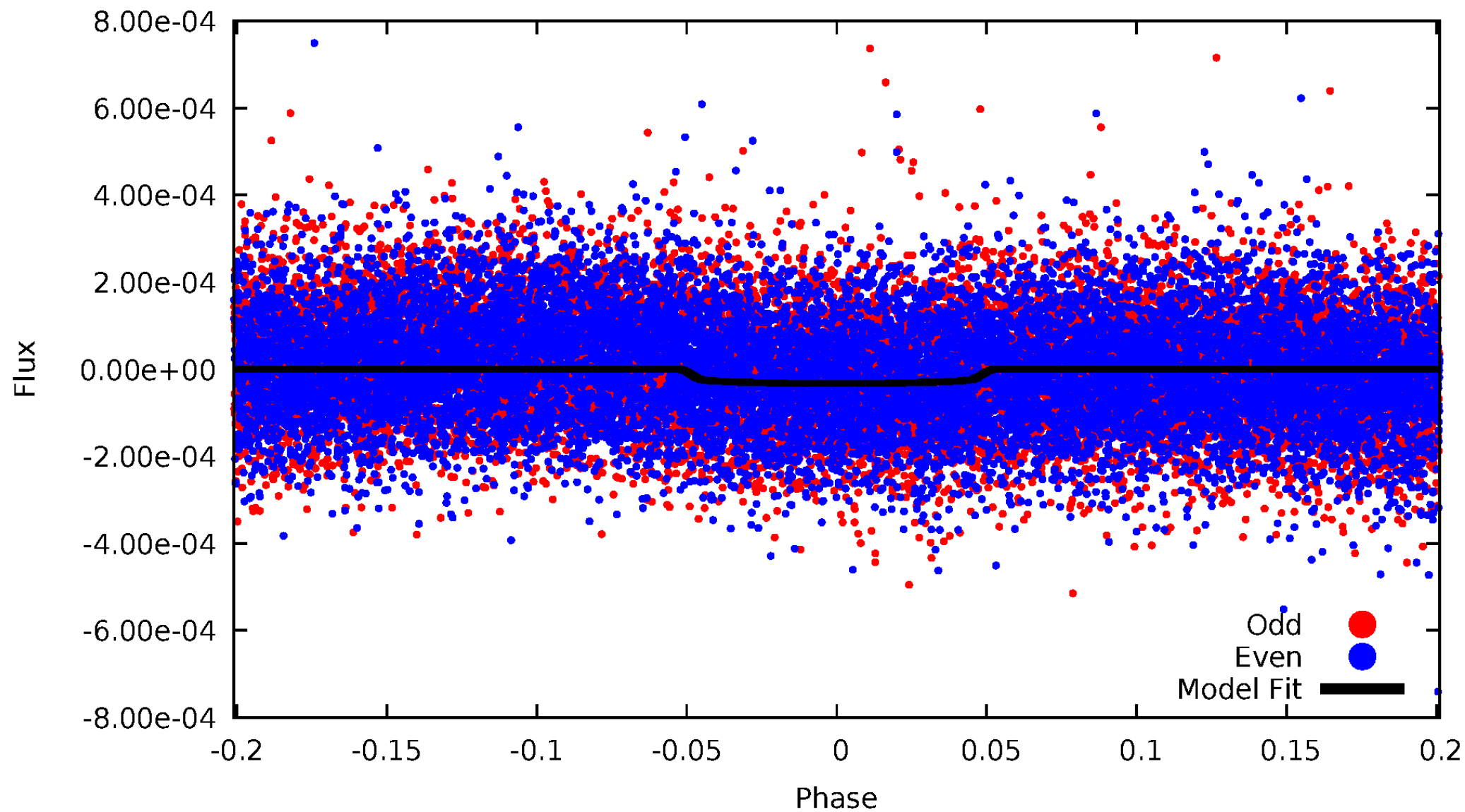


TCE 006544977-03



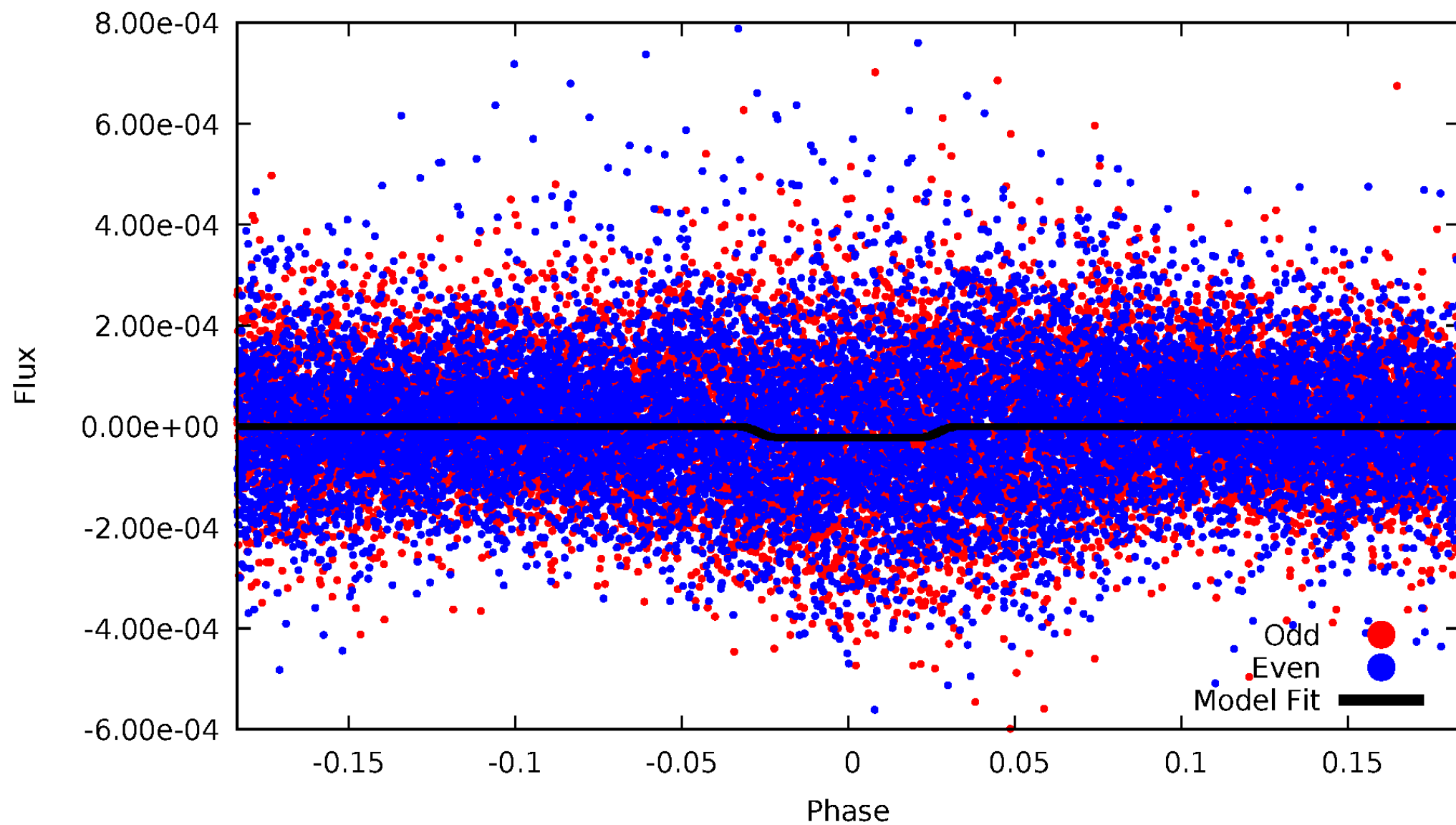
DV Odd/Even

TCE 006544977-03



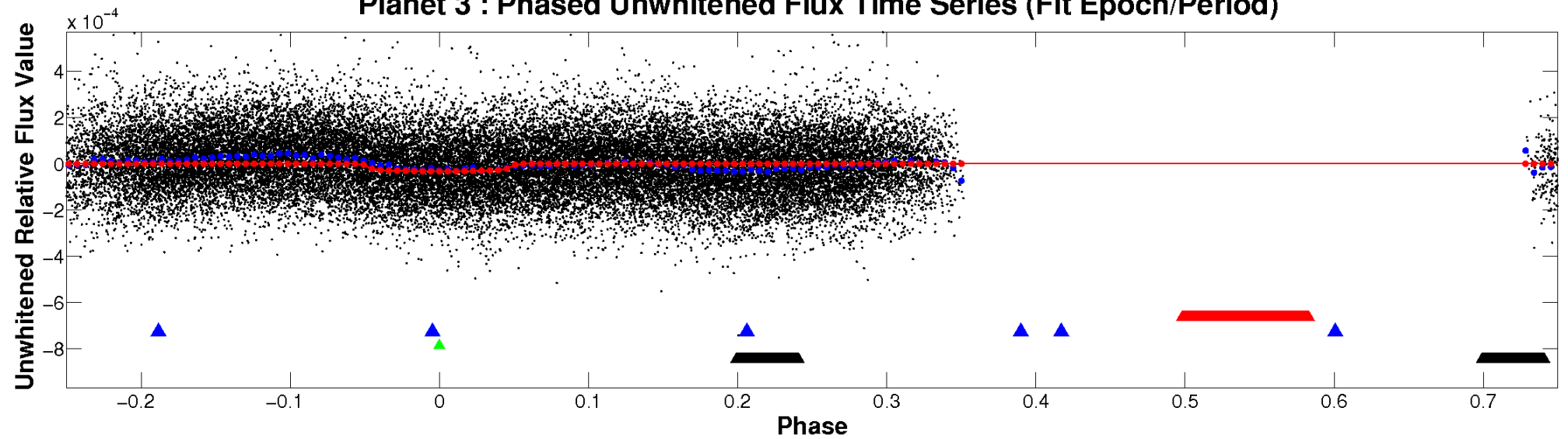
ALT Odd/Even

TCE 006544977-03

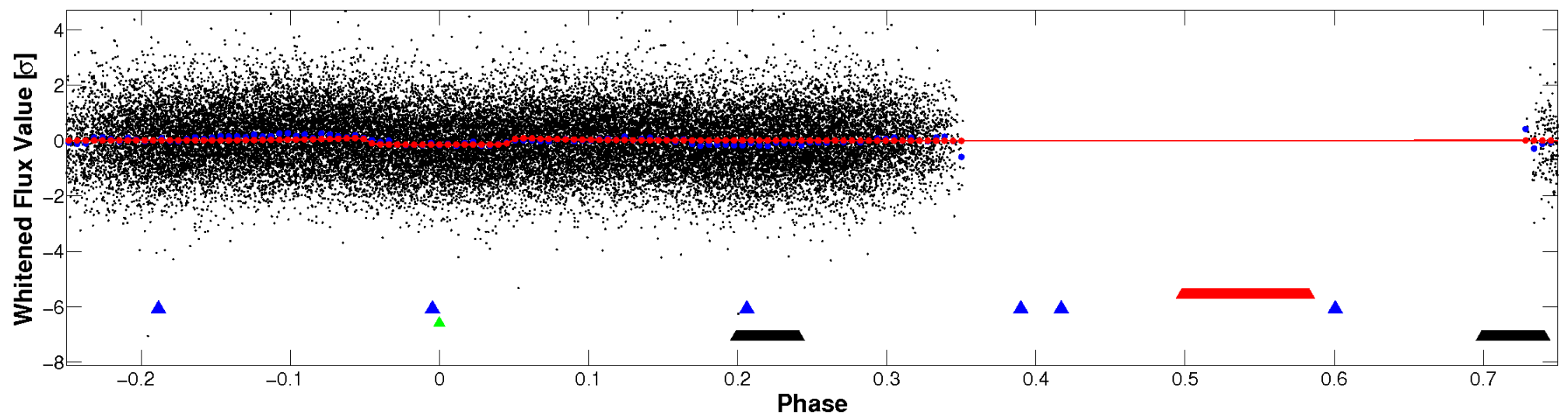


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

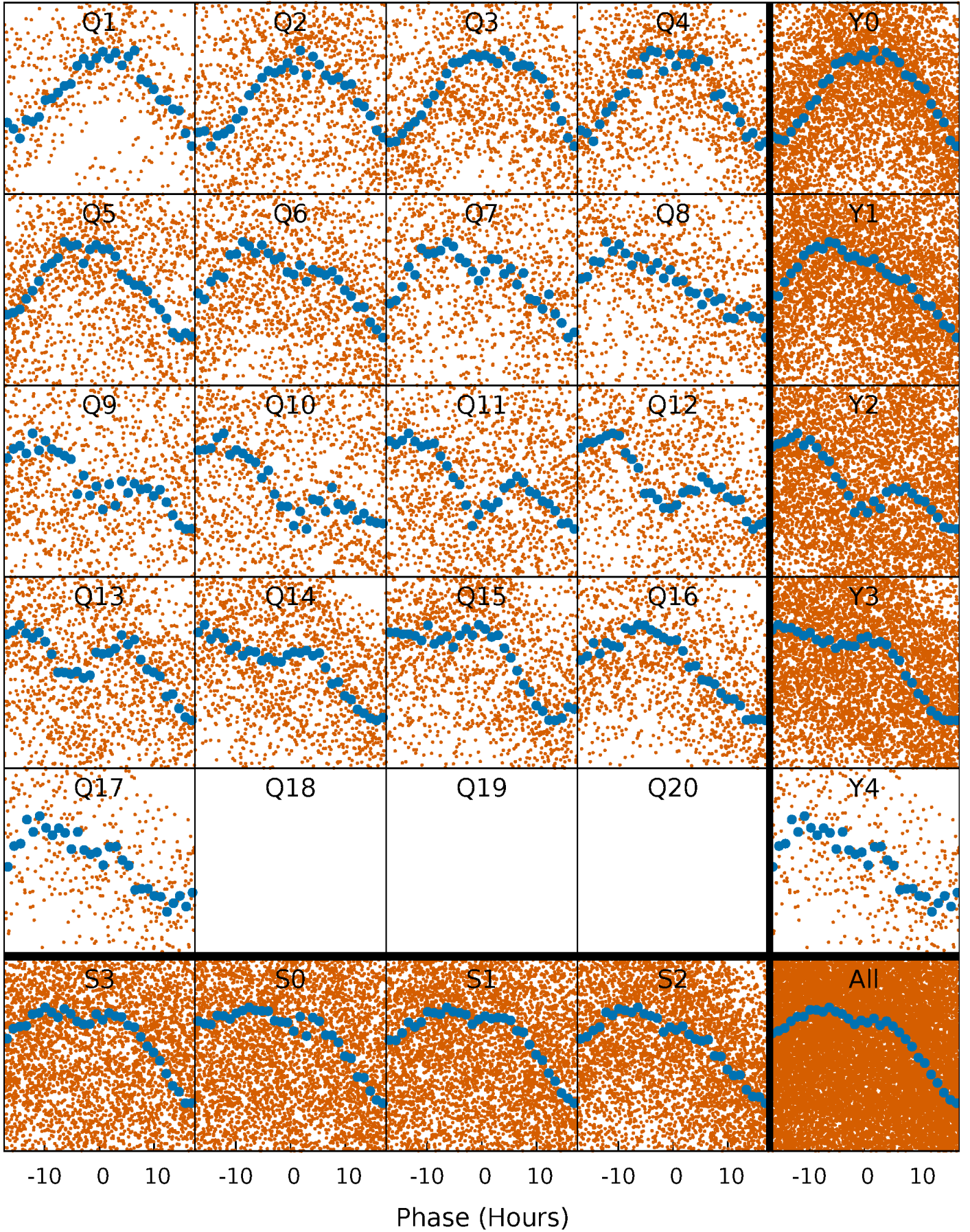


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



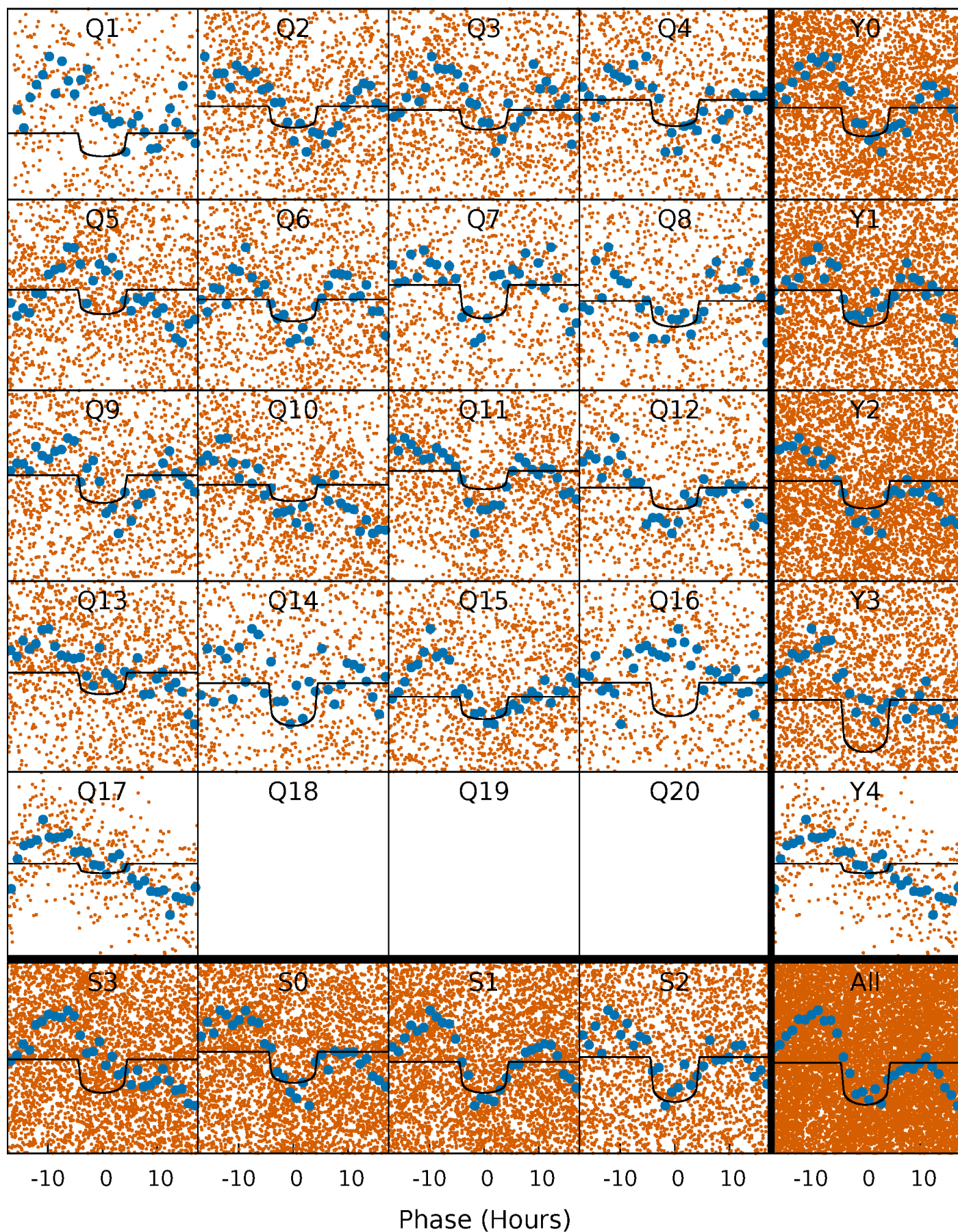
PDC Quarter-Phased Transit Curves

TCE 006544977-03 P= 3.618626 Days $T_0=133.928819$ (BKJD)



