

KIC 007777471

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})
007777471-01	OBS	4075.01	0.885092	131.908255	74.8	4.193	17.5	18.0	0.87	5904	0.75	2587.27
007777471-02	OBS	No	588.542735	189.049616	817.9	12.085	10.6	8.5	0.87	5904	2.87	0.45
007777471-03	OBS	No	194.376545	266.441774	904.2	5.652	10.4	9.1	0.87	5904	2.75	1.95
007777471-04	OBS	No	223.836027	152.959421	573.3	10.500	8.9	-1.0	0.87	5904	2.07	1.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777471-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007777471-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

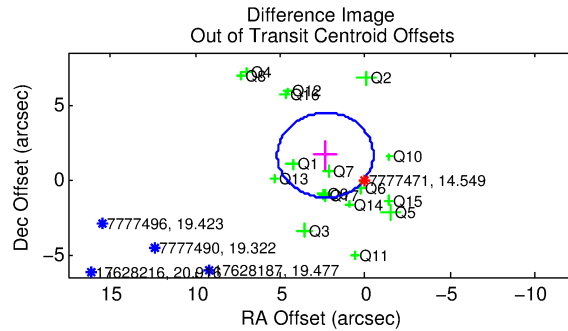
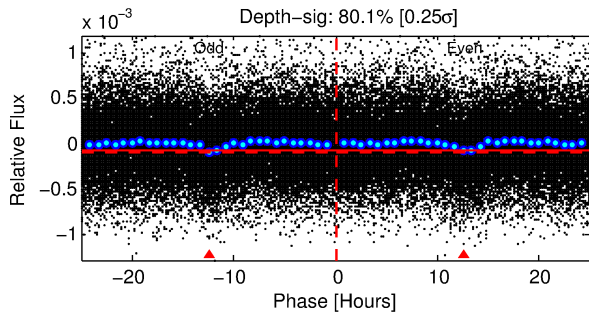
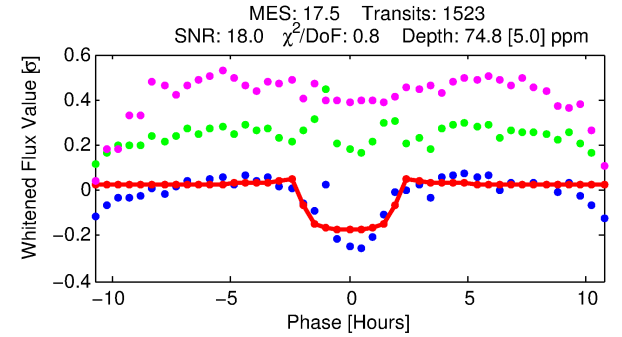
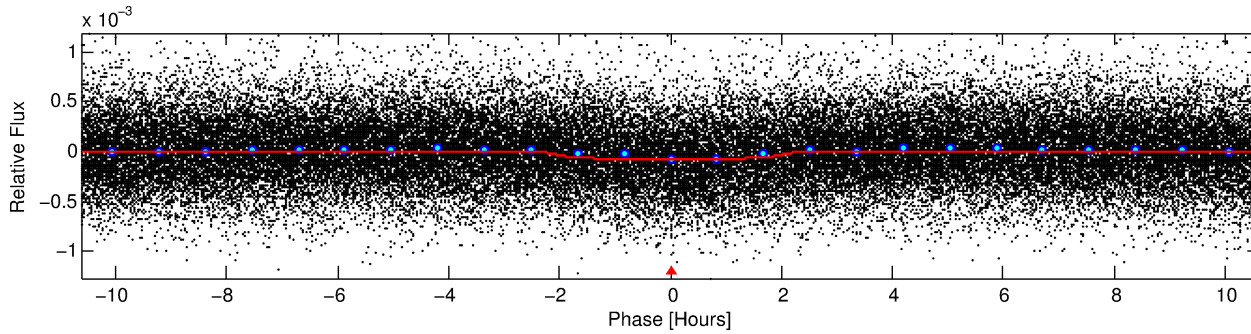
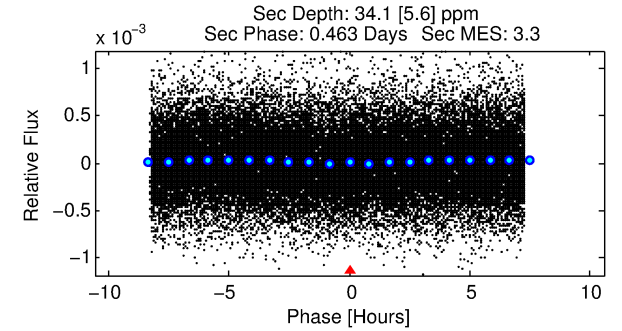
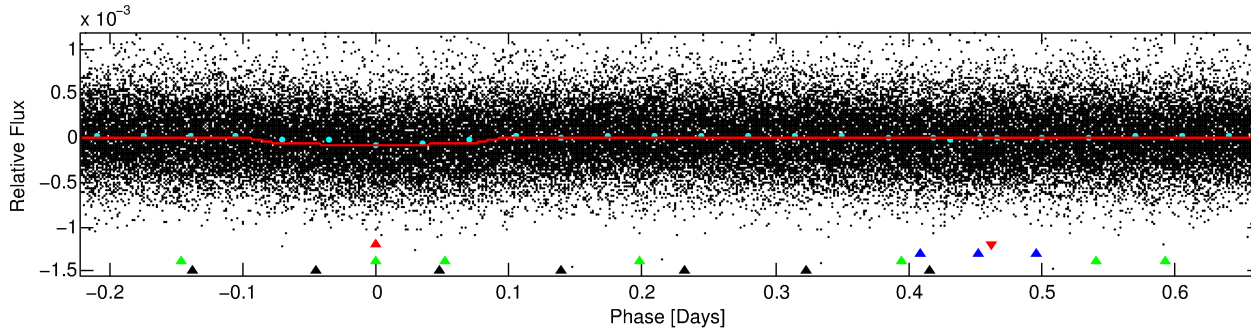
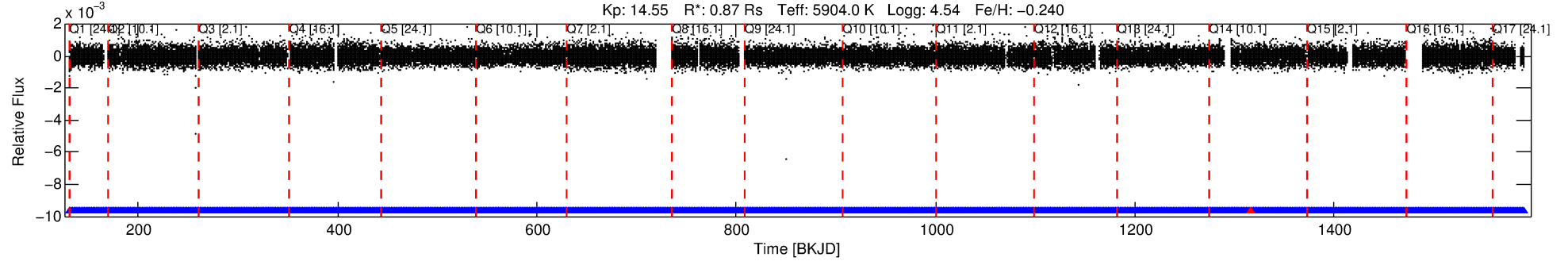
Ephemeris Match Information For 007777471-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist ($''$)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
007777471-01	7777471	007777443-pri	7777443	1:1	64.8	-3	-16	11.91	14.54	5106.70	Direct-PRF	0	3.64	2.28

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 7777471 Candidate: 1 of 4 Period: 0.885 d
KOI: K04075.01 Corr: 0.859



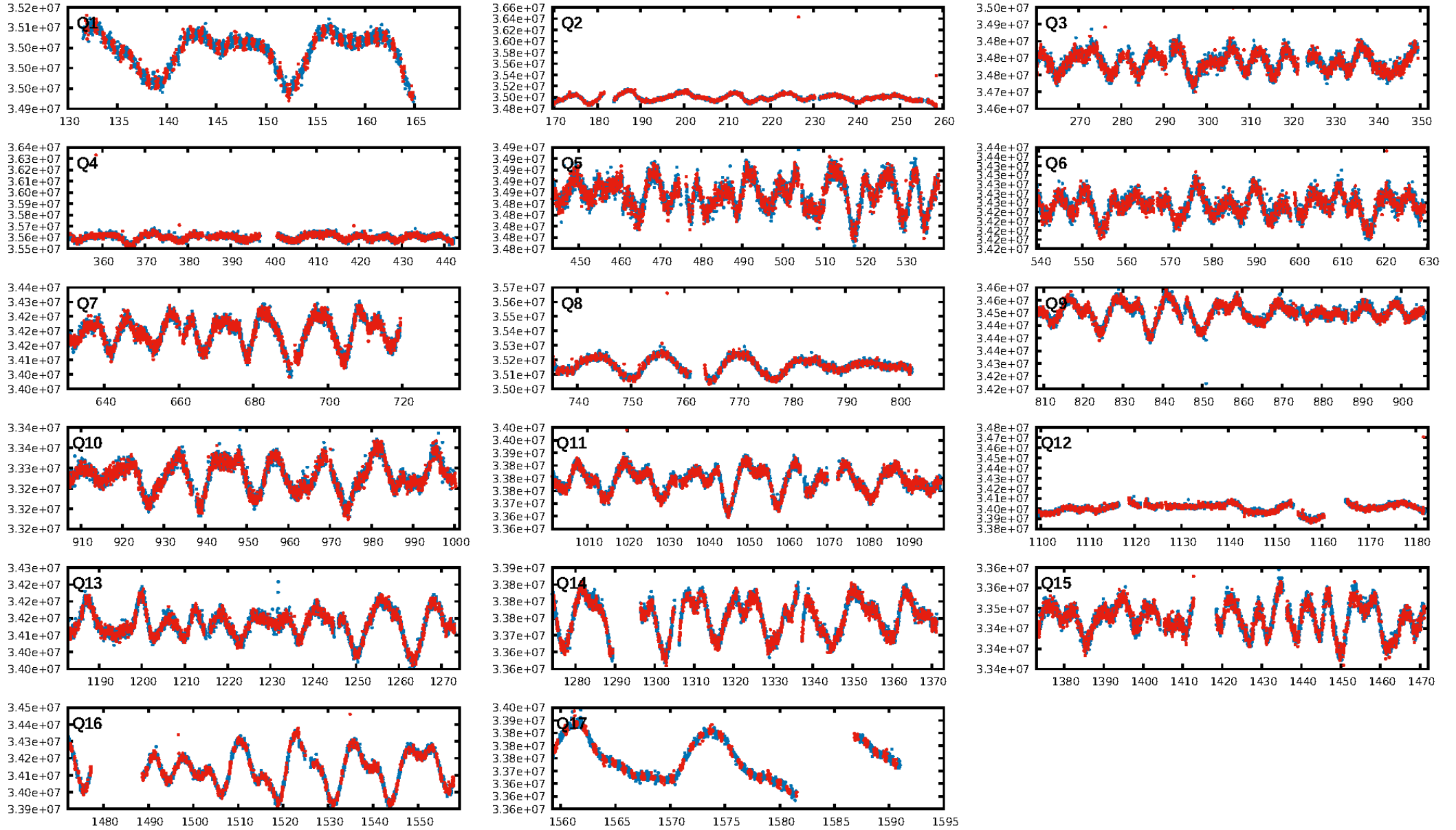
DV Fit Results:

Period = 0.88509 [0.00001] d
Epoch = 131.9083 [0.0022] BKJD
Rp/R* = 0.0080 [0.0045]
a/R* = 1.69 [2.92]
b = 0.29 [8.49]
Seff = 2587.27 [1012.12]
Teff = 1819 [178] K
Rp = 0.75 [0.49] Re
a = 0.0178 [0.0045] AU
Ag = 10.47 [12.66] [0.75σ]
Teffp = 5058 [1462] K [2.20σ]

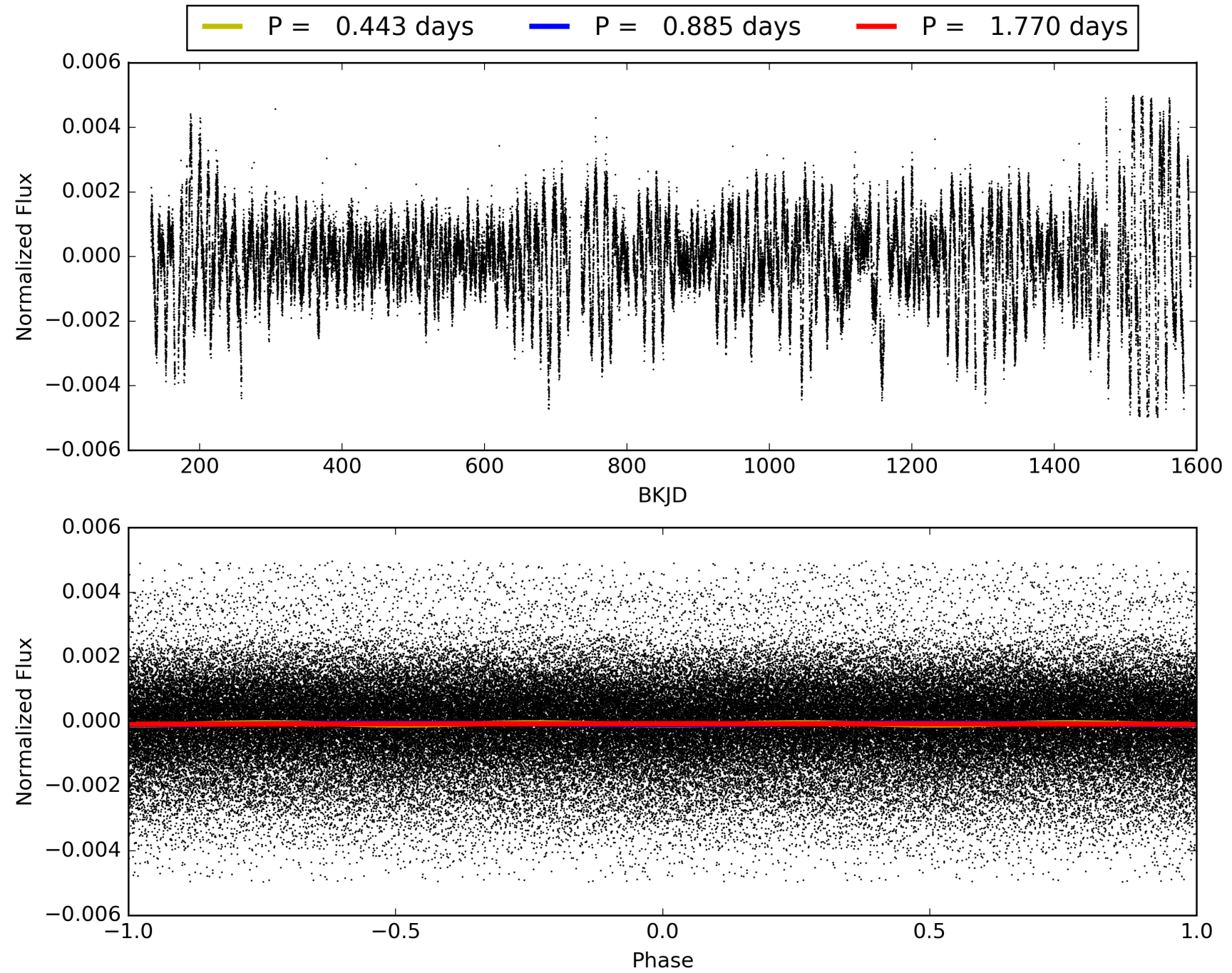
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [659.81σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.67e-53
RollingBand-fgt: 1.00 [1454/1455]
GhostDiagnostic-chr: 0.1683
Centroid-sig: 0.0%
Centroid-so: 2.670 arcsec [3.56σ]
OotOffset-rm: 2.844 arcsec [3.02σ]
KicOffset-rm: 2.829 arcsec [3.00σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007777471-01, PDC Light Curves

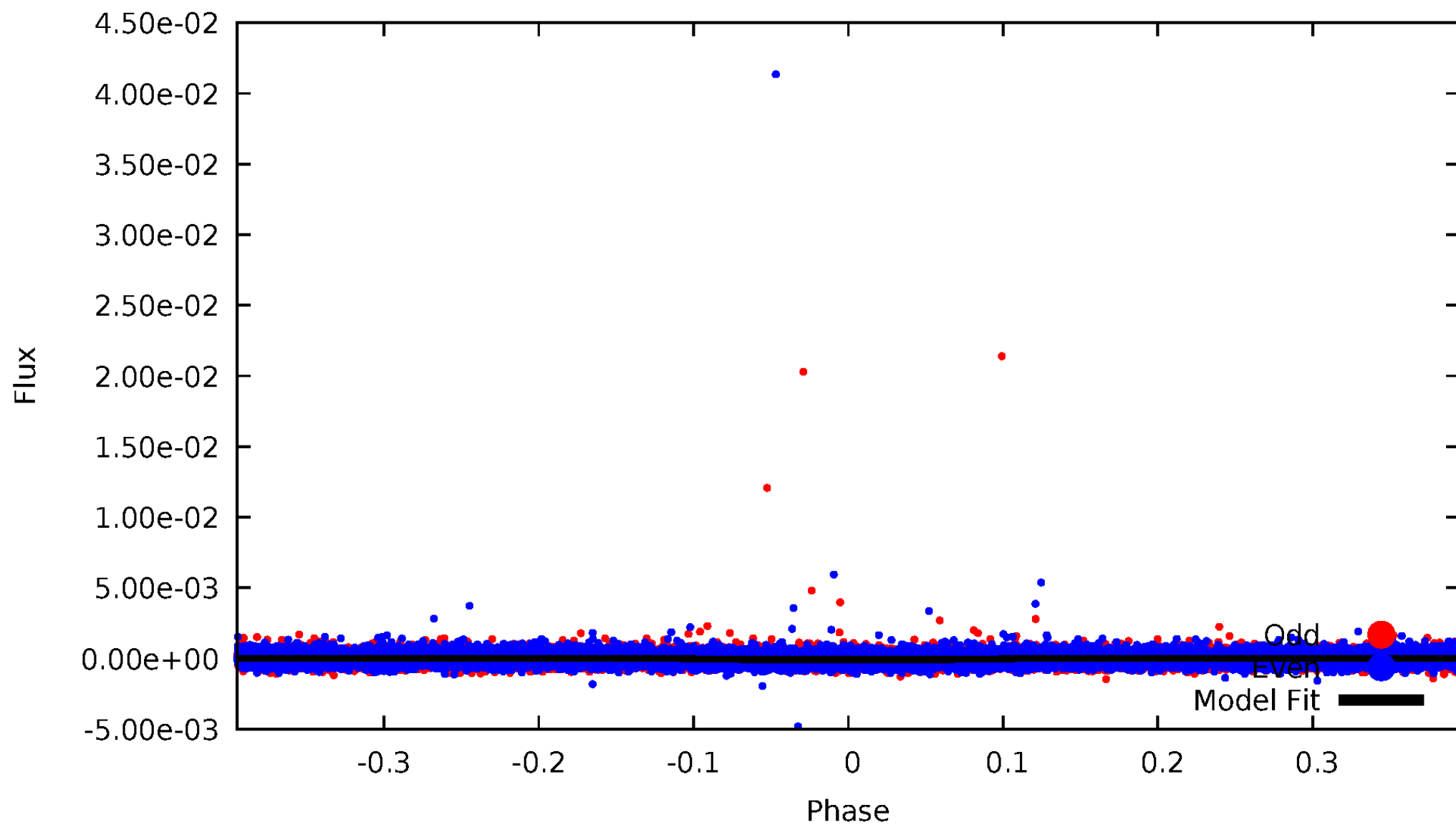


TCE 007777471-01



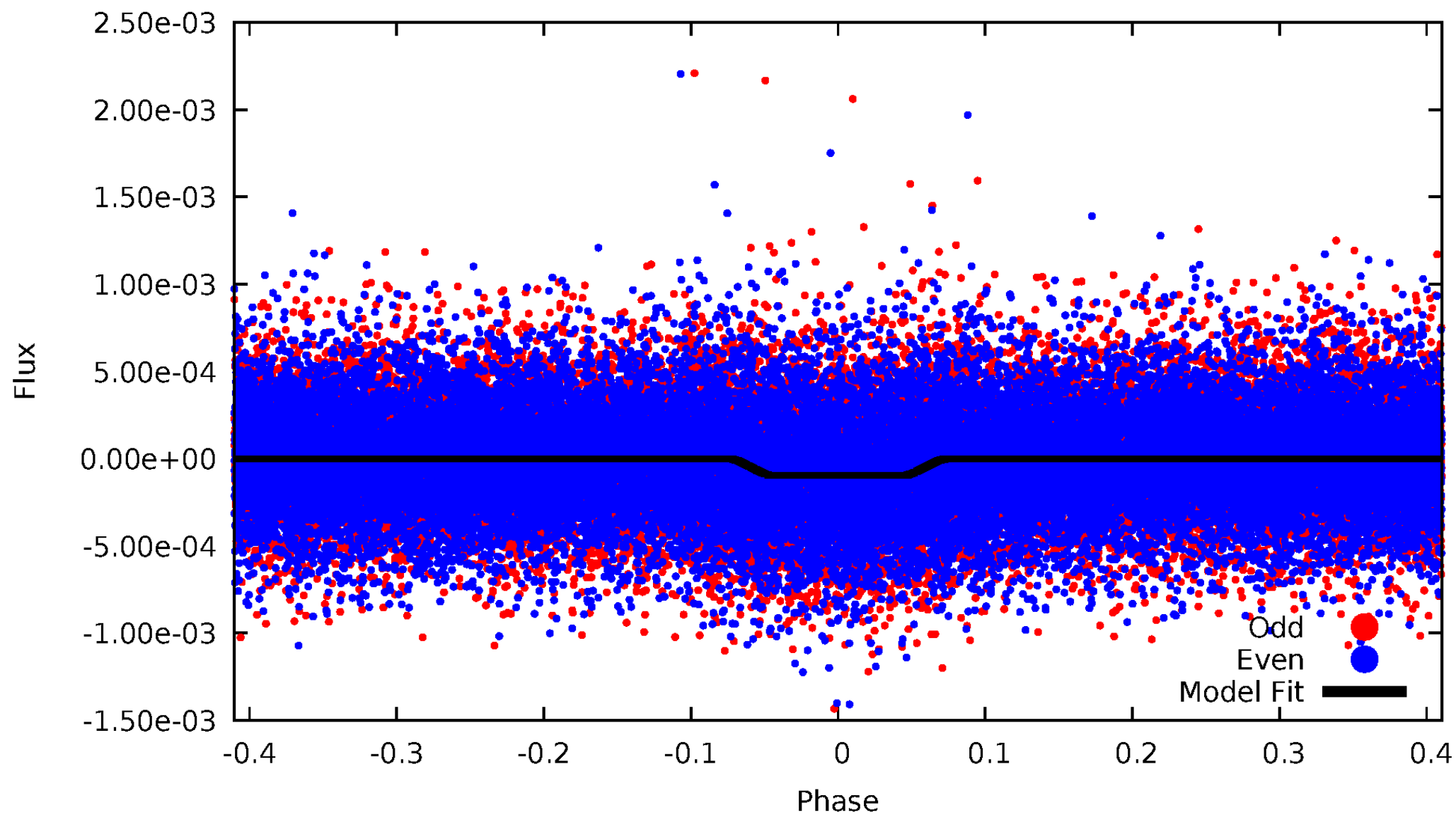
DV Odd/Even

TCE 007777471-01

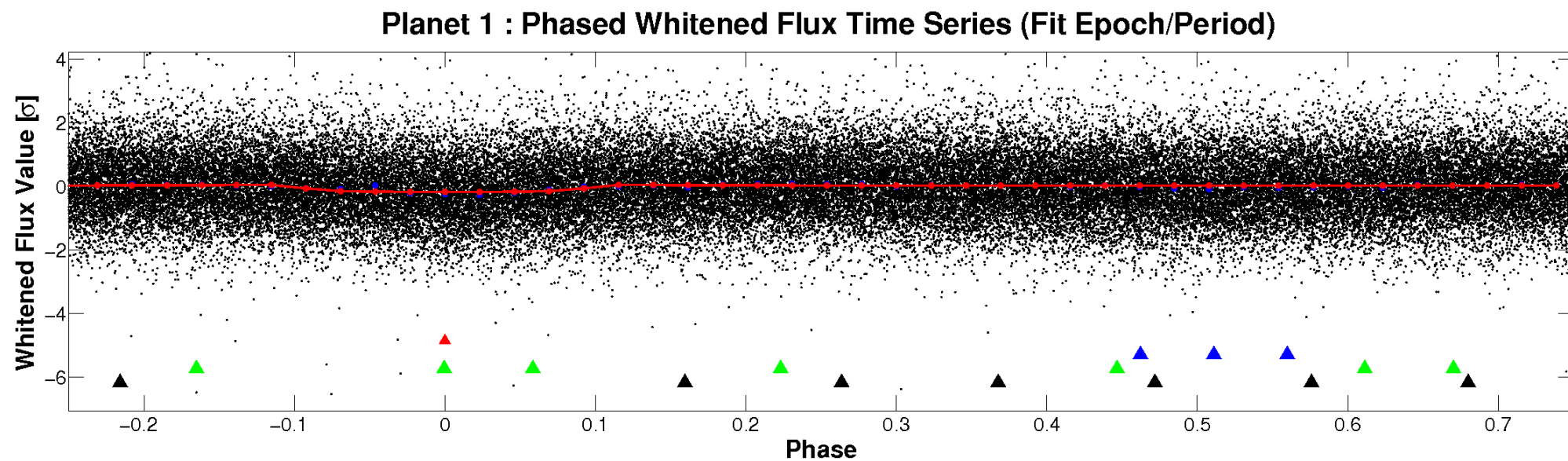
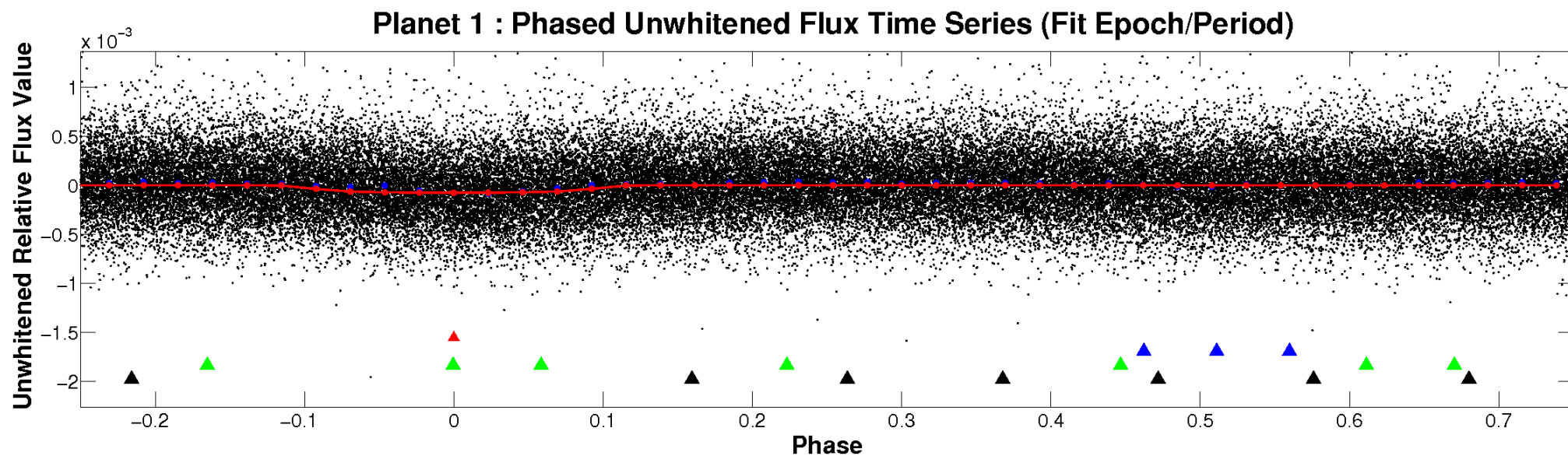


ALT Odd/Even

TCE 007777471-01

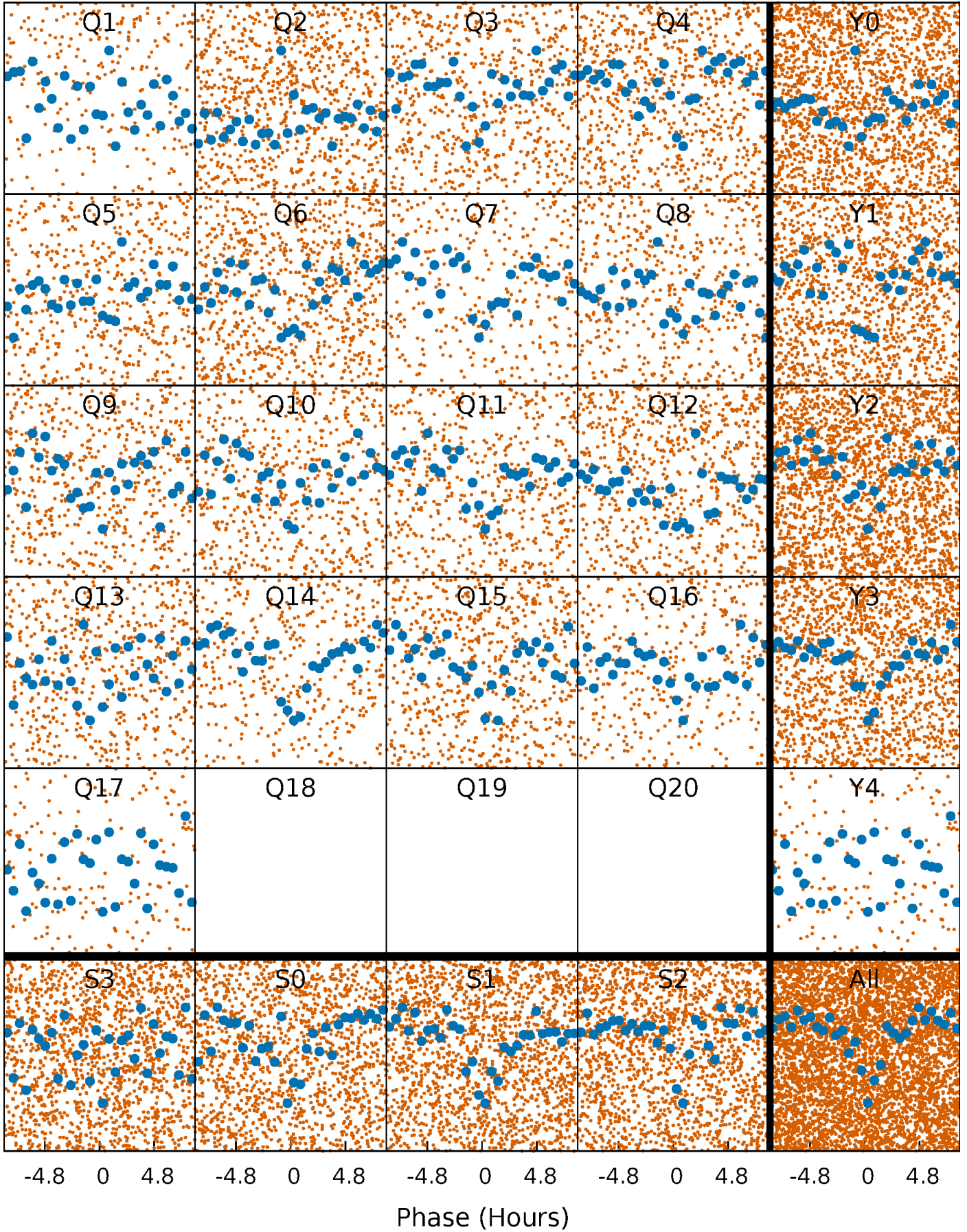


Non-Whitened Vs. Whitened Light Curve



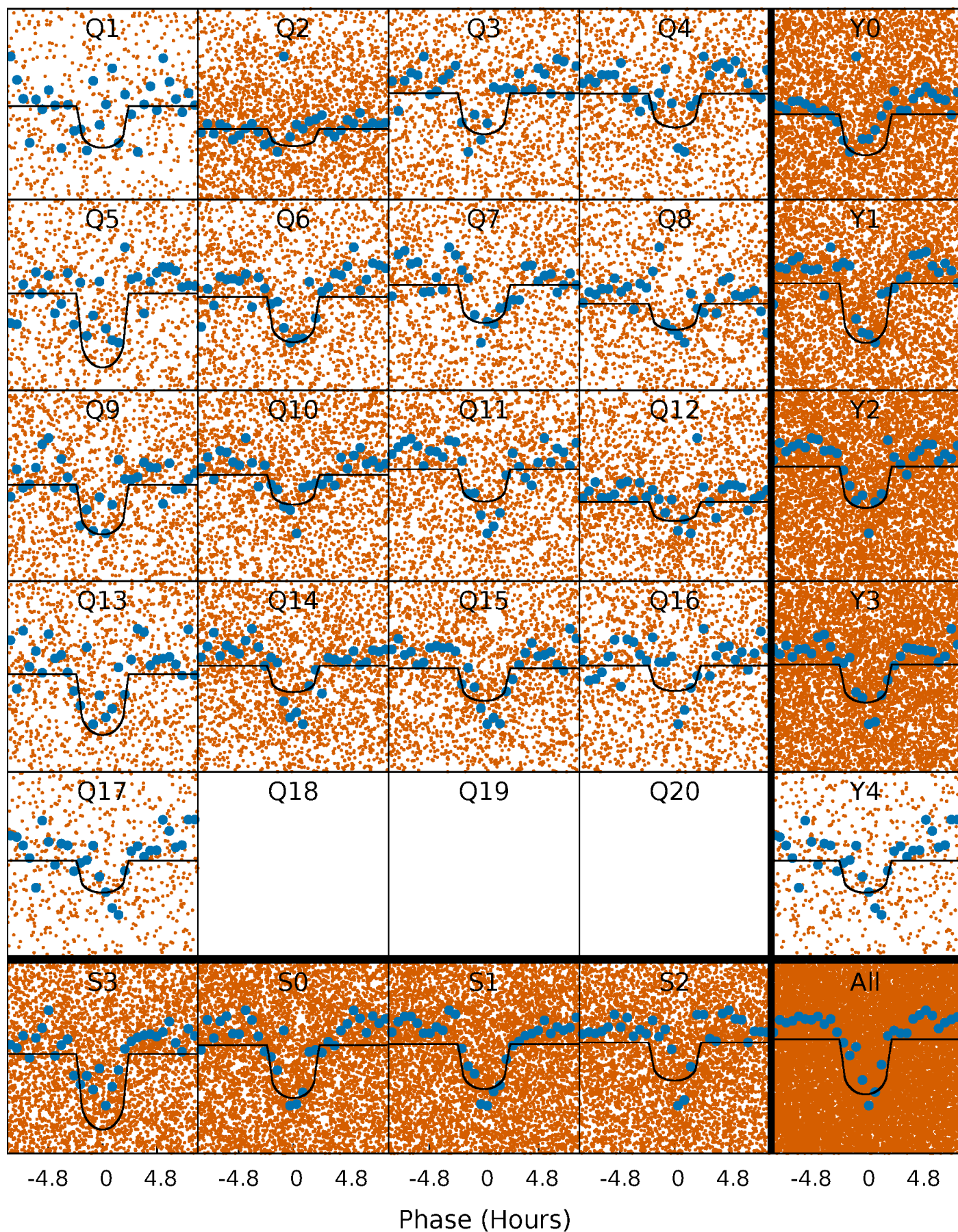
PDC Quarter-Phased Transit Curves

TCE 007777471-01 P= 0.885092 Days $T_0=131.908255$ (BKJD)