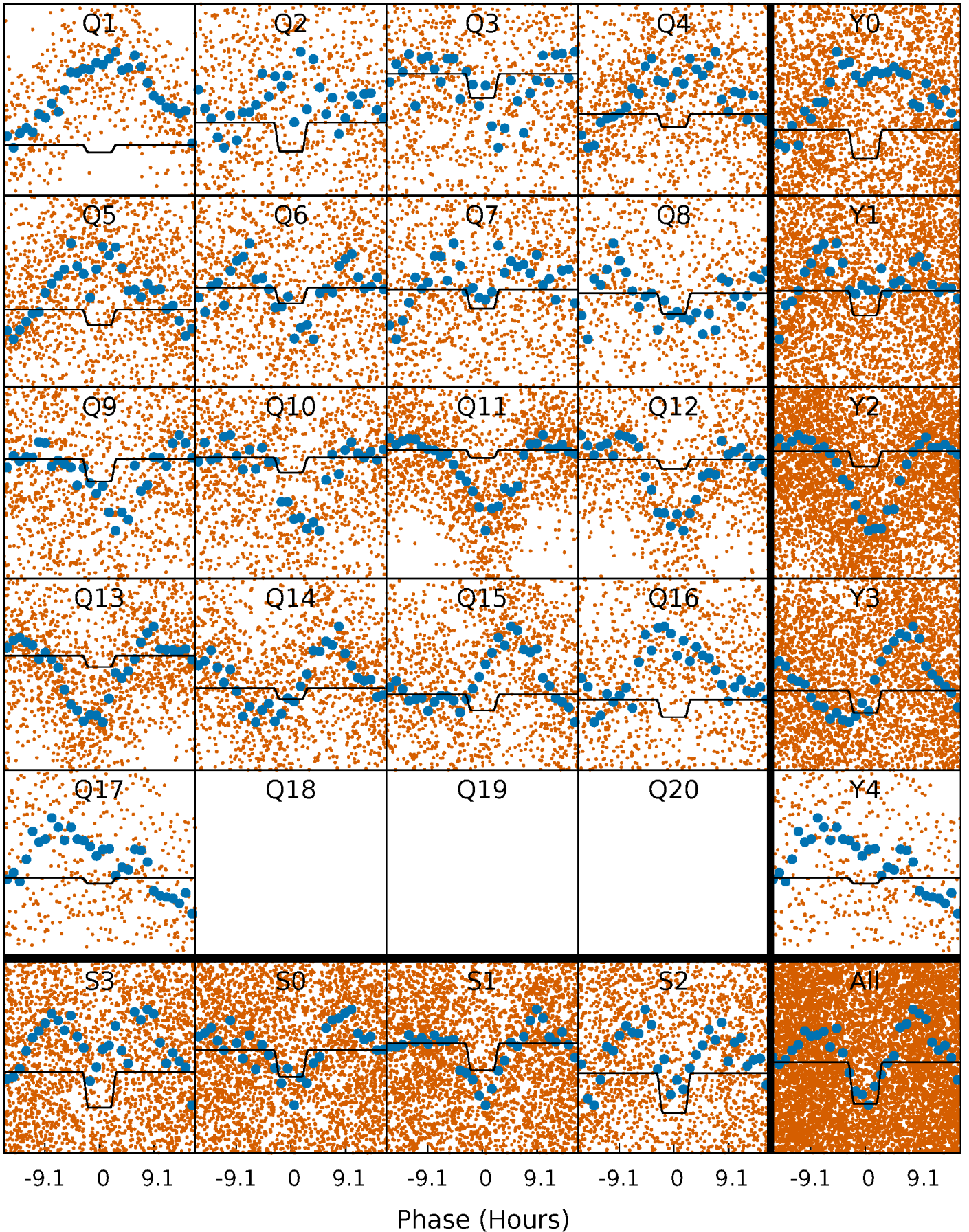
DV Quarter-Phased Transit Curves

TCE 006544977-03 P= 3.618626 Days $T_0=133.928819$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

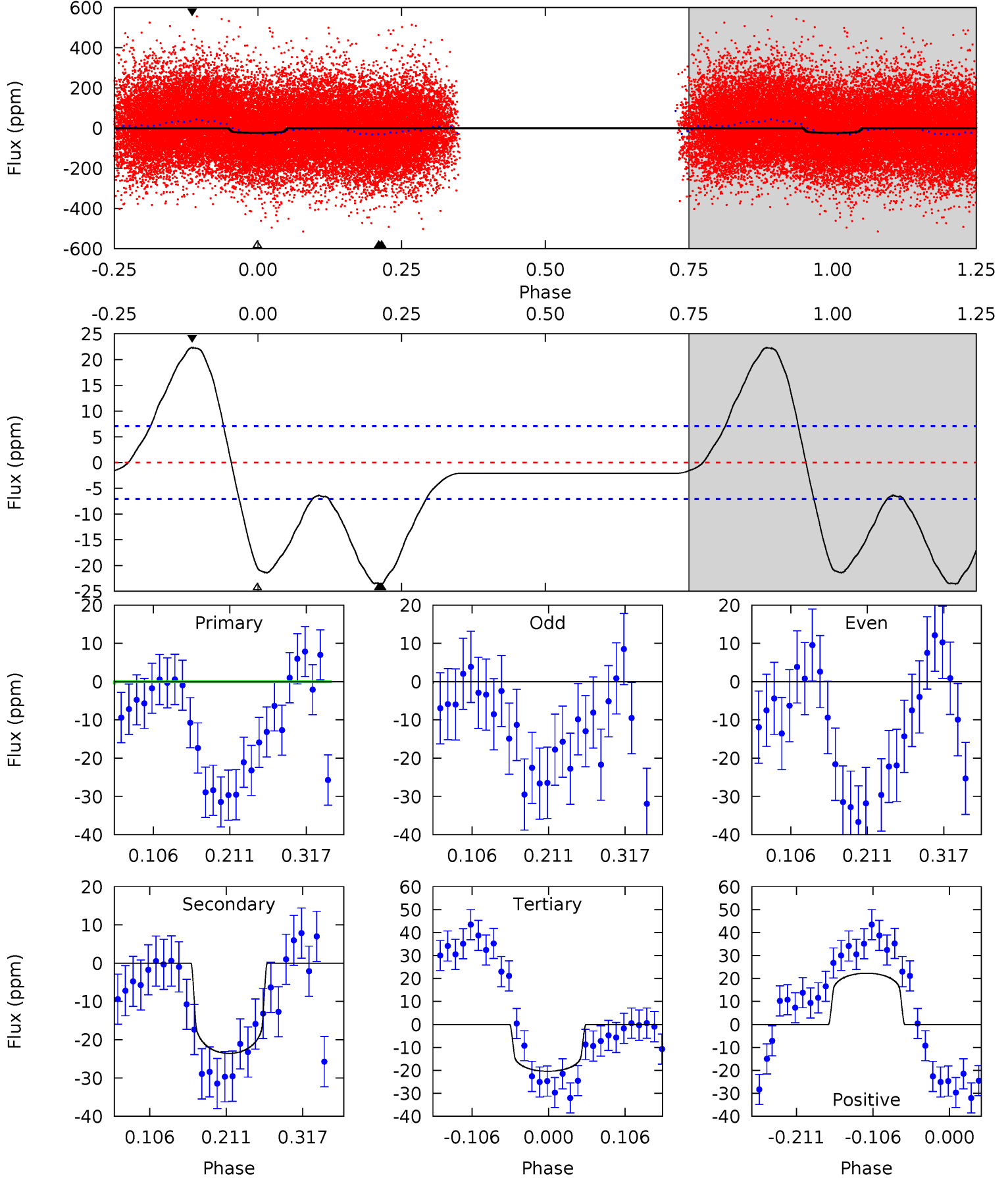
TCE 006544977-03 P= 3.618243 Days $T_0=133.930958$ (BKJD)



DV Model-Shift Uniqueness Test

006544977-03, P = 3.618626 Days, E = 130.310193 Days

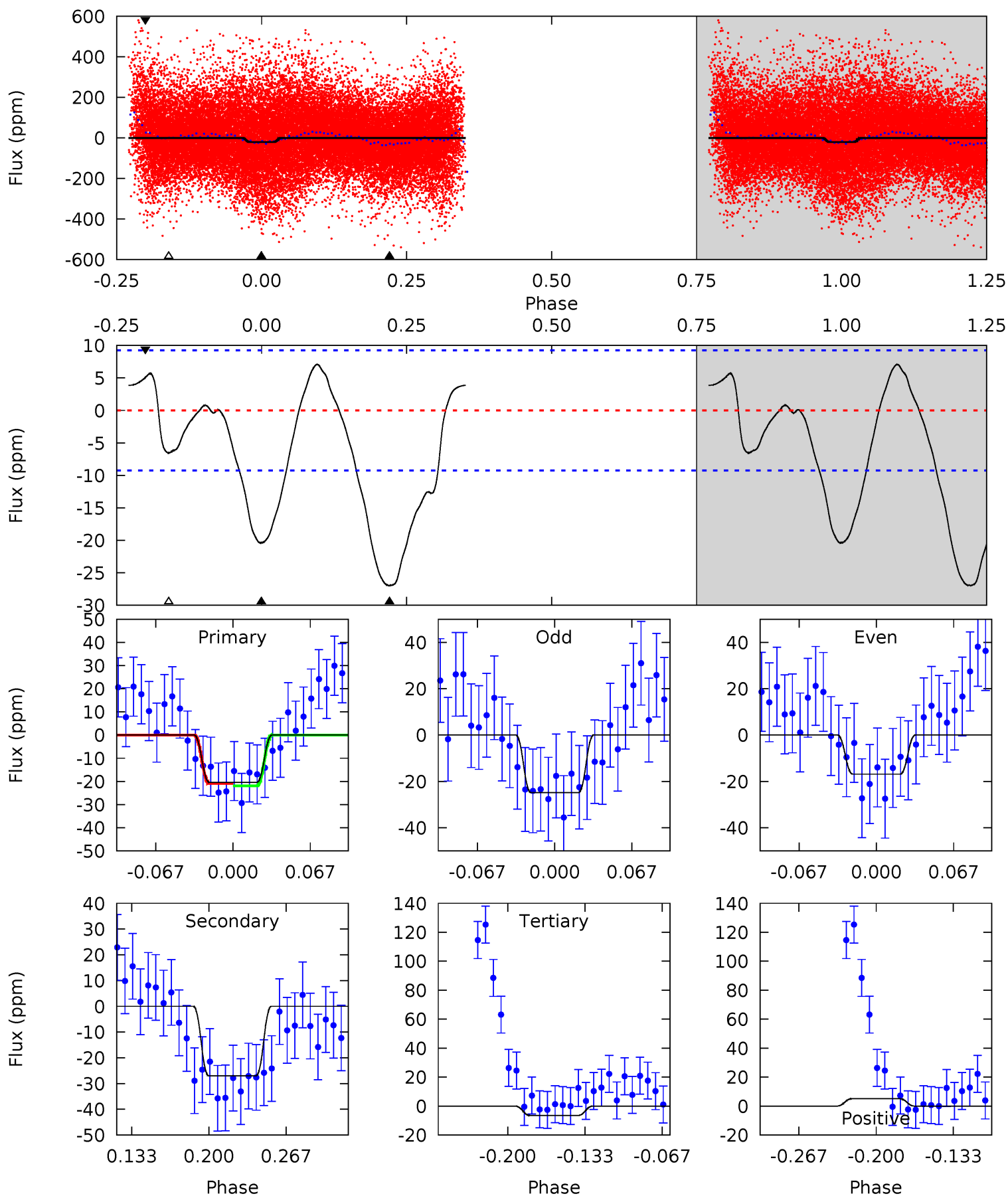
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	15.2	13.1	14.3	4.55	1.62	9.42	1.98	0.76	2.04	0.82	0.19	0.97	0.49	3.63



Alt Model-Shift Uniqueness Test

006544977-03, P = 3.618243 Days, E = 130.312715 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	13.5	3.29	2.54	4.65	1.83	2.47	6.95	7.70	10.2	11.0	2.01	0.83	0.21	0.27



Stellar Parameters For KIC 006544977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6469^{+156}_{-176}	$3.865^{+0.300}_{-0.100}$	$-0.460^{+0.300}_{-0.300}$	$2.109^{+0.397}_{-0.737}$	$1.189^{+0.227}_{-0.185}$	$0.179^{+0.344}_{-0.057}$
	+2%/-3%	+8%/-3%	+65%/-65%	+19%/-35%	+19%/-16%	+193%/-32%
Source	PHO1	FLK73	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 006544977-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-24 ± 2	$1.34^{+0.31}_{-0.28}$	2580^{+158}_{-226}	5766^{+570}_{-453}	17^{+12}_{-6}
Alt.	-27 ± 2	$1.04^{+0.30}_{-0.25}$	2569^{+151}_{-212}	6766^{+914}_{-685}	33^{+27}_{-13}

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

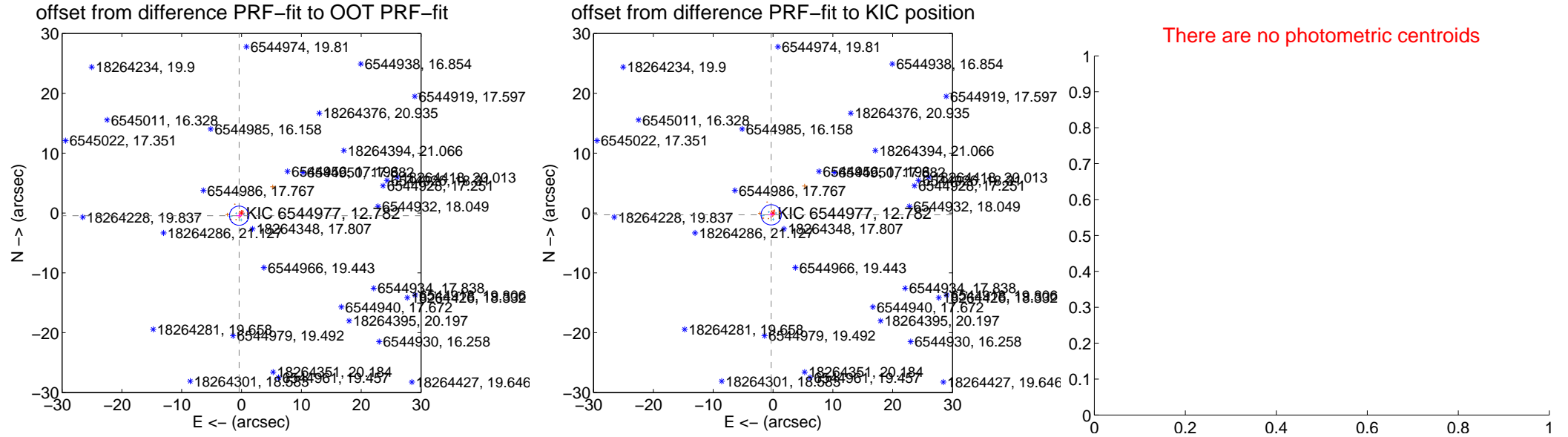
DV Centroid Data

Supplemental centroid analysis for 006544977-03. Kepler magnitude: 12.78. Transit SNR 11.59

There are 4 quarters with good PRF difference image offsets

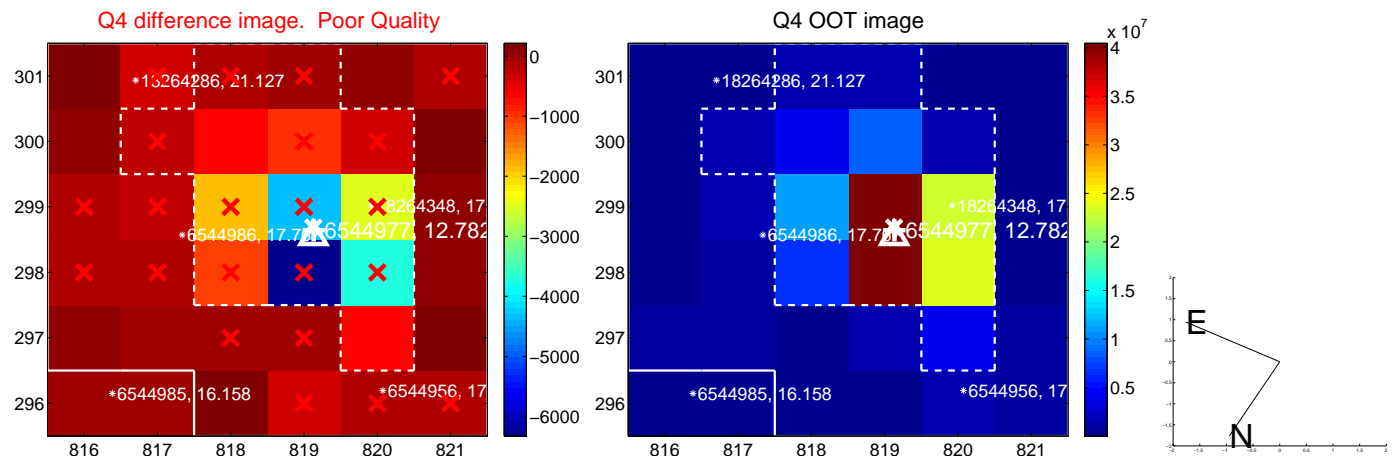
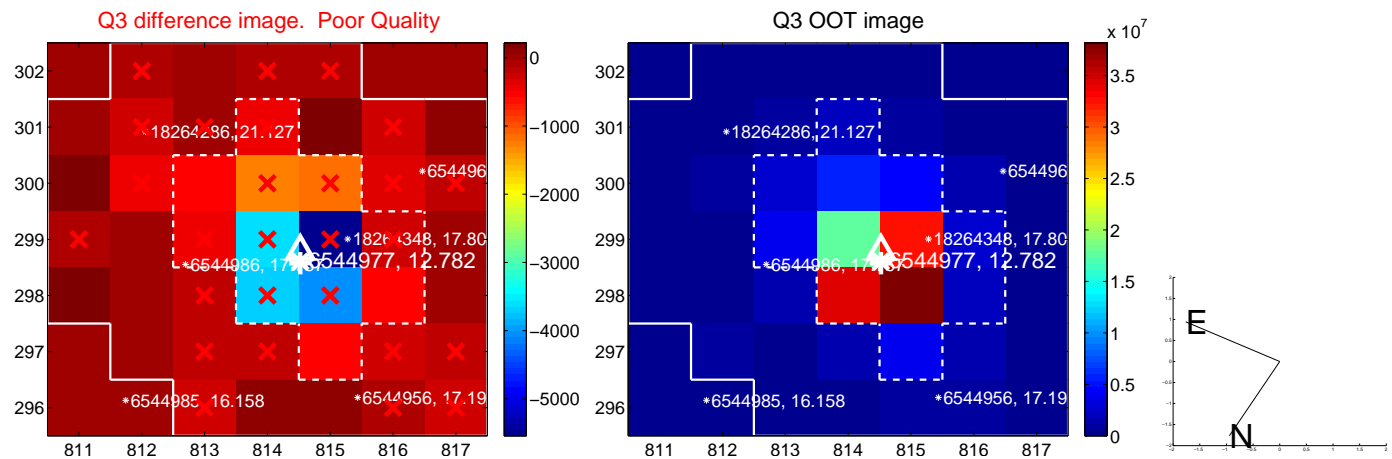
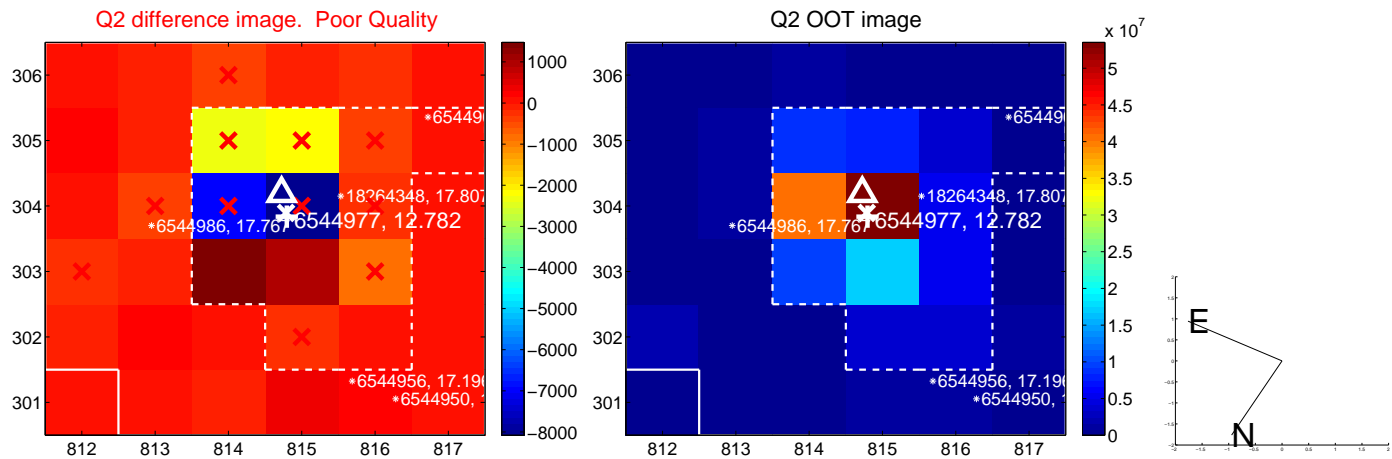
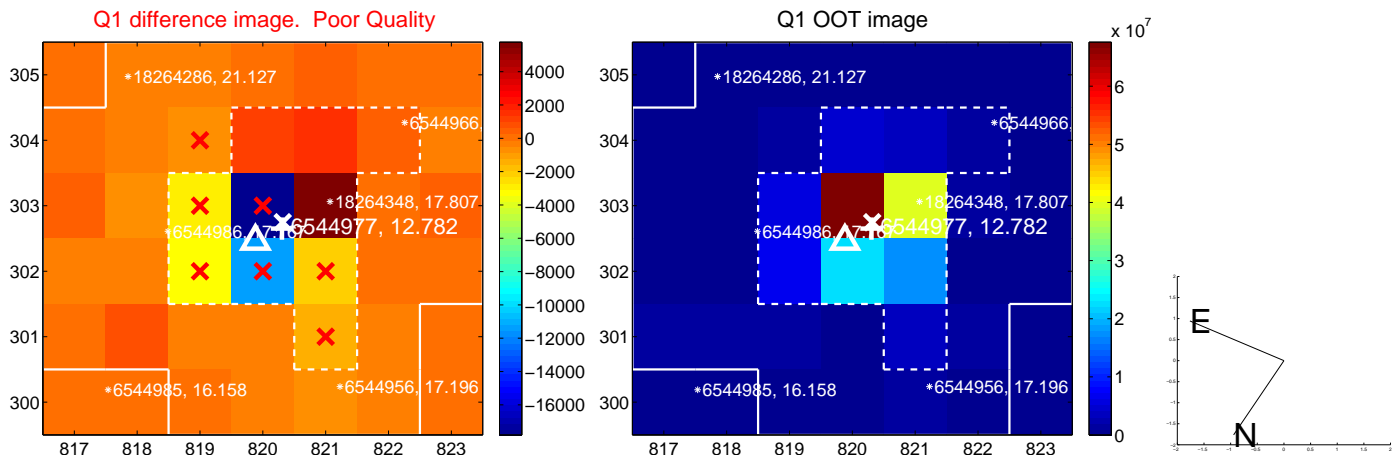
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.603 ± 0.535	1.13	0.406 ± 0.458	-0.446 ± 0.361
PRF-fit source offset from KIC position	0.429 ± 0.565	0.76	0.303 ± 0.478	-0.303 ± 0.382
photometric centroid source offset	—	—	—	—

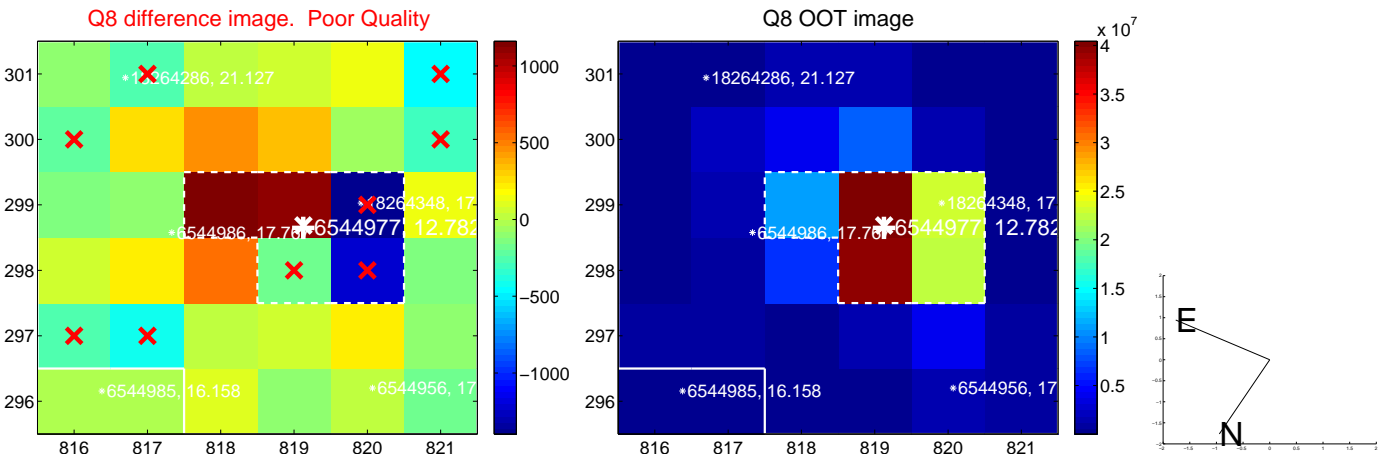
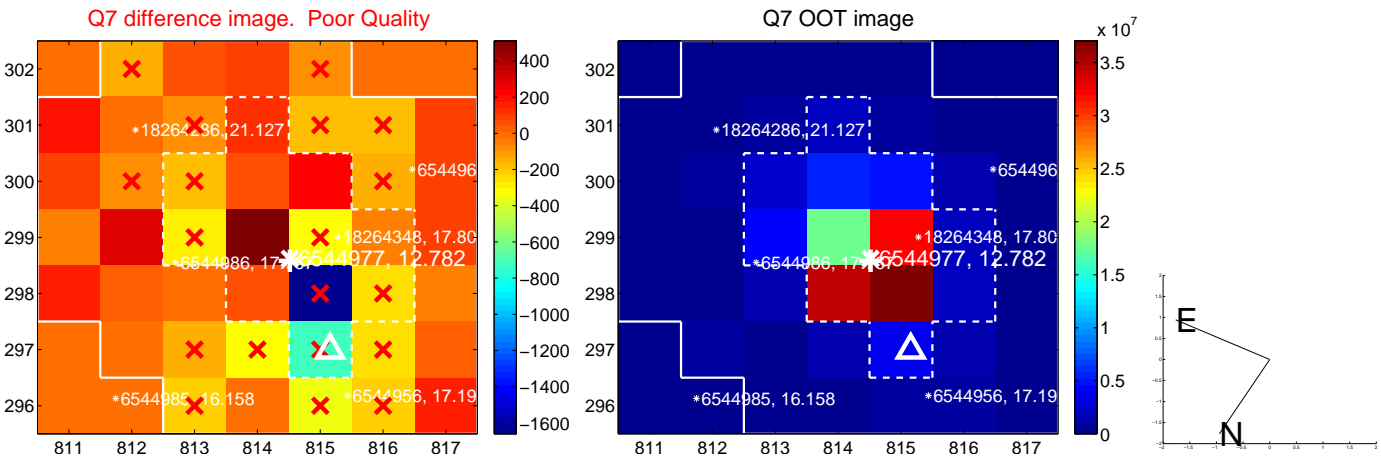
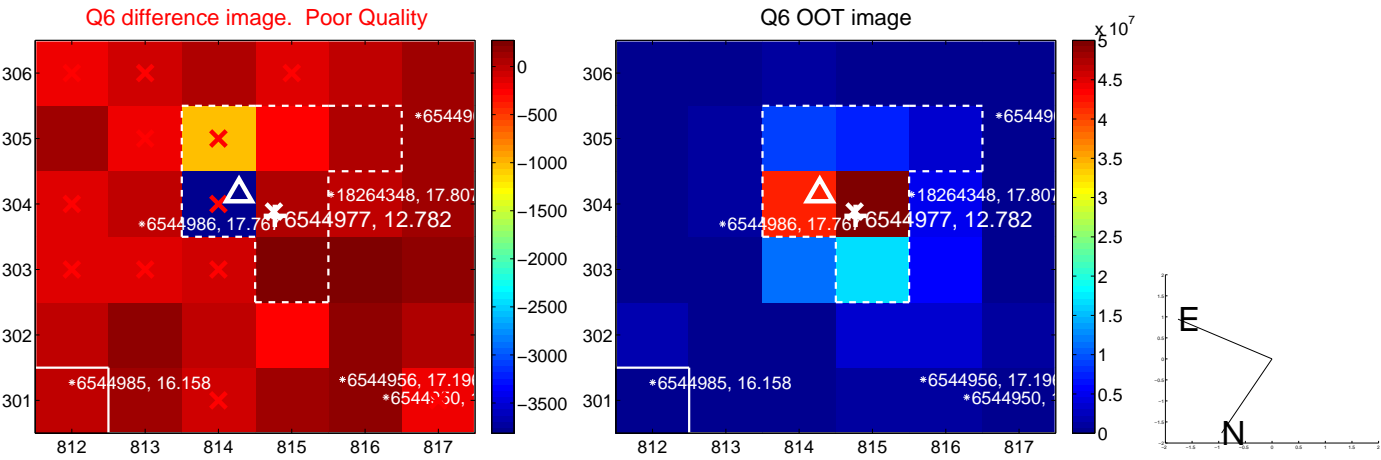
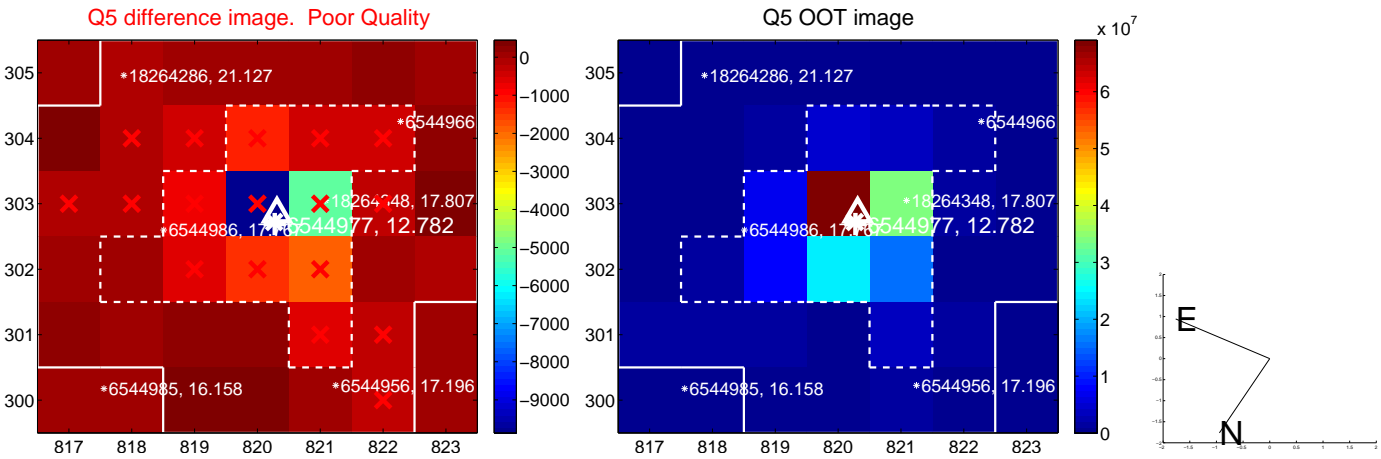