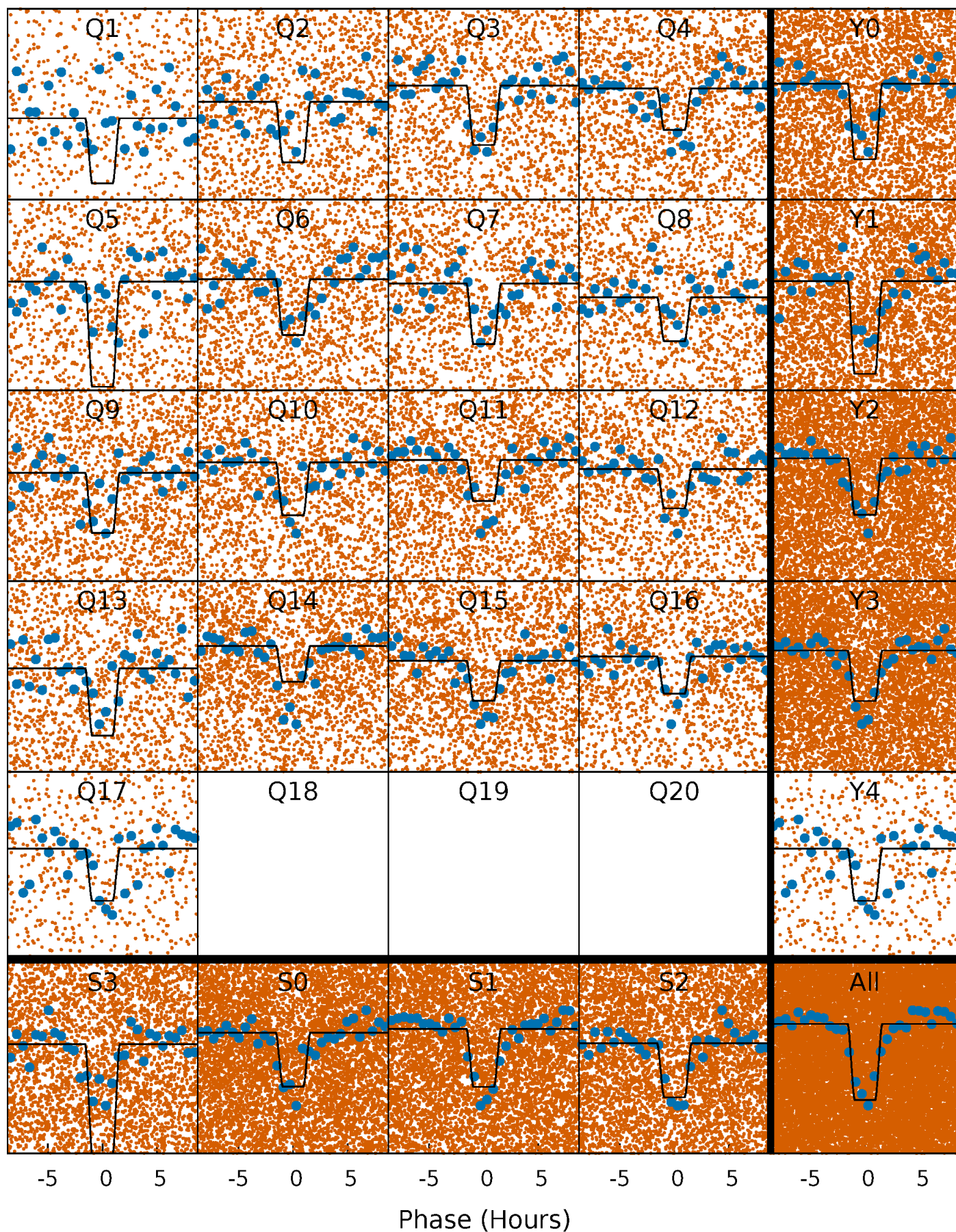
DV Quarter-Phased Transit Curves

TCE 007777471-01 P= 0.885092 Days $T_0=131.908255$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

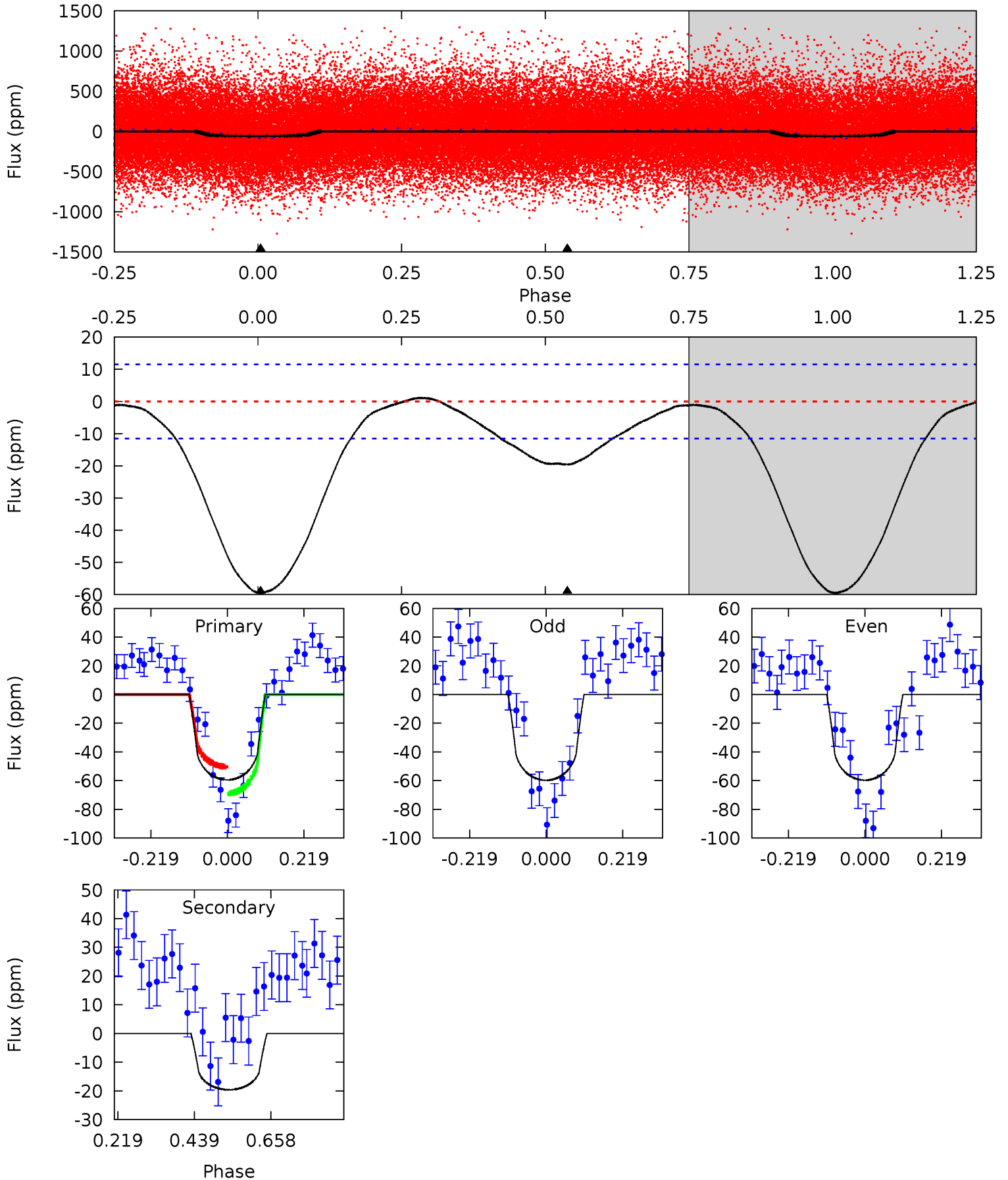
TCE 007777471-01 P= 0.885126 Days $T_0=131.880622$ (BKJD)



DV Model-Shift Uniqueness Test

007777471-01, P = 0.885092 Days, E = 131.023163 Days

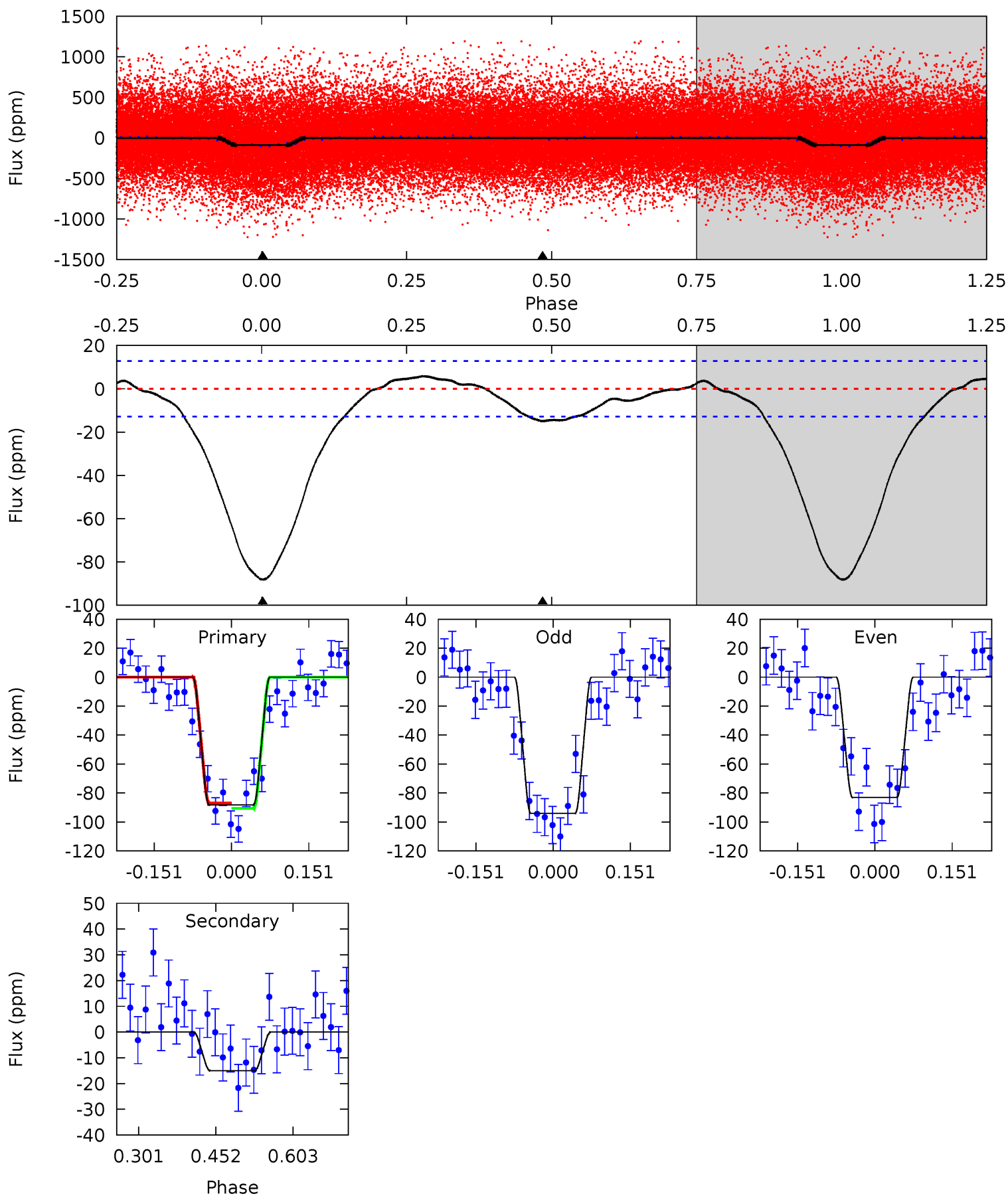
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	7.48	0	0	4.40	1.23	0.36	22.7	22.7	7.48	7.48	0.01	0.79	0.02	3.54



Alt Model-Shift Uniqueness Test

007777471-01, P = 0.885126 Days, E = 130.995496 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.8	5.22	0	0	4.48	1.44	1.32	30.8	30.8	5.22	5.22	1.92	0.91	0.06	0.65



Stellar Parameters For KIC 007777471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+159}_{-177}	$4.543^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.958^{+0.119}_{-0.119}$	$2.073^{+0.403}_{-1.051}$
	+3%/-3%	+1%/-4%	+125%/-125%	+30%/-9%	+12%/-12%	+19%/-51%
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 007777471-01 / KOI 4075.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 3	$0.82^{+0.45}_{-0.44}$	2604^{+184}_{-110}	4459^{+1747}_{-736}	$4.918^{+17.078}_{-2.907}$
Alt.	-15 ± 3	$1.02^{+0.49}_{-0.45}$	2617^{+196}_{-127}	3866^{+1102}_{-543}	$2.479^{+5.766}_{-1.369}$

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 $A_{obs} \gg 1.0$

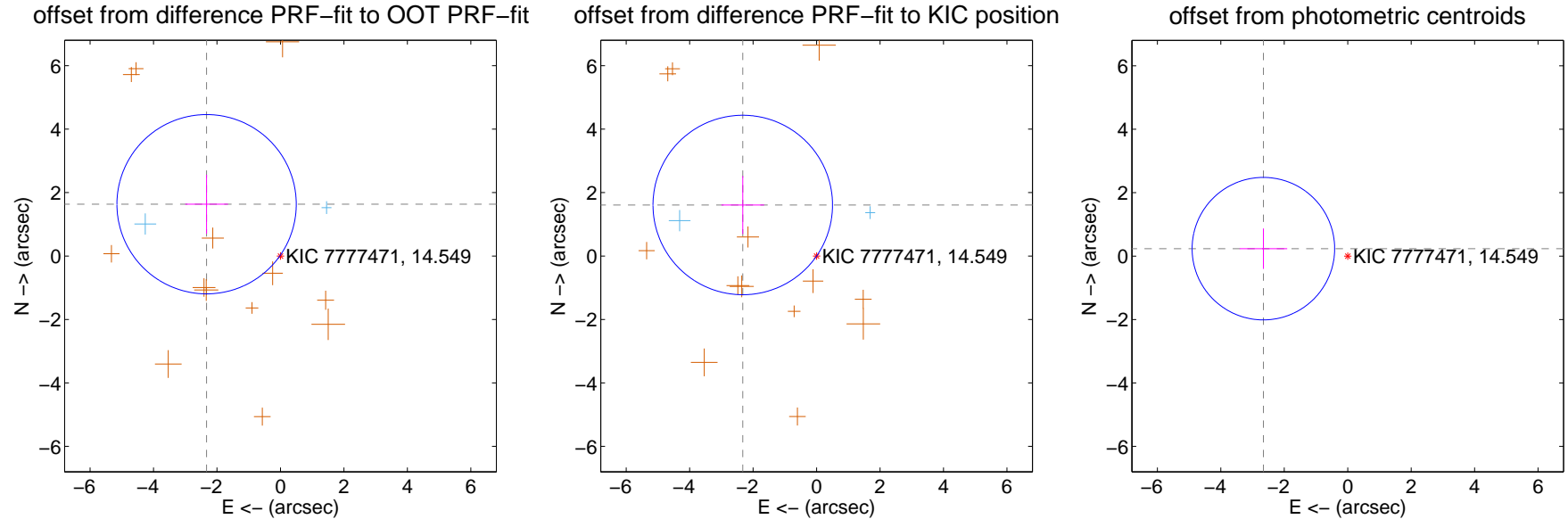
DV Centroid Data

Supplemental centroid analysis for 007777471-01. Kepler magnitude: 14.55. Transit SNR 18.01

There are 2 quarters with good PRF difference image offsets

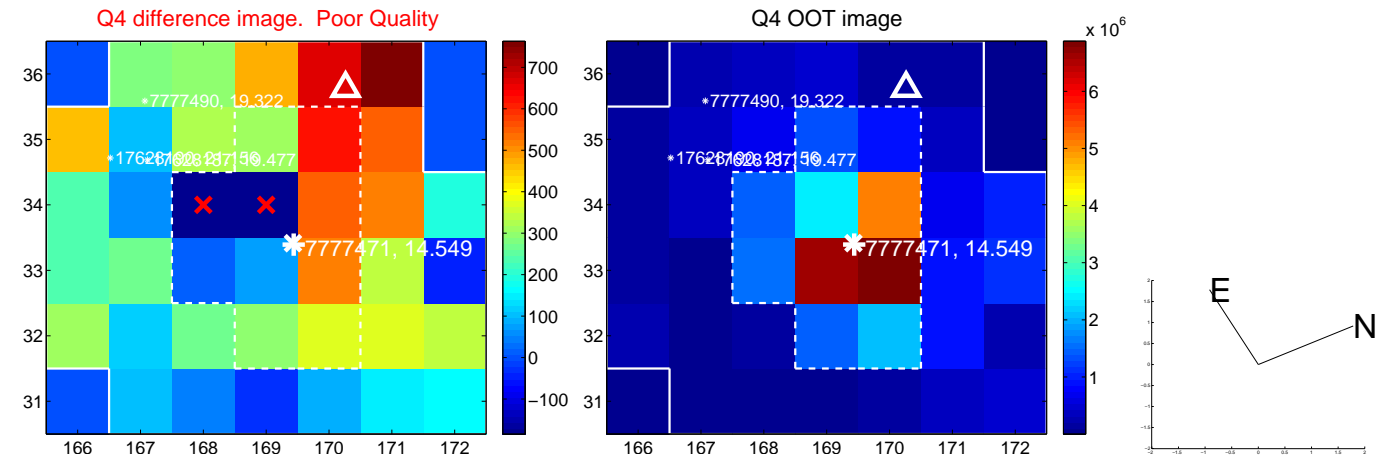
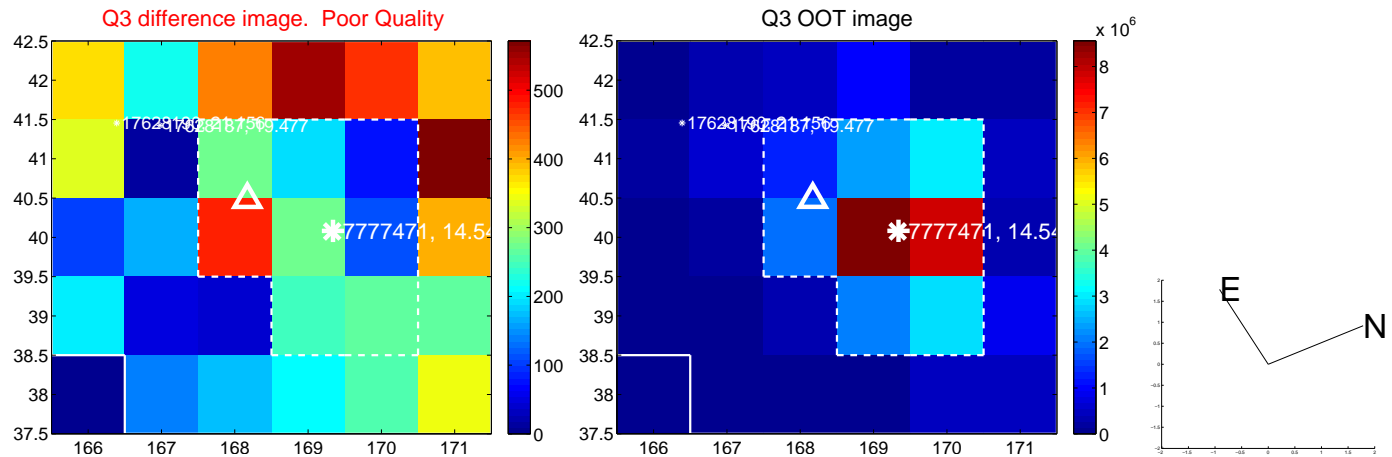
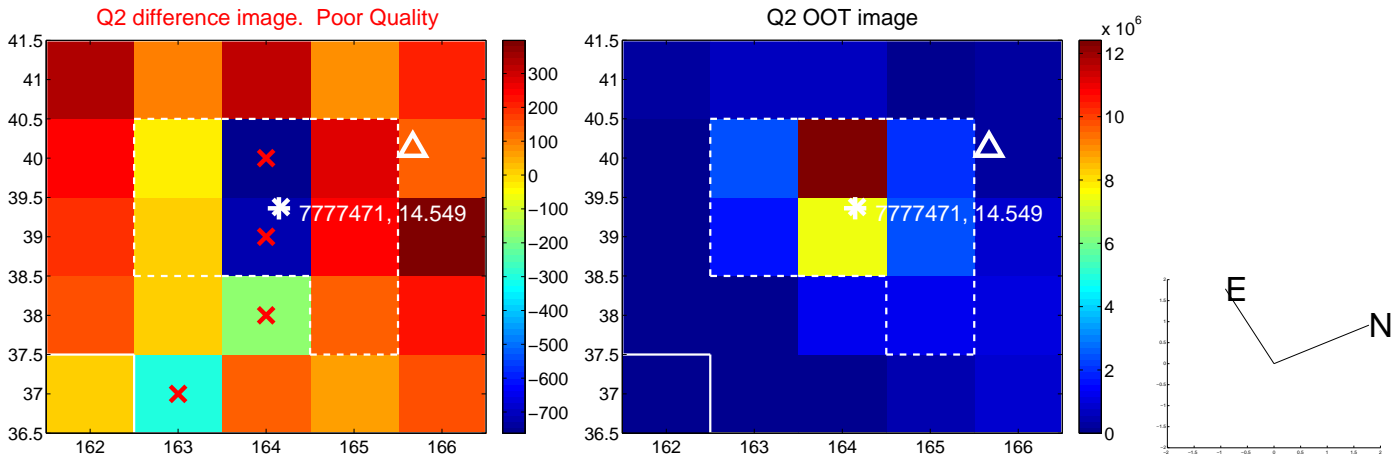
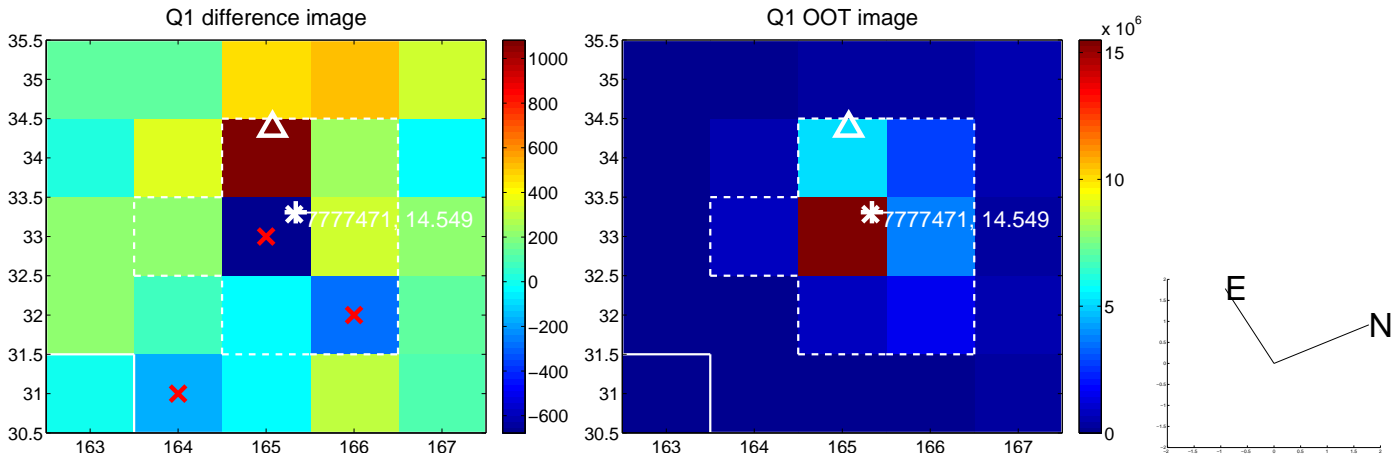
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.844 ± 0.942	3.02	2.329 ± 0.674	1.633 ± 0.930
PRF-fit source offset from KIC position	2.829 ± 0.943	3.00	2.327 ± 0.674	1.609 ± 0.915
photometric centroid source offset	2.67 ± 0.75	3.56	2.66 ± 0.75	0.23 ± 0.64

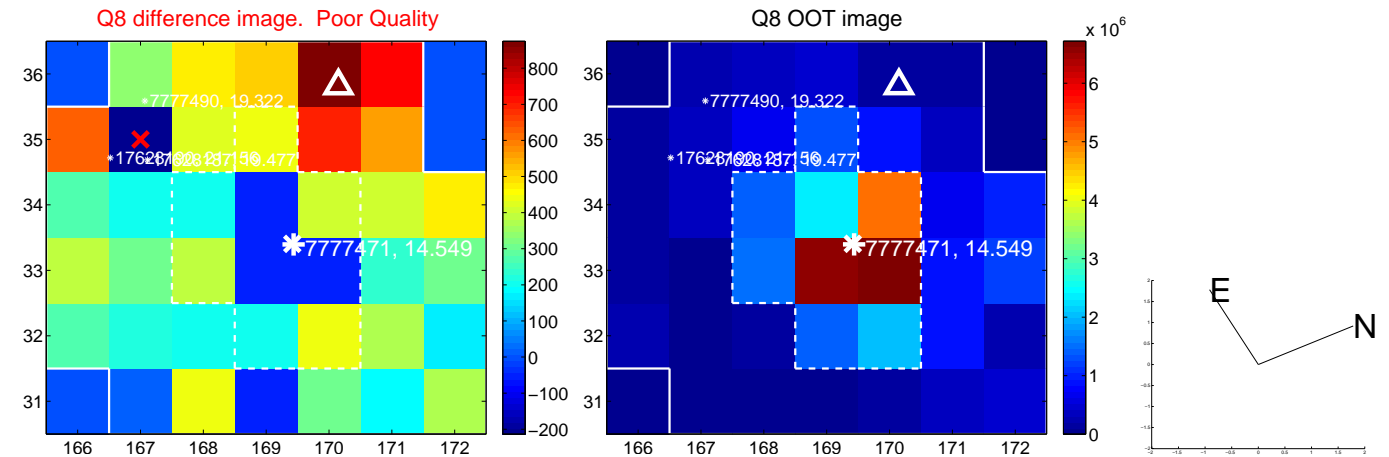
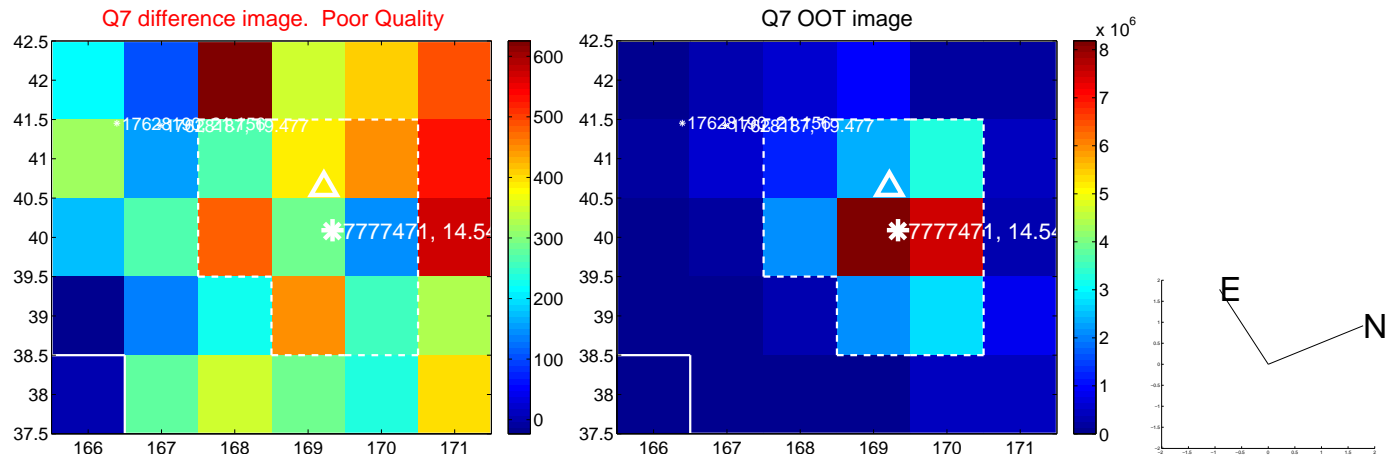
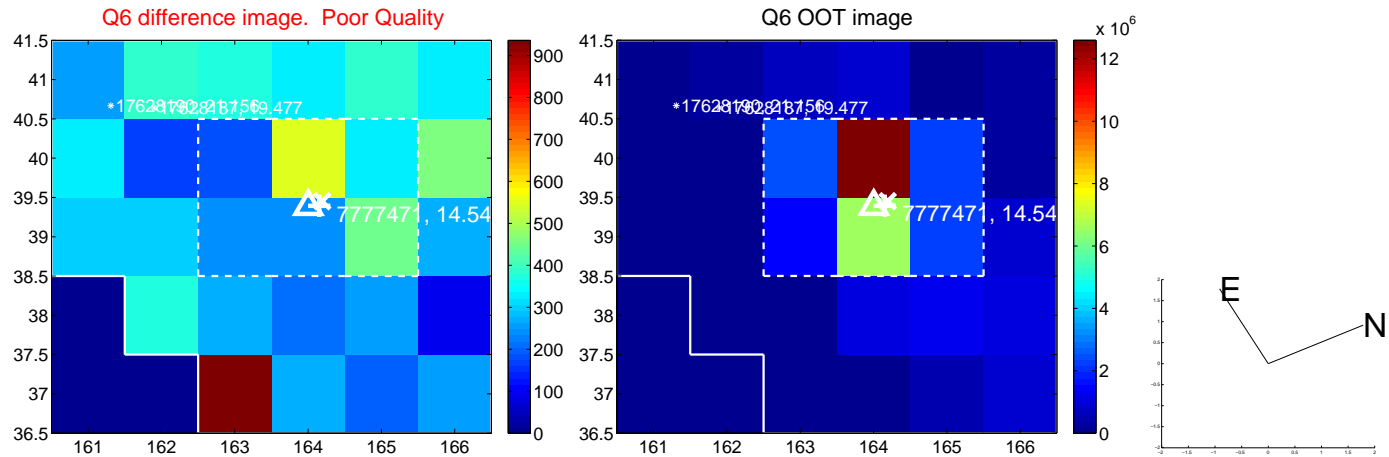
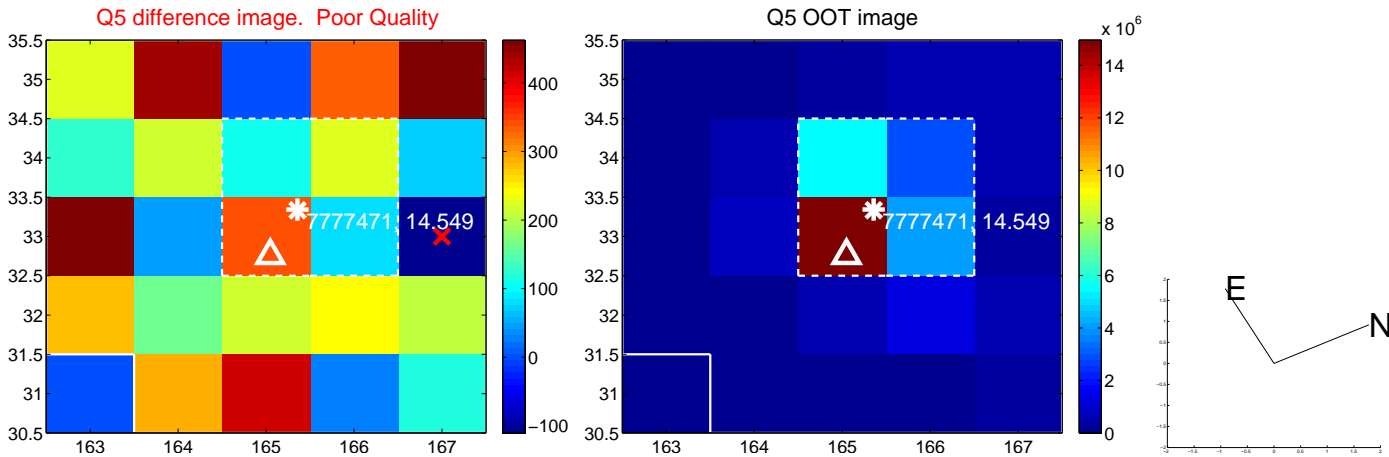


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

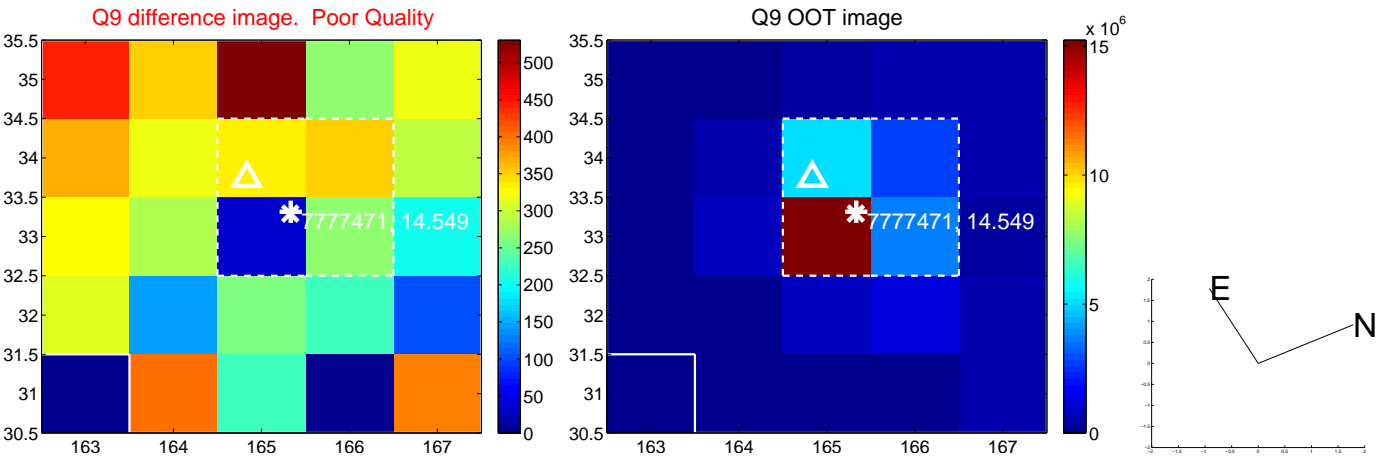
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