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

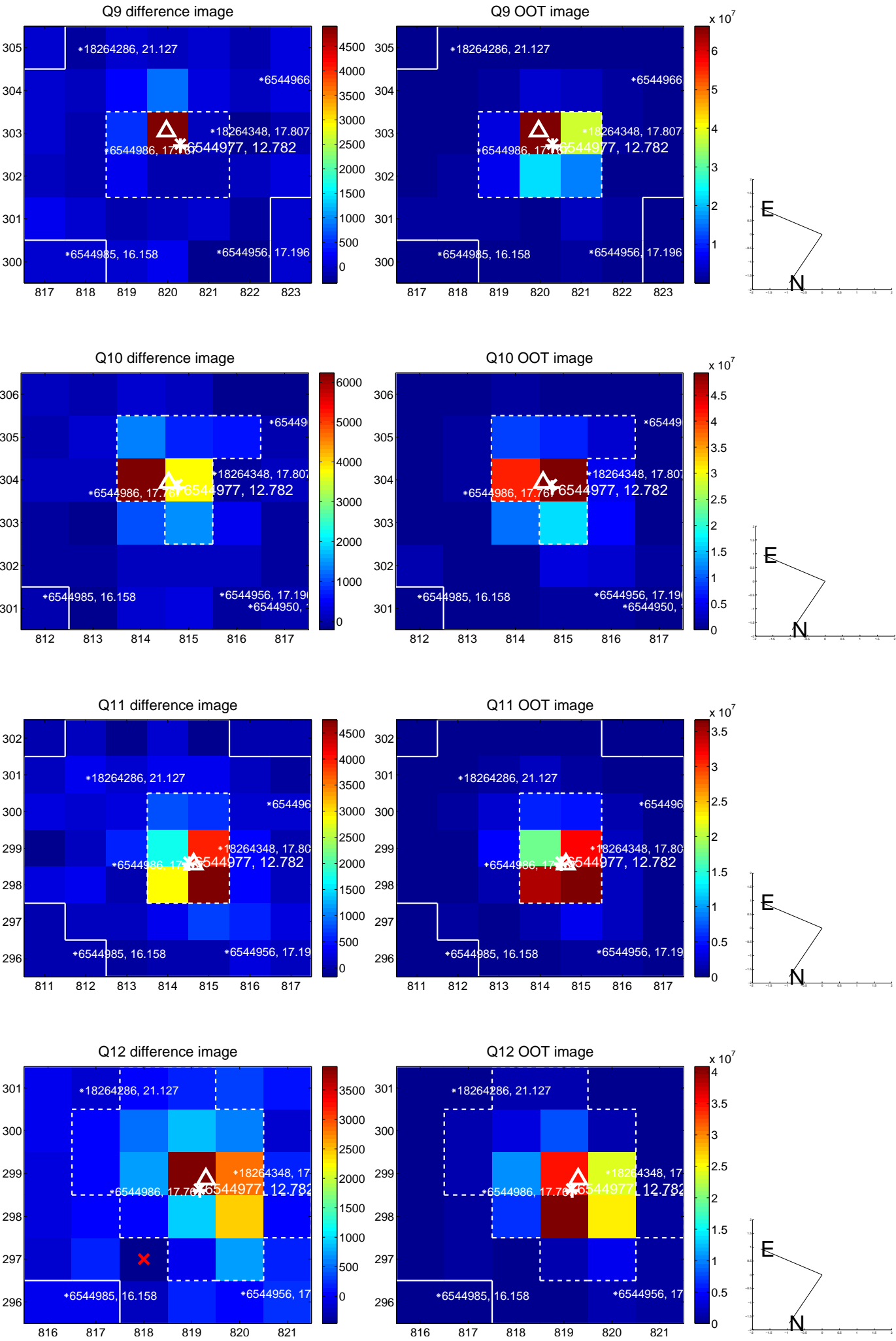
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



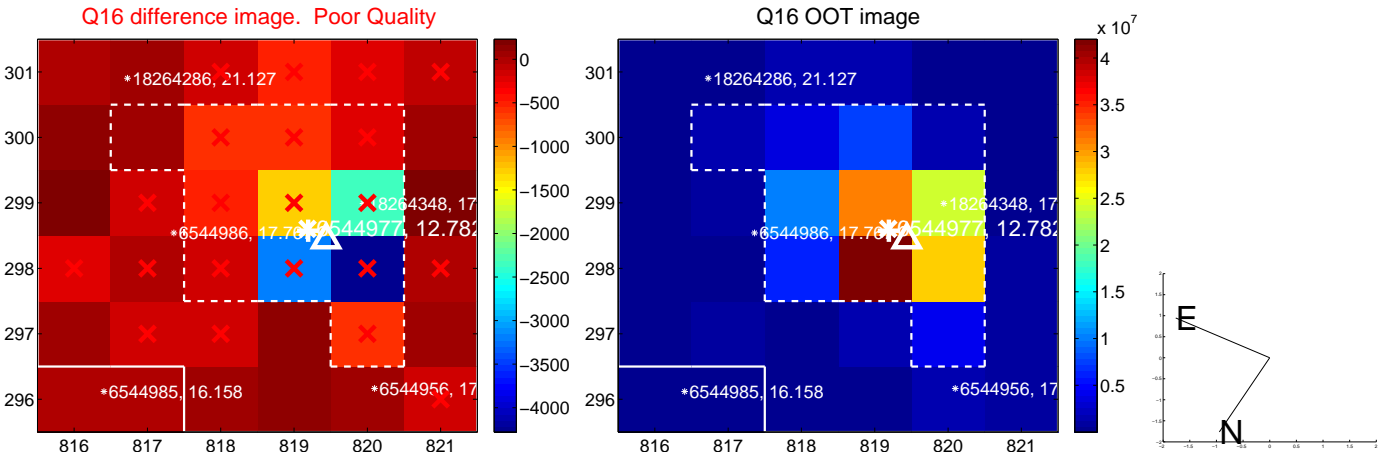
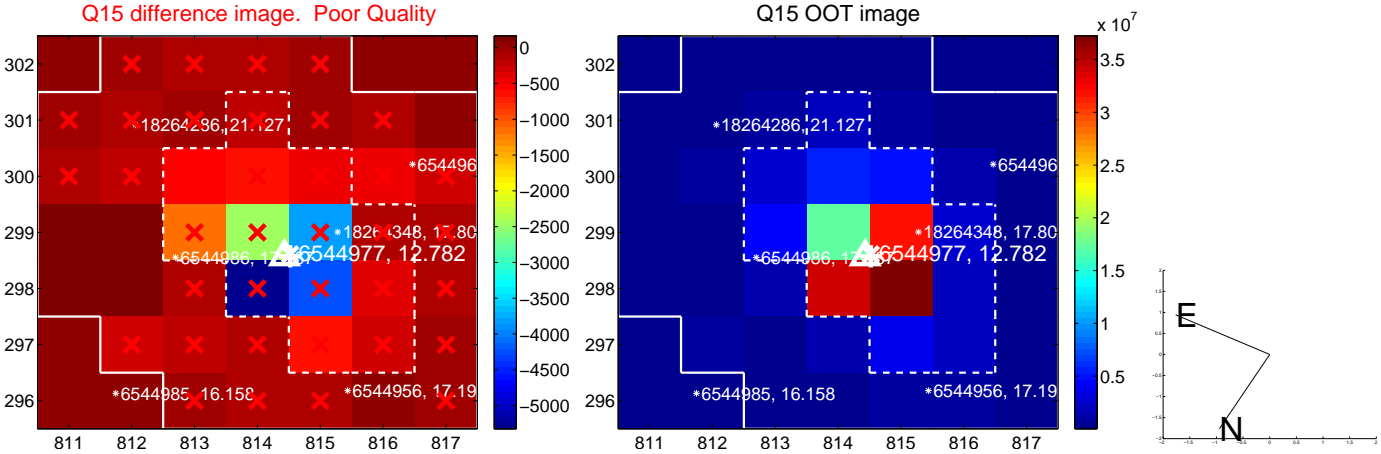
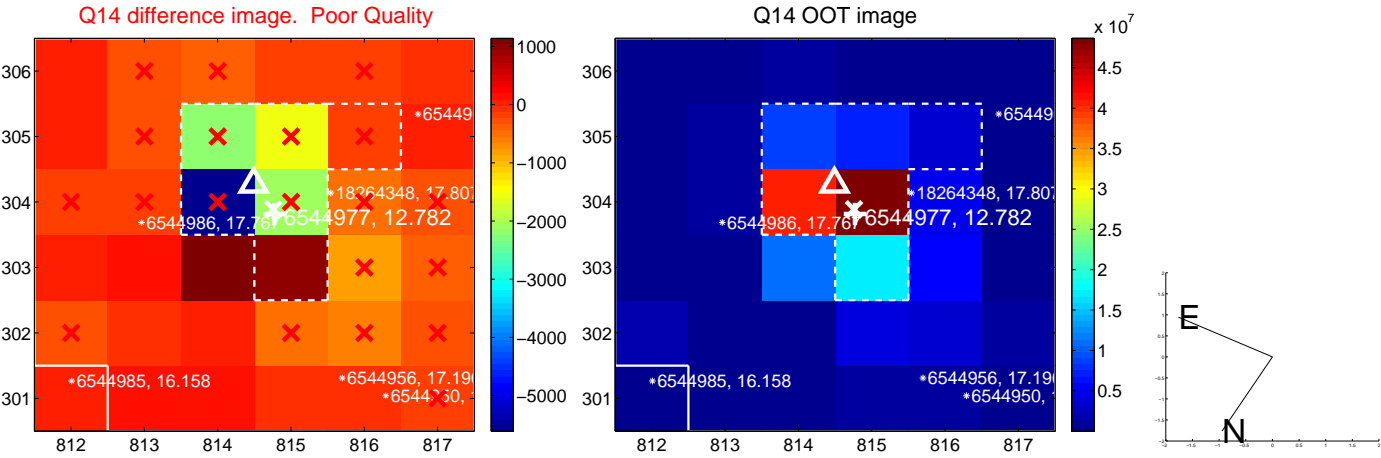
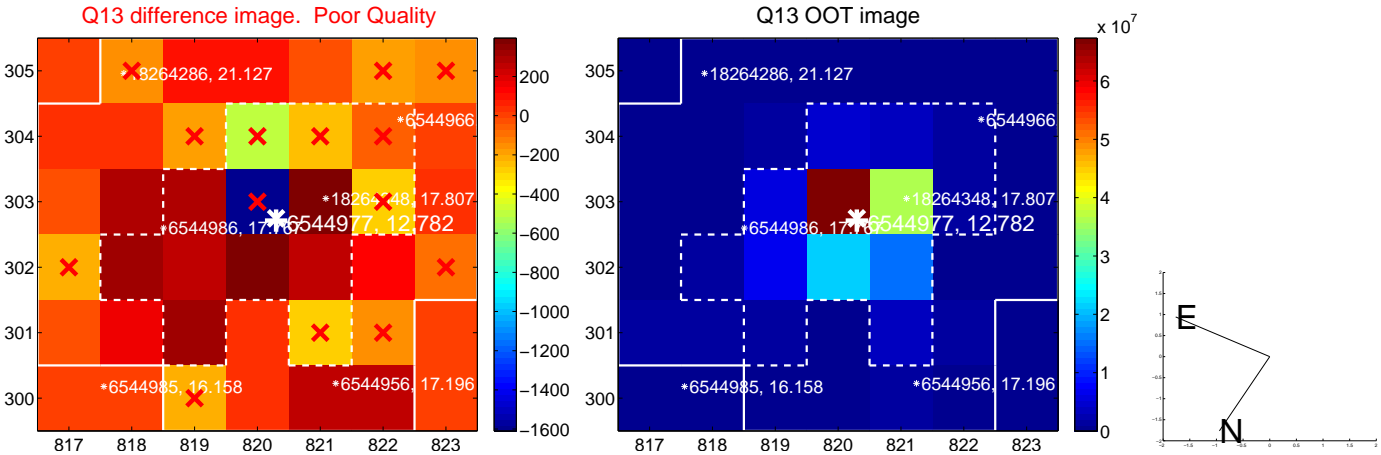
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



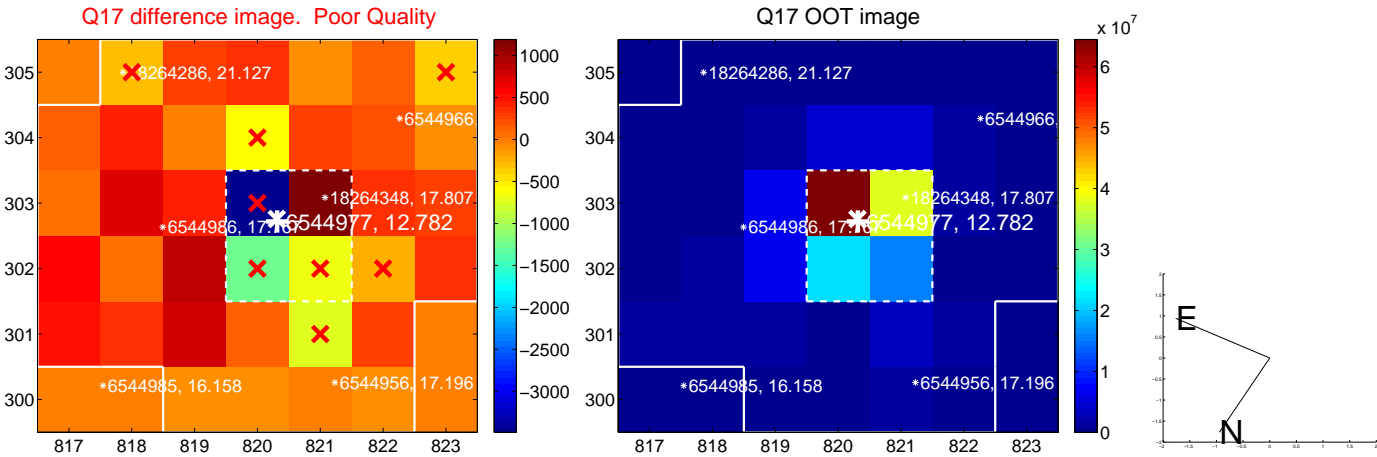
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



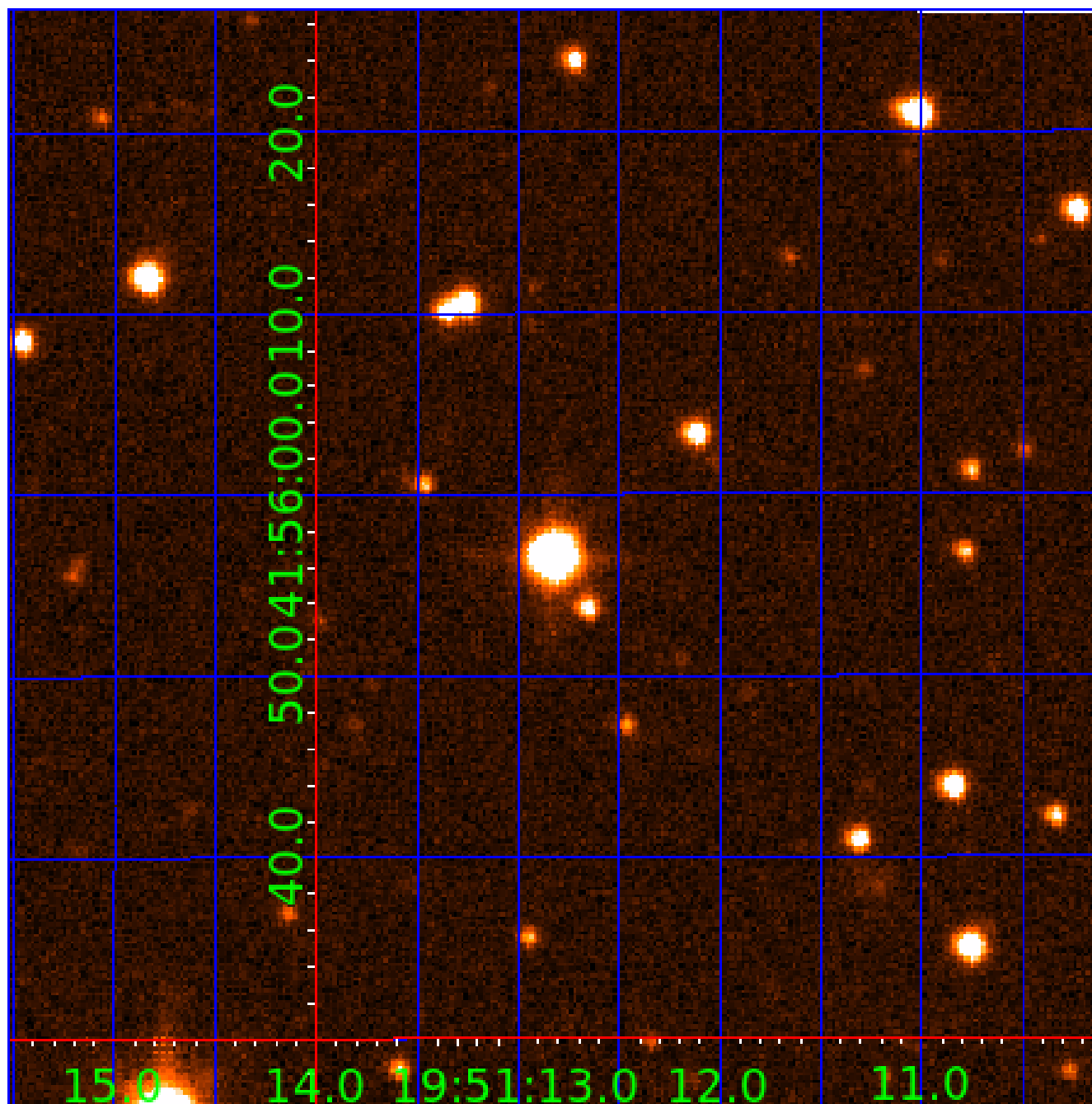
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006544977

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})
006544977-01	OBS	No	3.617860	132.420415	50.9	13.158	9.9	11.7	2.11	6469	2.90	2922.08
006544977-02	OBS	No	236.638495	189.717356	0.0	19.133	13.0	0.0	2.11	6469	0.01	11.09
006544977-03	OBS	No	3.618626	133.928819	32.5	8.728	10.9	11.6	2.11	6469	1.39	2921.25
006544977-04	OBS	No	1.809124	132.991768	26.0	10.753	10.6	11.4	2.11	6469	1.23	7362.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006544977-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
006544977-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006544977-03	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
006544977-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

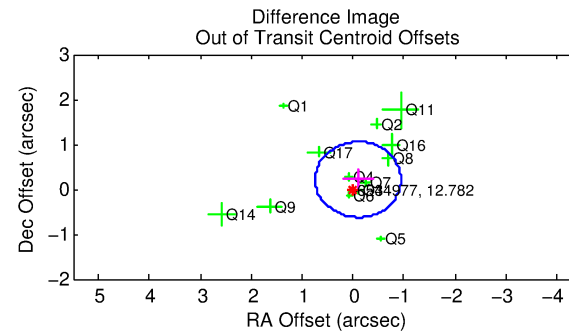
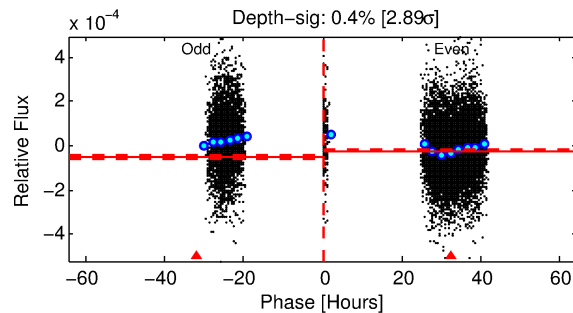
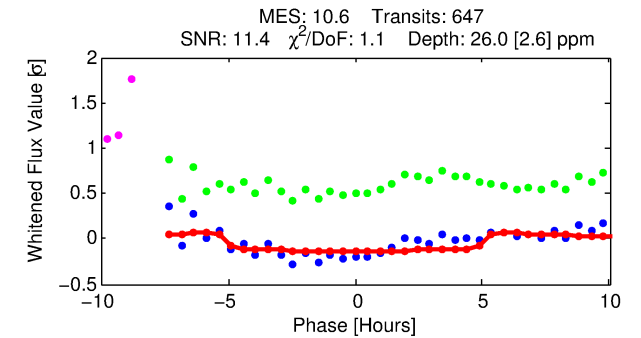
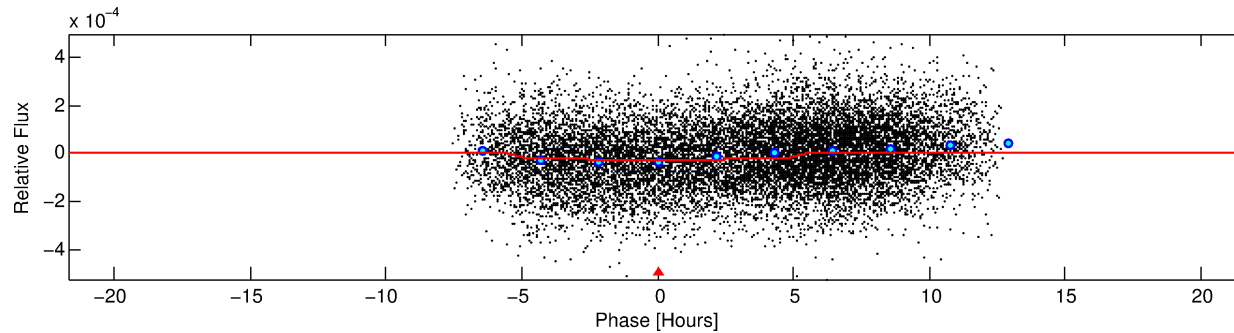
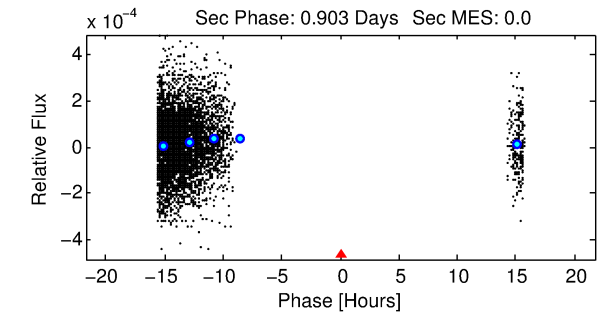
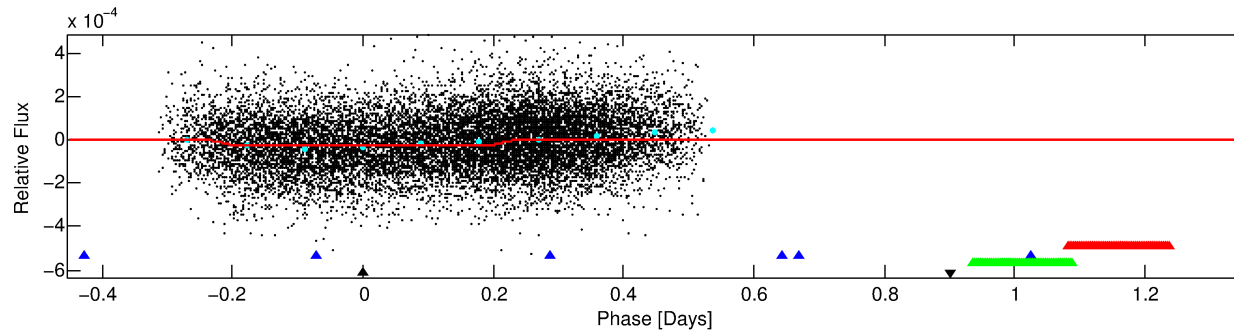
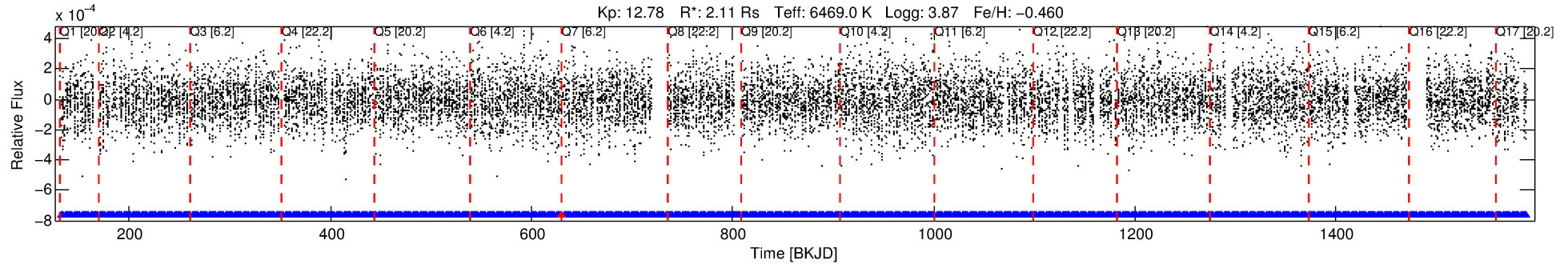
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006544977-04

No Significant Match Found

DV One-Page Summary

KIC: 6544977 Candidate: 4 of 4 Period: 1.809 d



DV Fit Results:

Period = 1.80912 [0.00002] d
Epoch = 132.9918 [0.0063] BKJD
Rp/R* = 0.0054 [0.0013]
a/R* = 1.12 [0.33]
b = 0.88 [0.38]
Seff = 7362.12 [3883.09]
Teq = 2362 [311] K
Rp = 1.23 [0.53] Re
a = 0.0308 [0.0101] AU
Ag = N/A
Teffp = N/A

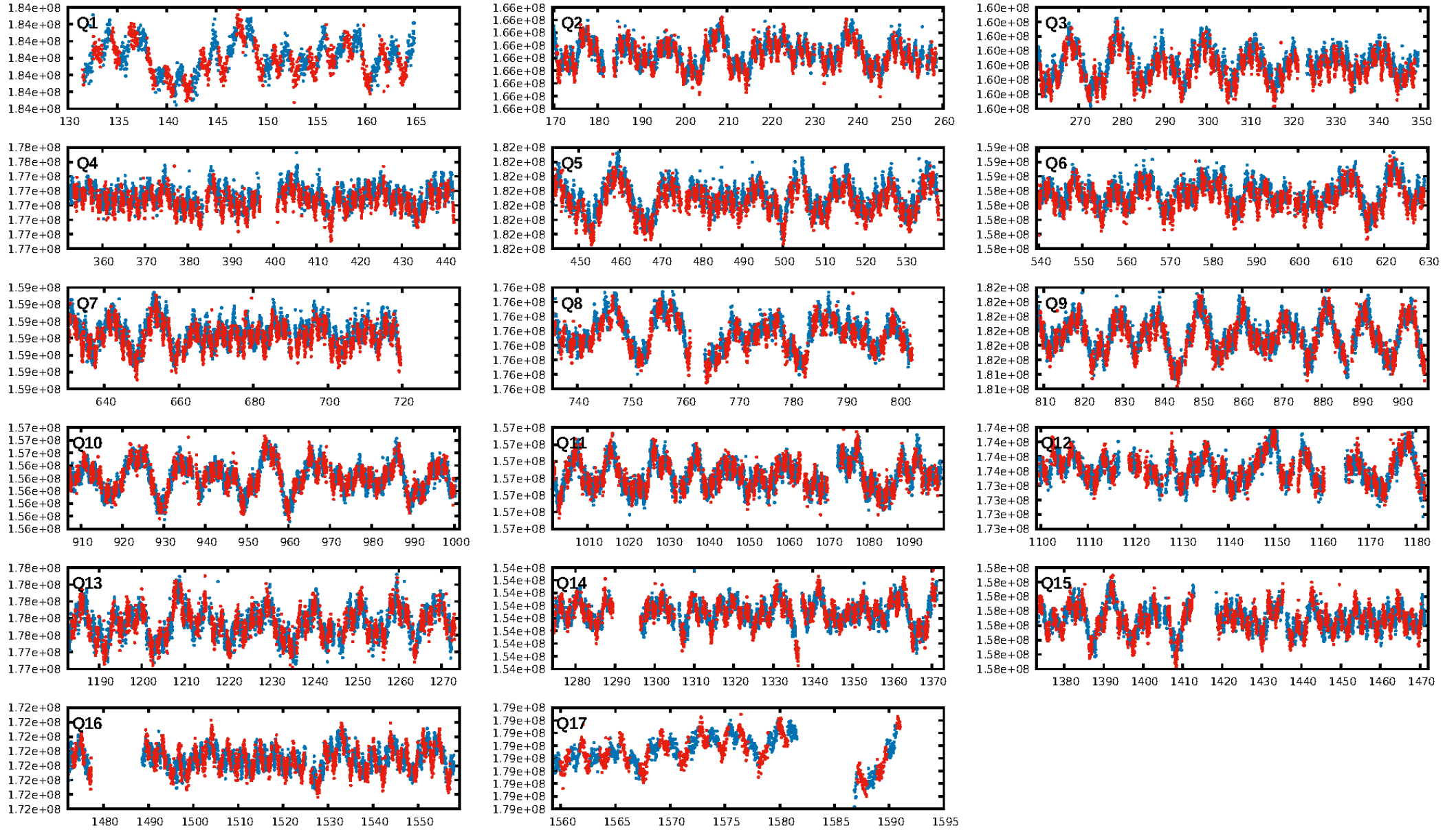
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 98.9% [2.55σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [623/624]
GhostDiagnostic-chr: 0.3167
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.235 arcsec [0.84σ]
KicOffset-rm: 0.412 arcsec [1.57σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.00 [0/17]

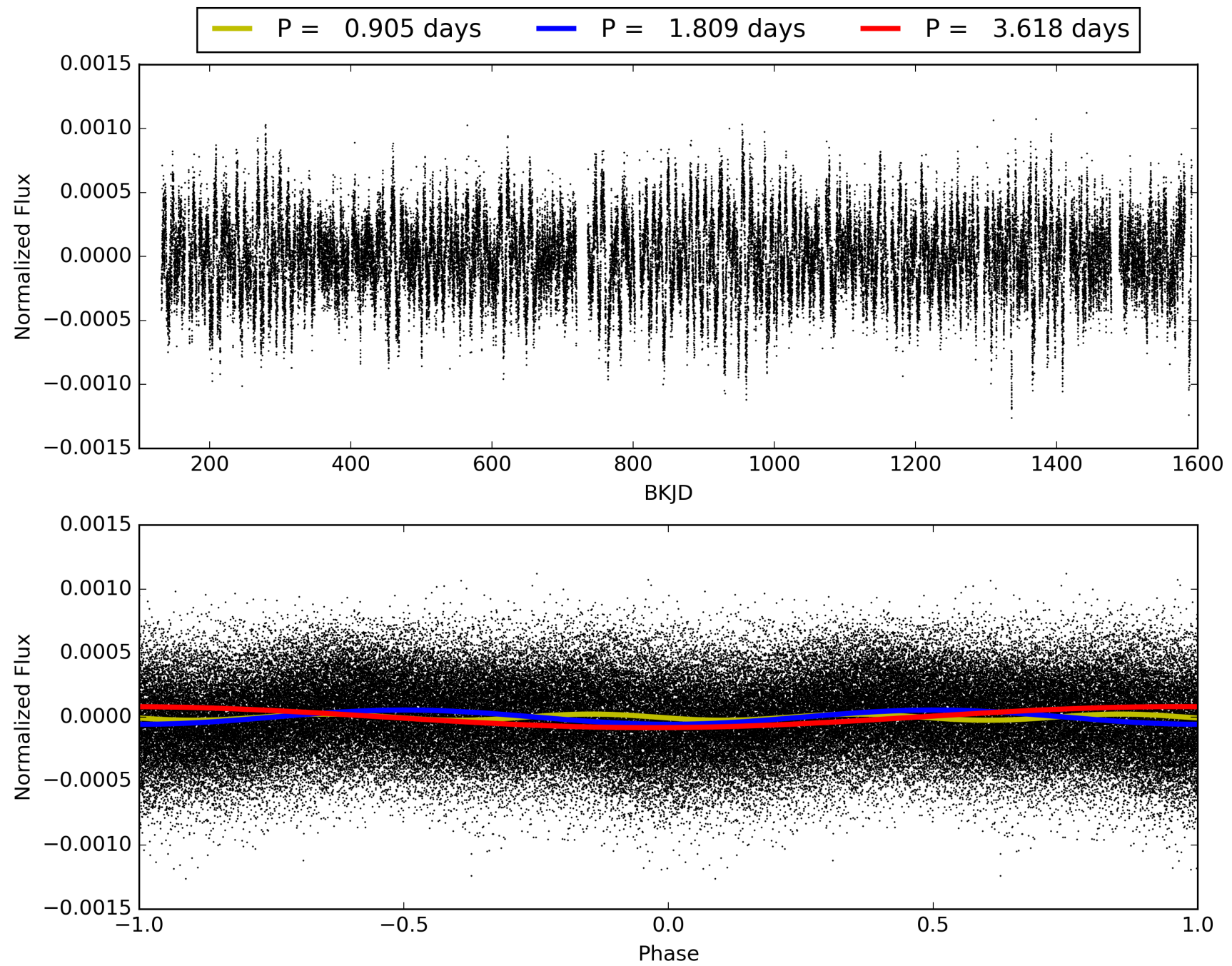
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:33:22 Z