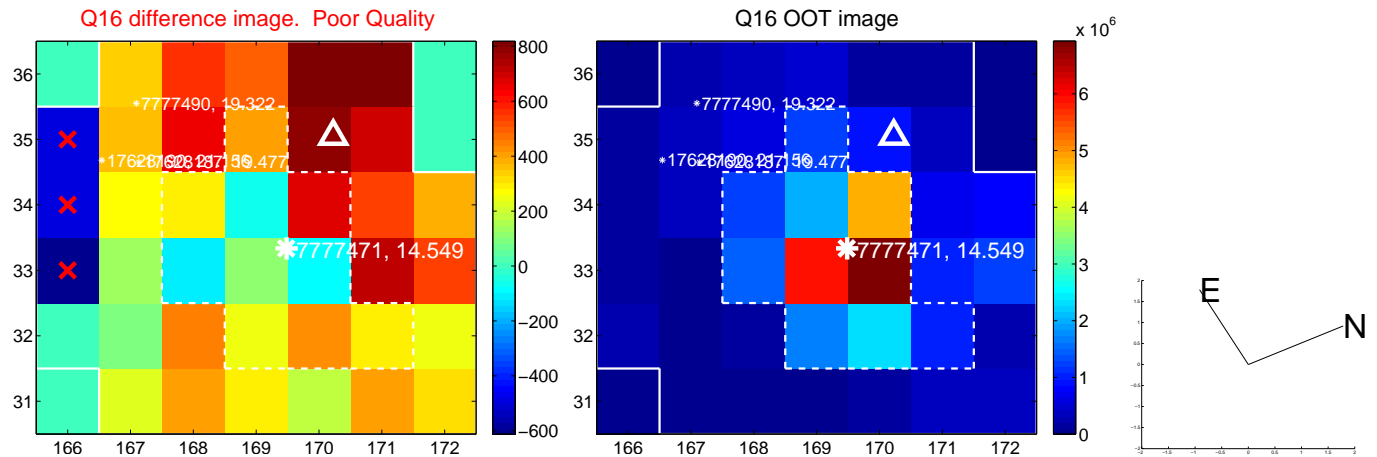
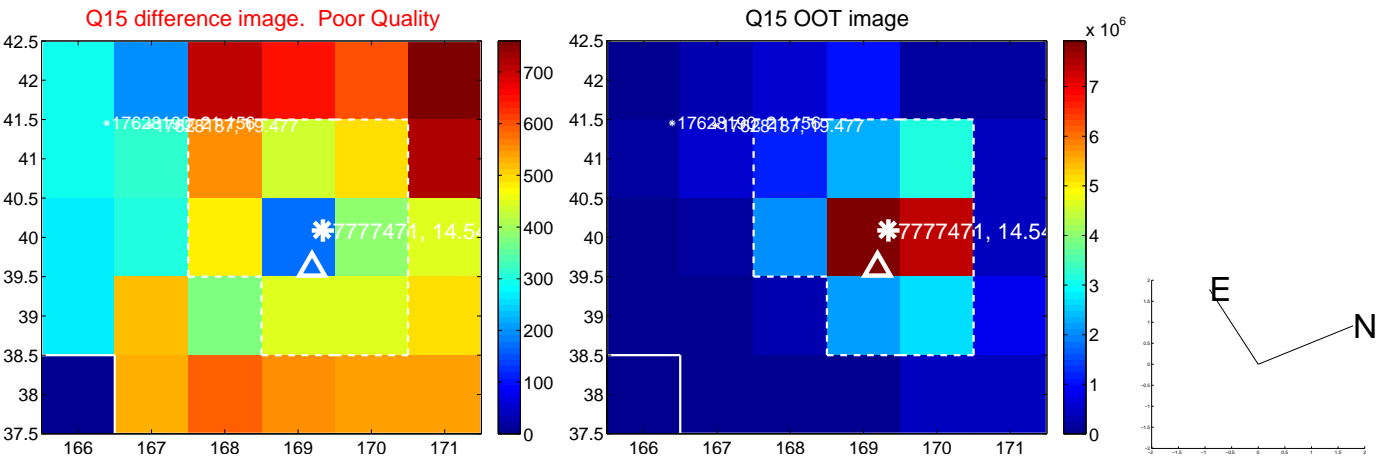
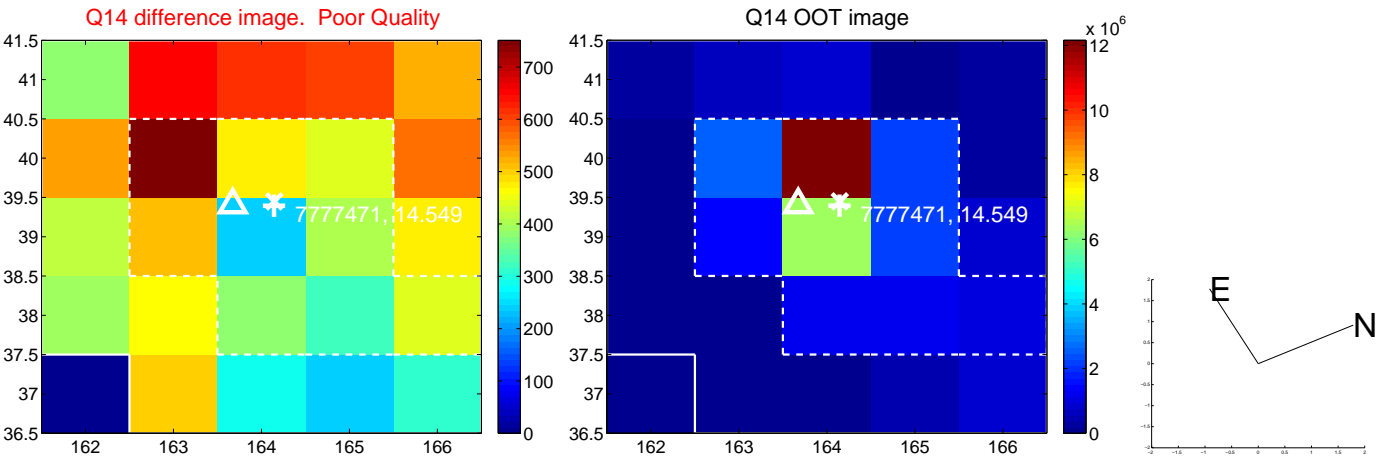
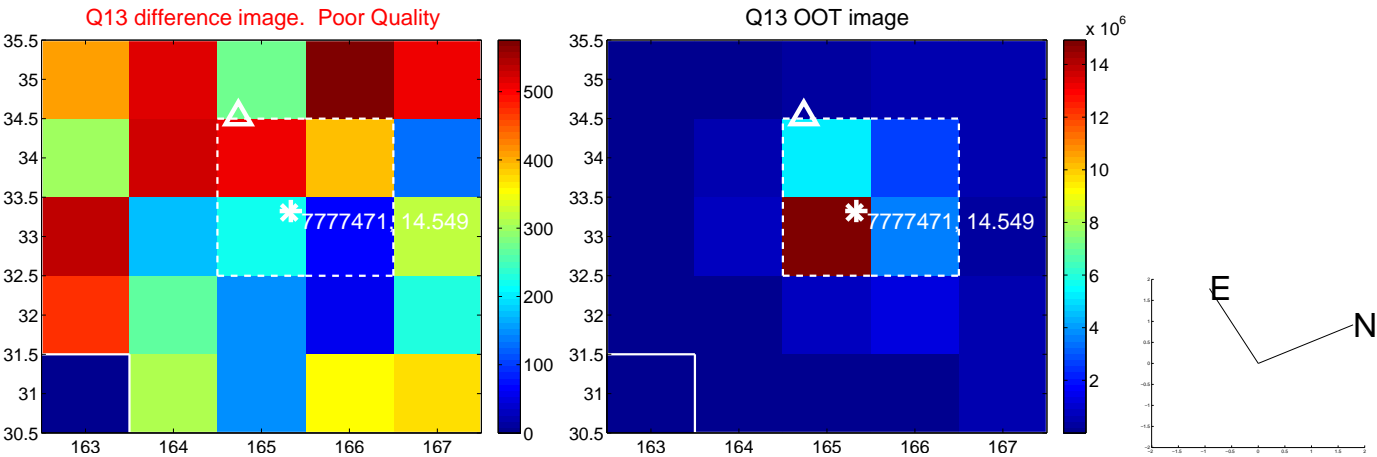
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



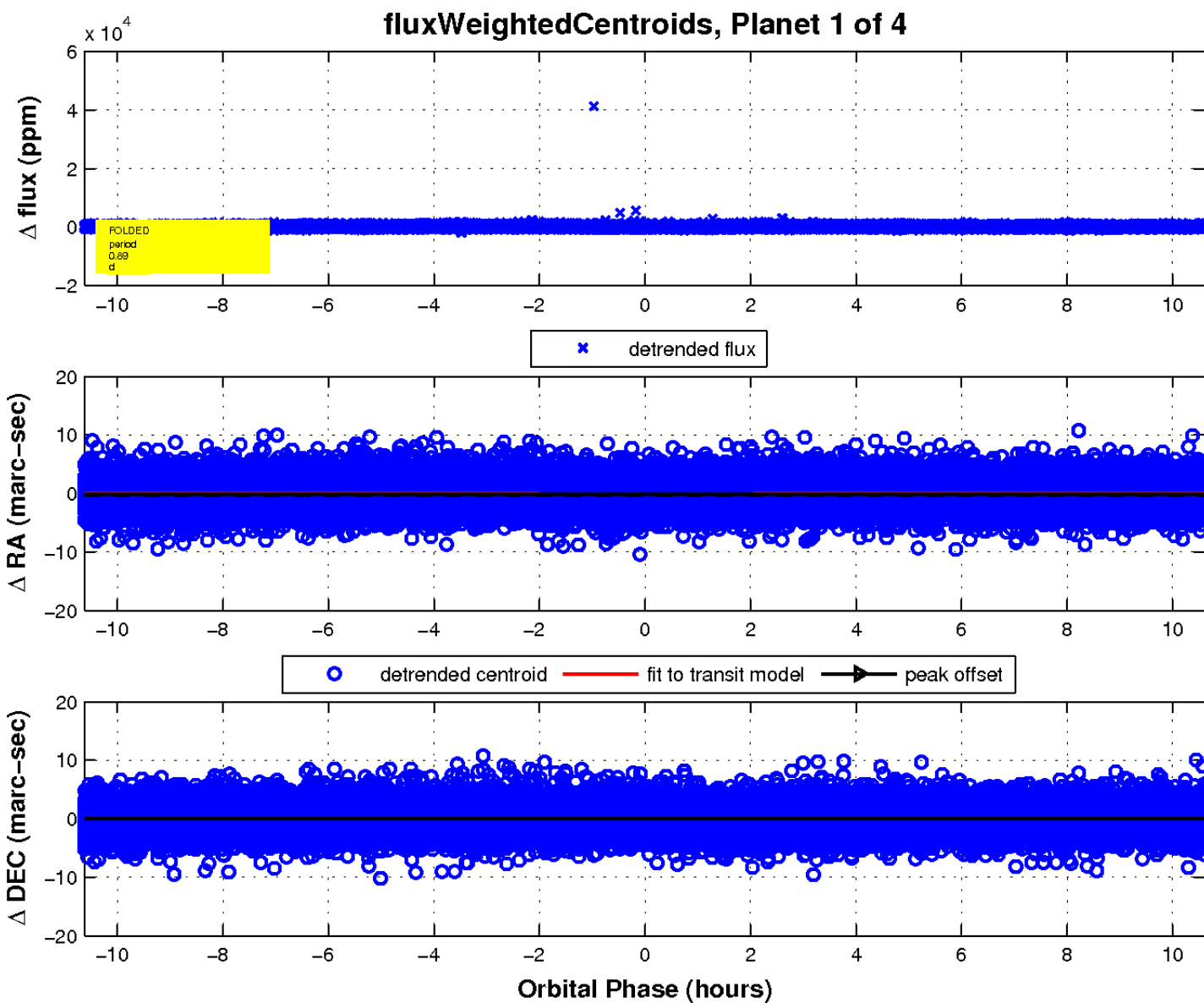
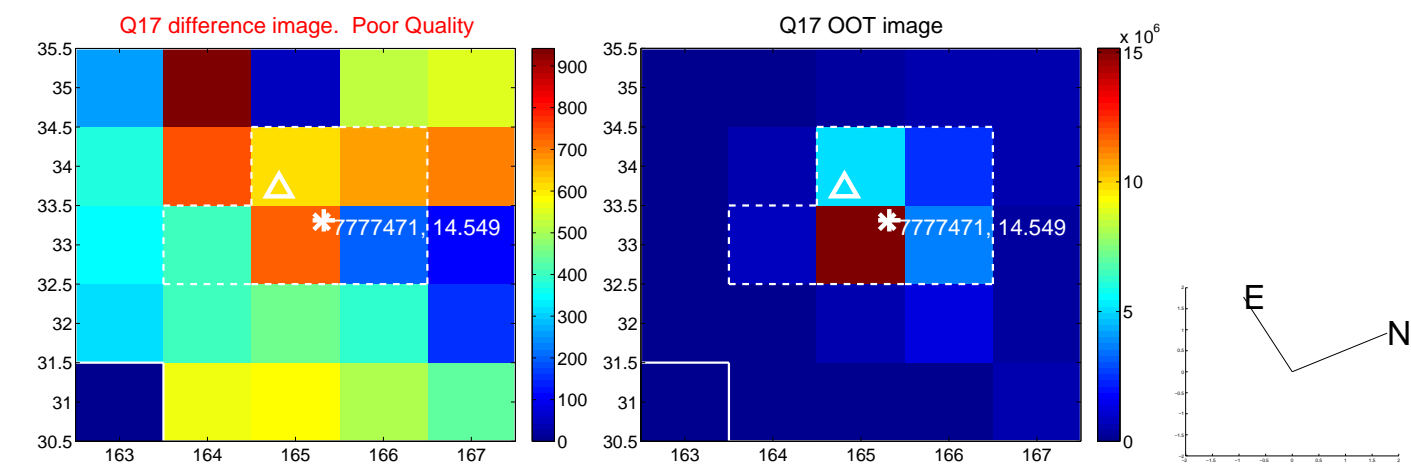
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

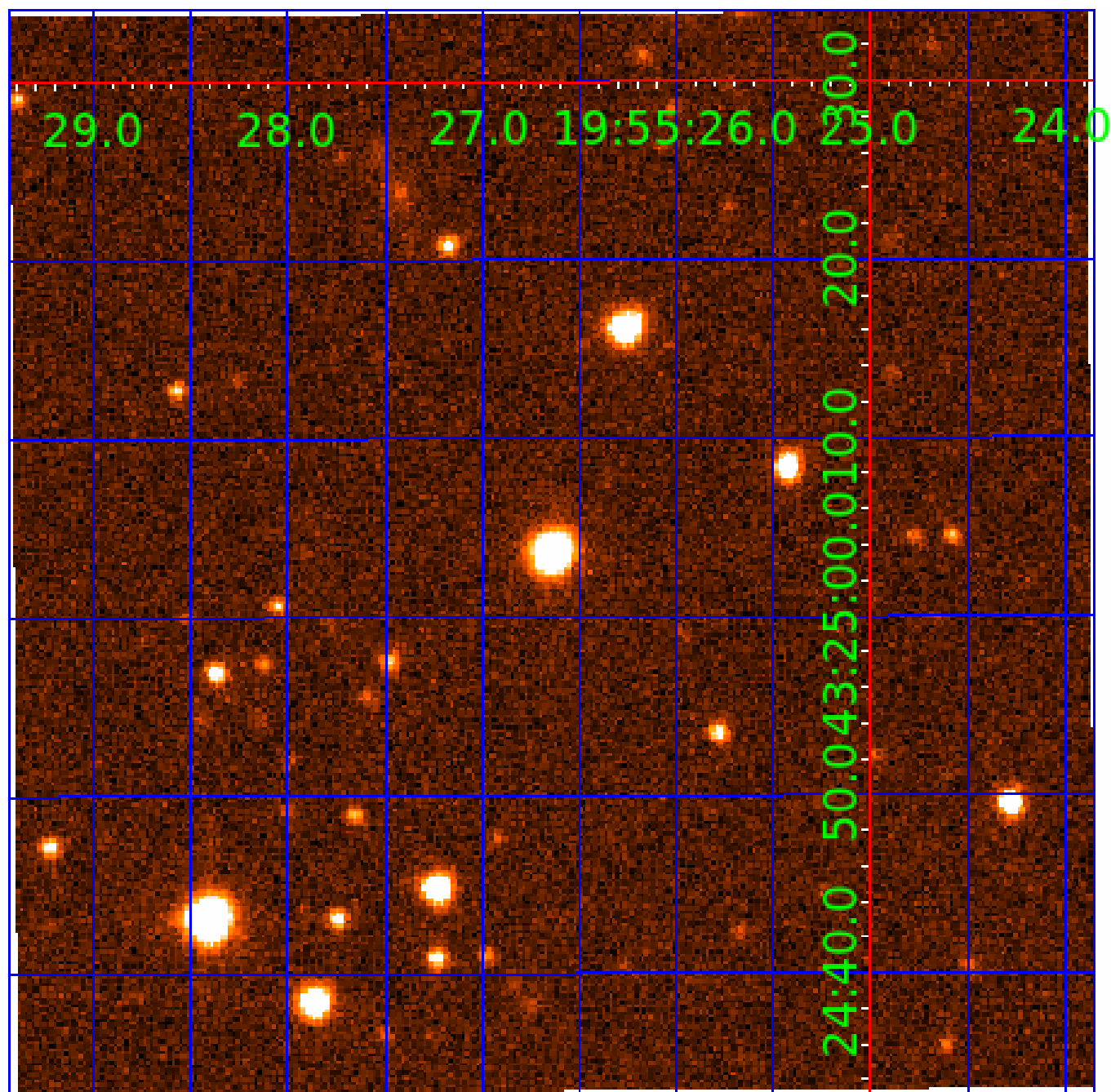


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007777471

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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007777471-03	OBS	No	194.376545	266.441774	904.2	5.652	10.4	9.1	0.87	5904	2.75	1.95
007777471-04	OBS	No	223.836027	152.959421	573.3	10.500	8.9	-1.0	0.87	5904	2.07	1.62

Robovetter Results

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007777471-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

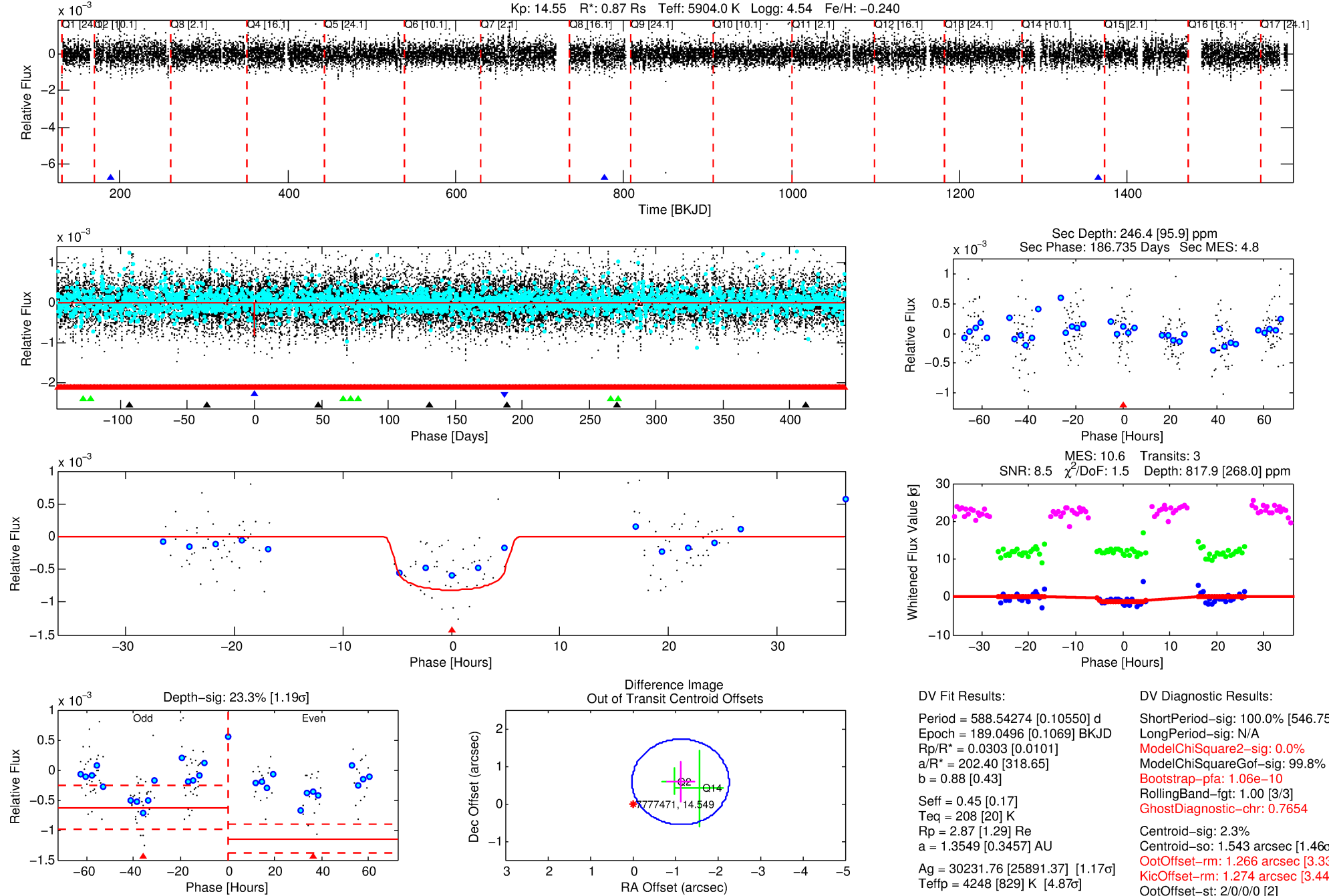
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007777471-02

No Significant Match Found

DV One-Page Summary

KIC: 7777471 Candidate: 2 of 4 Period: 588.543 d
KOI: K04075 Corr: No Ephemeris Match



DV Fit Results:

Period = 588.54274 [0.10550] d
Epoch = 189.0496 [0.1069] BKJD
Rp/R* = 0.0303 [0.0101]
a/R* = 202.40 [318.65]
b = 0.88 [0.43]
Seff = 0.45 [0.17]
Teq = 208 [20] K
Rp = 2.87 [1.29] Re
a = 1.3549 [0.3457] AU
Ag = 30231.76 [25891.37] [1.17 σ]
Teffp = 4248 [829] K [4.87 σ]

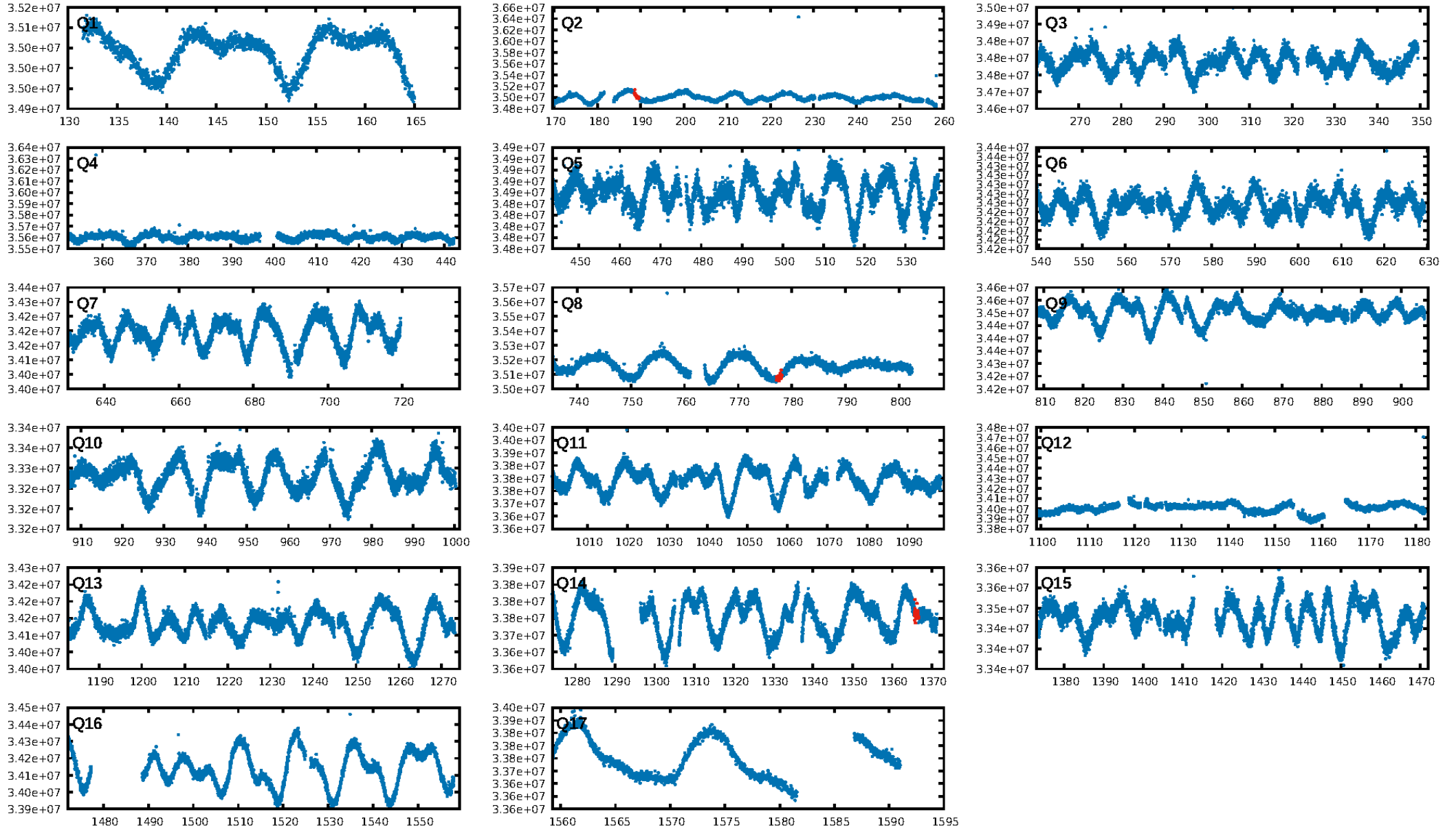
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [546.75 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 1.06e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.7654
Centroid-sig: 2.3%
Centroid-so: 1.543 arcsec [1.46 σ]
OotOffset-rm: 1.266 arcsec [3.33 σ]
KicOffset-rm: 1.274 arcsec [3.44 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

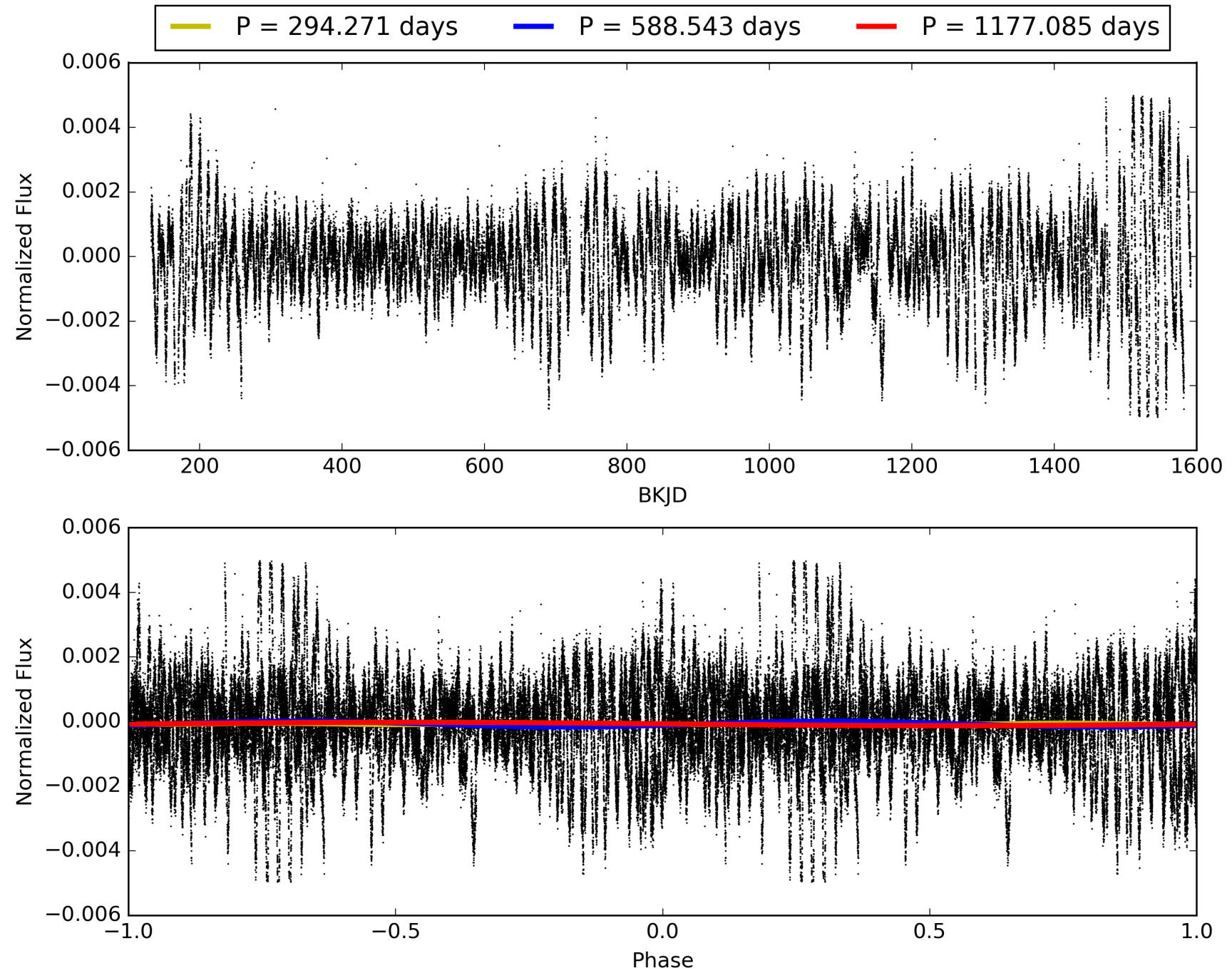
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007777471-02, PDC Light Curves

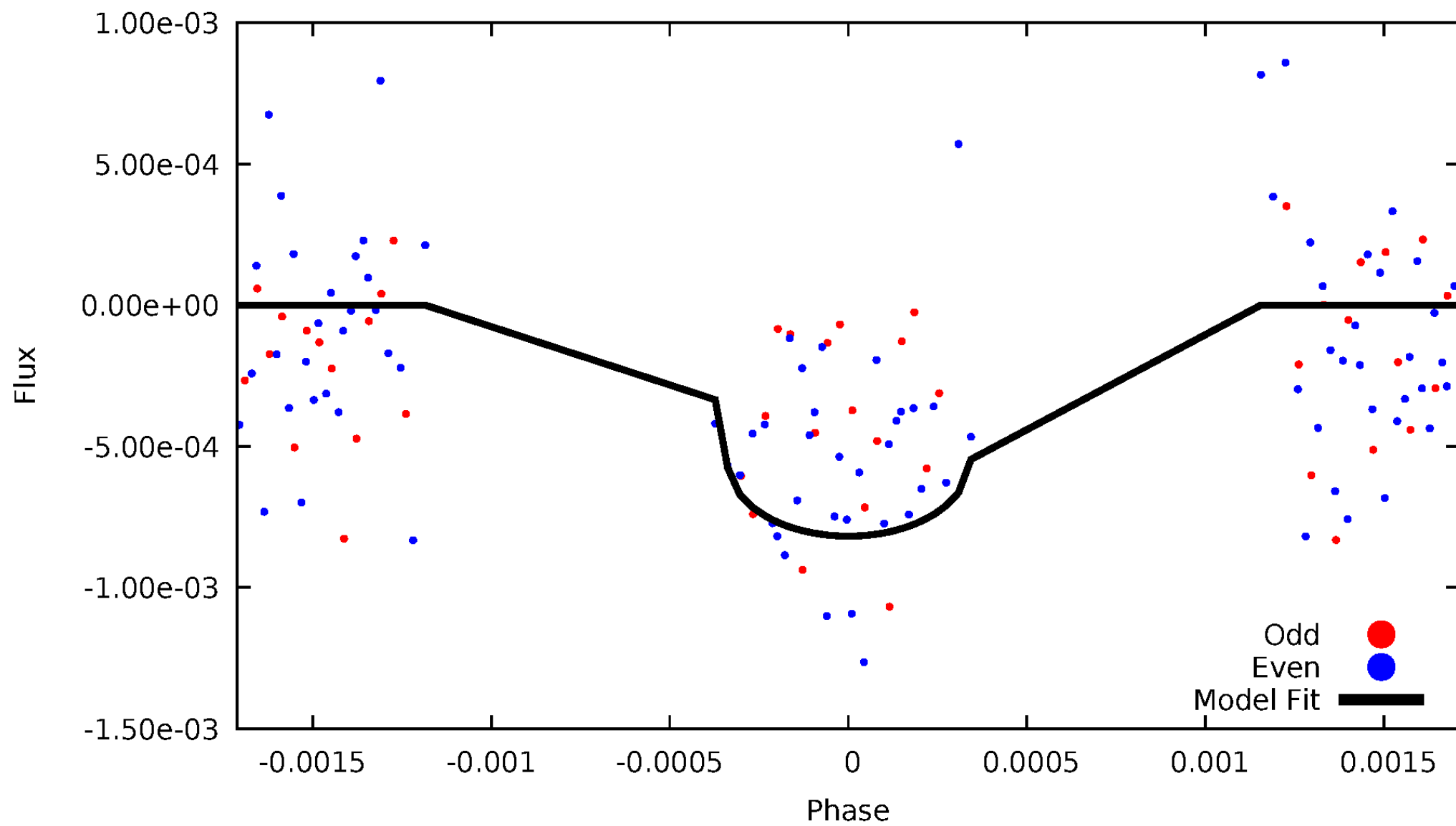


TCE 007777471-02



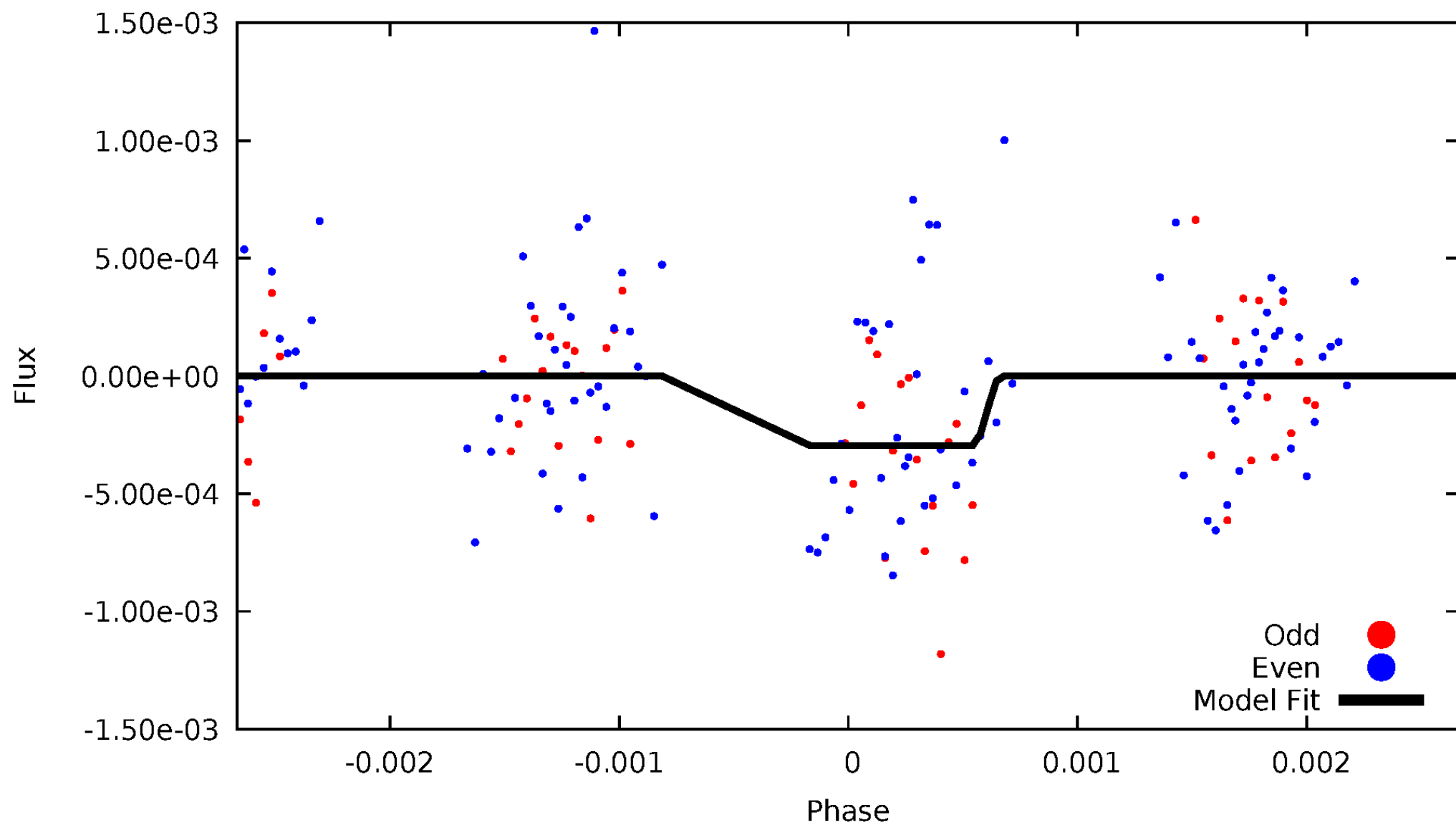
DV Odd/Even

TCE 007777471-02



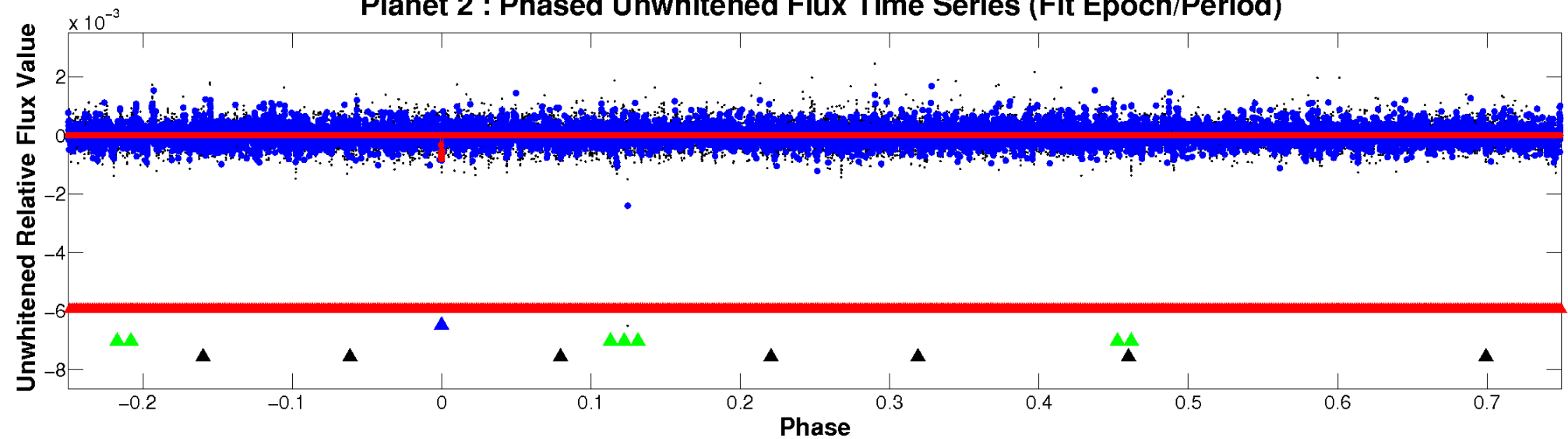
ALT Odd/Even

TCE 007777471-02

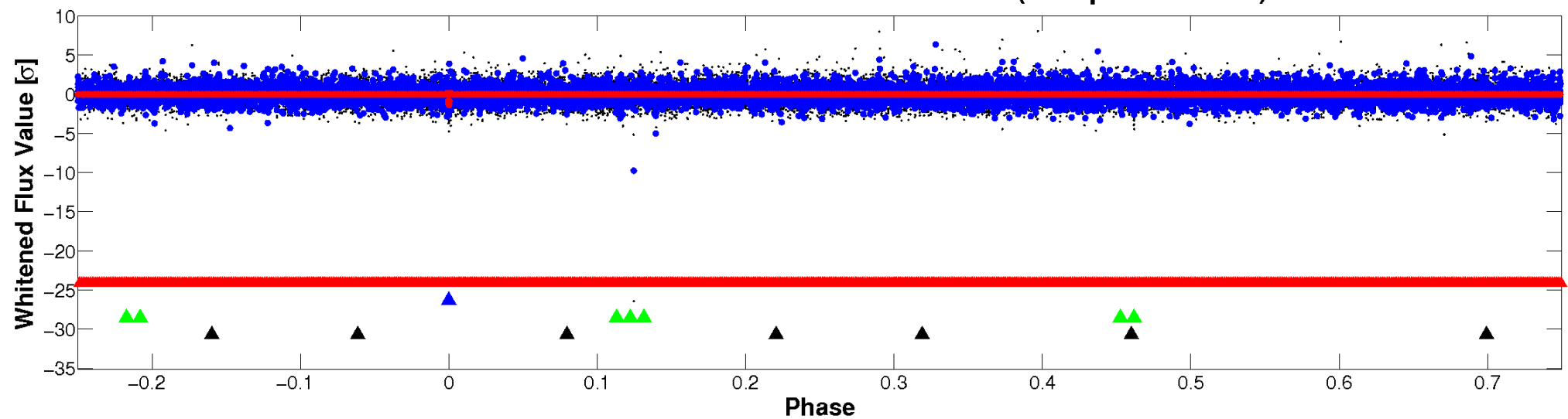


Non-Whitened Vs. Whitened Light Curve

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

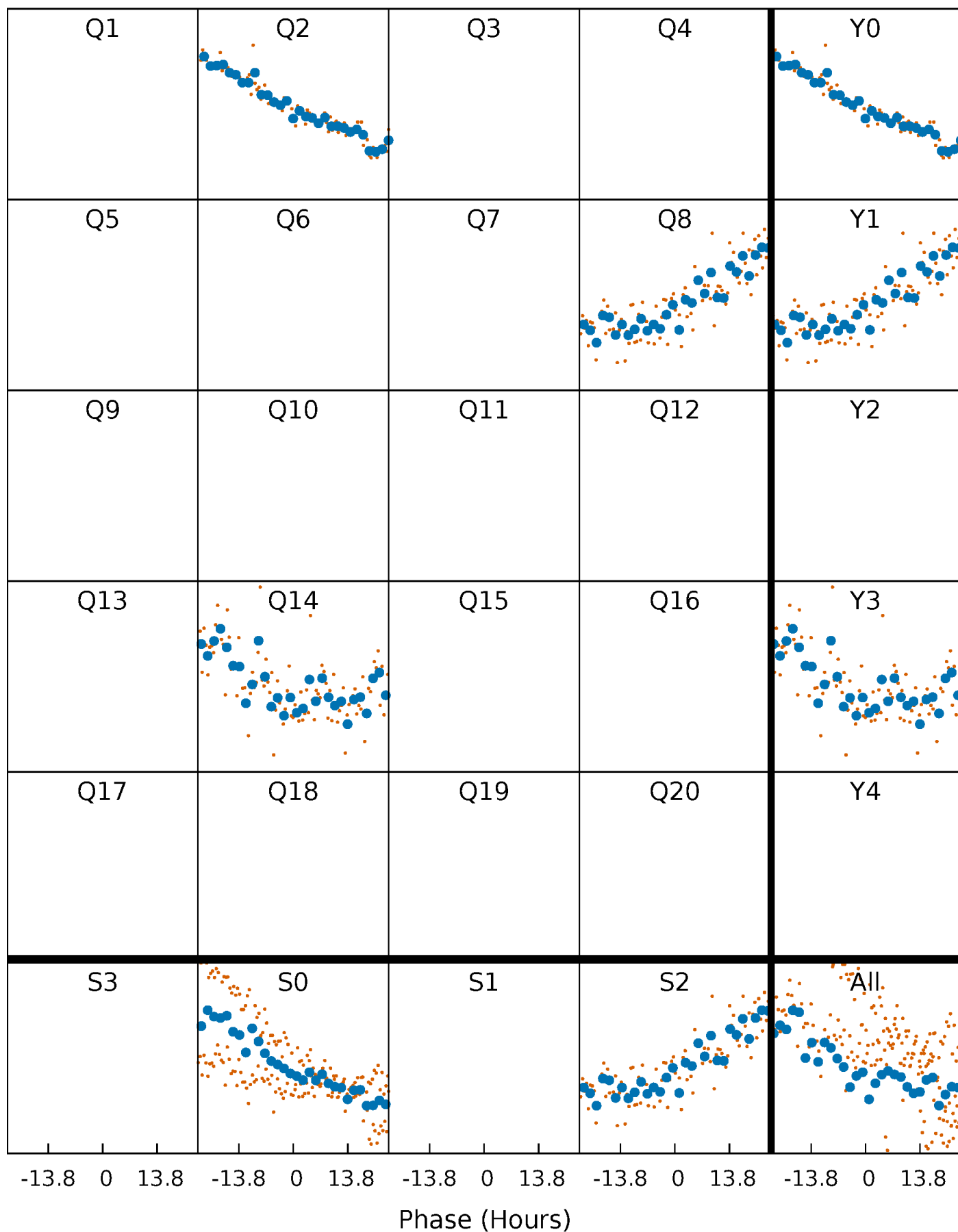


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



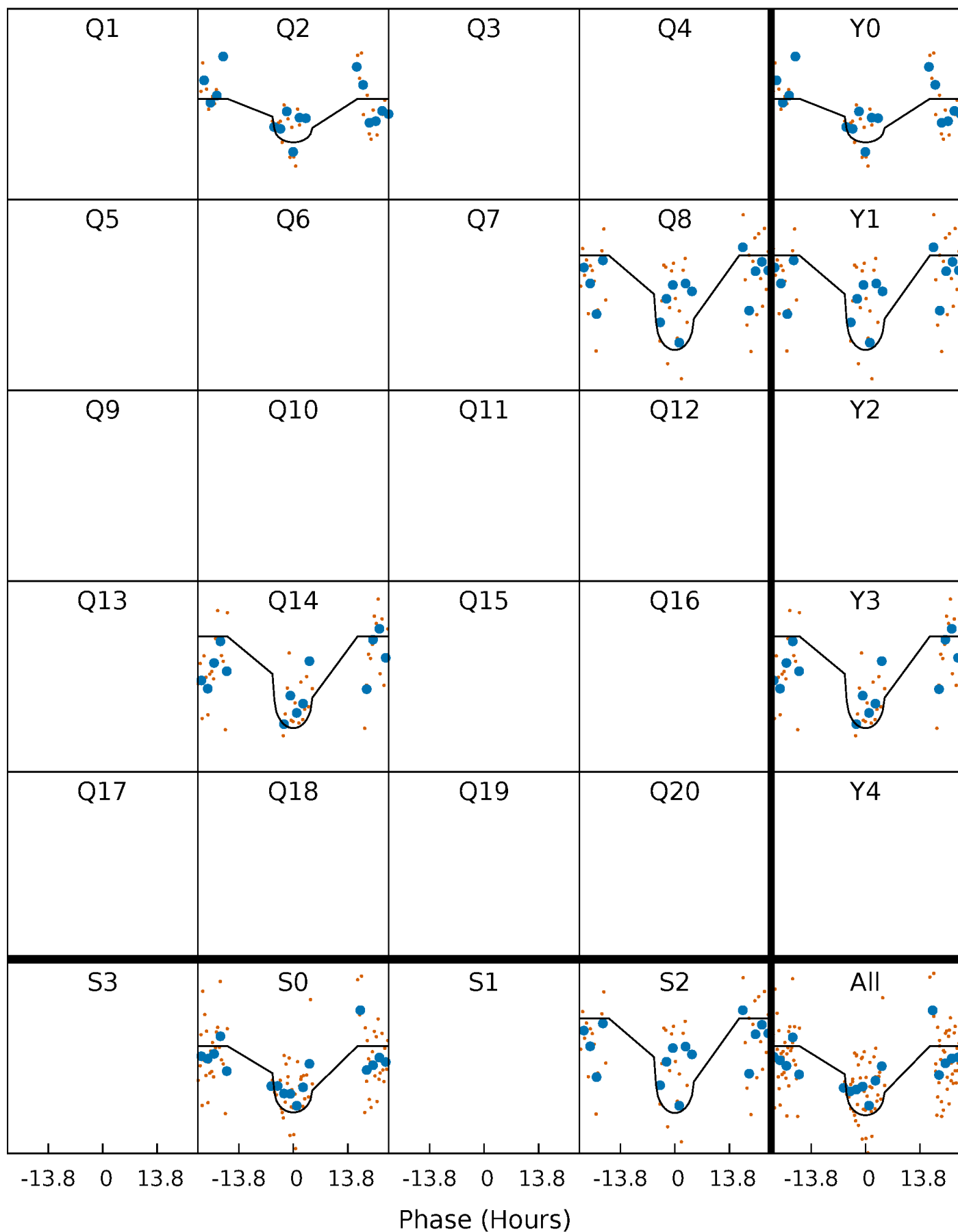
PDC Quarter-Phased Transit Curves

TCE 007777471-02 P=588.542735 Days $T_0=189.049616$ (BKJD)



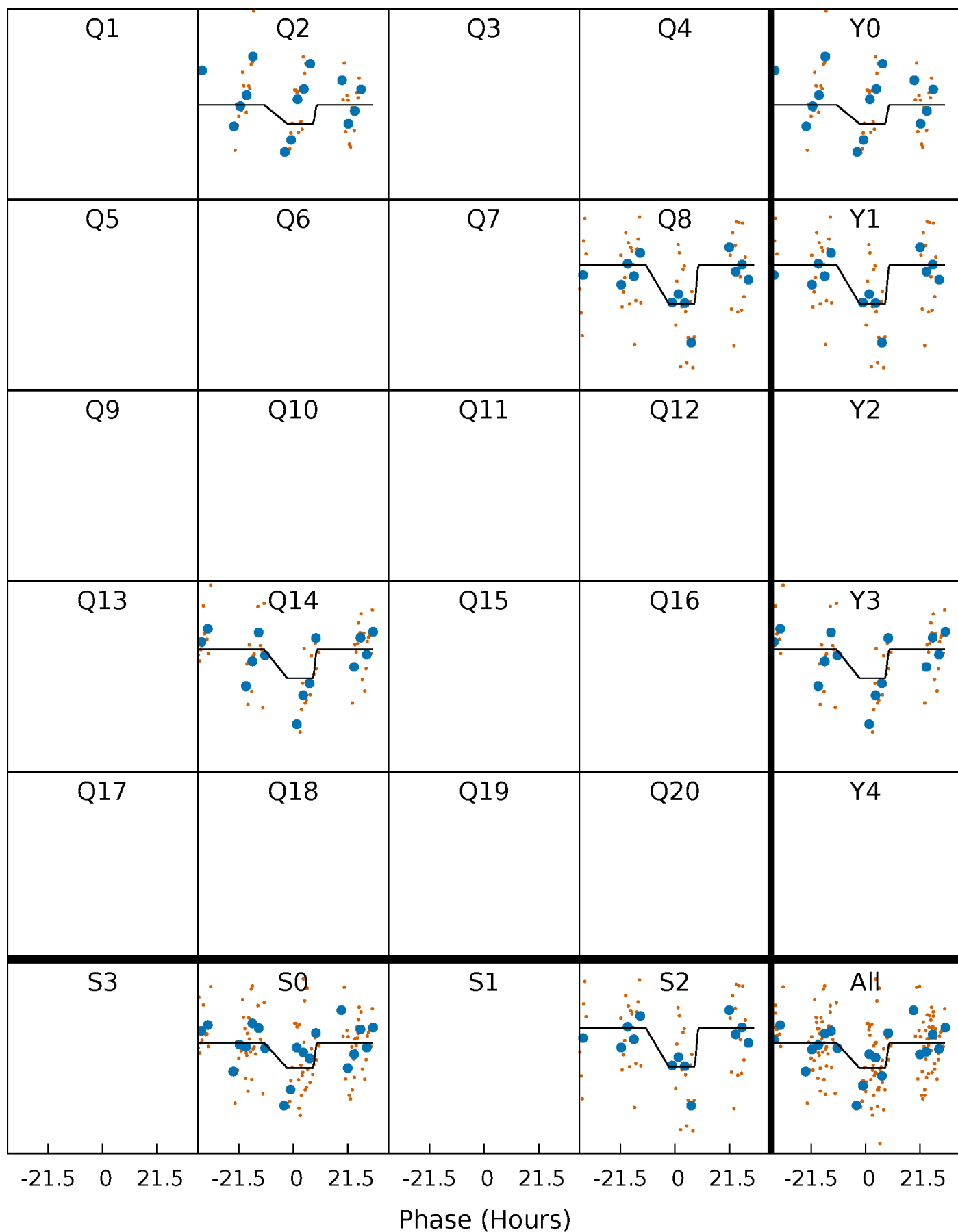
DV Quarter-Phased Transit Curves

TCE 007777471-02 P=588.542735 Days $T_0=189.049616$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

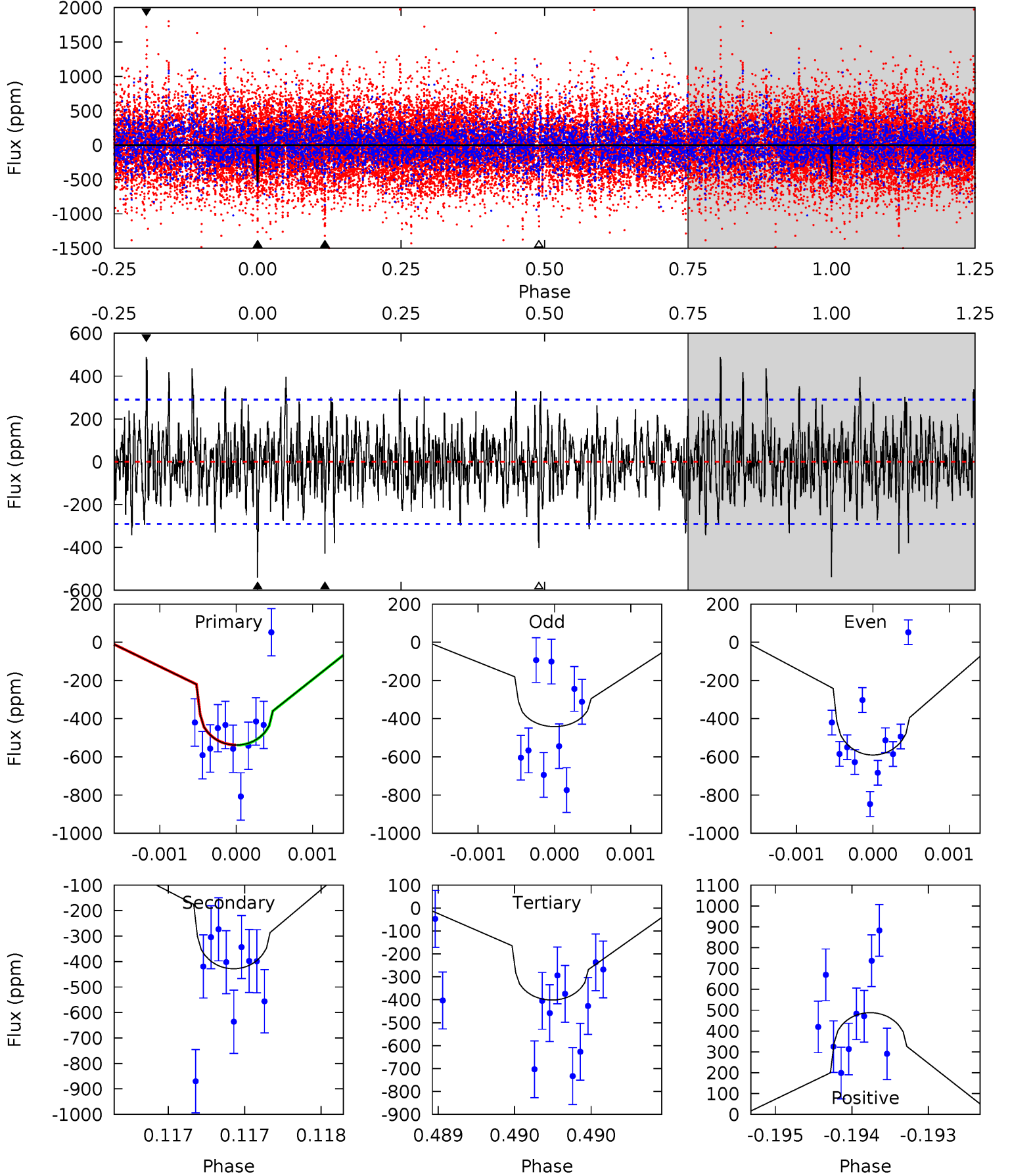
TCE 007777471-02 P=588.493339 Days $T_0=188.929721$ (BKJD)



DV Model-Shift Uniqueness Test

007777471-02, P = 588.542735 Days, E = 189.049616 Days

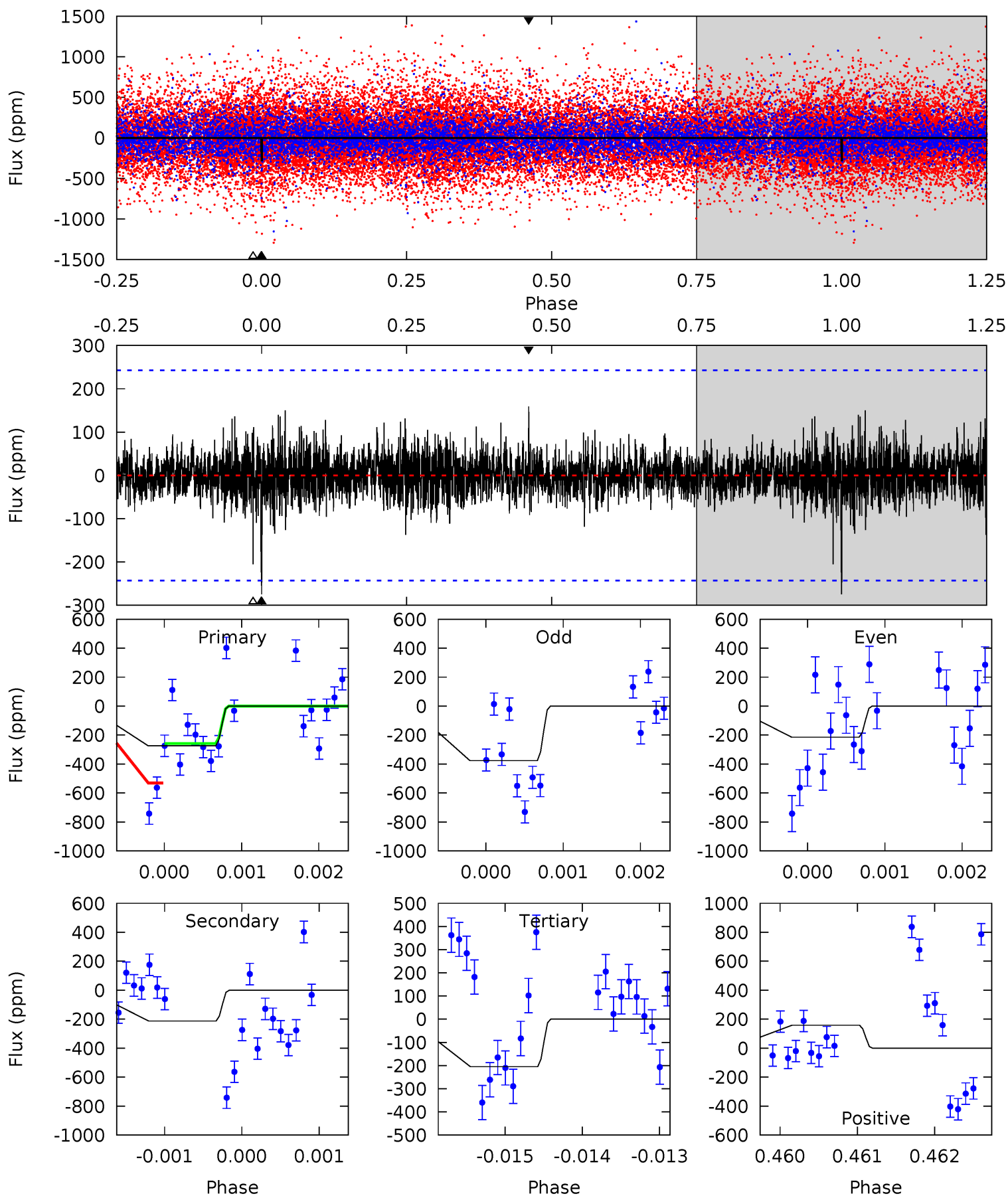
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.14	7.62	9.27	5.51	3.38	2.17	2.60	0.95	0.52	-1.13	1.38	0.94	0.48	0.01



Alt Model-Shift Uniqueness Test

007777471-02, P = 588.493339 Days, E = 188.929721 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.21	4.81	4.63	3.59	5.49	3.35	0.78	1.58	2.62	0.18	1.22	1.81	0.77	0.37	1.95



Stellar Parameters For KIC 007777471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+159}_{-177}	$4.543^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.958^{+0.119}_{-0.119}$	$2.073^{+0.403}_{-1.051}$
	+3%/-3%	+1%/-4%	+125%/-125%	+30%/-9%	+12%/-12%	+19%/-51%
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 007777471-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-428 ± 53	$3.05^{+1.03}_{-1.01}$	298^{+20}_{-13}	4926^{+934}_{-510}	45107^{+53026}_{-19621}
Alt.	-213 ± 44	$1.81^{+1.02}_{-0.94}$	299^{+20}_{-14}	5340^{+2384}_{-920}	$65194^{+202627}_{-38985}$

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 $A_{obs} \gg 1.0$

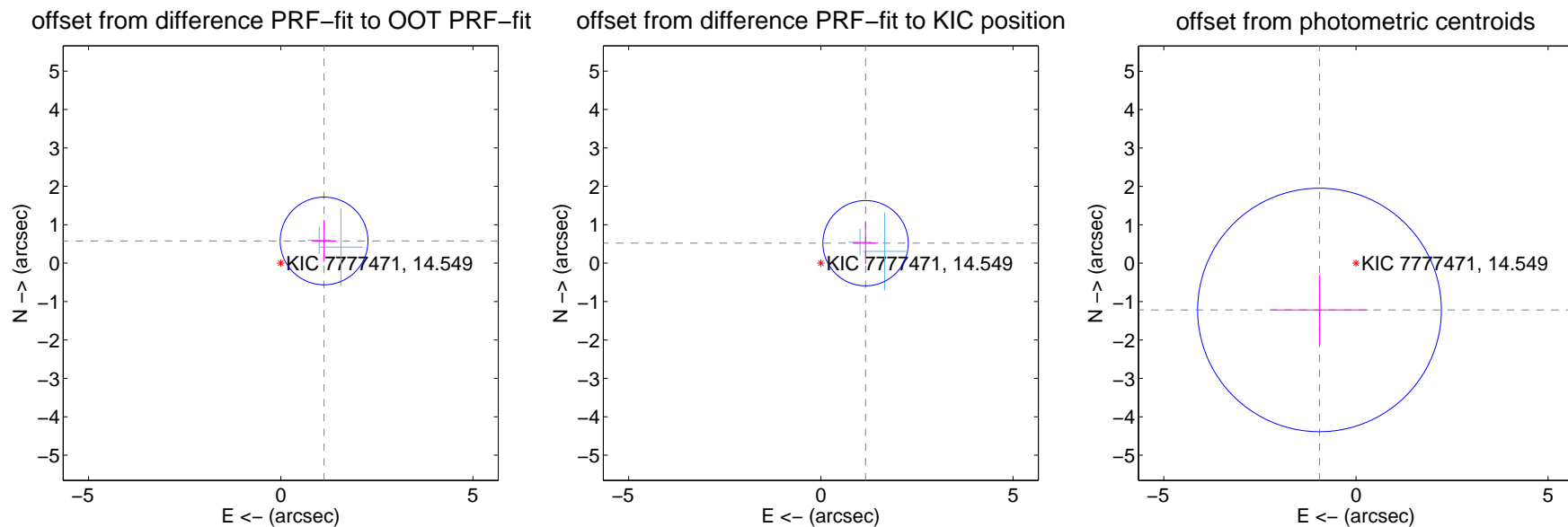
DV Centroid Data

Supplemental centroid analysis for 007777471-02. Kepler magnitude: 14.55. Transit SNR 8.46

There are 2 quarters with good PRF difference image offsets

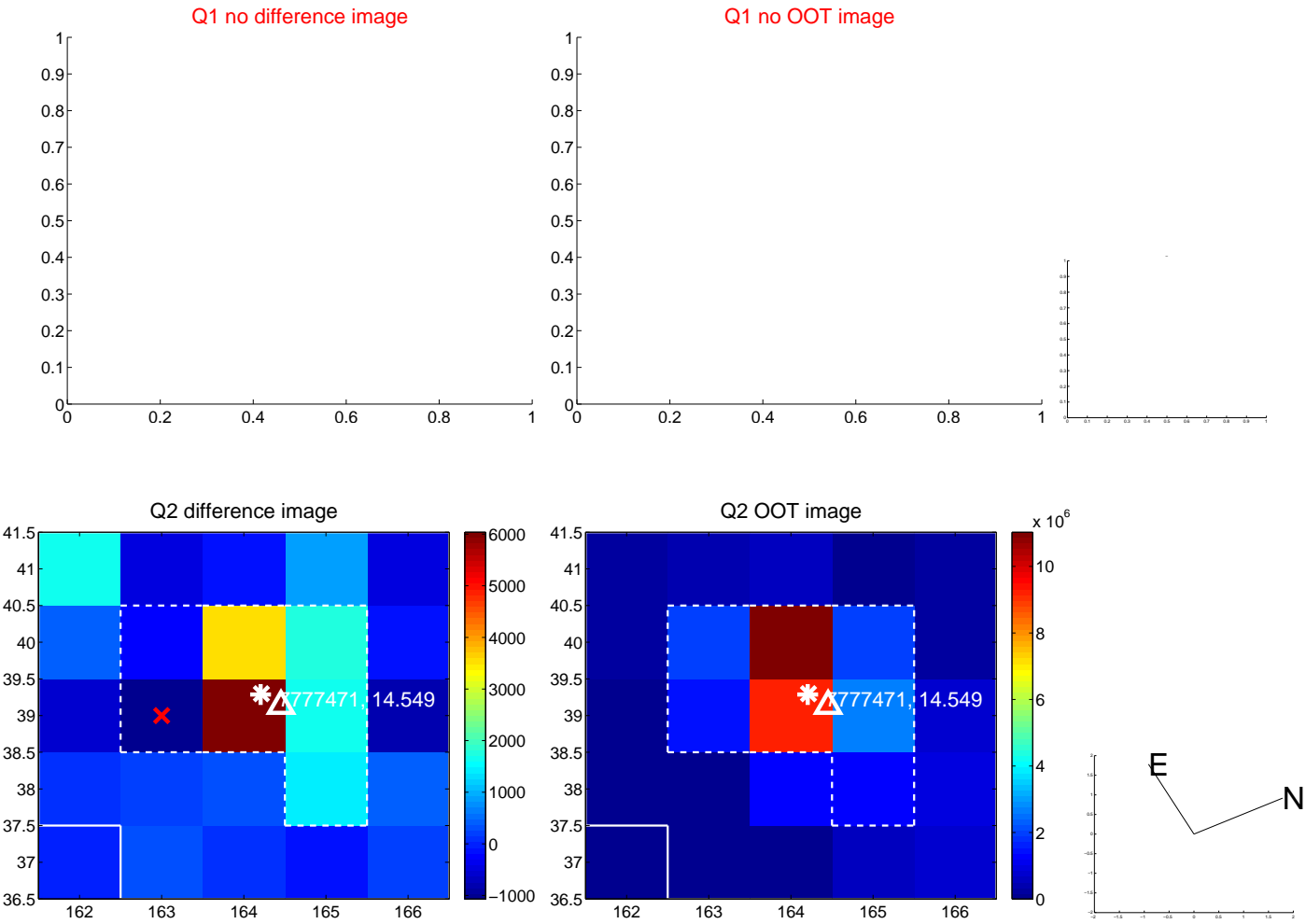
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.266 ± 0.381	3.33	-1.127 ± 0.325	0.578 ± 0.542
PRF-fit source offset from KIC position	1.274 ± 0.370	3.44	-1.163 ± 0.325	0.520 ± 0.542
photometric centroid source offset	1.54 ± 1.06	1.46	0.95 ± 1.26	-1.22 ± 0.91

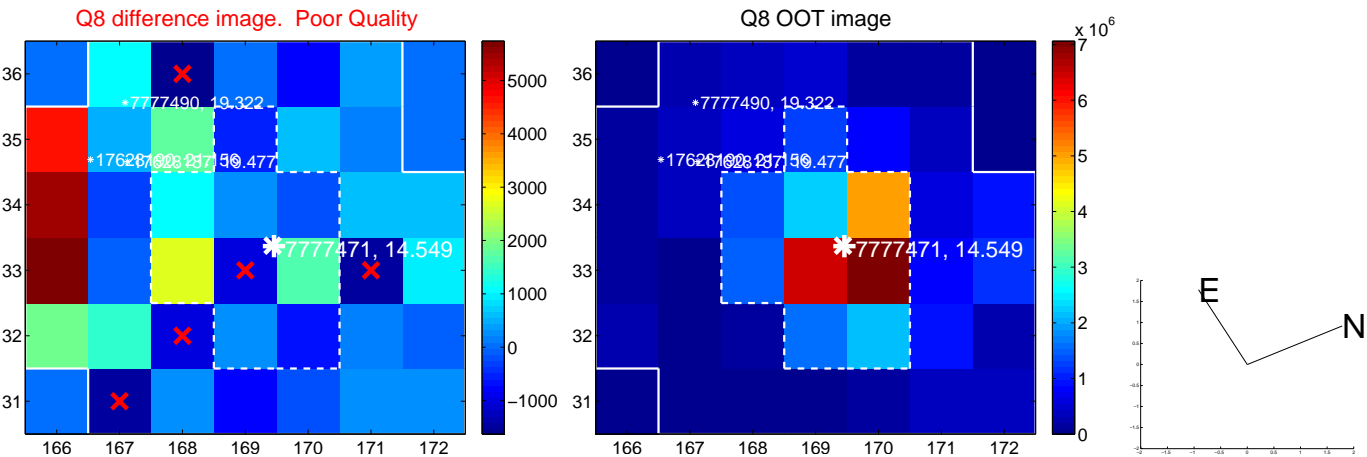


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



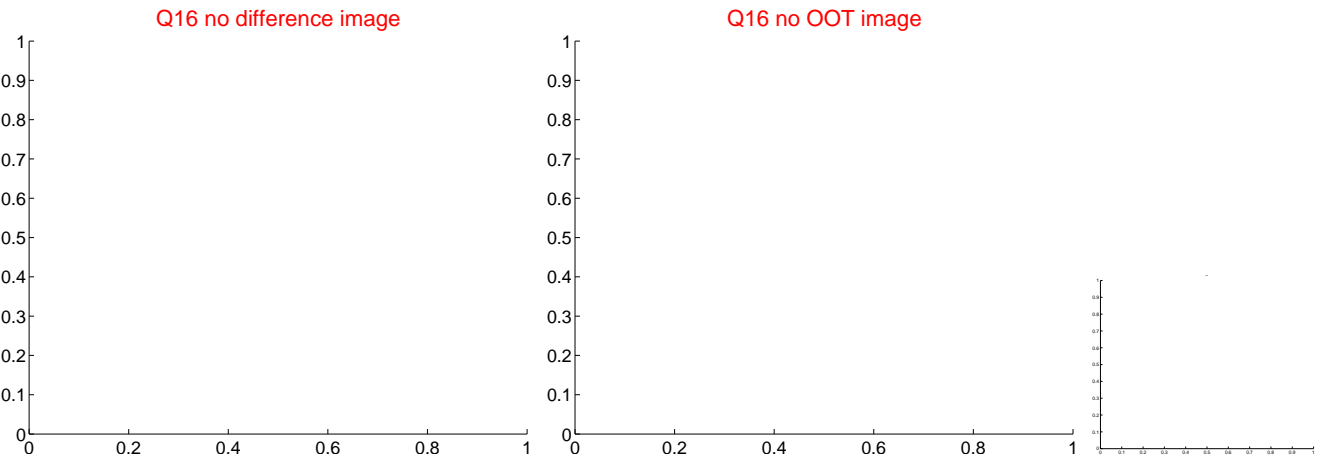
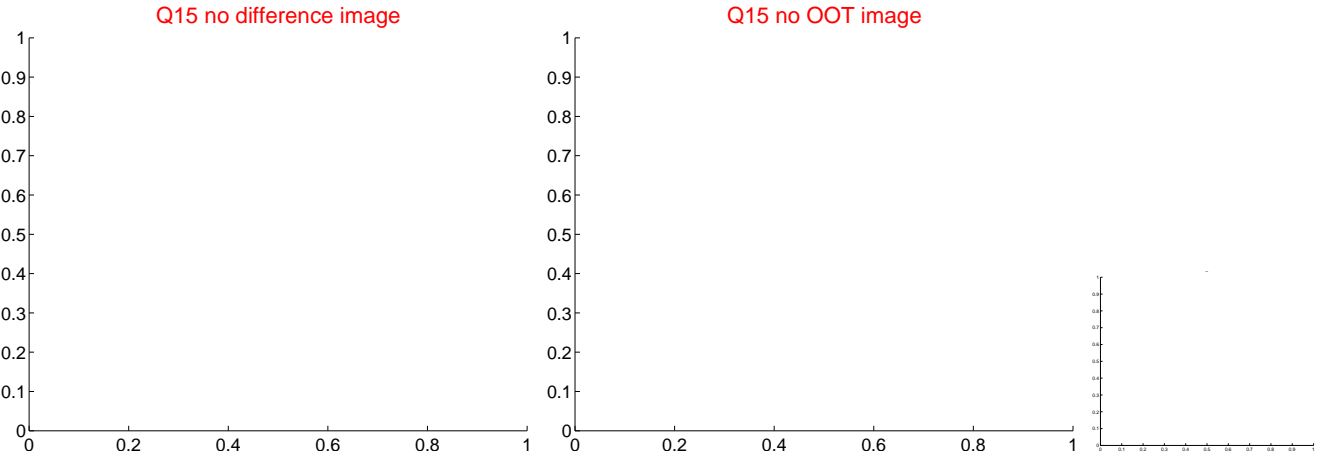
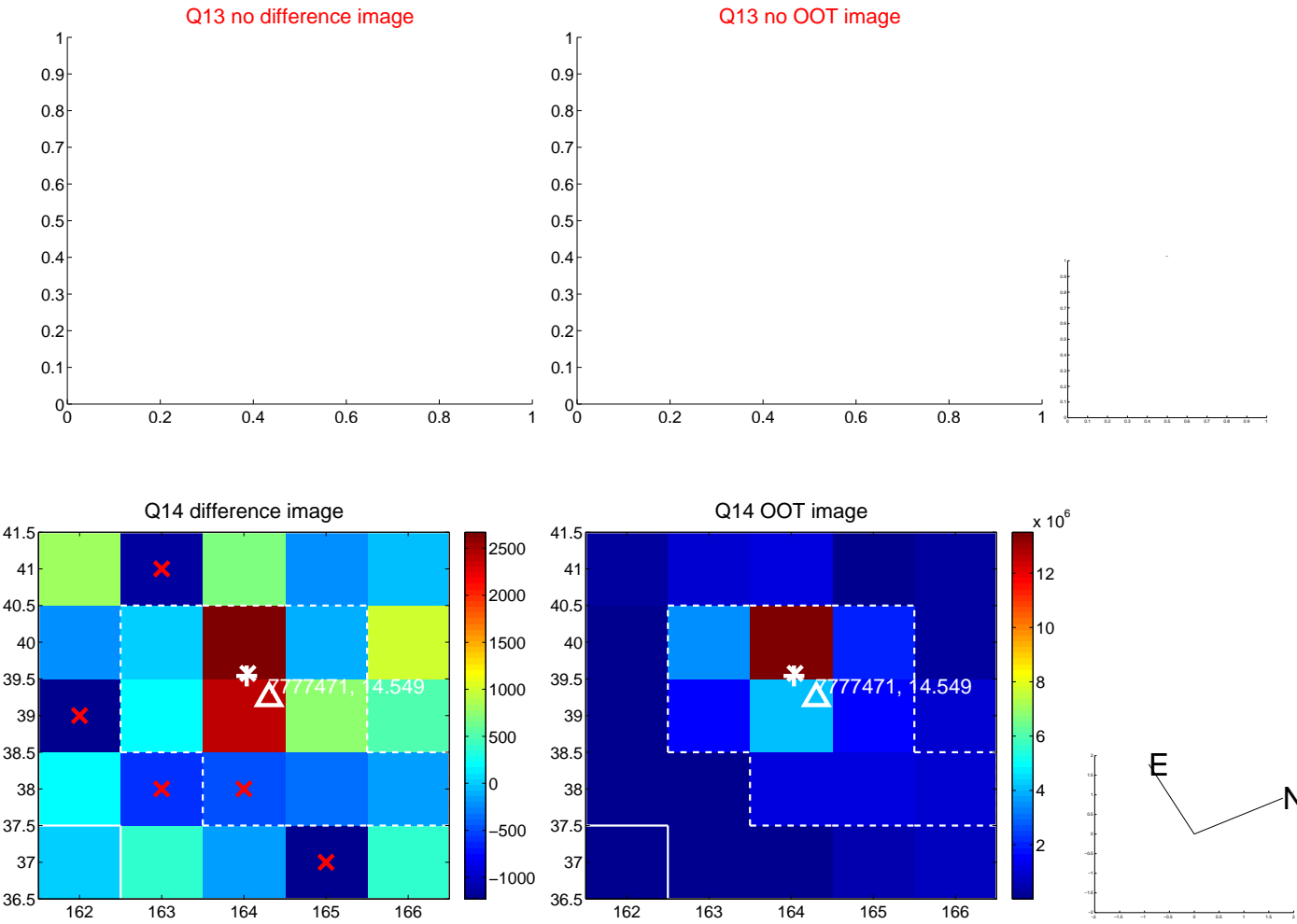
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