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

TCE 006544977-04, PDC Light Curves

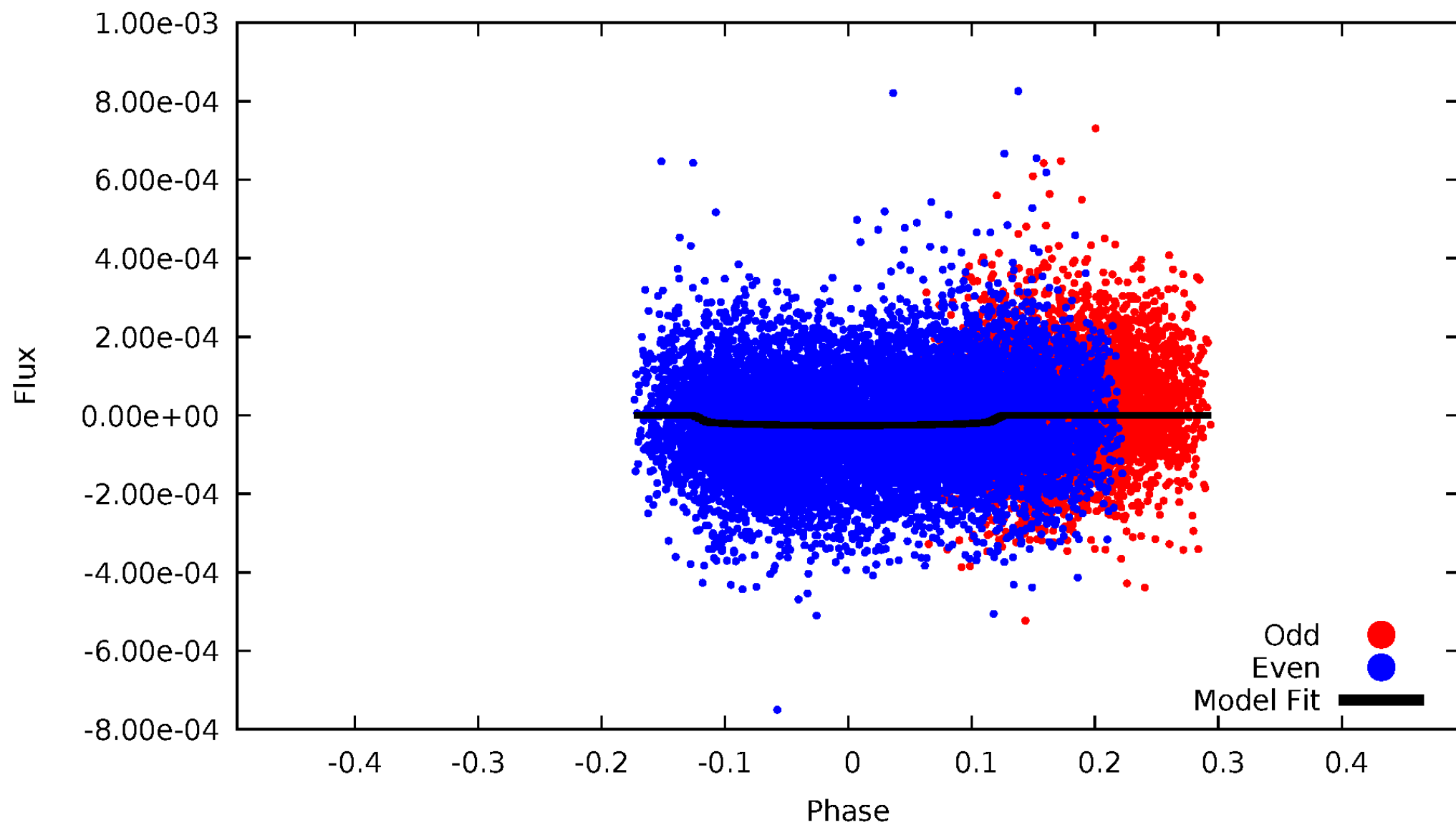


TCE 006544977-04



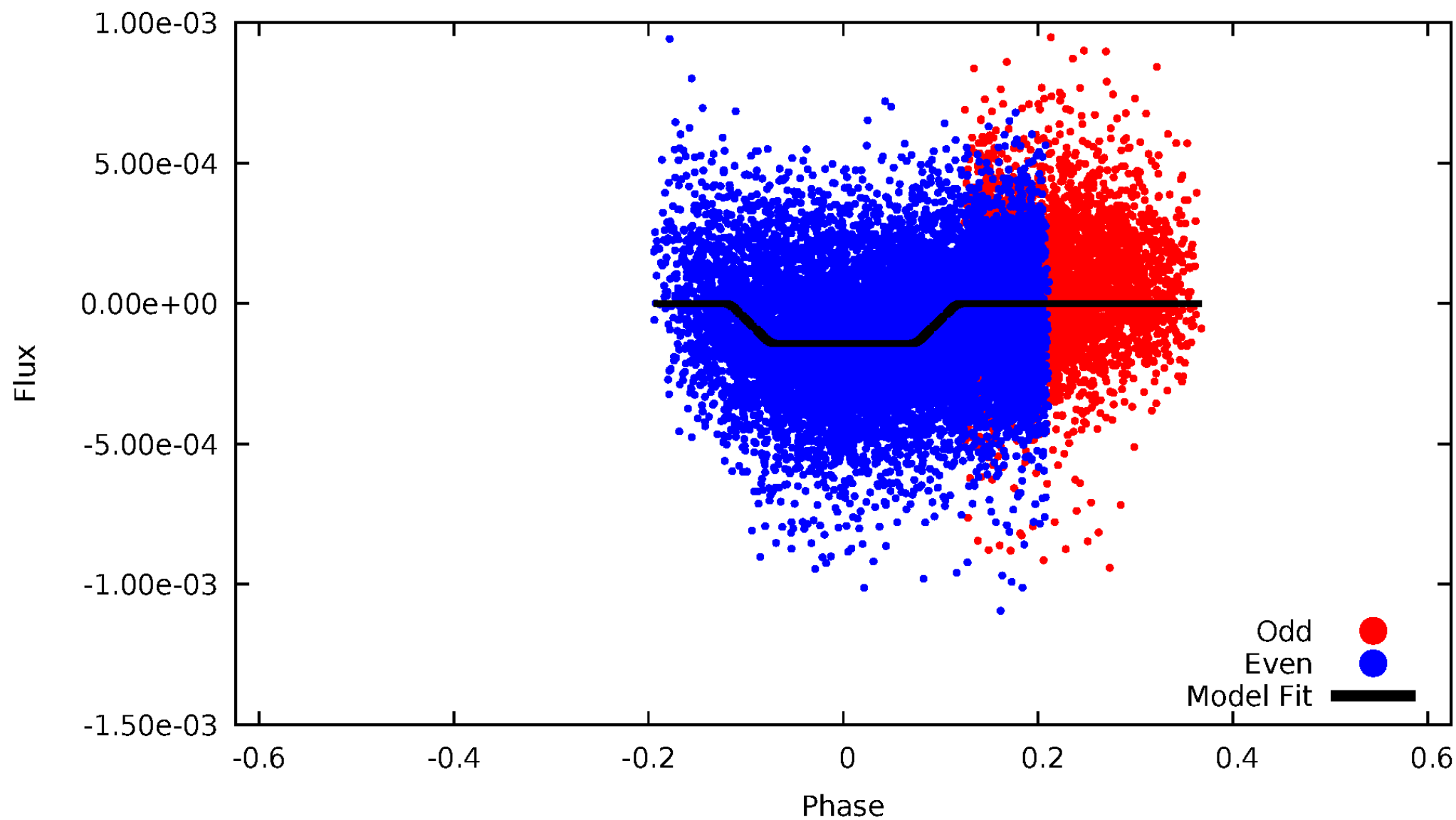
DV Odd/Even

TCE 006544977-04



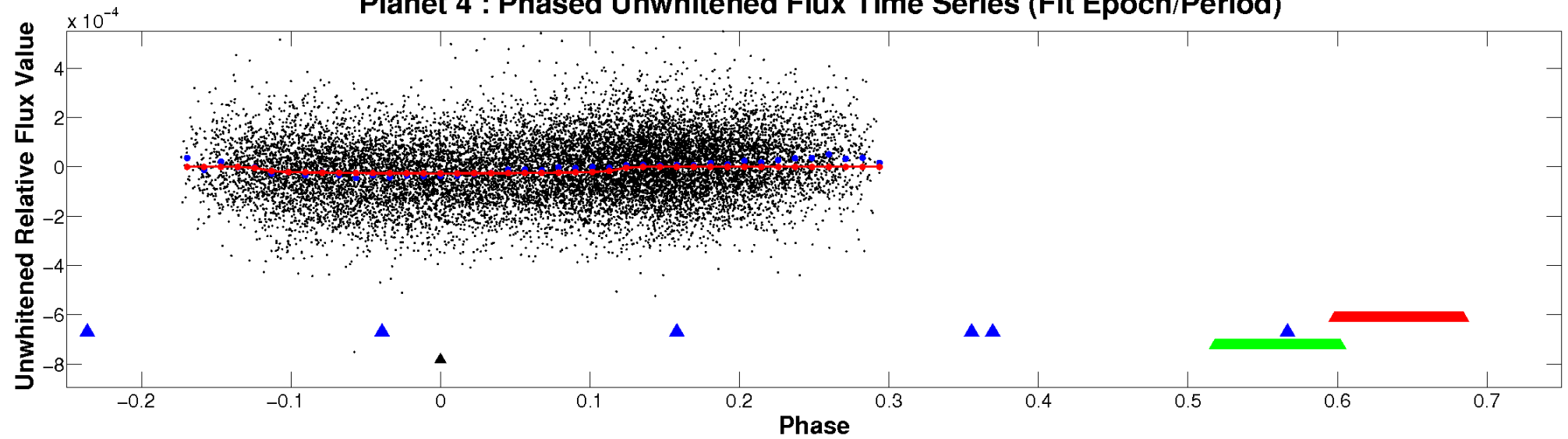
ALT Odd/Even

TCE 006544977-04

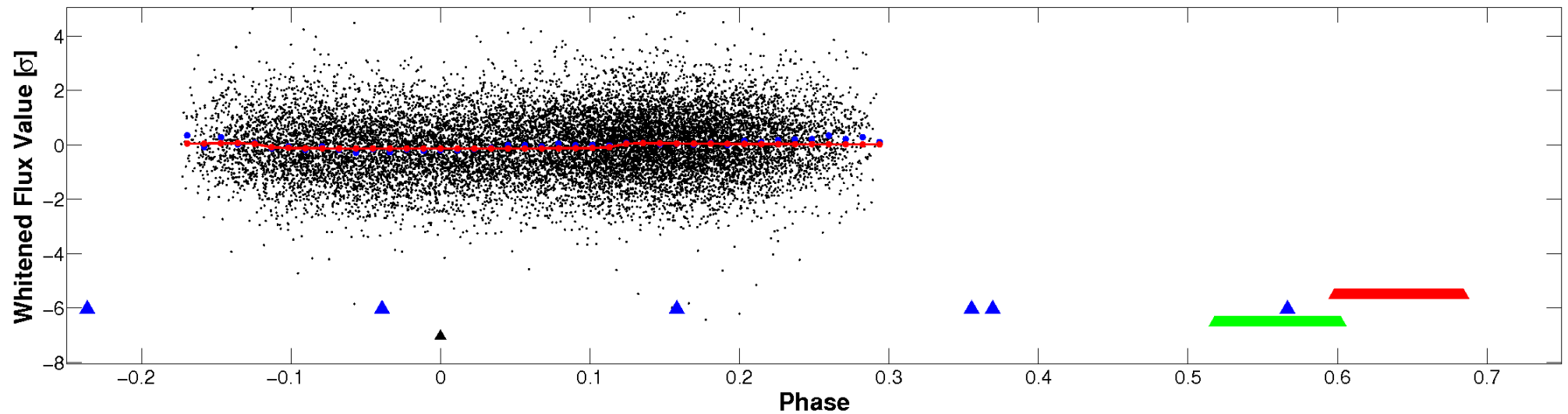


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

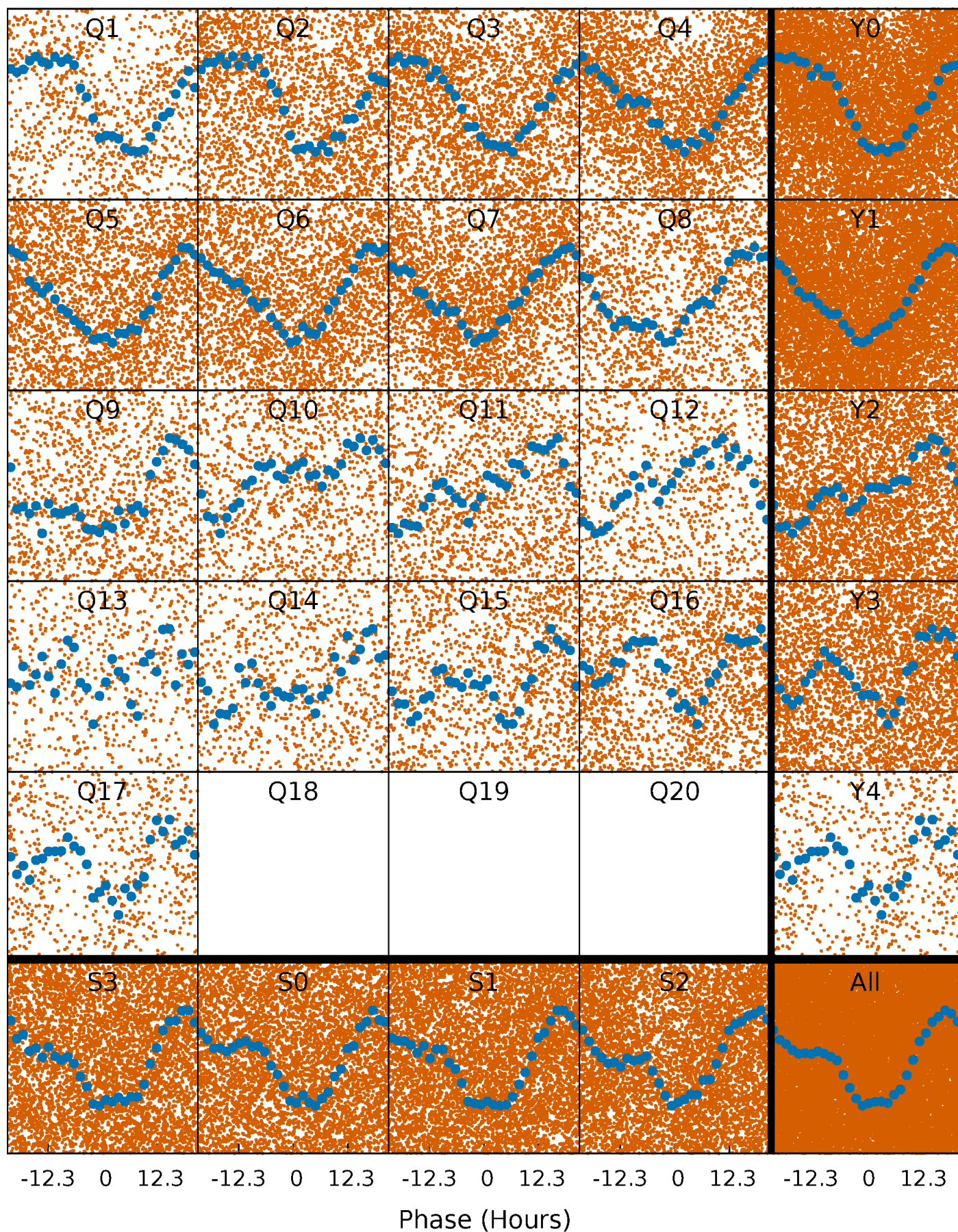


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



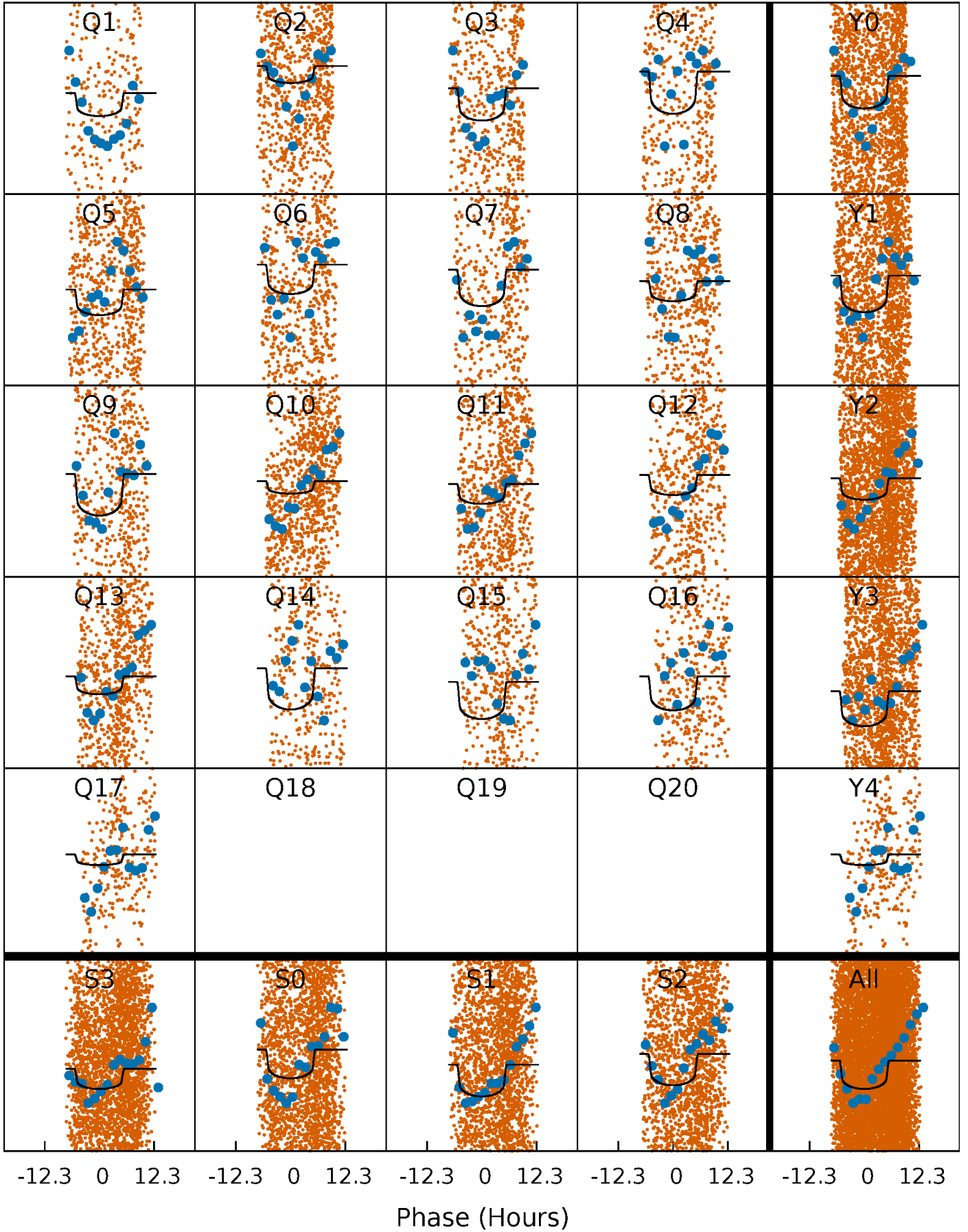
PDC Quarter-Phased Transit Curves

TCE 006544977-04 P= 1.809124 Days $T_0=132.991768$ (BKJD)



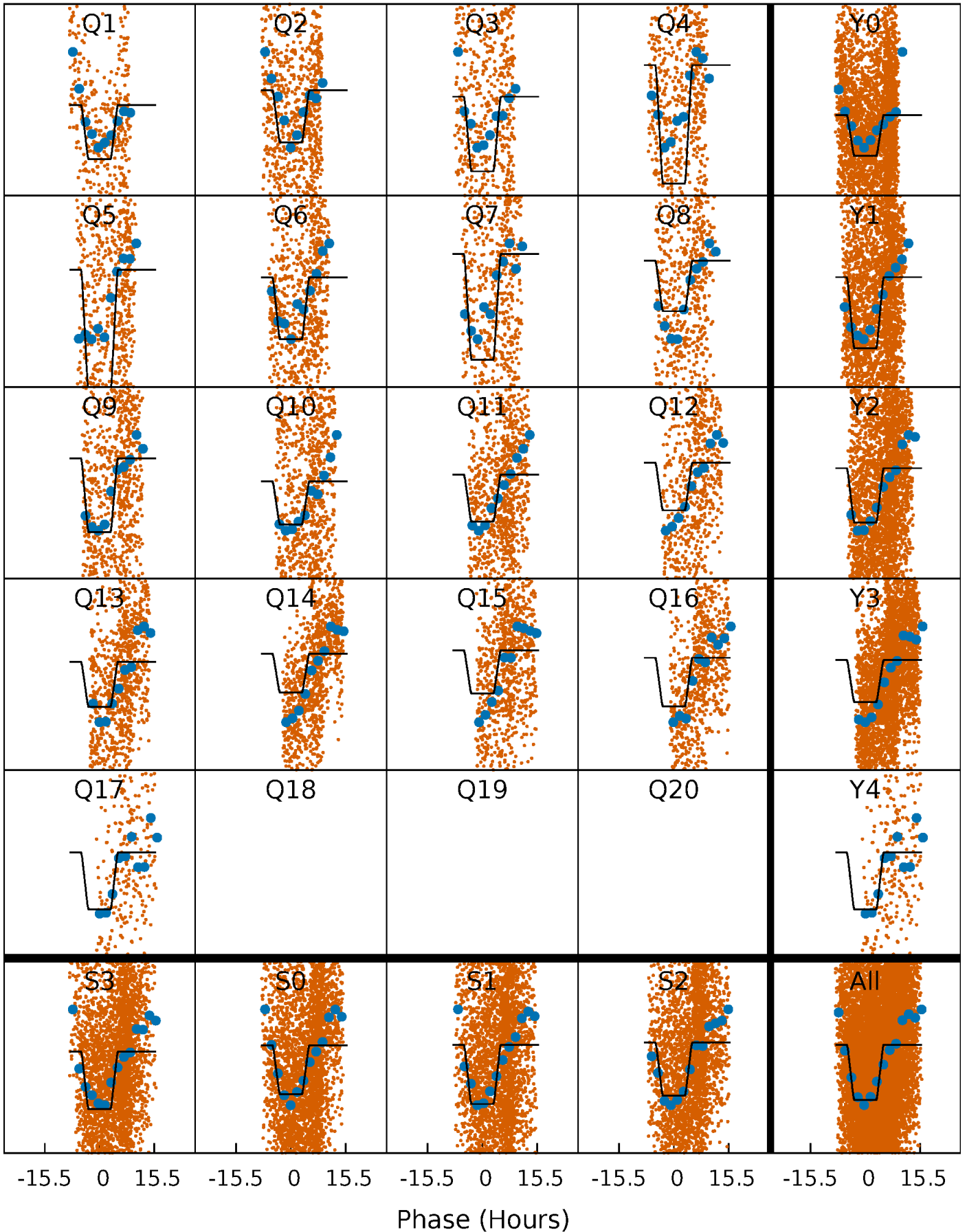
DV Quarter-Phased Transit Curves

TCE 006544977-04 $P = 1.809124$ Days $T_0 = 132.991768$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

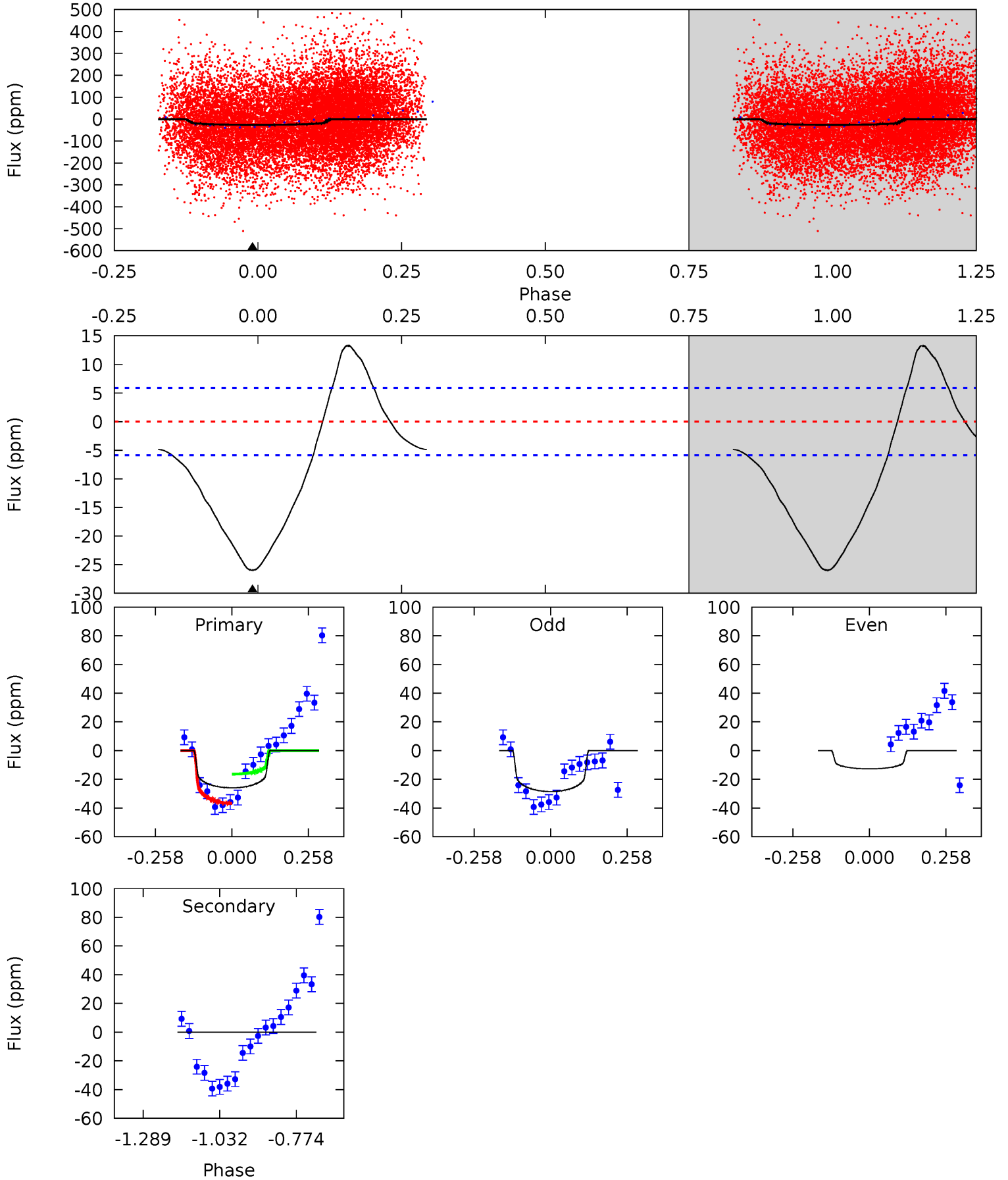
TCE 006544977-04 P= 1.808906 Days $T_0=133.032881$ (BKJD)



DV Model-Shift Uniqueness Test

006544977-04, P = 1.809124 Days, E = 131.182644 Days

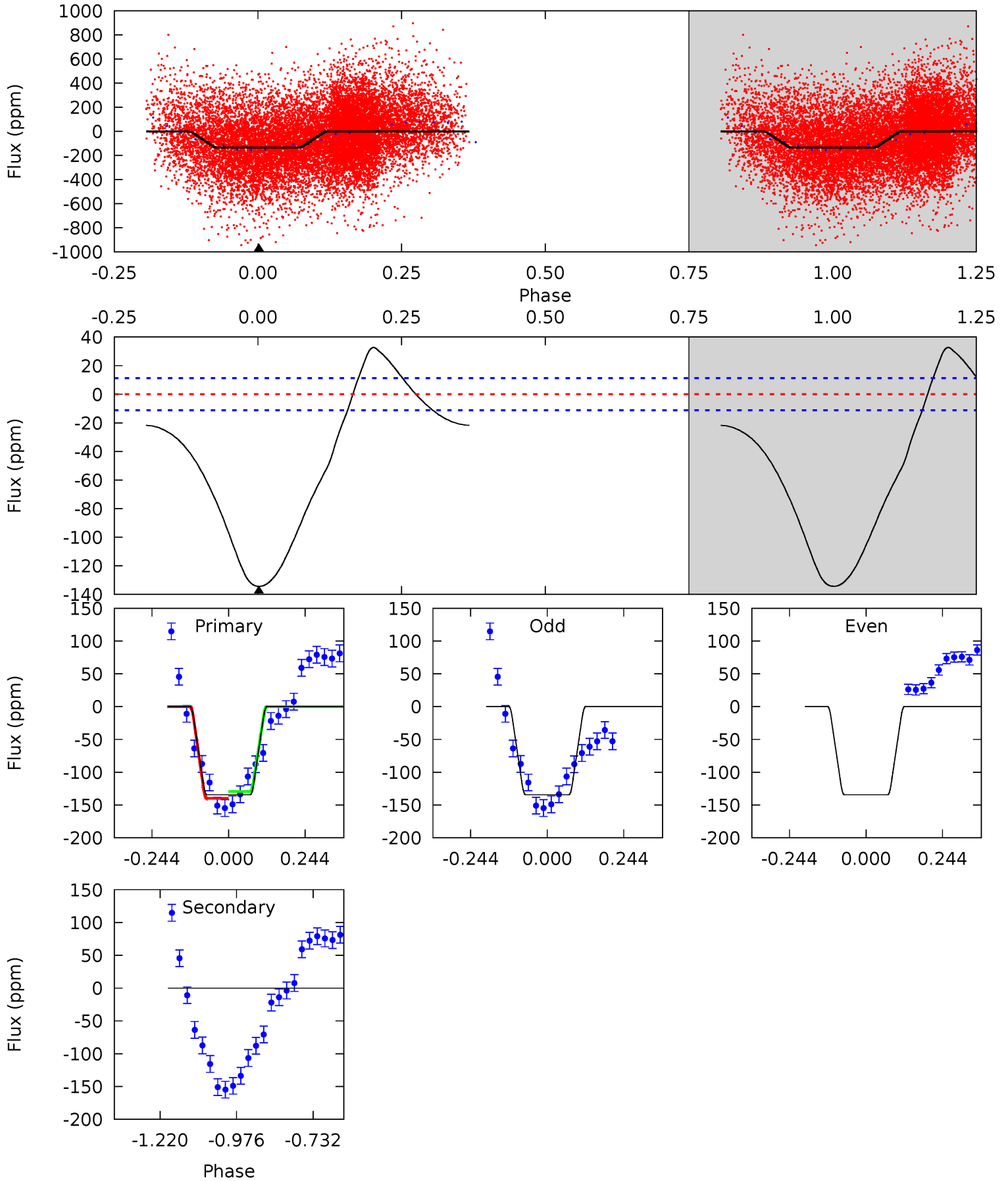
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	0	0	0	4.36	1.13	2.06	19.2	19.2	0	0	3.54	0.35	0.34	7.80



Alt Model-Shift Uniqueness Test

006544977-04, P = 1.808906 Days, E = 131.223975 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.3	0	0	0	4.37	1.17	4.62	52.3	52.3	0	0	0	1.03	0.20	1.92



Stellar Parameters For KIC 006544977

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6469^{+156}_{-176}	$3.865^{+0.300}_{-0.100}$	$-0.460^{+0.300}_{-0.300}$	$2.109^{+0.397}_{-0.737}$	$1.189^{+0.227}_{-0.185}$	$0.179^{+0.344}_{-0.057}$
	+2%/-3%	+8%/-3%	+65%/-65%	+19%/-35%	+19%/-16%	+193%/-32%
Source	PHO1	FLK73	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 006544977-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1	$1.18^{+0.36}_{-0.33}$	3266^{+180}_{-301}	-3223^{+6342}_{-627}	$-0.003^{+0.566}_{-0.585}$
Alt.	0 ± 3	$2.65^{+0.46}_{-0.51}$	3235^{+200}_{-292}	-3233^{+456}_{-263}	$-0.004^{+0.195}_{-0.197}$

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 $A_{obs} \gg 1.0$

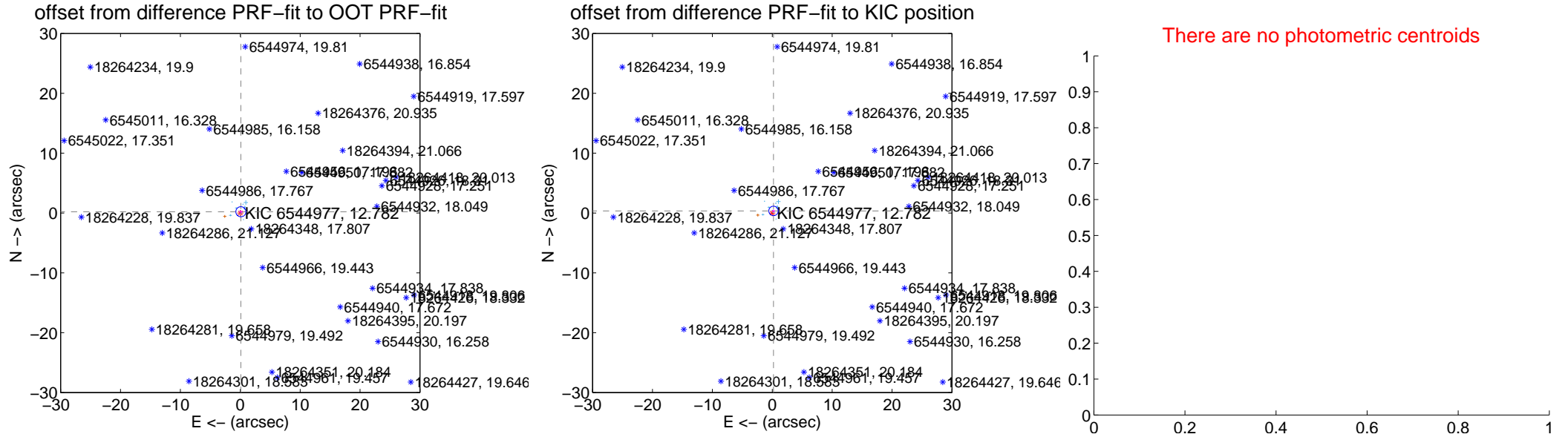
DV Centroid Data

Supplemental centroid analysis for 006544977-04. Kepler magnitude: 12.78. Transit SNR 11.40

There are 12 quarters with good PRF difference image offsets

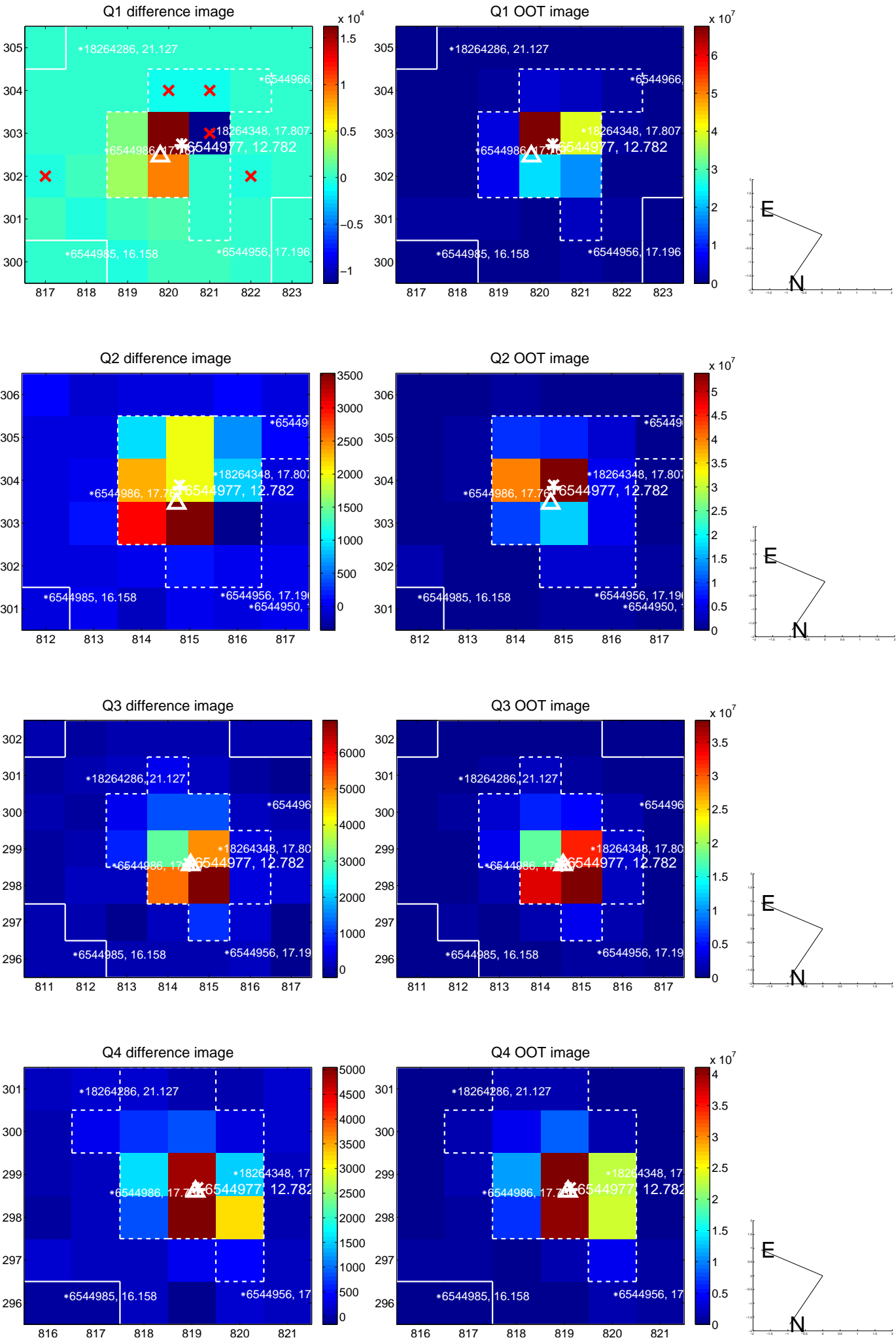
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.235 ± 0.281	0.84	-0.099 ± 0.305	0.213 ± 0.235
PRF-fit source offset from KIC position	0.412 ± 0.263	1.57	-0.210 ± 0.272	0.354 ± 0.236
photometric centroid source offset	—	—	—	—