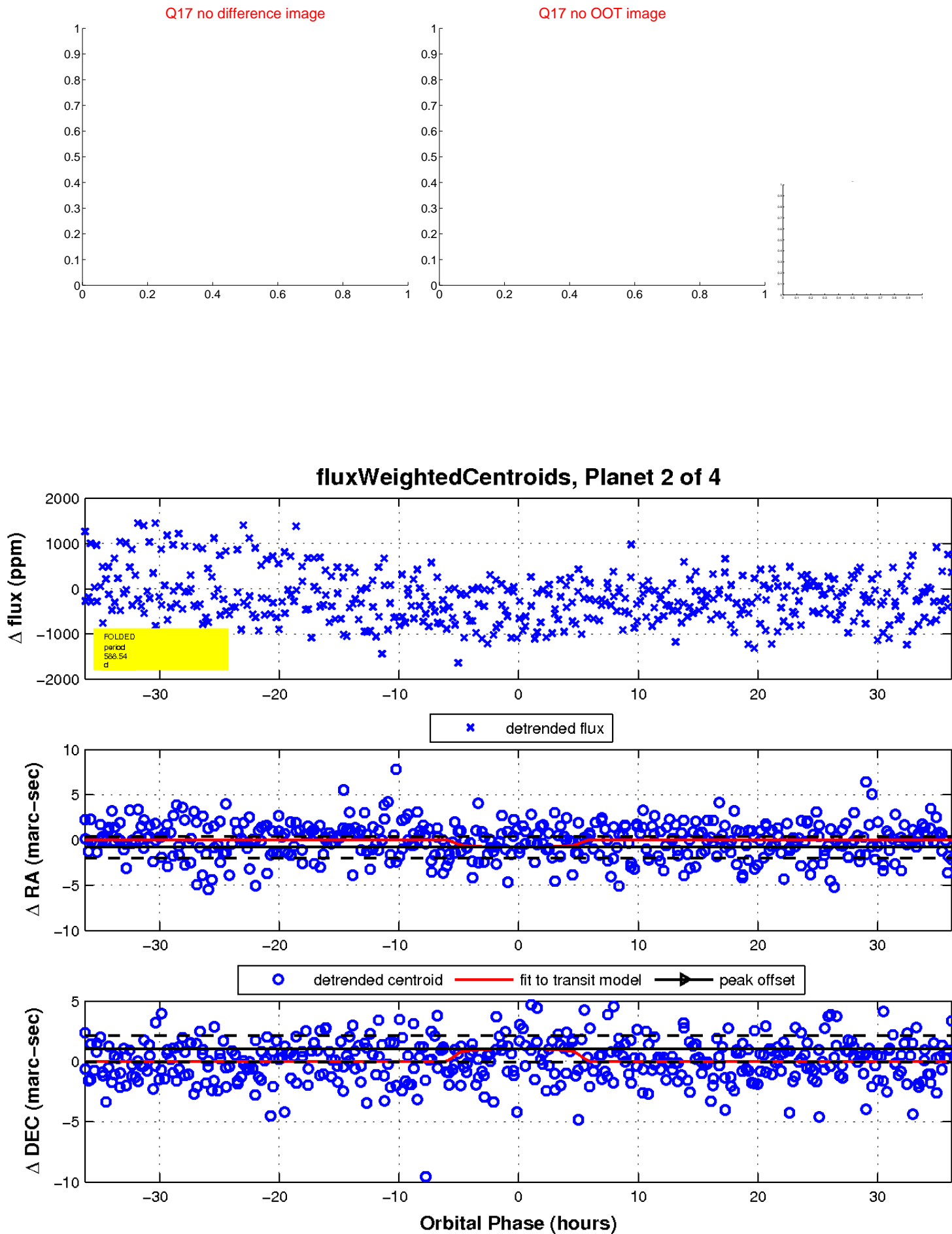
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

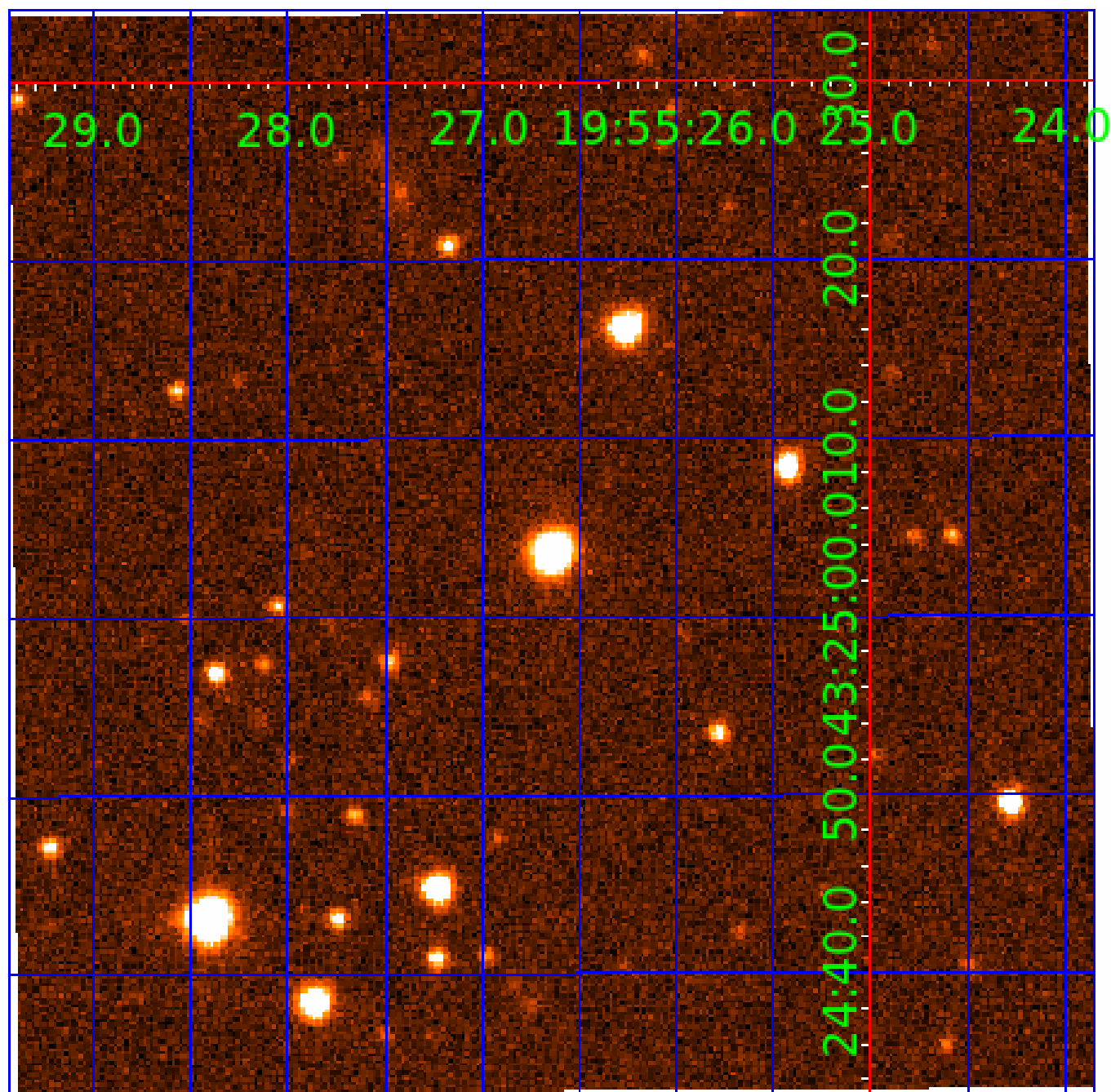


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007777471

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})
007777471-01	OBS	4075.01	0.885092	131.908255	74.8	4.193	17.5	18.0	0.87	5904	0.75	2587.27
007777471-02	OBS	No	588.542735	189.049616	817.9	12.085	10.6	8.5	0.87	5904	2.87	0.45
007777471-03	OBS	No	194.376545	266.441774	904.2	5.652	10.4	9.1	0.87	5904	2.75	1.95
007777471-04	OBS	No	223.836027	152.959421	573.3	10.500	8.9	-1.0	0.87	5904	2.07	1.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777471-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007777471-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

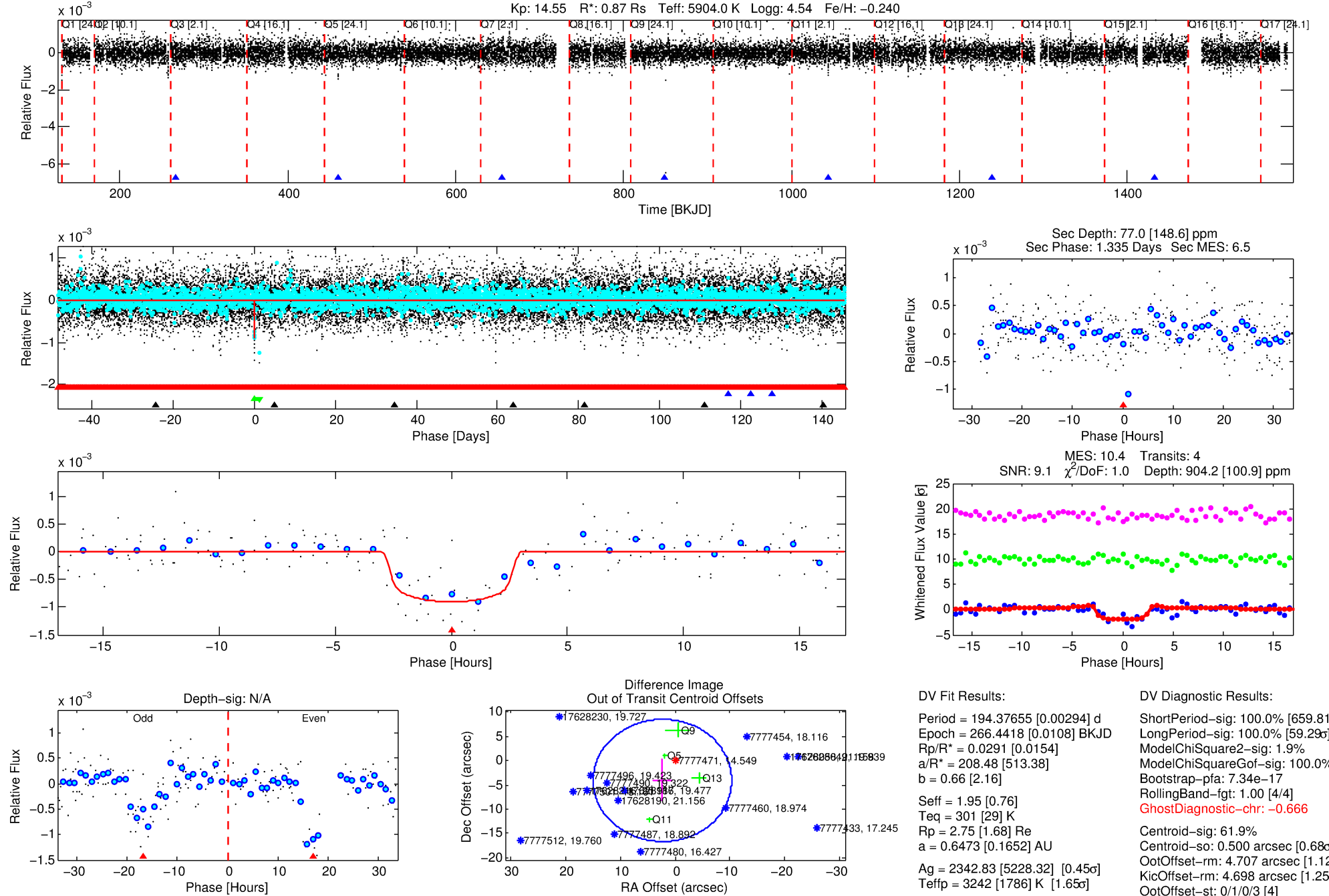
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007777471-03

No Significant Match Found

DV One-Page Summary

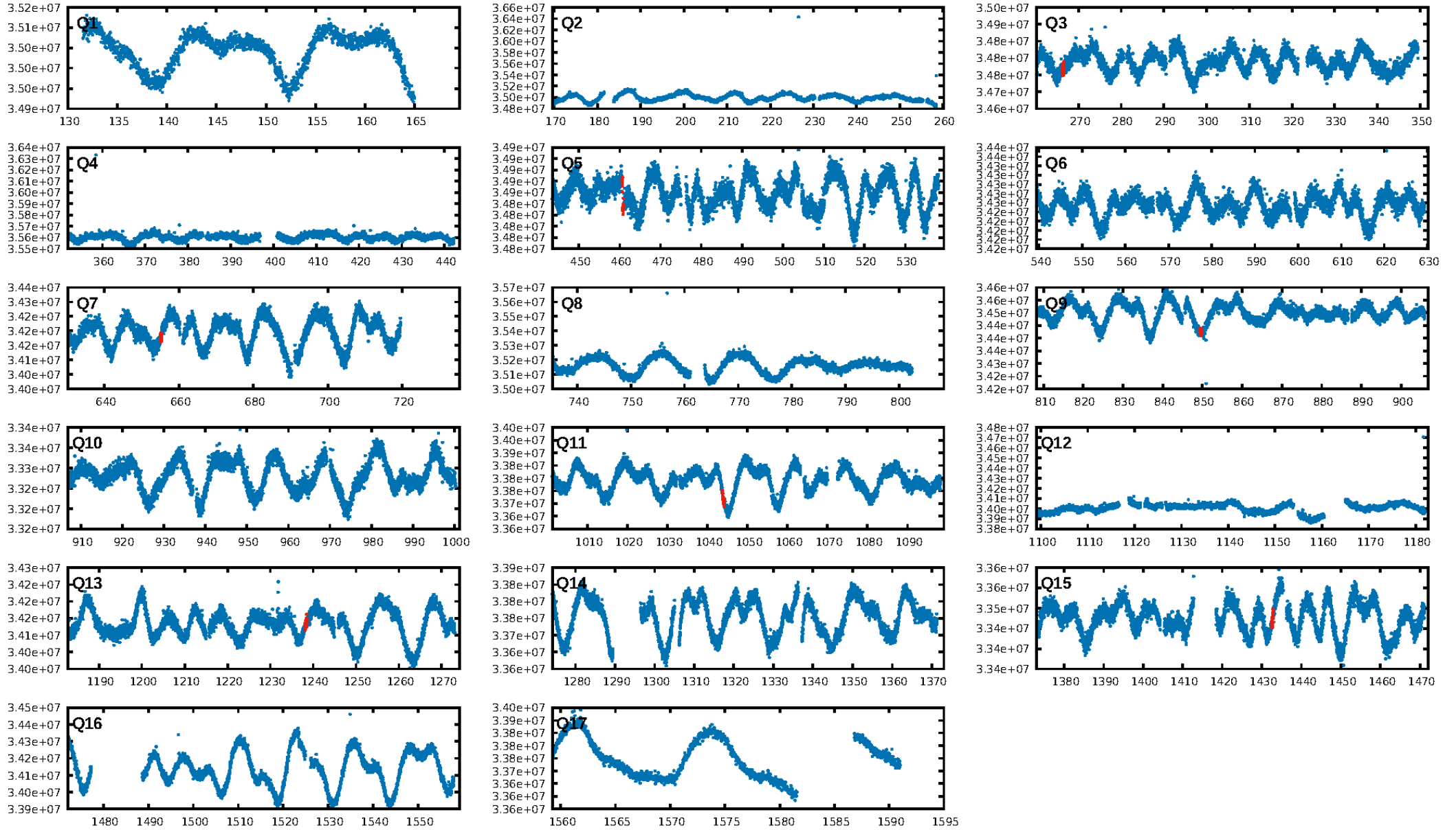
KIC: 7777471 Candidate: 3 of 4 Period: 194.377 d
KOI: K04075 Corr: No Ephemeris Match



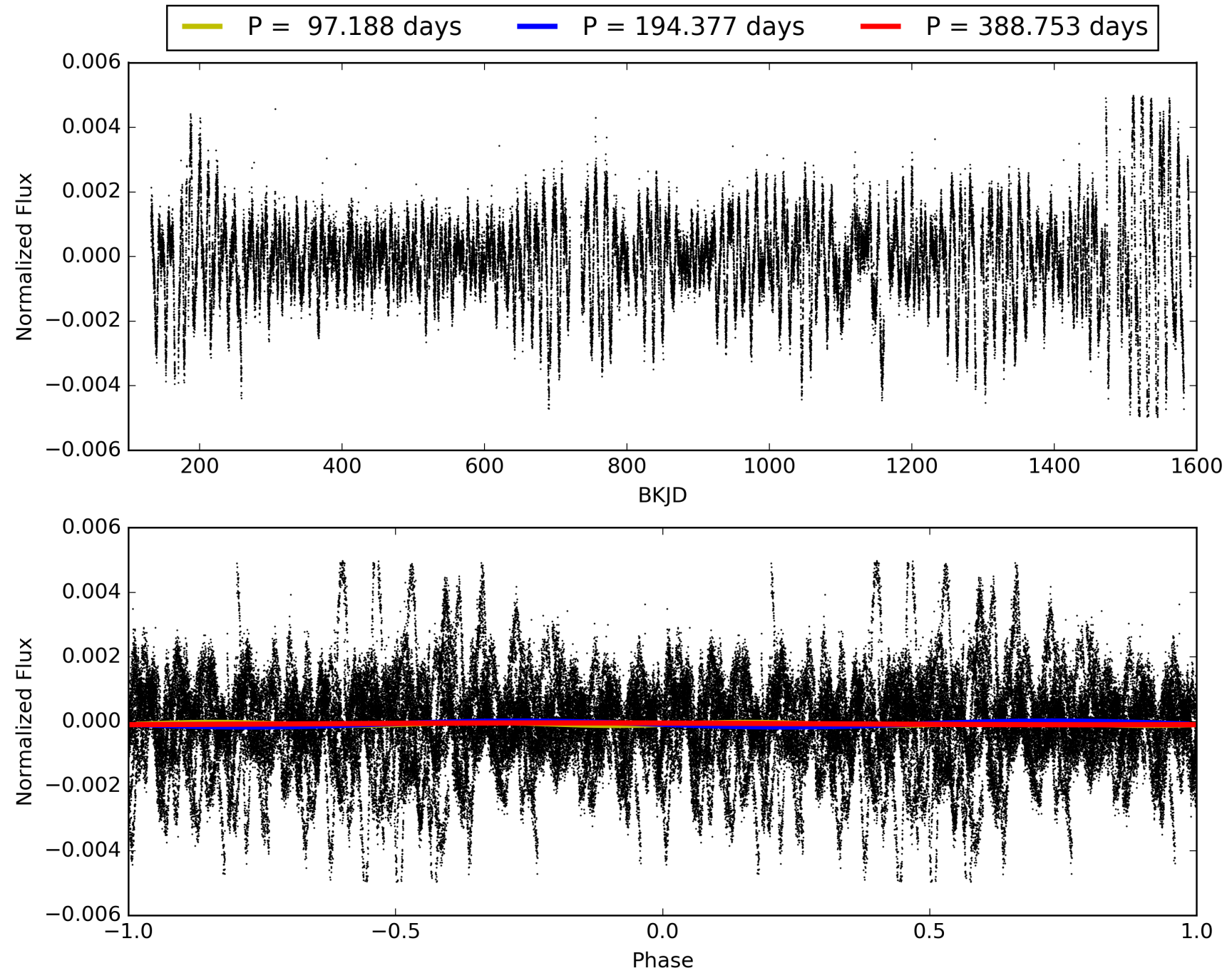
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:14:26 Z

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

TCE 007777471-03, PDC Light Curves

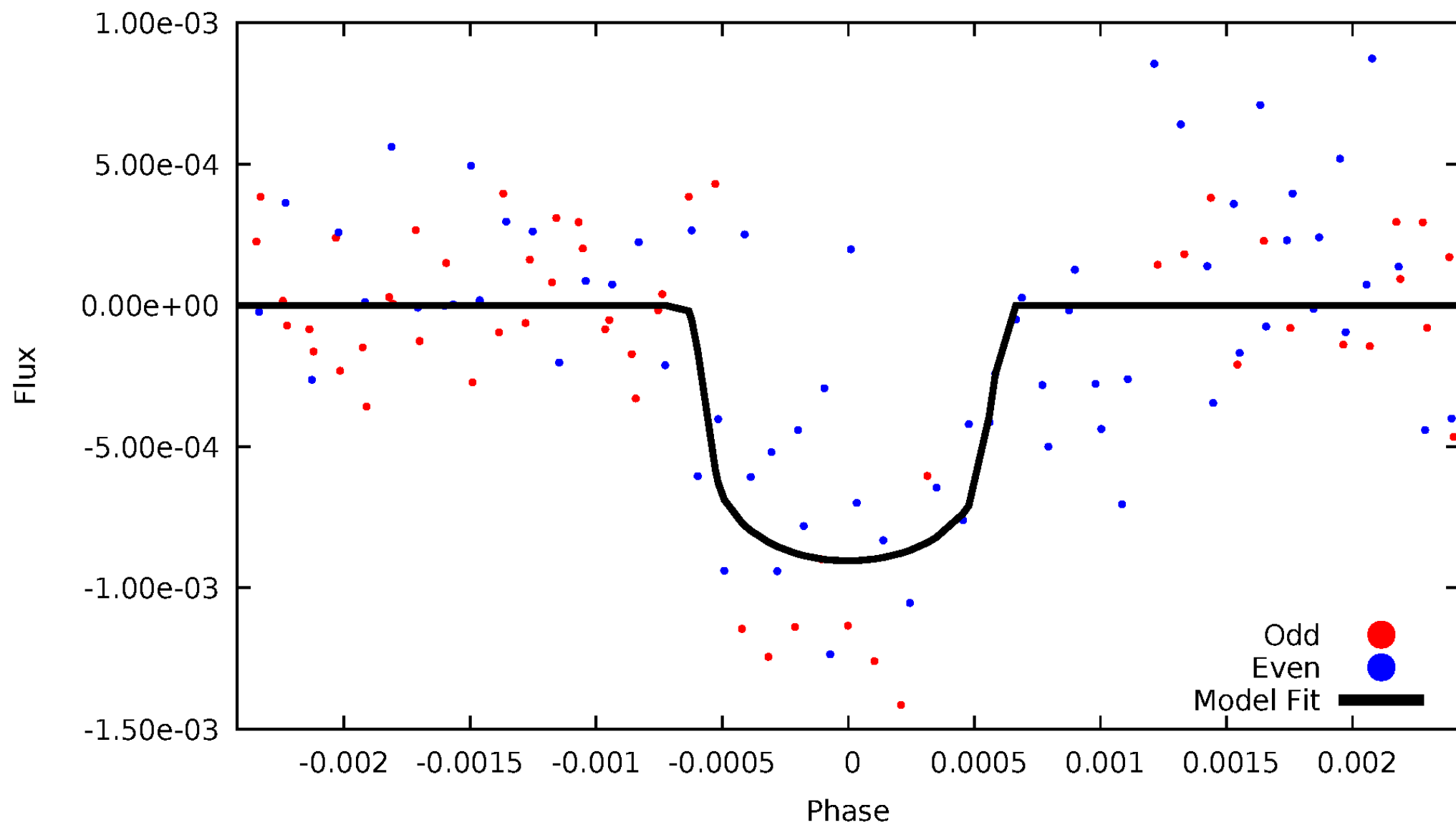


TCE 007777471-03



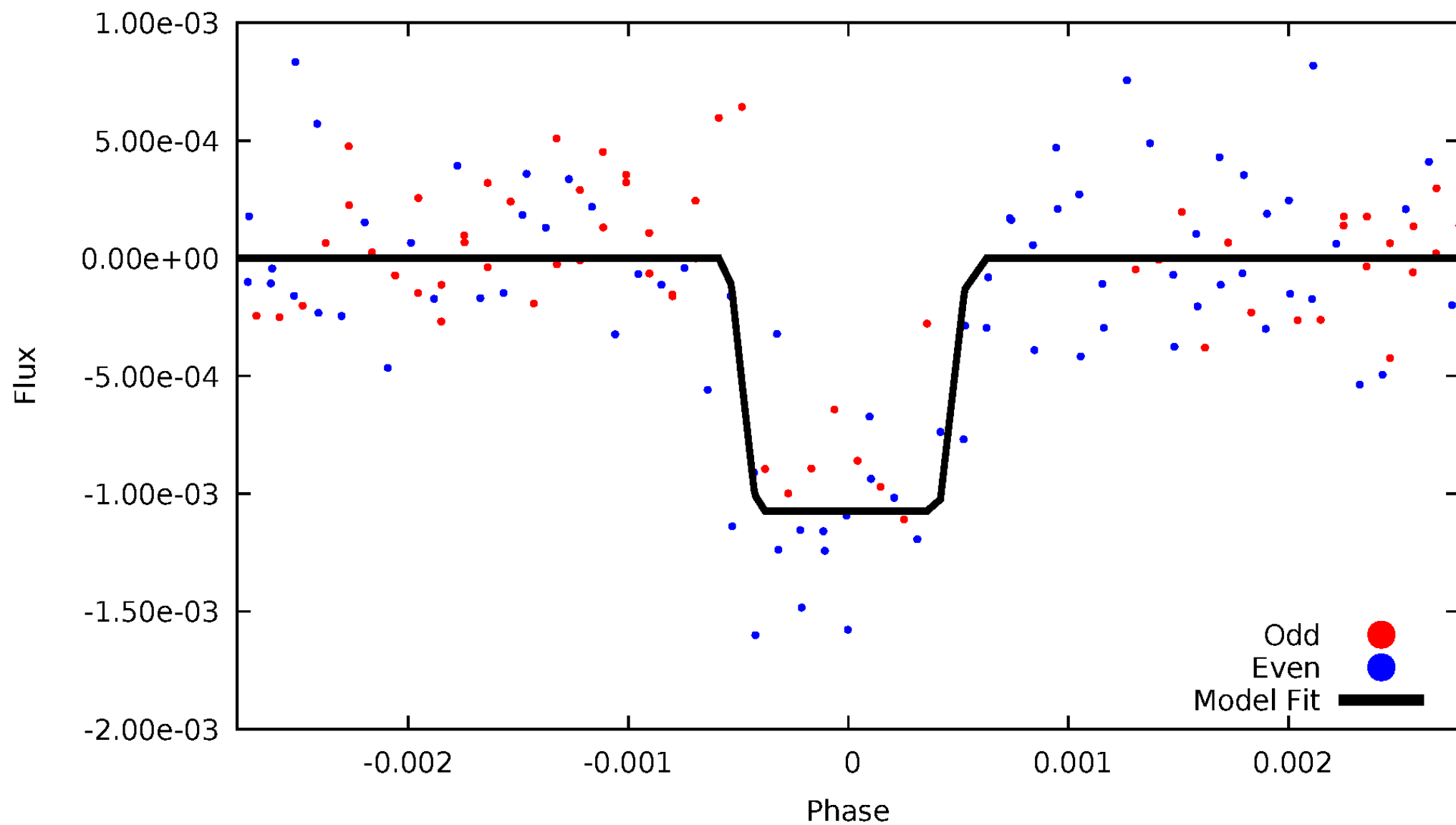
DV Odd/Even

TCE 007777471-03



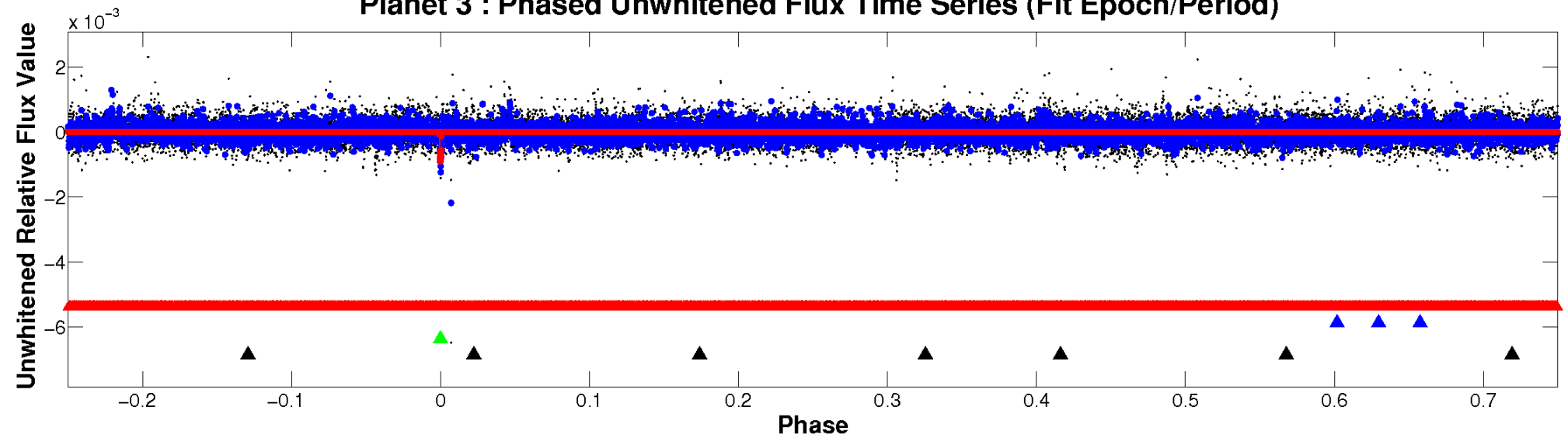
ALT Odd/Even

TCE 007777471-03

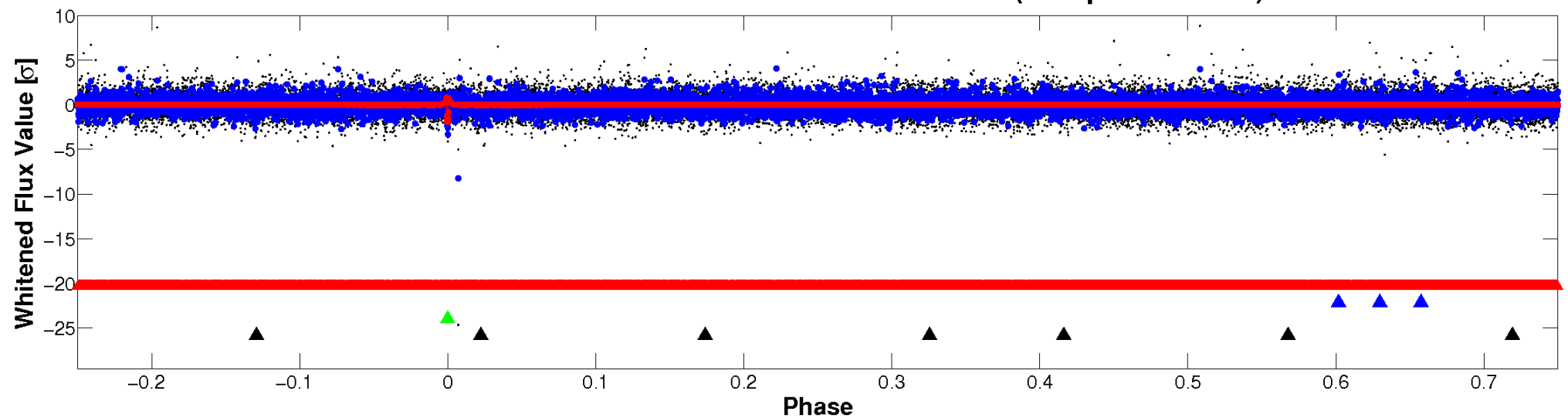


Non-Whitened Vs. Whitened Light Curve

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

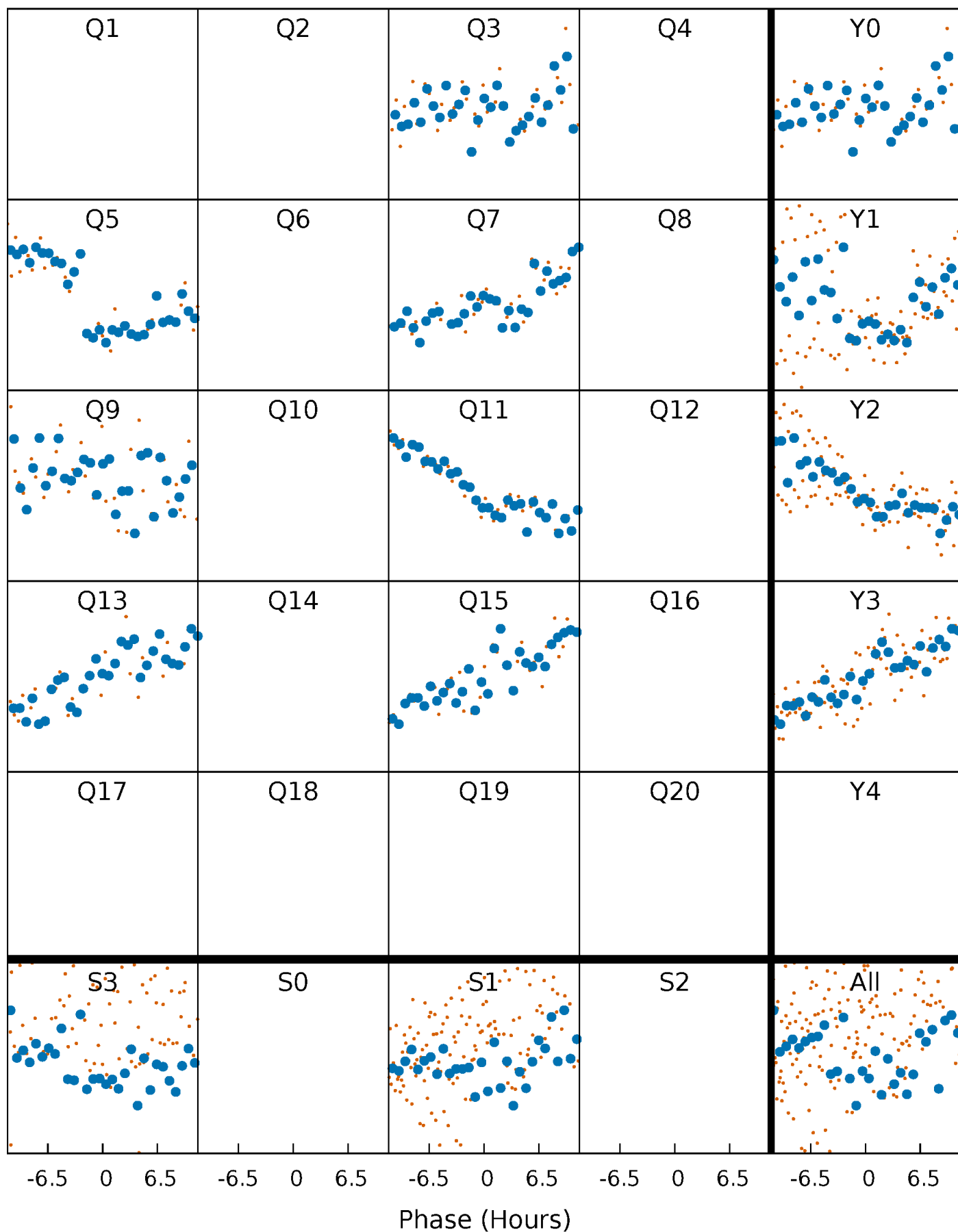


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



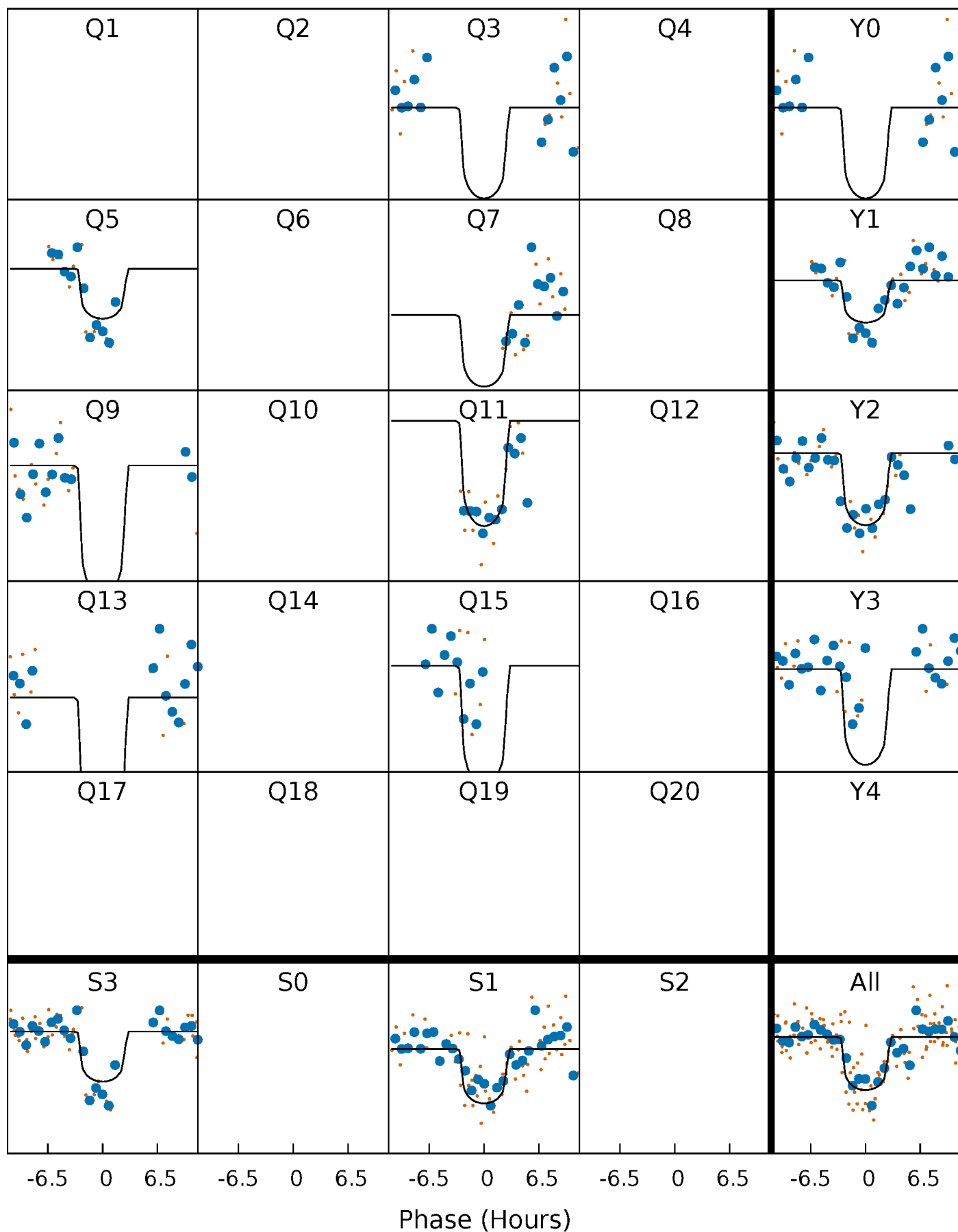
PDC Quarter-Phased Transit Curves

TCE 007777471-03 $P=194.376545$ Days $T_0=266.441774$ (BKJD)