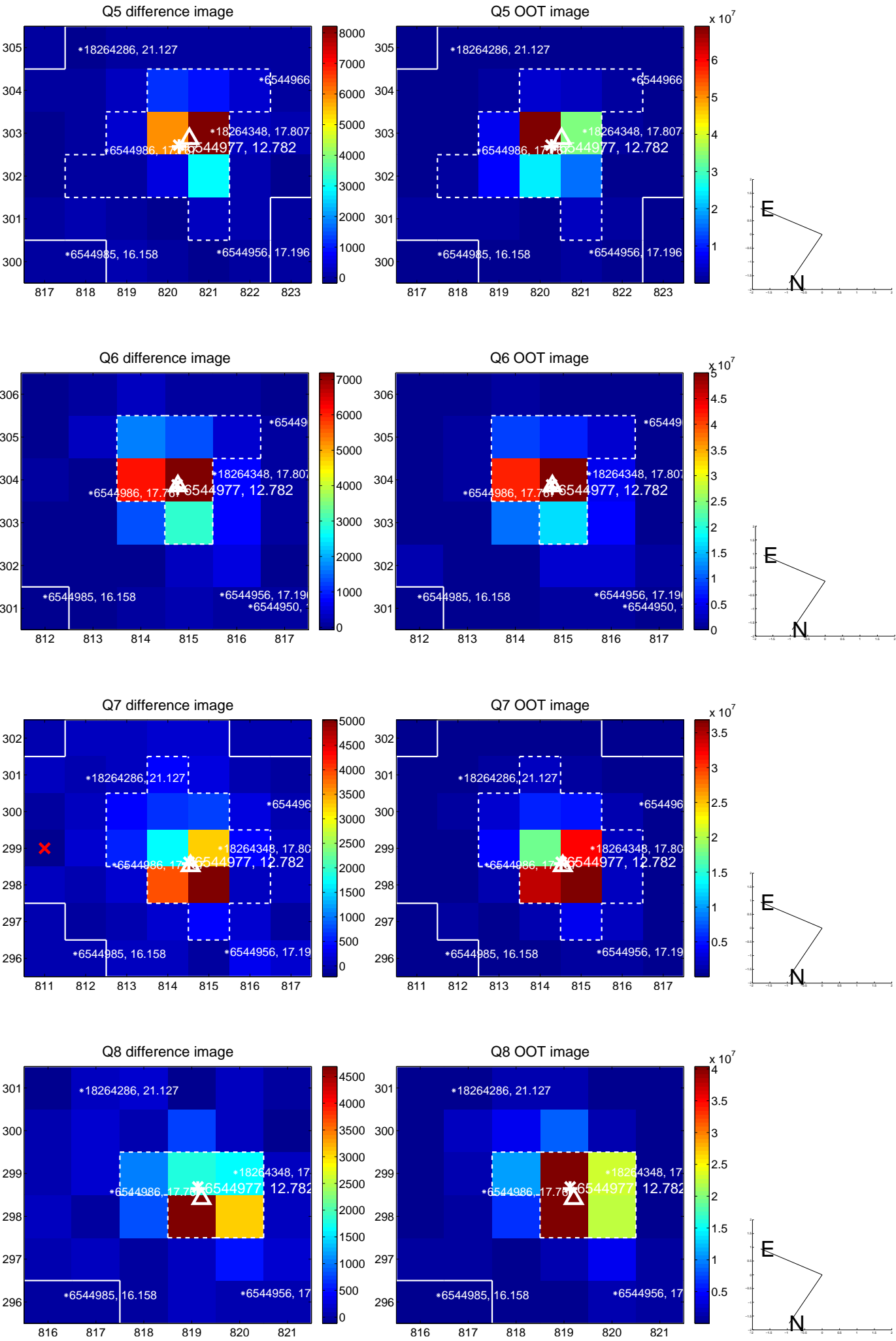


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

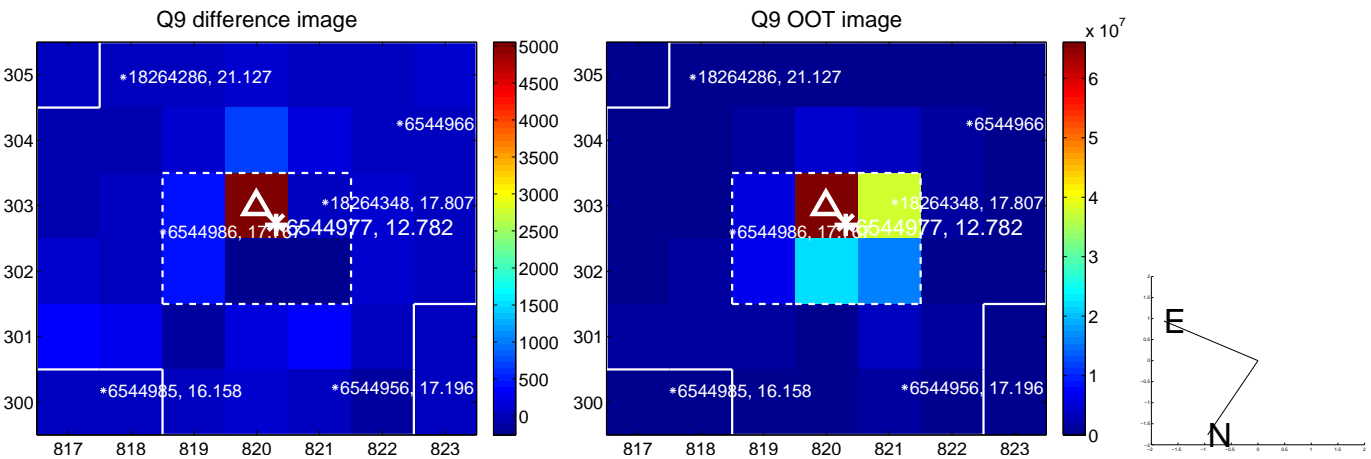
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



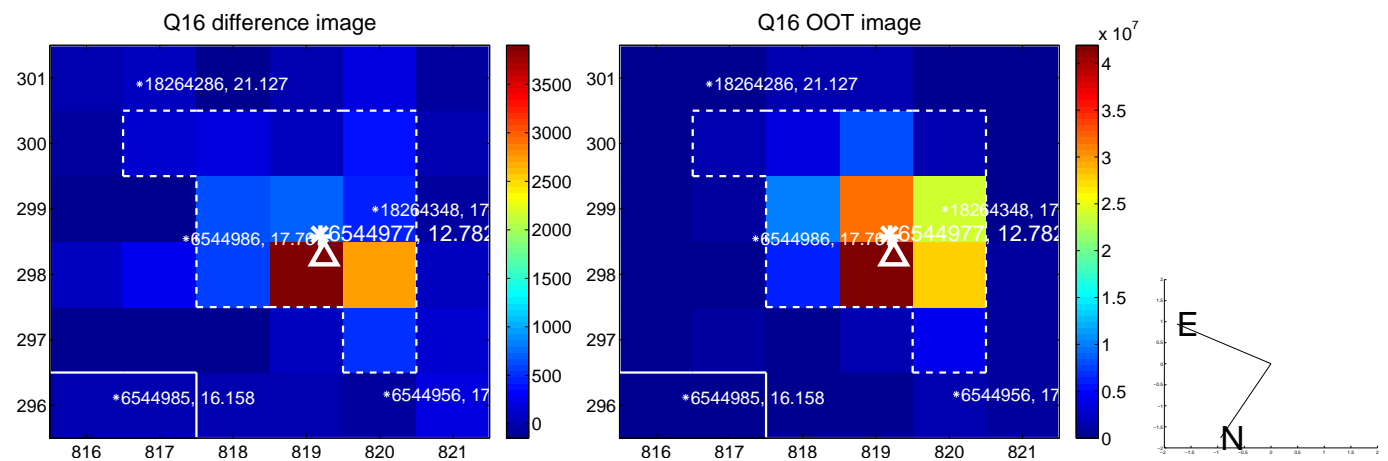
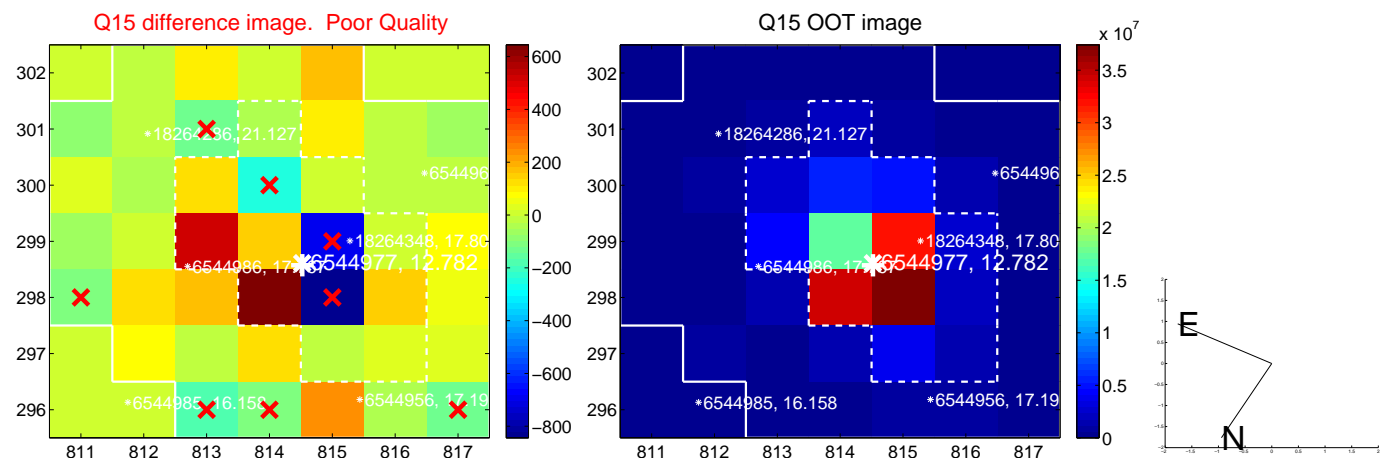
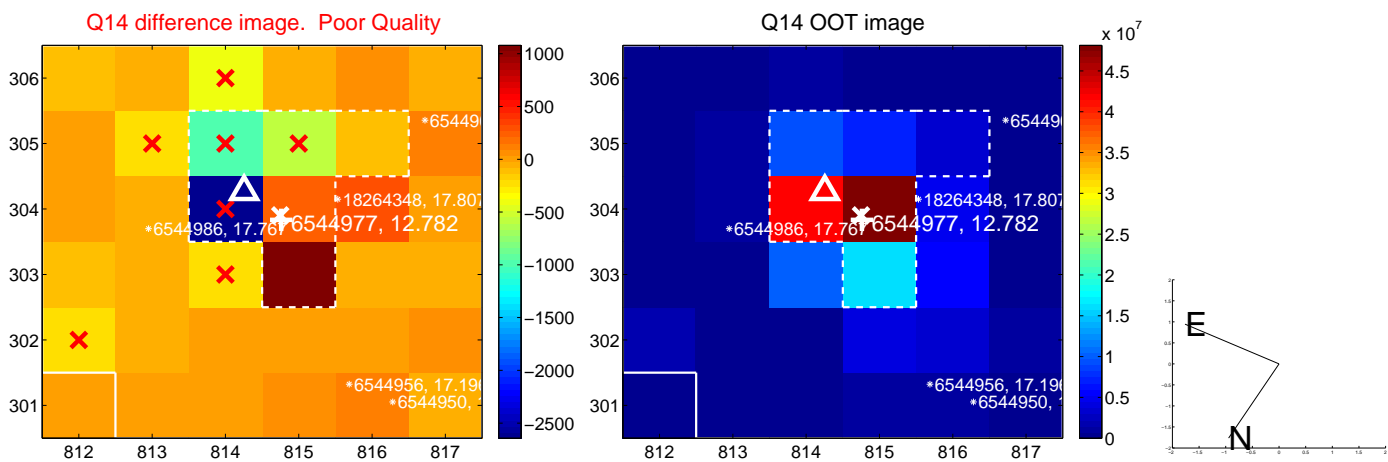
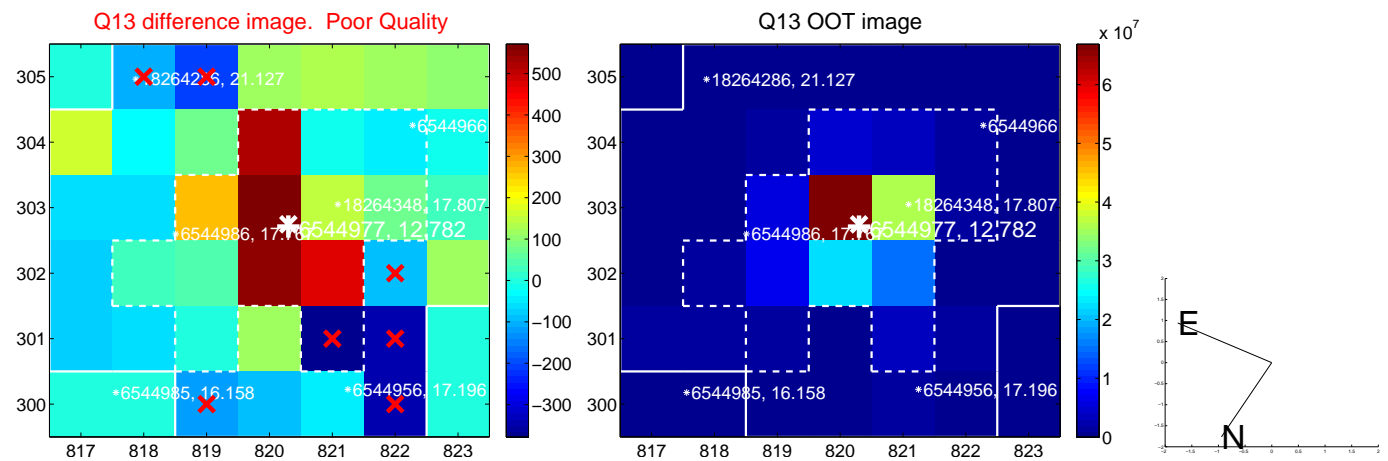
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



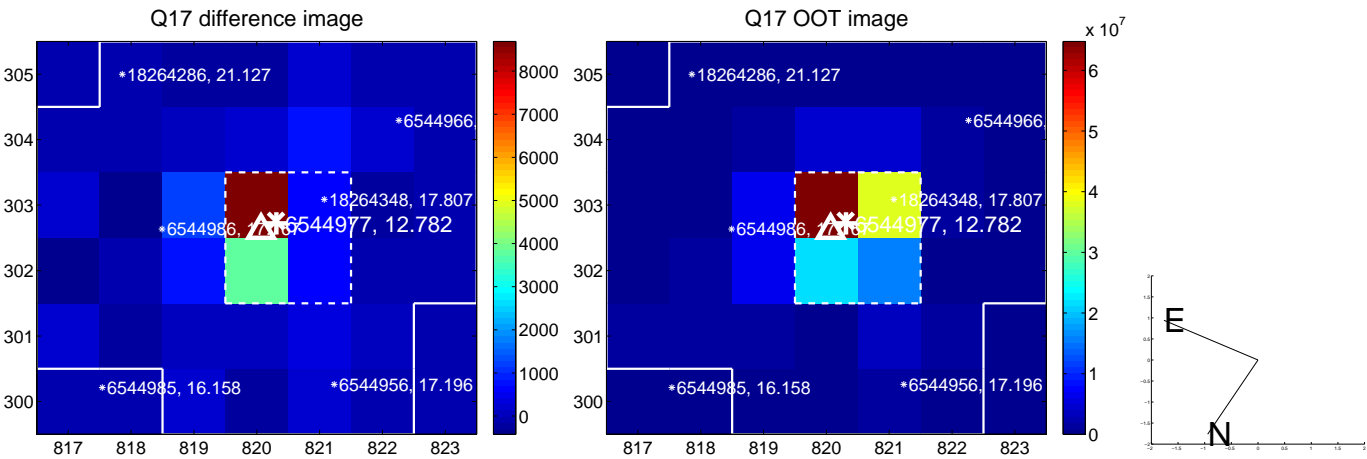
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