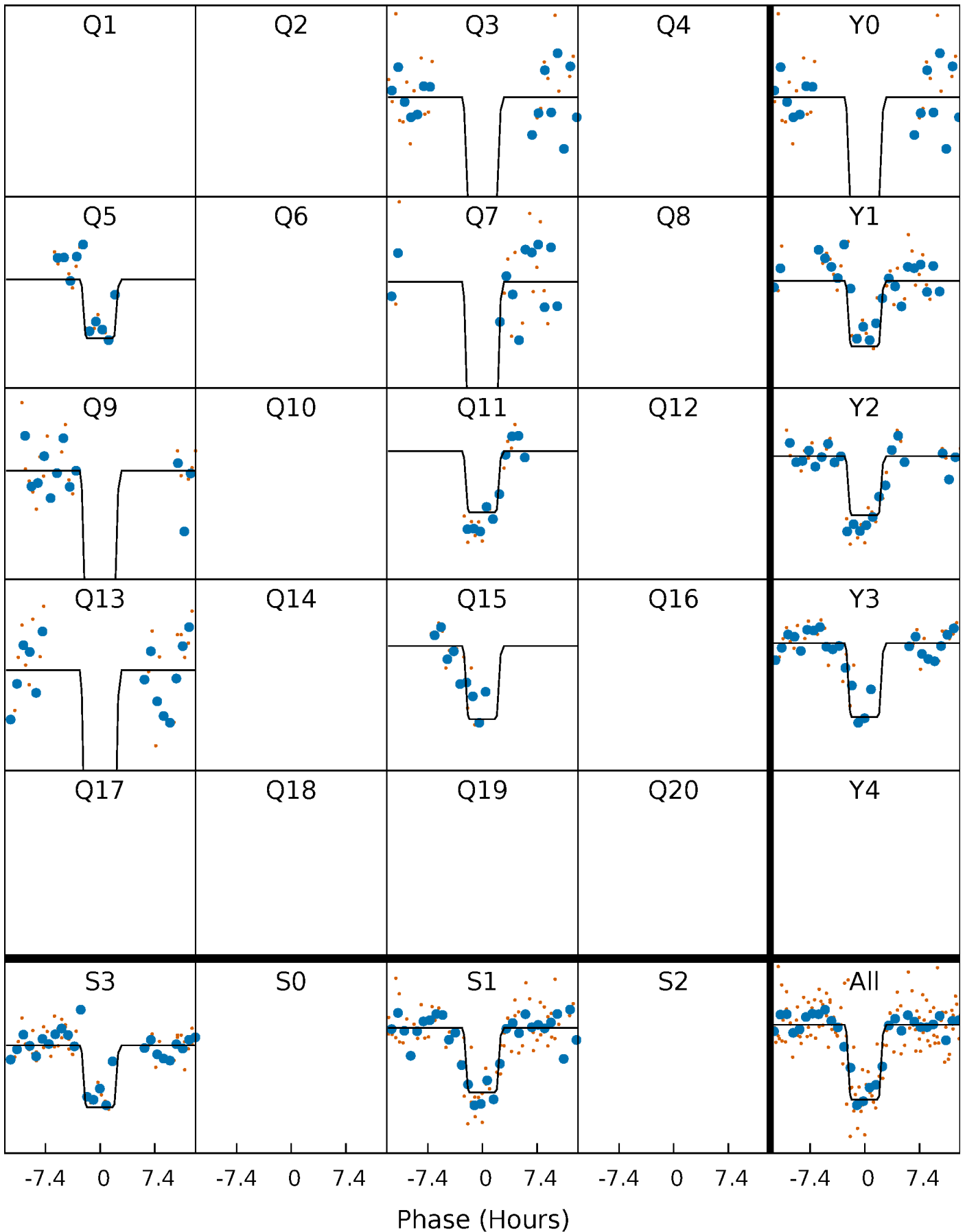
DV Quarter-Phased Transit Curves

TCE 007777471-03 P=194.376545 Days $T_0=266.441774$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

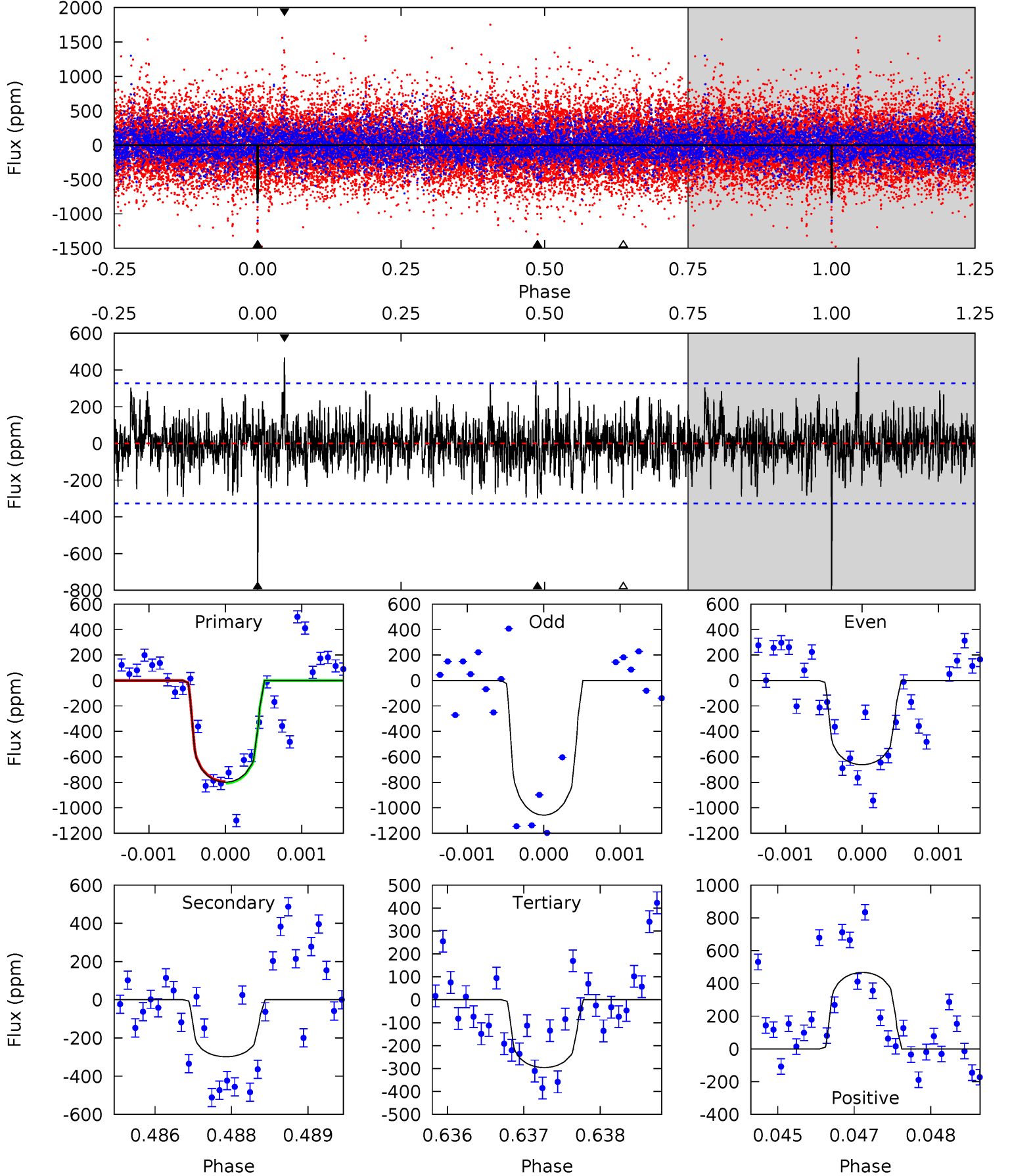
TCE 007777471-03 P=194.374871 Days $T_0=266.434969$ (BKJD)



DV Model-Shift Uniqueness Test

007777471-03, P = 194.376545 Days, E = 72.065229 Days

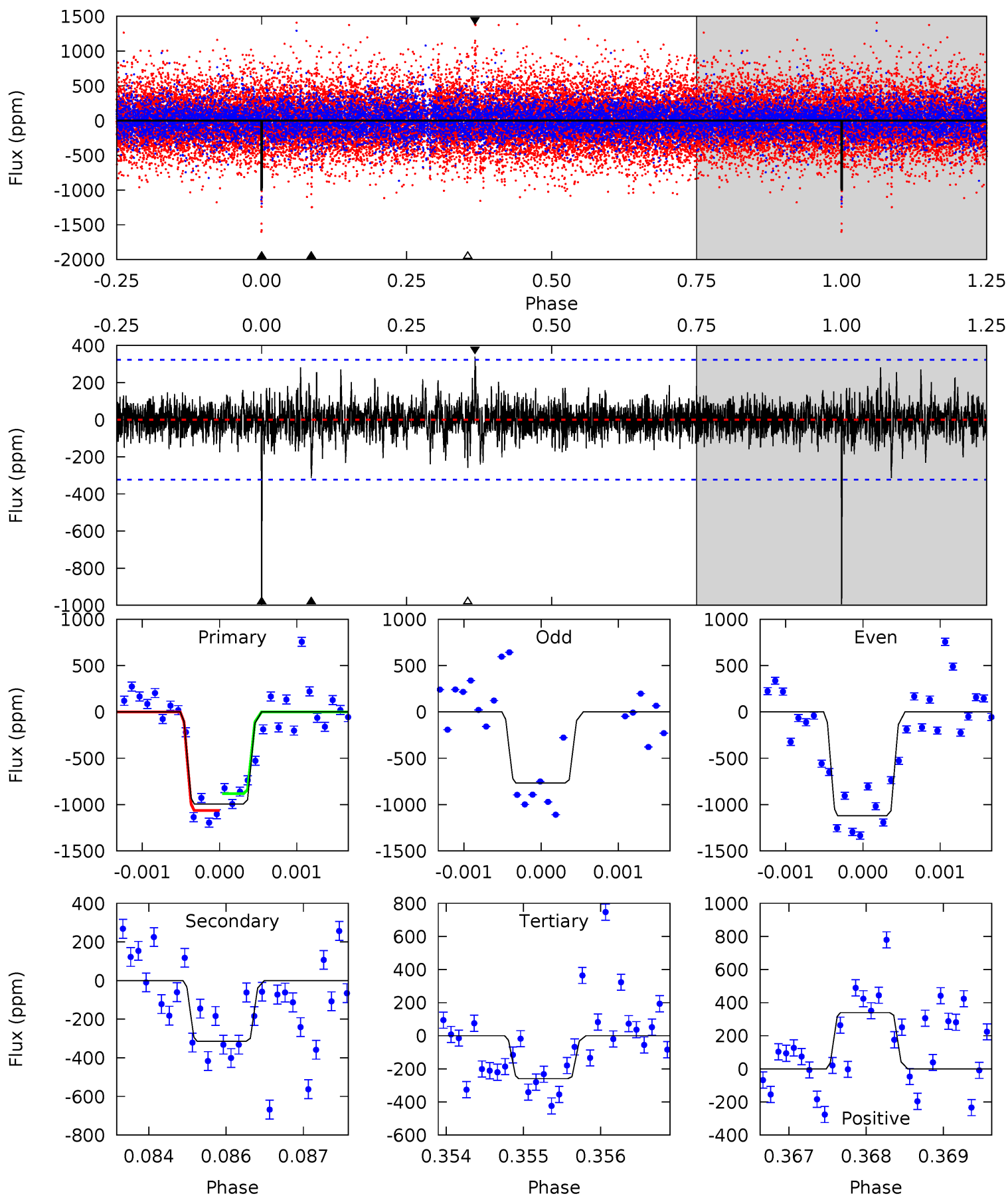
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	4.93	4.89	7.72	5.40	3.22	1.57	8.32	5.49	0.04	-2.79	3.03	0.92	0.37	0.10



Alt Model-Shift Uniqueness Test

007777471-03, $P = 194.374871$ Days, $E = 72.060098$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	5.28	4.35	5.70	5.43	3.25	1.07	12.3	11.0	0.92	-0.43	2.83	1.09	0.25	1.51



Stellar Parameters For KIC 007777471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+159}_{-177}	$4.543^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.958^{+0.119}_{-0.119}$	$2.073^{+0.403}_{-1.051}$
	+3%/-3%	+1%/-4%	+125%/-125%	+30%/-9%	+12%/-12%	+19%/-51%
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 007777471-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-298 ± 61	$2.98^{+1.71}_{-1.49}$	433^{+32}_{-19}	4627^{+1743}_{-699}	7370^{+22036}_{-4424}
Alt.	-314 ± 60	$3.43^{+1.51}_{-1.57}$	432^{+30}_{-20}	4476^{+1188}_{-602}	6304^{+13737}_{-3454}

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 $A_{obs} \gg 1.0$

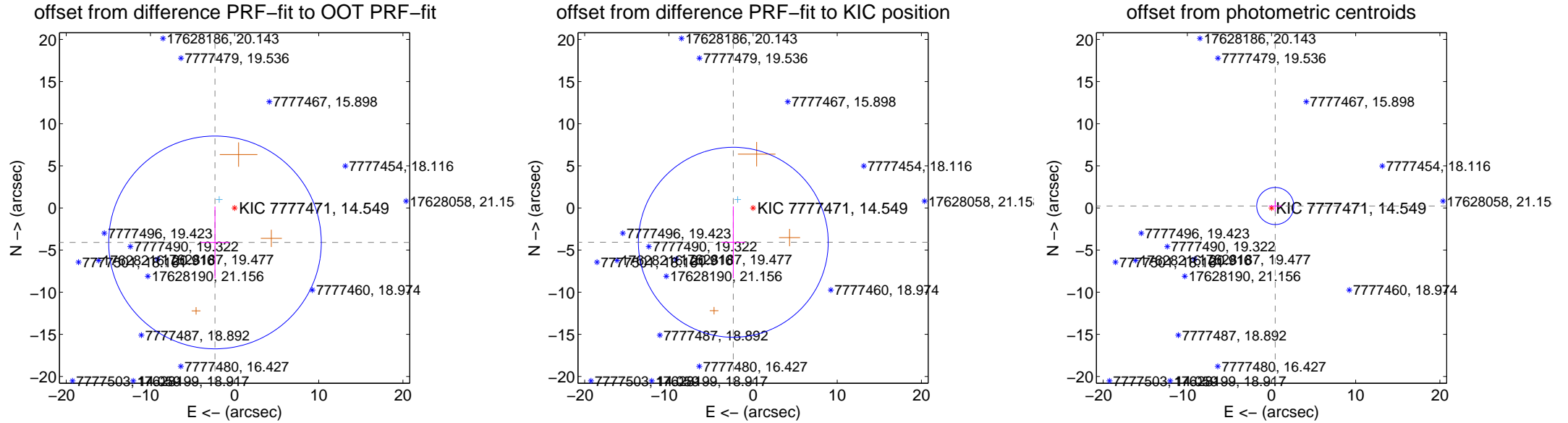
DV Centroid Data

Supplemental centroid analysis for 007777471-03. Kepler magnitude: 14.55. Transit SNR 9.10

There are 1 quarters with good PRF difference image offsets

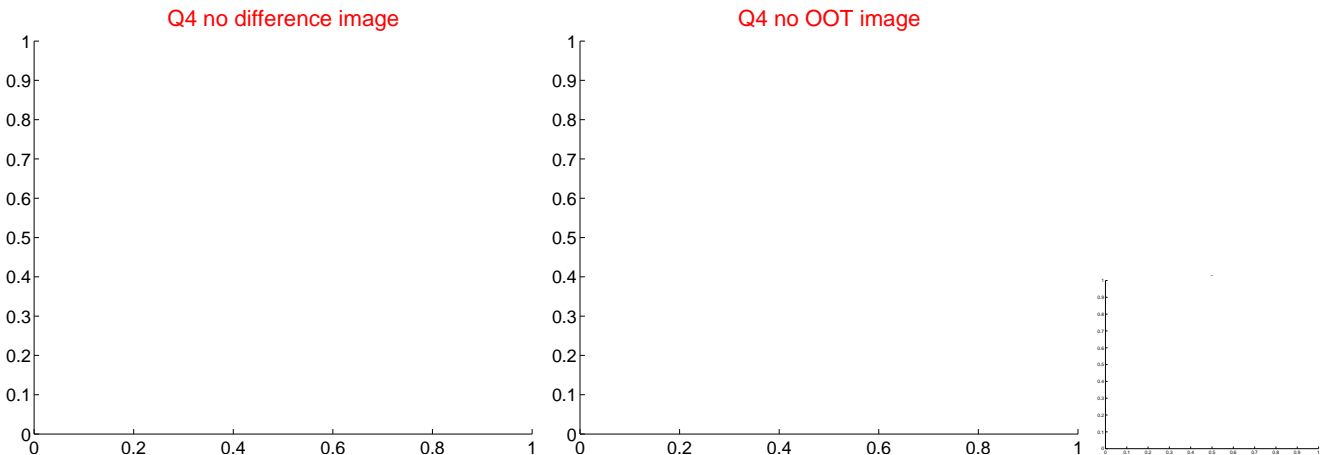
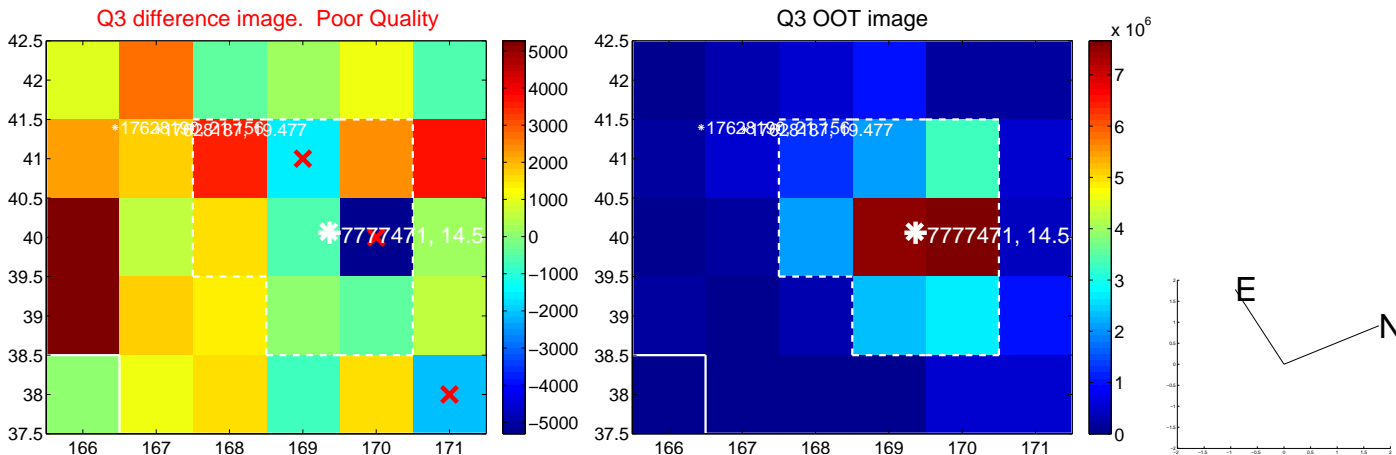
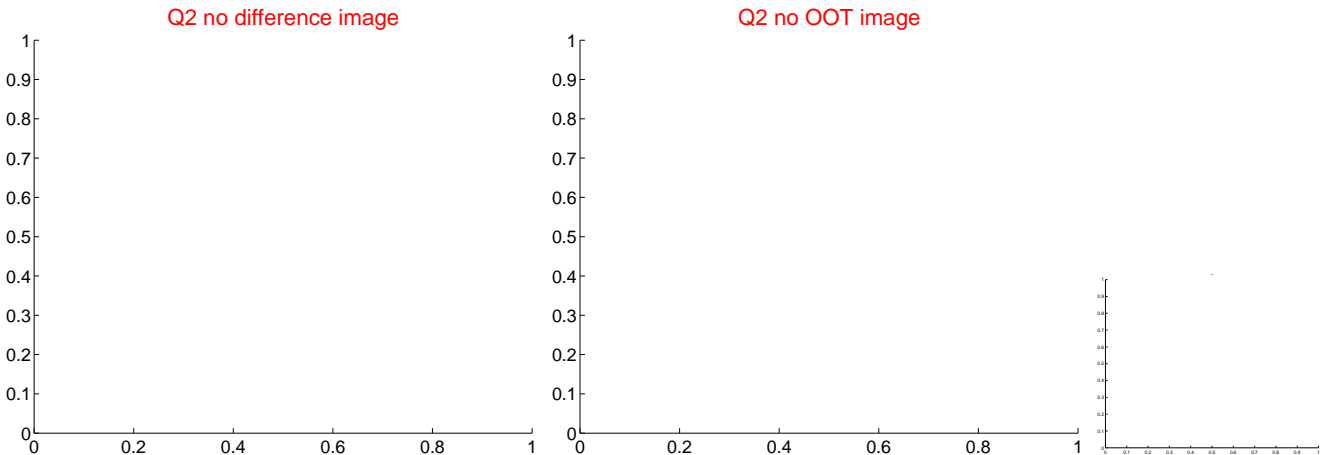
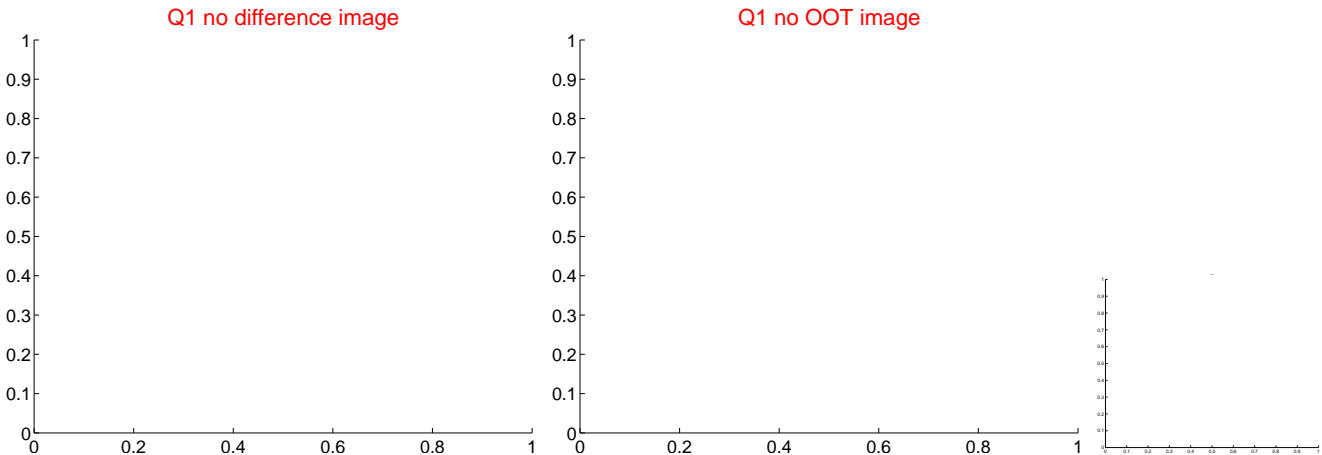
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.707 ± 4.208	1.12	2.326 ± 1.731	-4.092 ± 4.262
PRF-fit source offset from KIC position	4.698 ± 3.757	1.25	2.345 ± 1.392	-4.072 ± 4.261
photometric centroid source offset	0.50 ± 0.73	0.68	-0.44 ± 0.76	0.23 ± 0.63

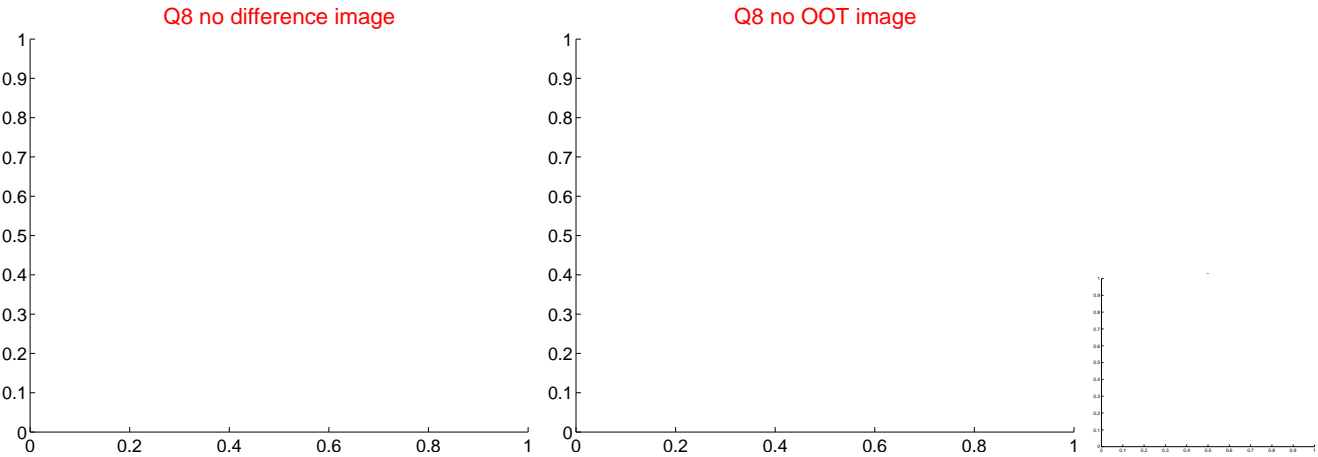
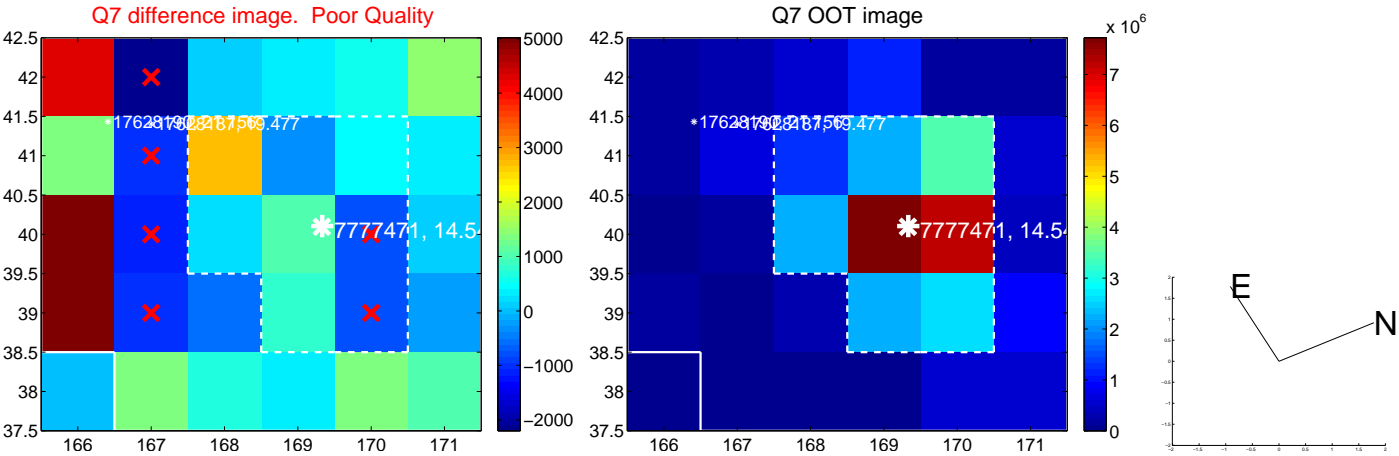
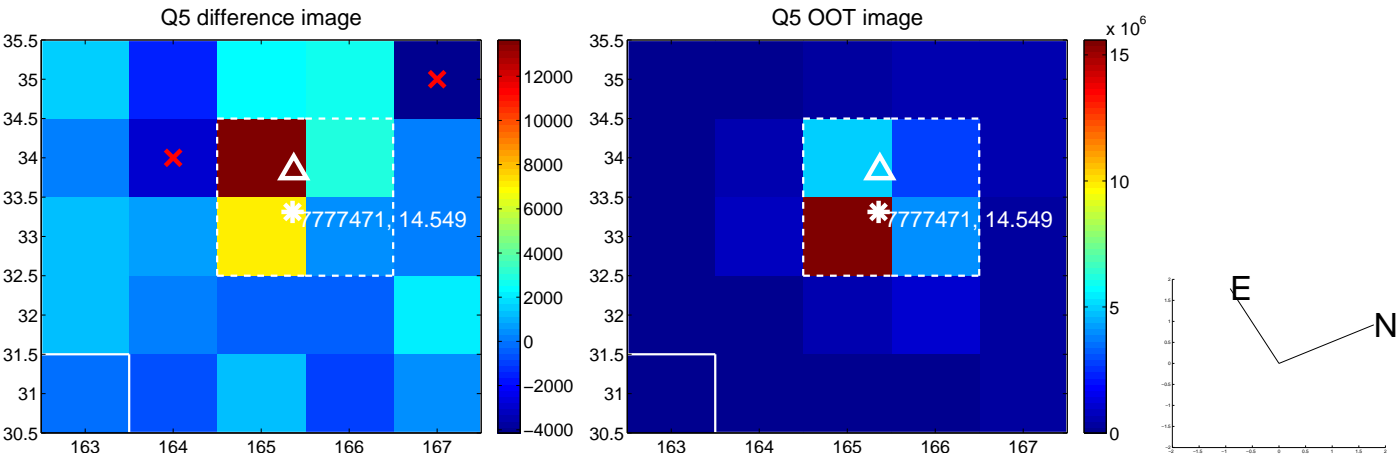


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

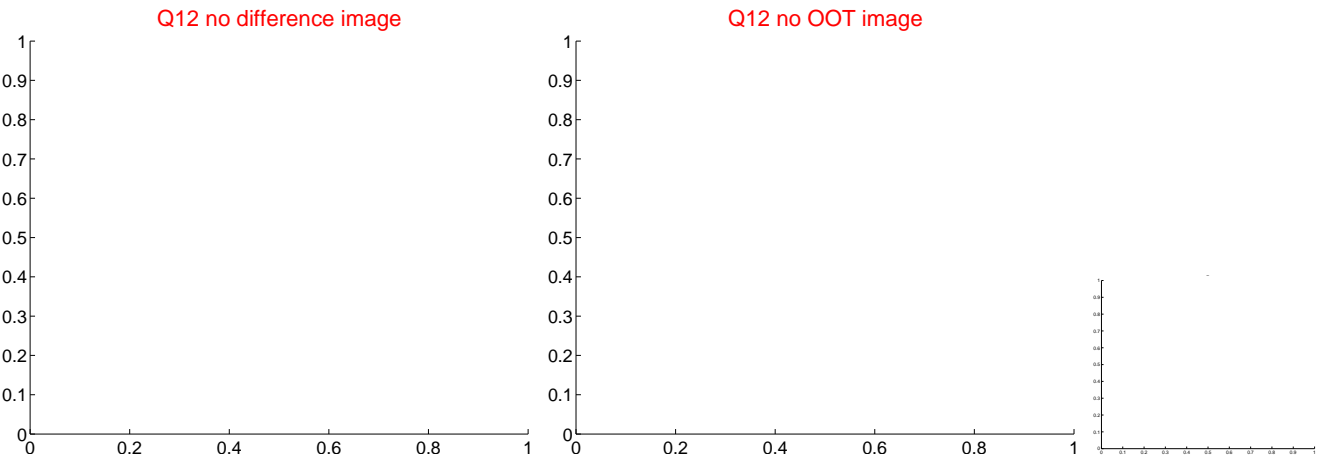
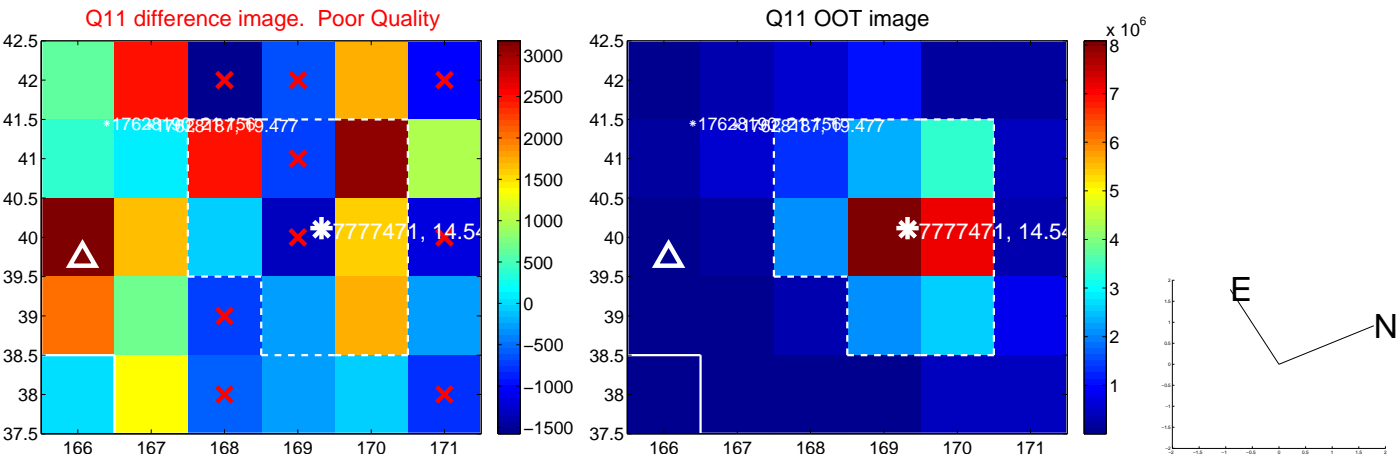
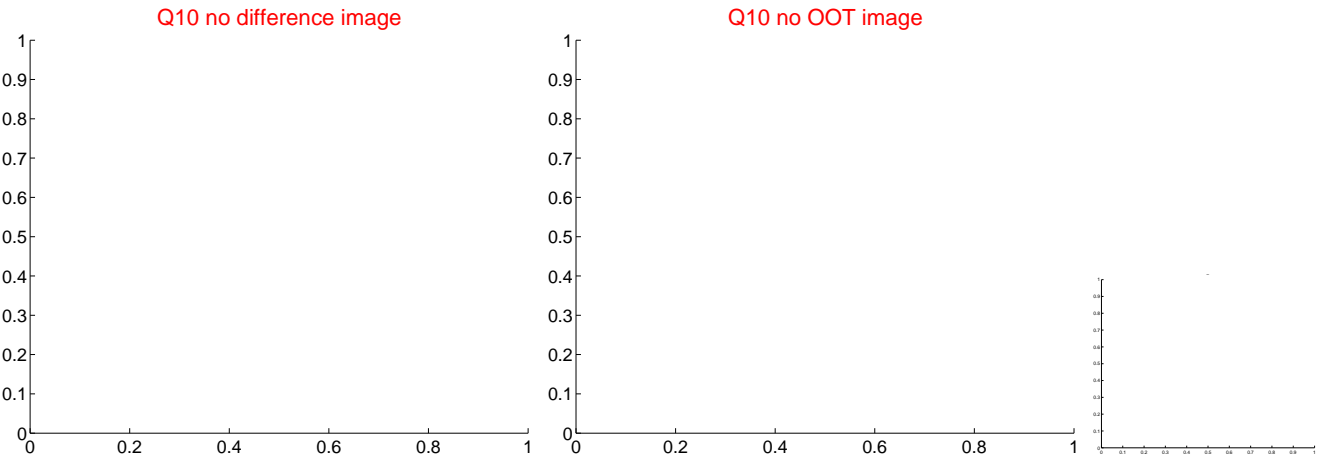
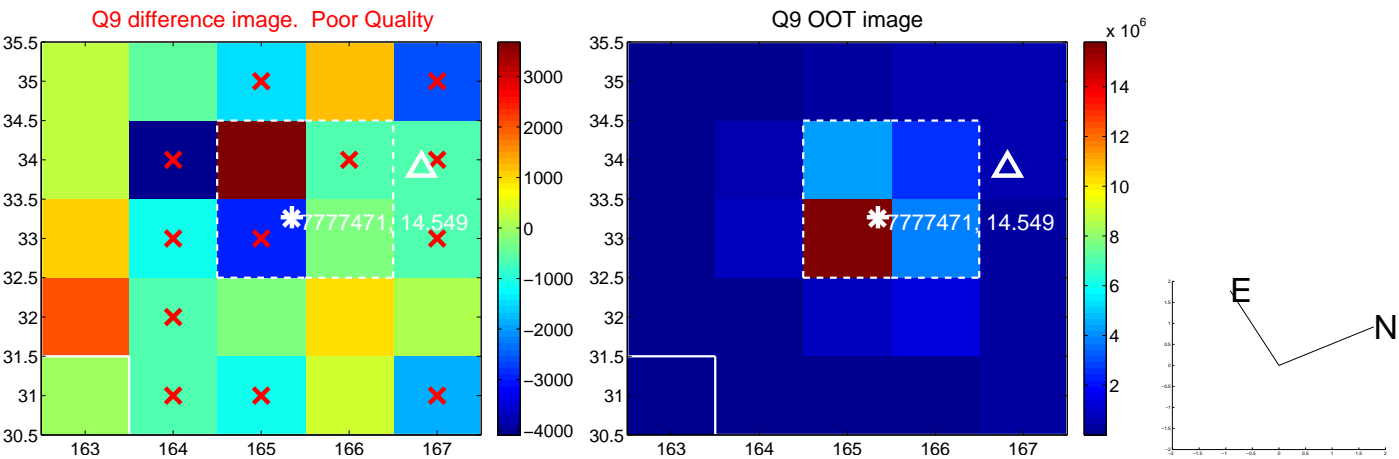
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



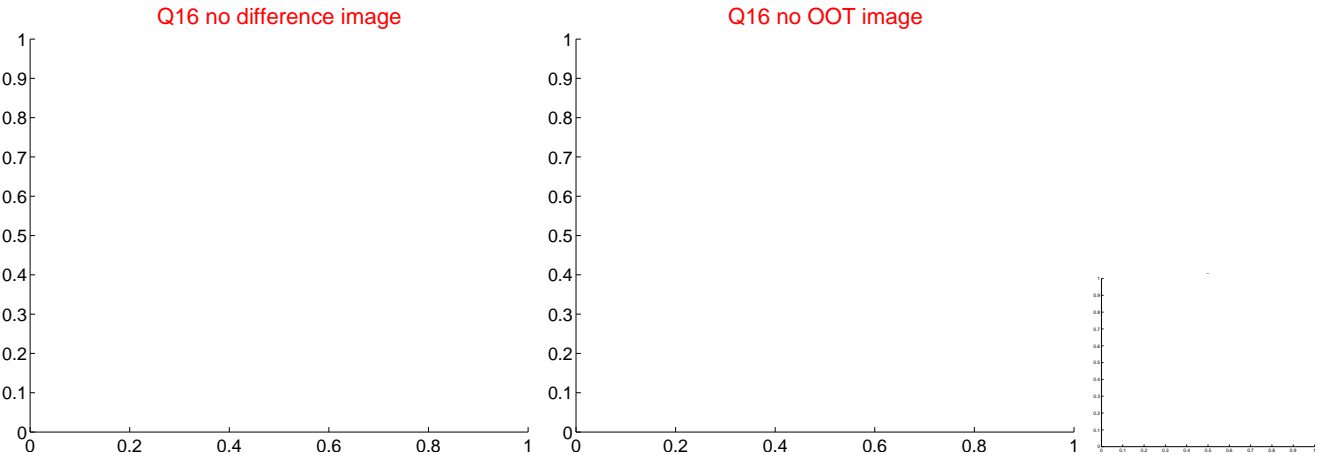
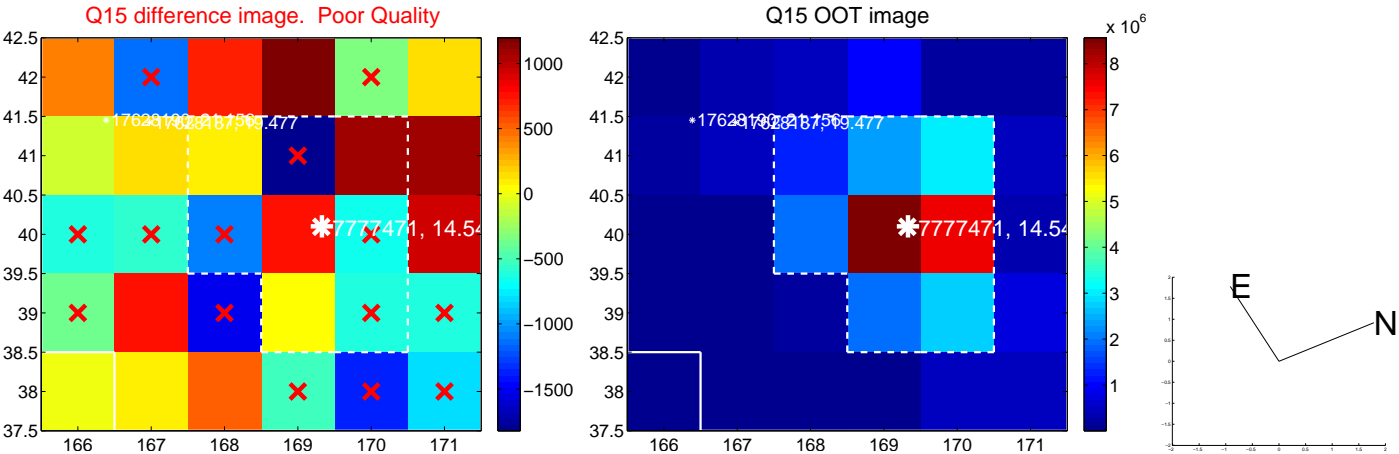
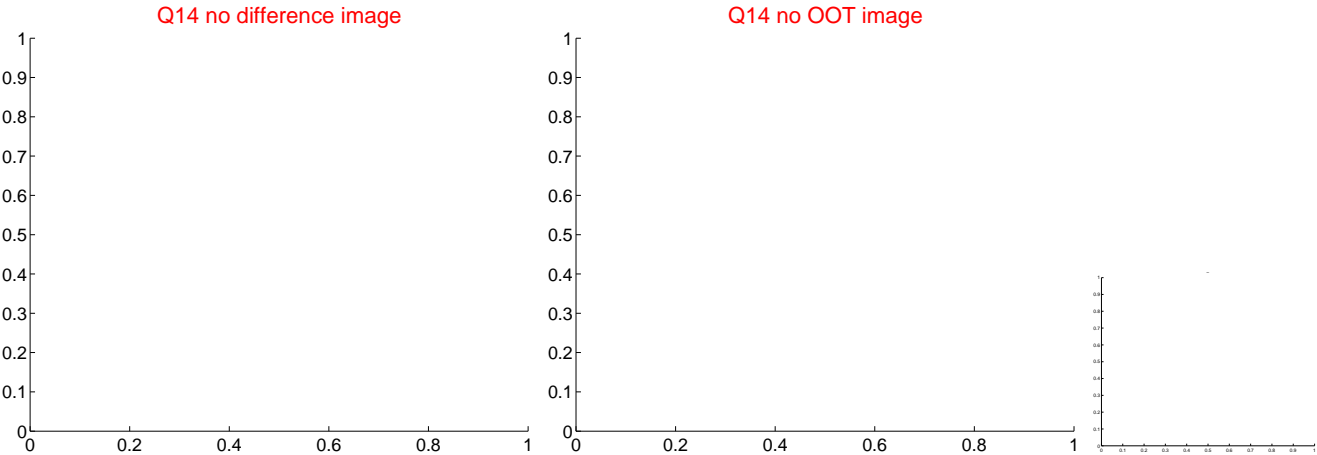
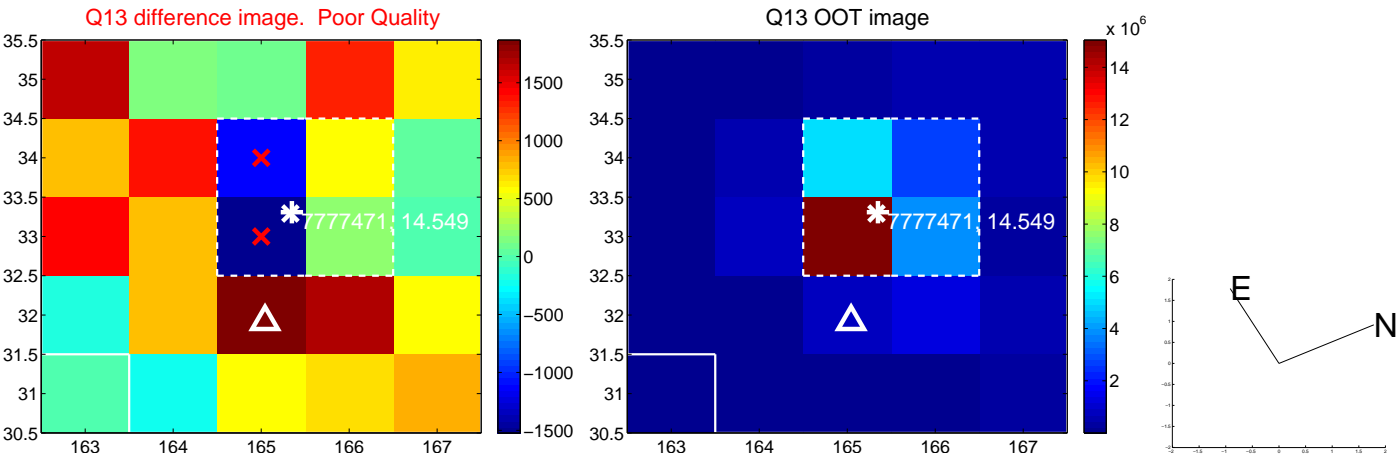
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



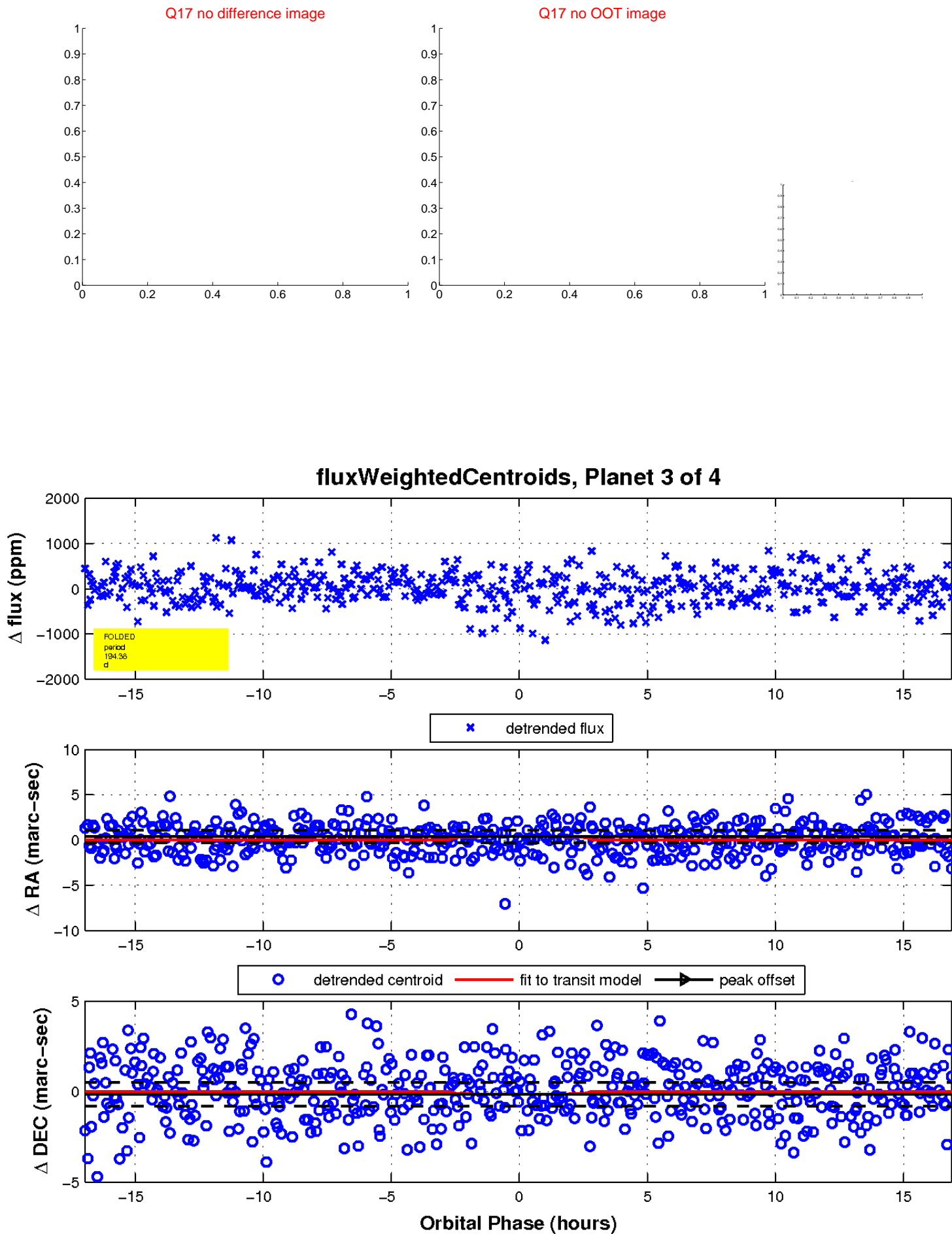
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

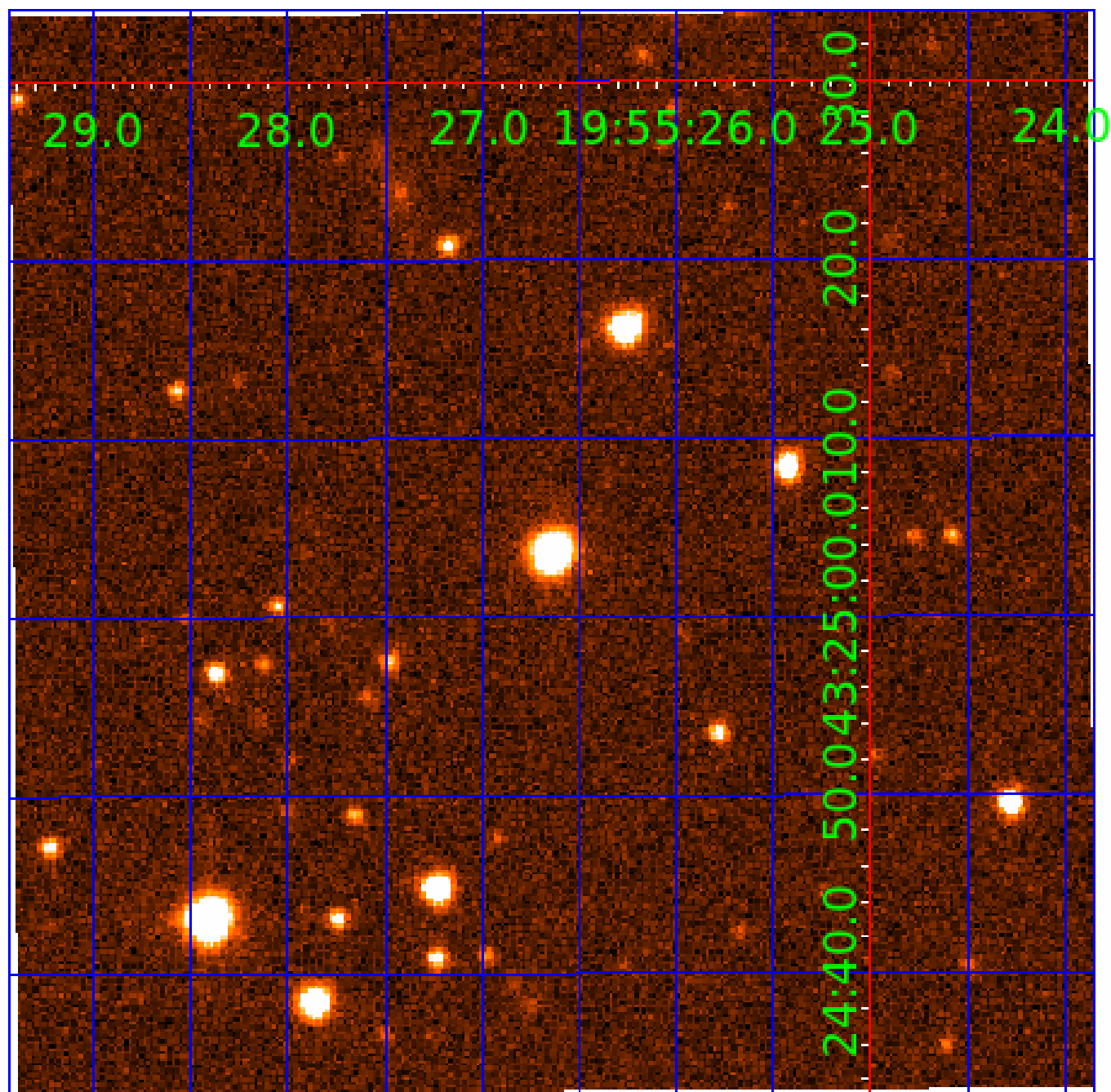


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007777471

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})
007777471-01	OBS	4075.01	0.885092	131.908255	74.8	4.193	17.5	18.0	0.87	5904	0.75	2587.27
007777471-02	OBS	No	588.542735	189.049616	817.9	12.085	10.6	8.5	0.87	5904	2.87	0.45
007777471-03	OBS	No	194.376545	266.441774	904.2	5.652	10.4	9.1	0.87	5904	2.75	1.95
007777471-04	OBS	No	223.836027	152.959421	573.3	10.500	8.9	-1.0	0.87	5904	2.07	1.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007777471-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
007777471-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007777471-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

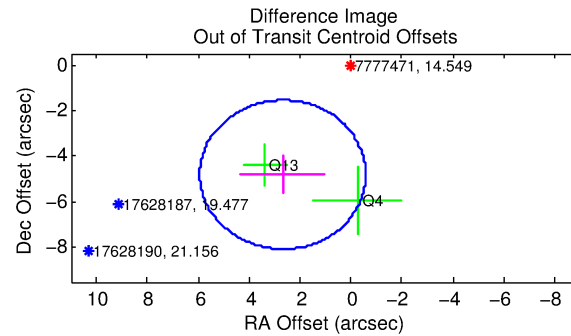
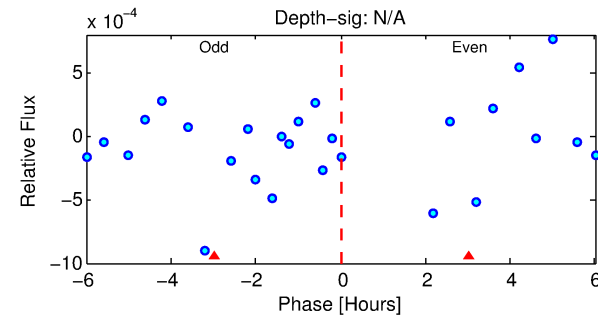
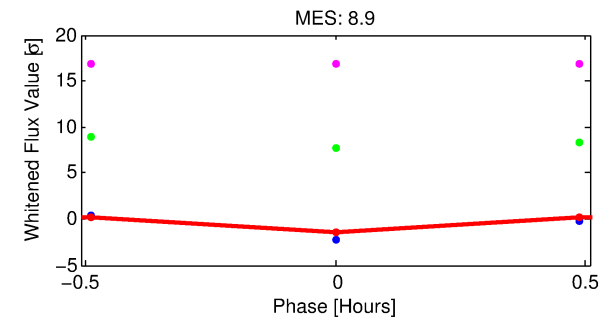
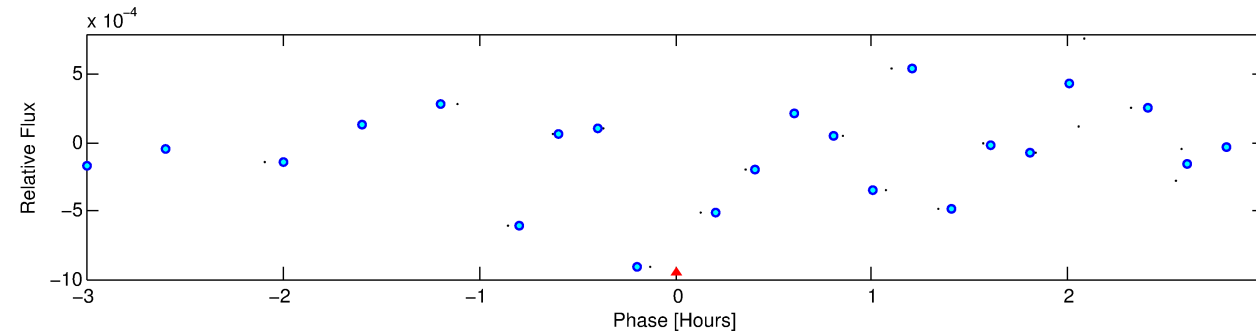
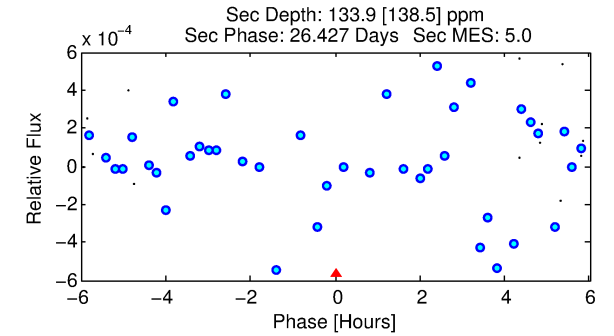
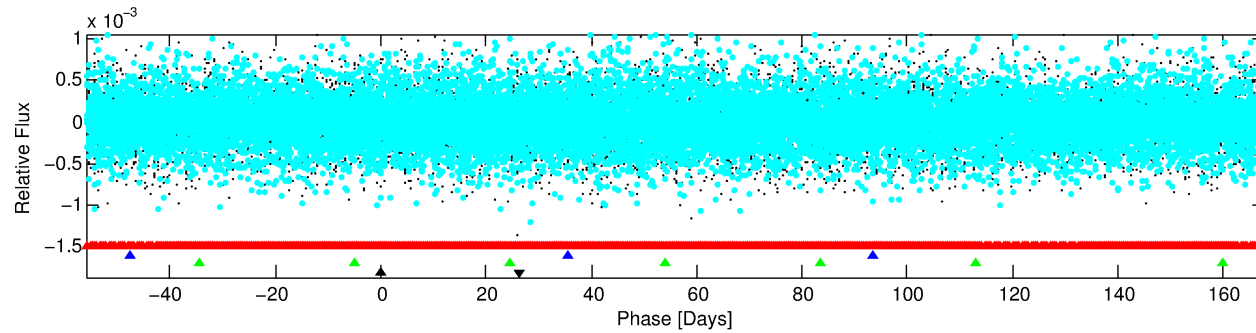
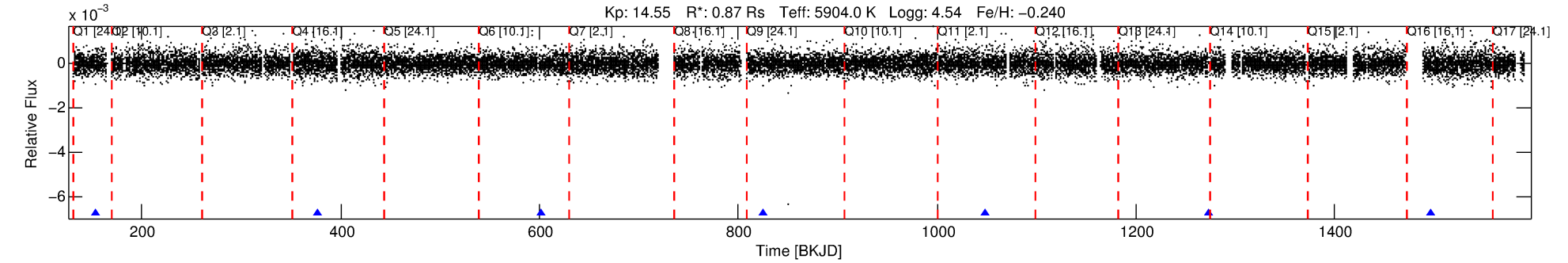
Ephemeris Match Information For 007777471-04

No Significant Match Found

DV One-Page Summary

KIC: 7777471 Candidate: 4 of 4 Period: 223.836 d
KOI: K04075 Corr: No Ephemeris Match

Kp: 14.55 R*: 0.87 Rs Teff: 5904.0 K Logg: 4.54 Fe/H: -0.240



TPS TCE Results:

Period = 223.83603 d
Epoch = 152.9594 BKJD

DV fit results are unavailable

DV Diagnostic Results:

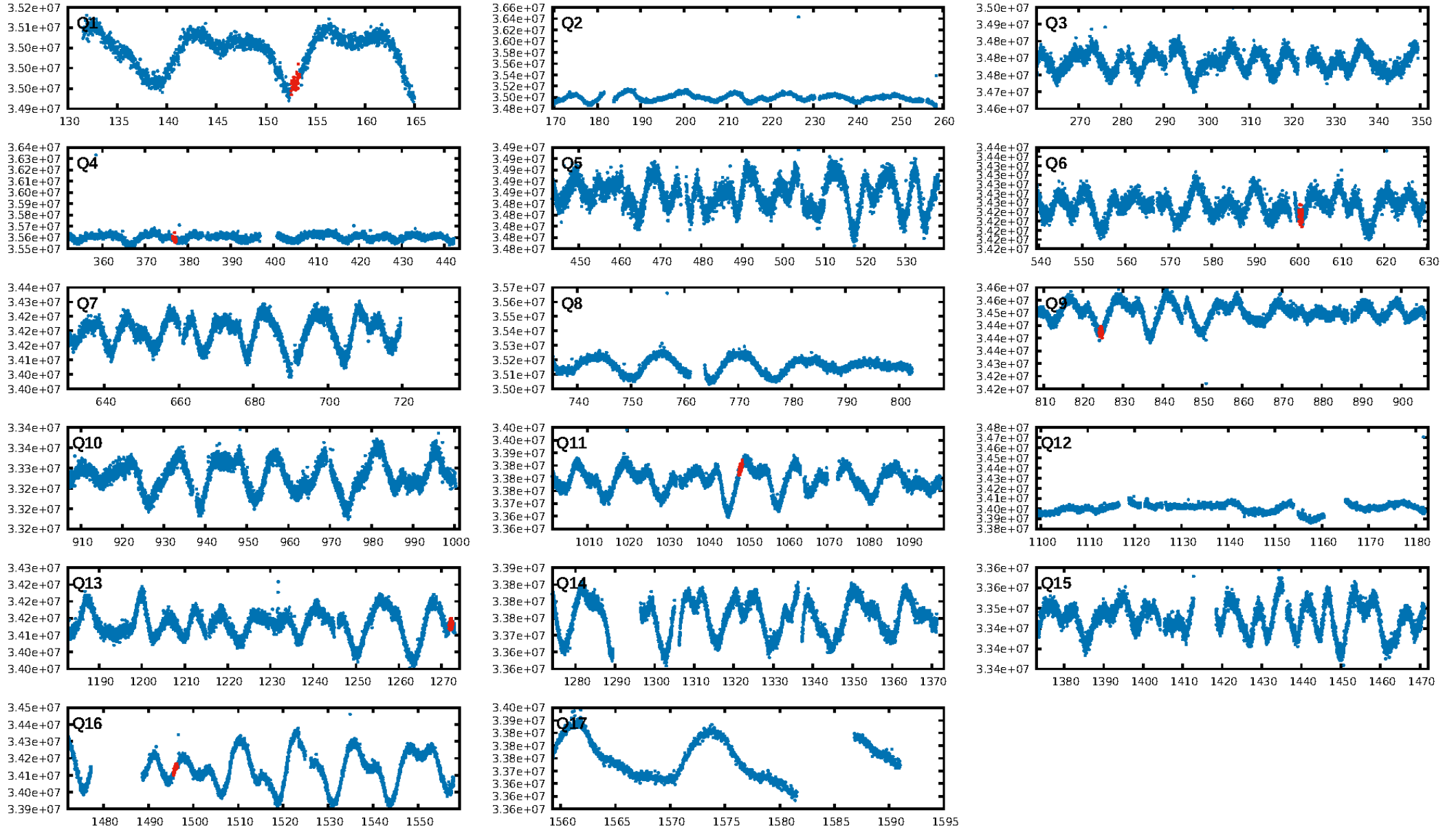
ShortPeriod-sig: 100.0% [59.29σ]
LongPeriod-sig: 100.0% [546.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.67e-11
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: -4.814

Centroid-sig: 27.9%
Centroid-so: 4.007 arcsec [0.80σ]
OotOffset-rm: 5.496 arcsec [5.05σ]
KicOffset-rm: 5.443 arcsec [4.67σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.40 [2/5]

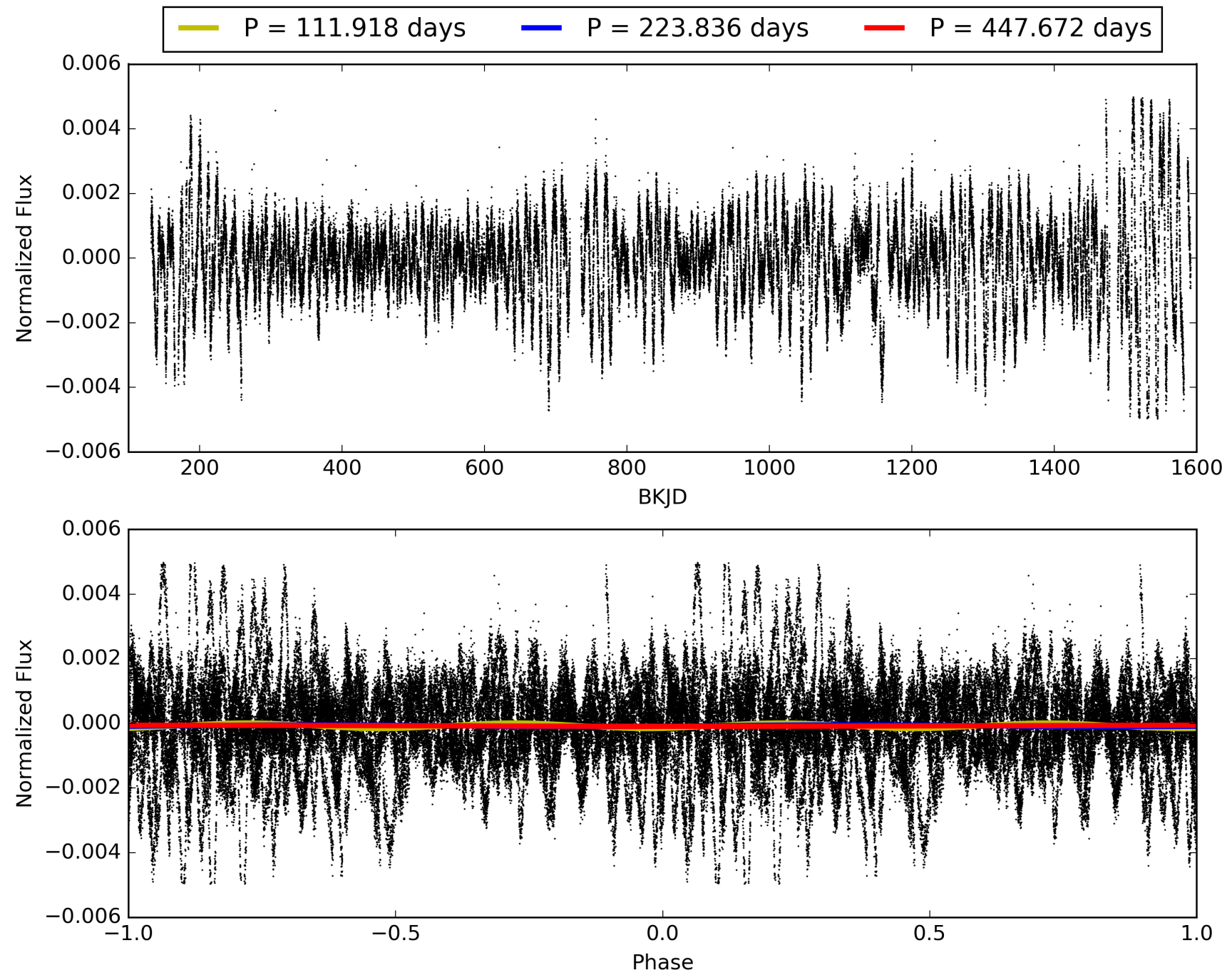
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:14:39 Z

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

TCE 007777471-04, PDC Light Curves

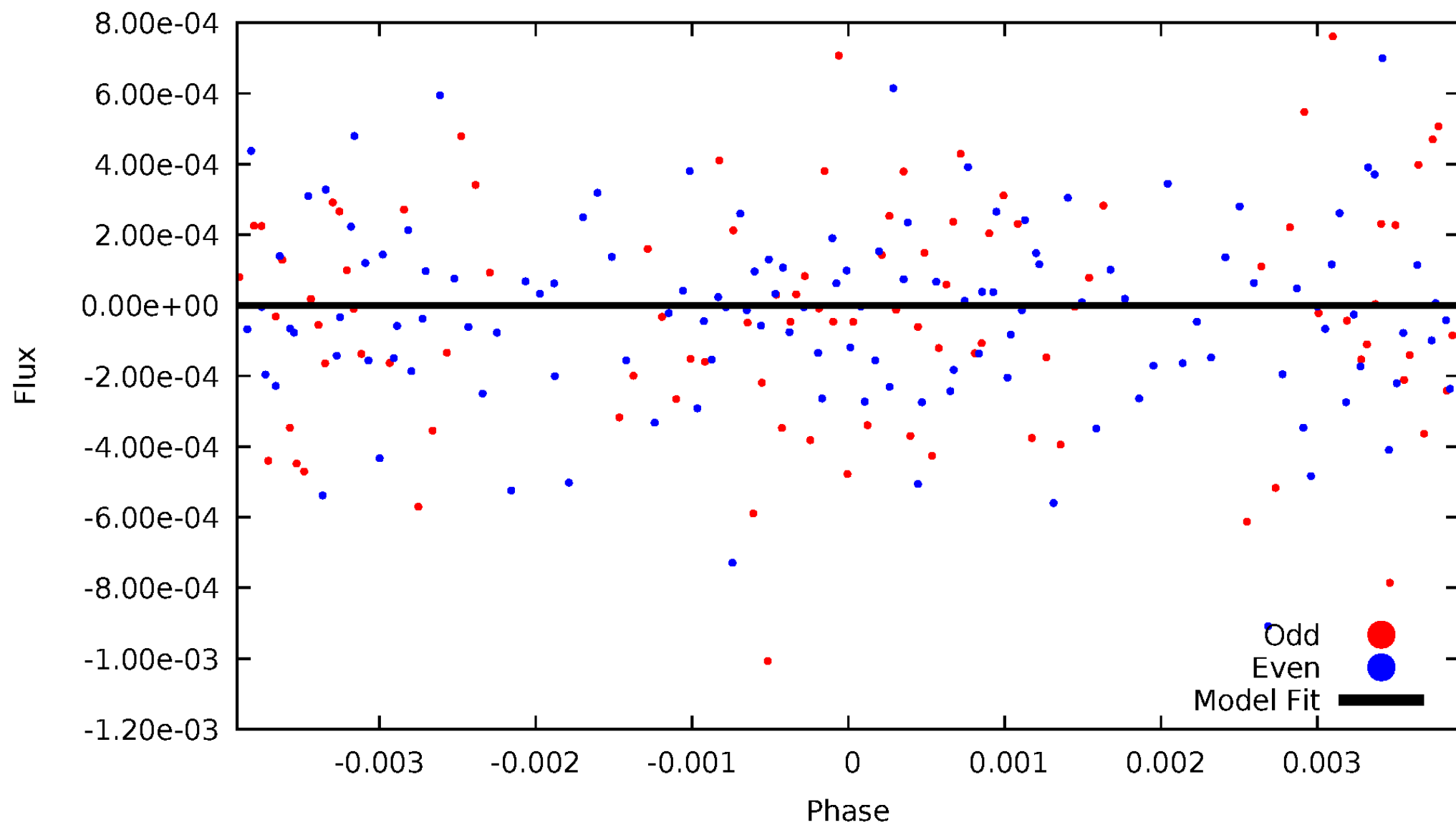


TCE 007777471-04



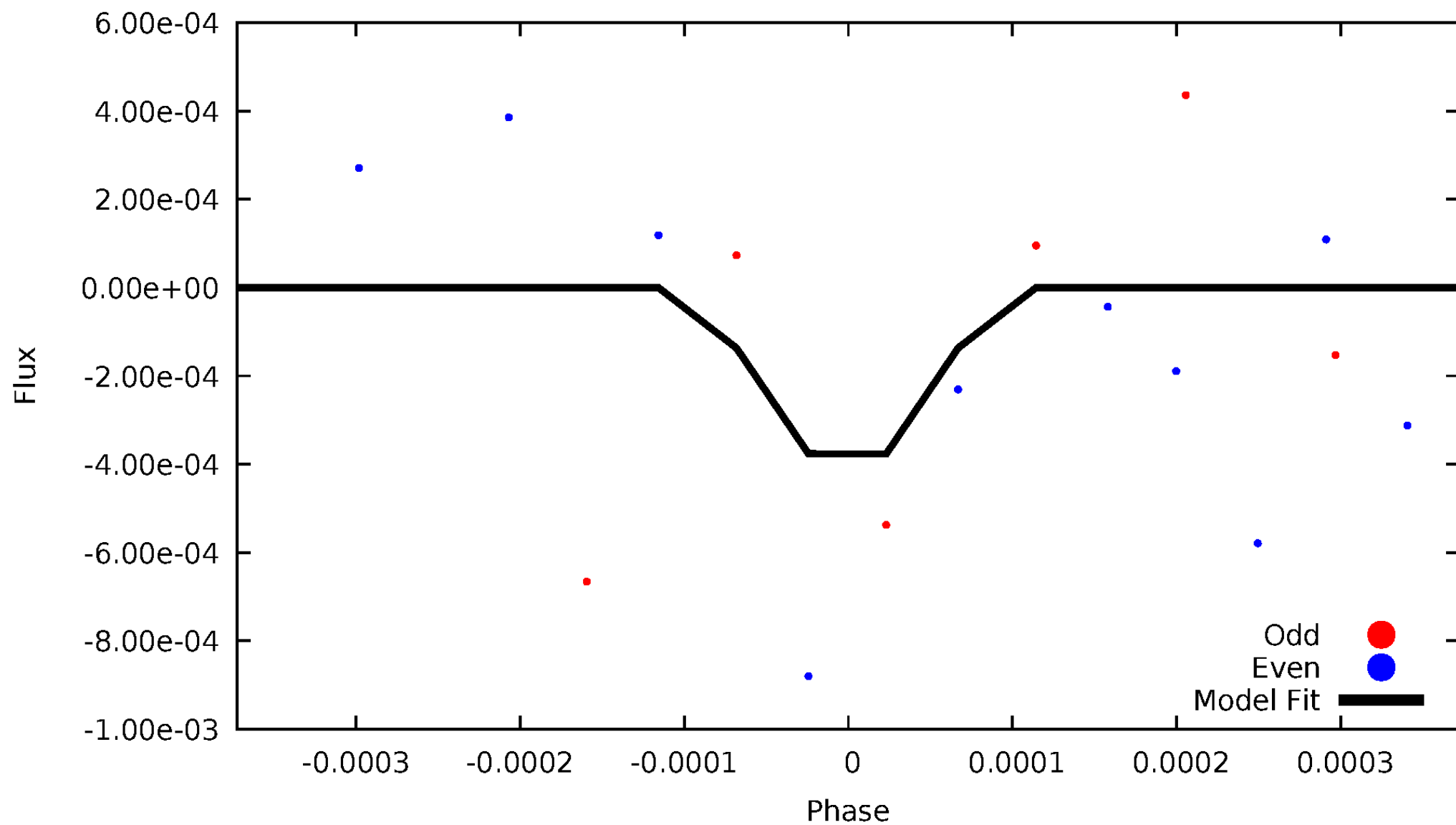
DV Odd/Even

TCE 007777471-04



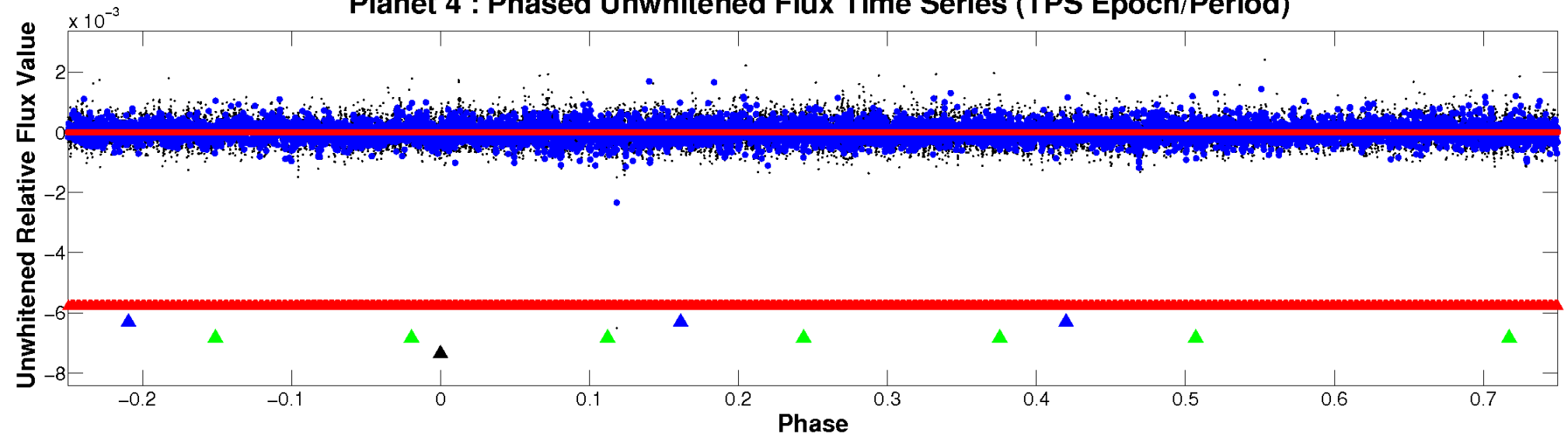
ALT Odd/Even

TCE 007777471-04



Non-Whitened Vs. Whitened Light Curve

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

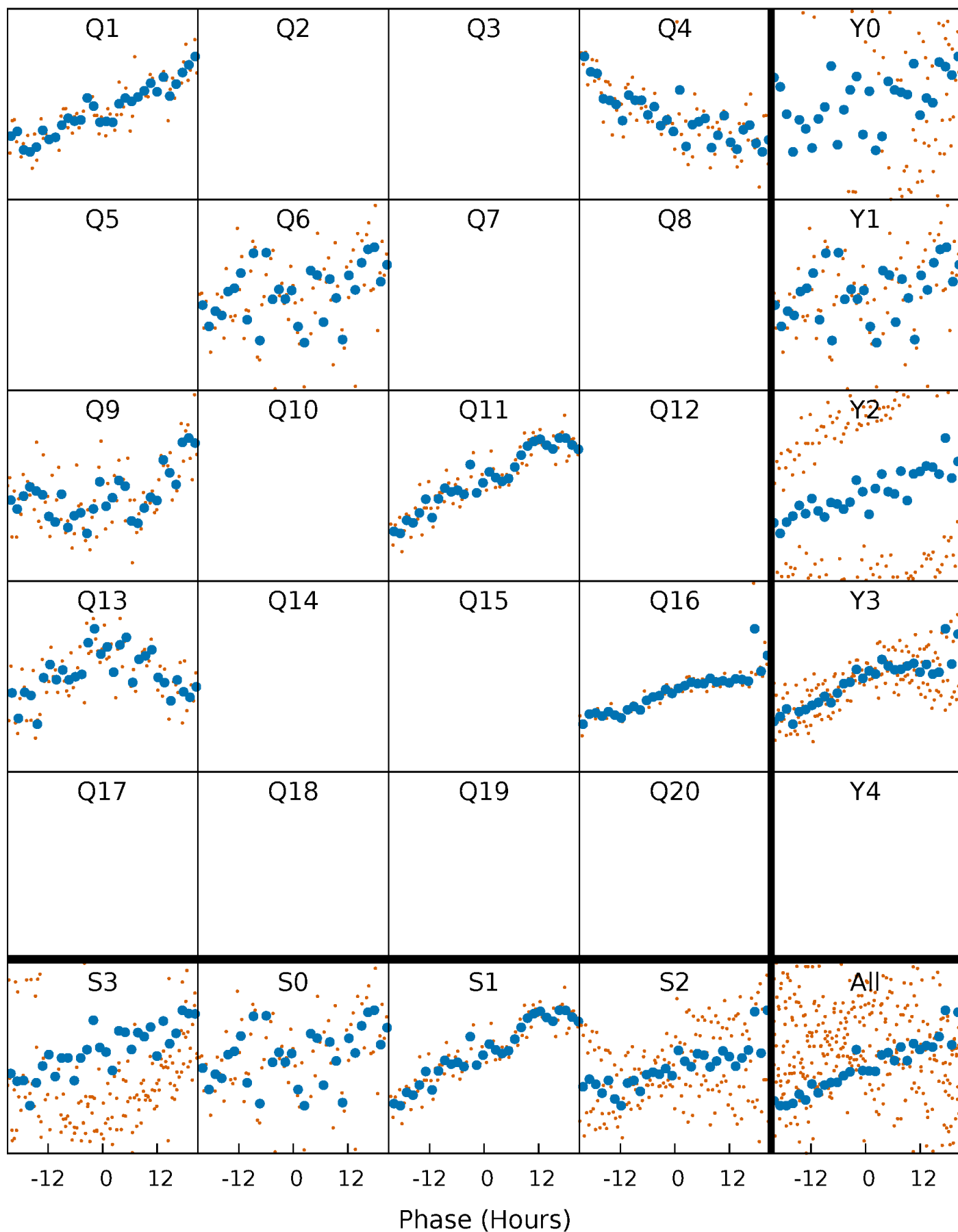


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



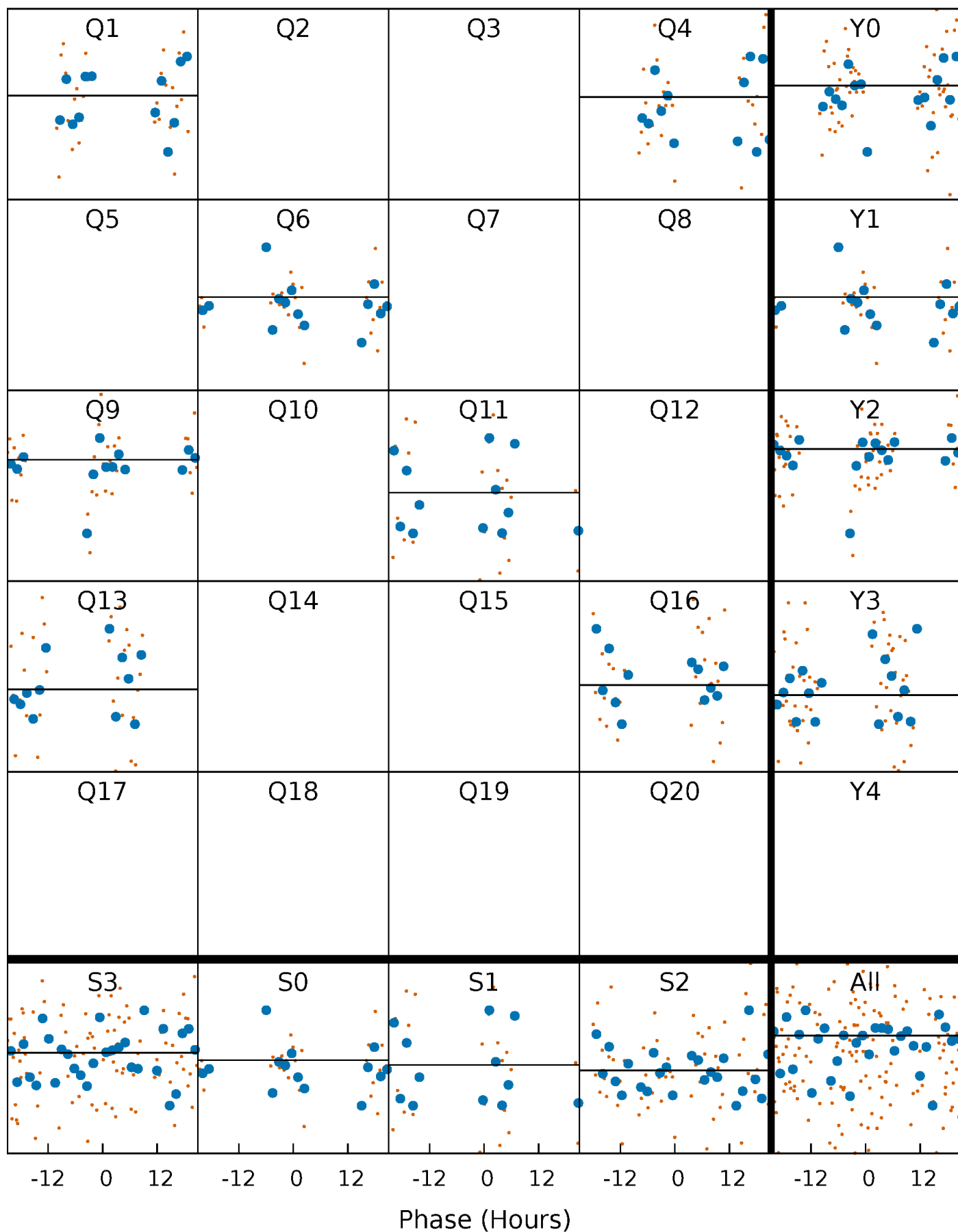
PDC Quarter-Phased Transit Curves

TCE 007777471-04 P=223.836027 Days $T_0=152.959421$ (BKJD)



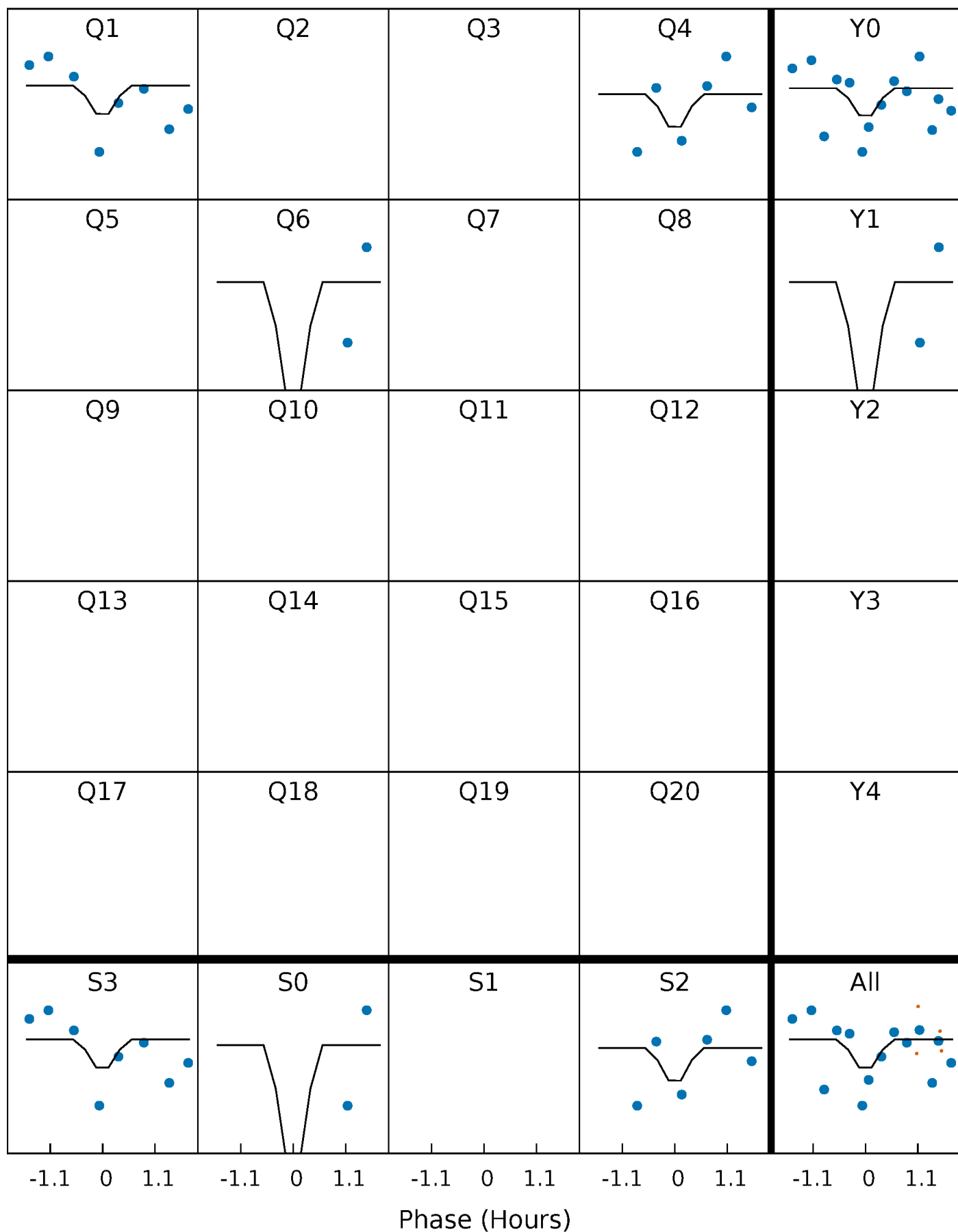
DV Quarter-Phased Transit Curves

TCE 007777471-04 P=223.836027 Days $T_0=152.959421$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

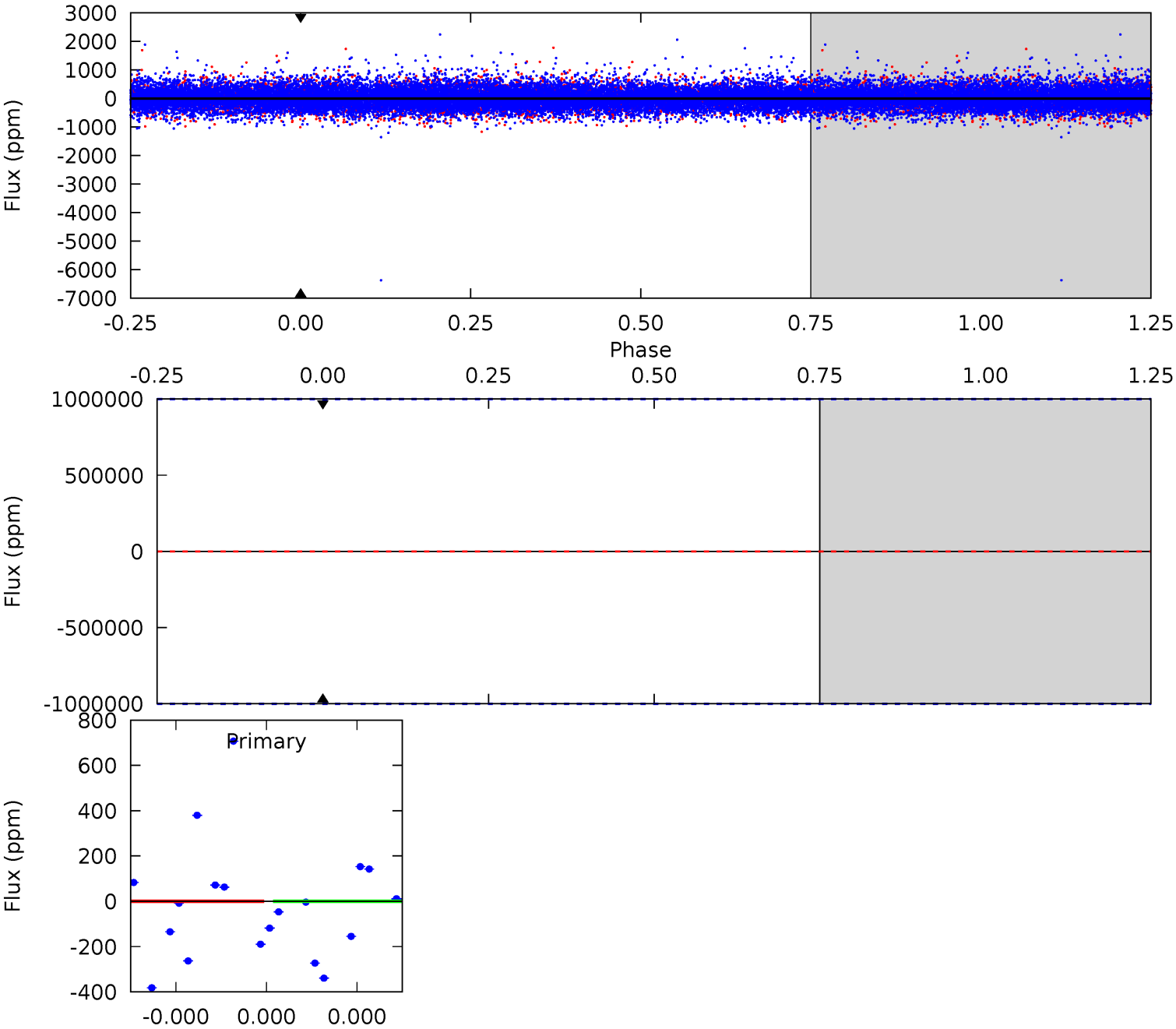
TCE 007777471-04 P=223.836027 Days $T_0=153.566125$ (BKJD)



DV Model-Shift Uniqueness Test

007777471-04, P = 223.836027 Days, E = 152.959421 Days

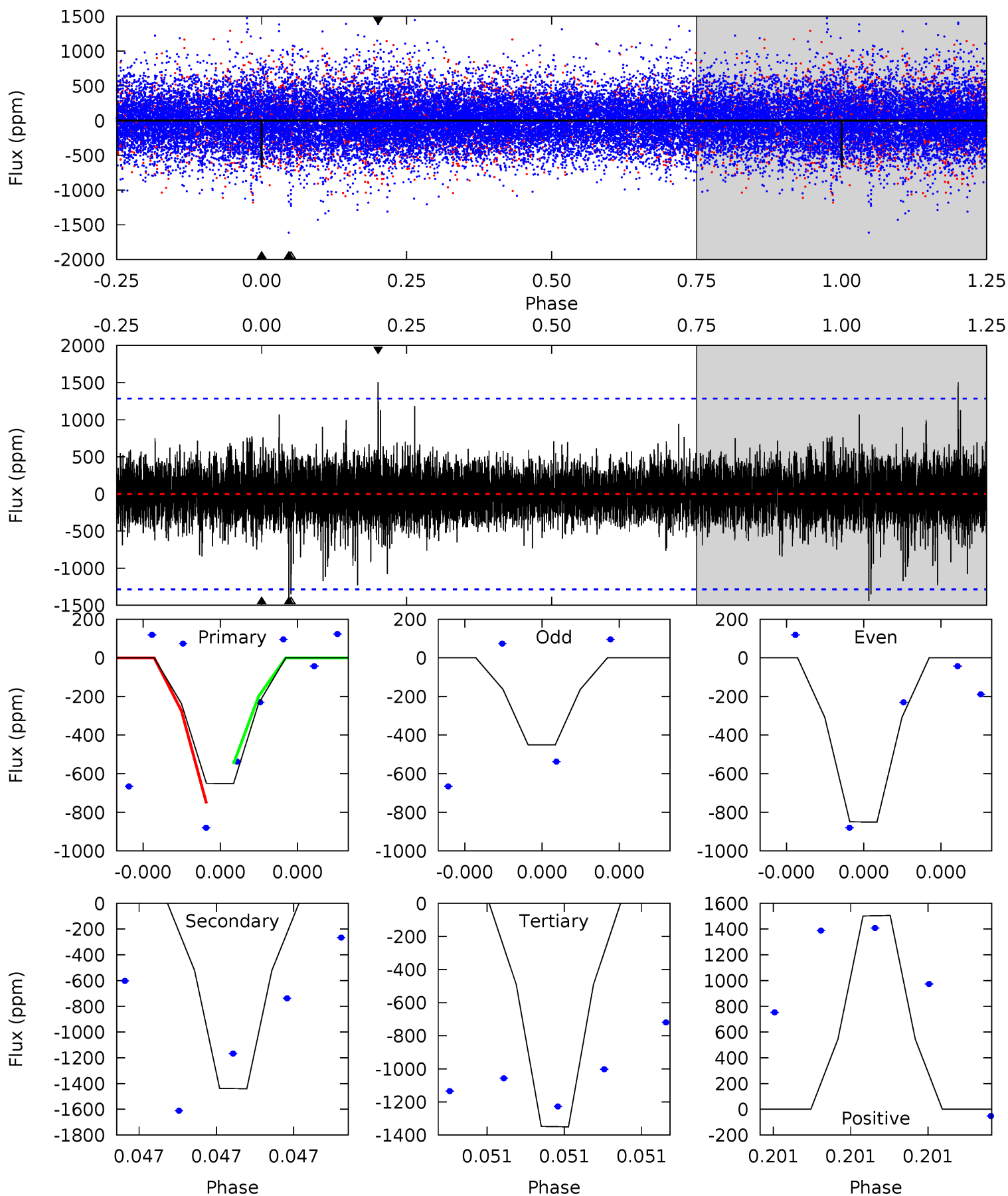
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007777471-04, P = 223.836027 Days, E = 153.566125 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.94	6.50	6.09	6.79	5.80	3.82	0.96	-3.15	-3.85	0.40	-0.29	0.90	1.00	0.51	0.46



Stellar Parameters For KIC 007777471

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5904^{+159}_{-177}	$4.543^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.958^{+0.119}_{-0.119}$	$2.073^{+0.403}_{-1.051}$
	+3%/-3%	+1%/-4%	+125%/-125%	+30%/-9%	+12%/-12%	+19%/-51%
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 007777471-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$8.21^{+7.80}_{-5.61}$	413^{+29}_{-19}	-3532^{+22729}_{-16002}	$-2093.301^{+725746.977}_{-644572.305}$
Alt.	-1440 ± 222	$7.37^{+7.71}_{-5.10}$	411^{+29}_{-18}	4443^{+3136}_{-991}	7275^{+64861}_{-5651}

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 $A_{obs} \gg 1.0$

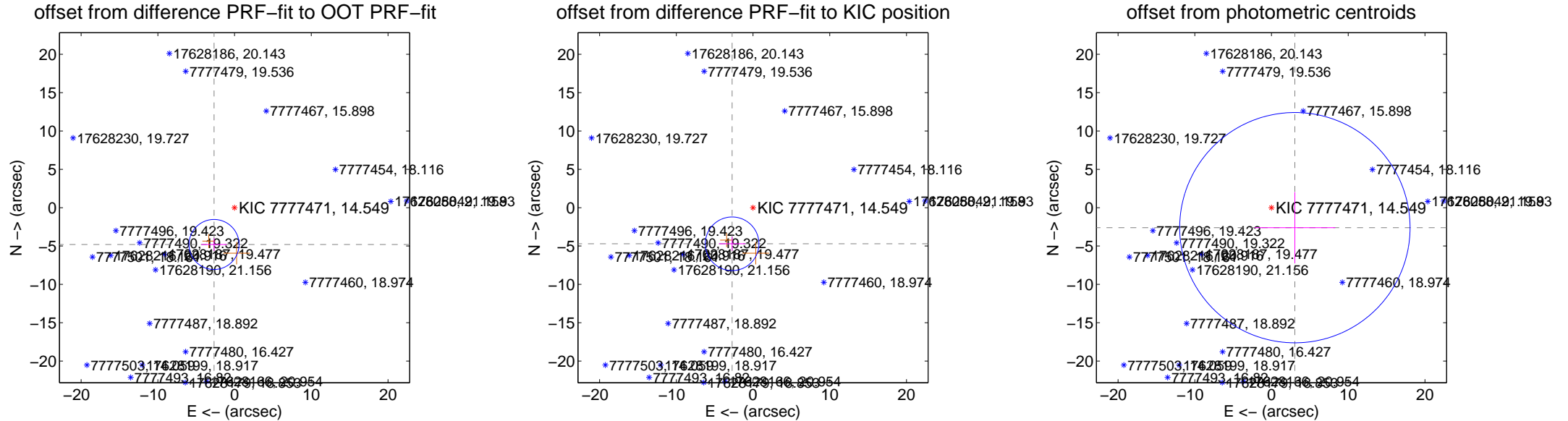
DV Centroid Data

Supplemental centroid analysis for 007777471-04. Kepler magnitude: 14.55. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

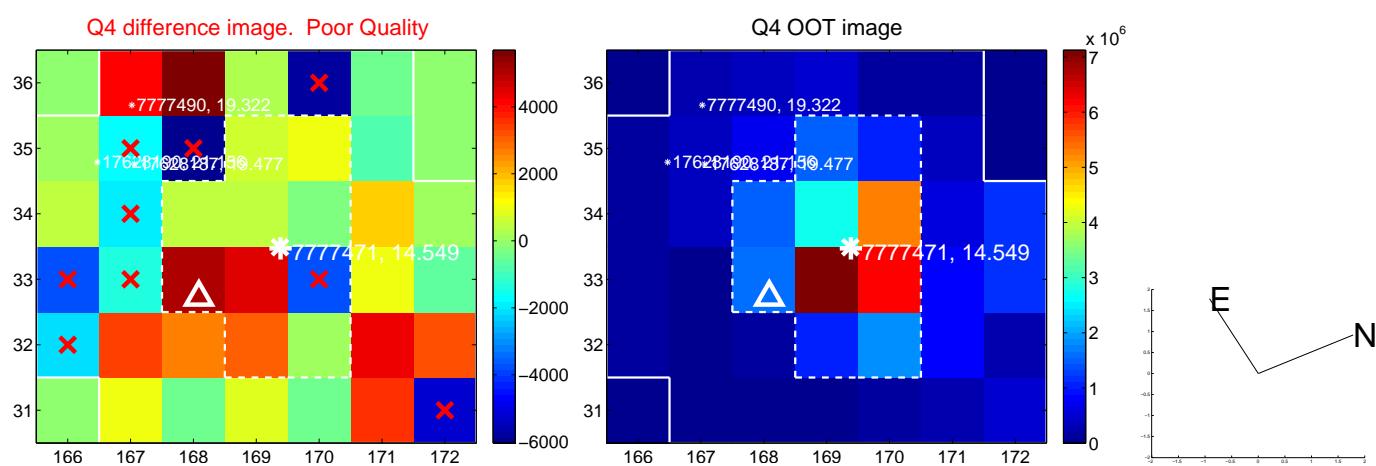
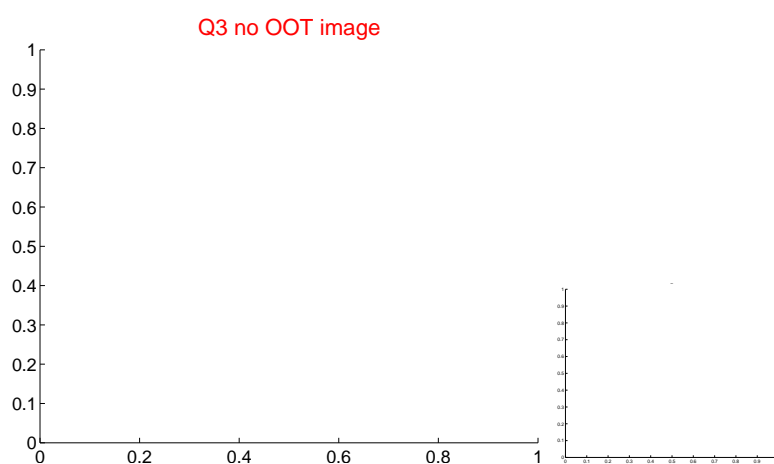
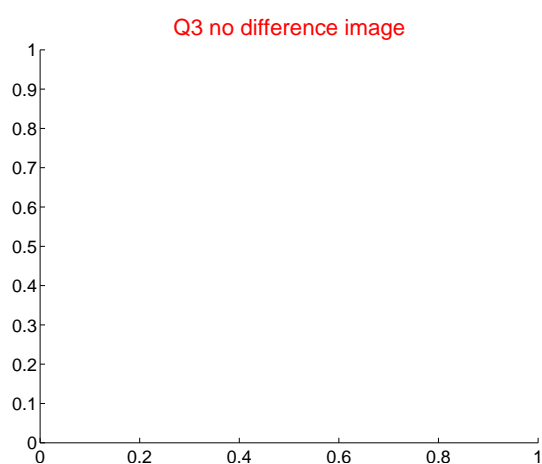
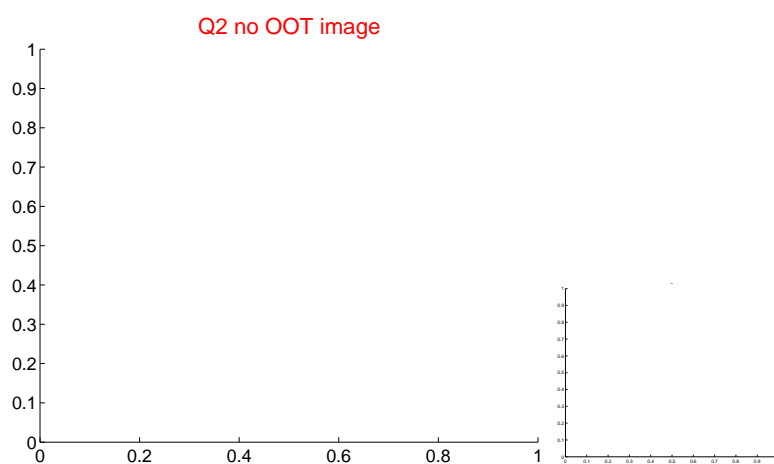
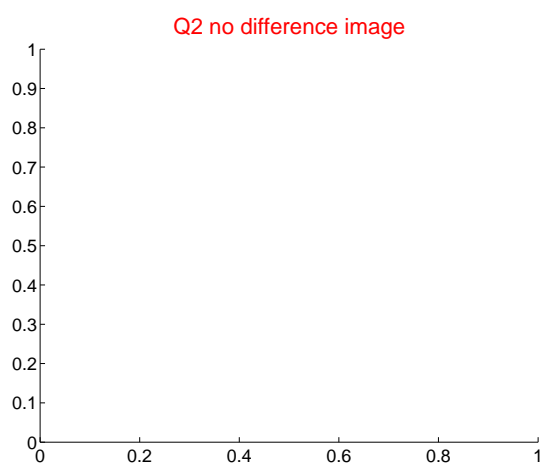
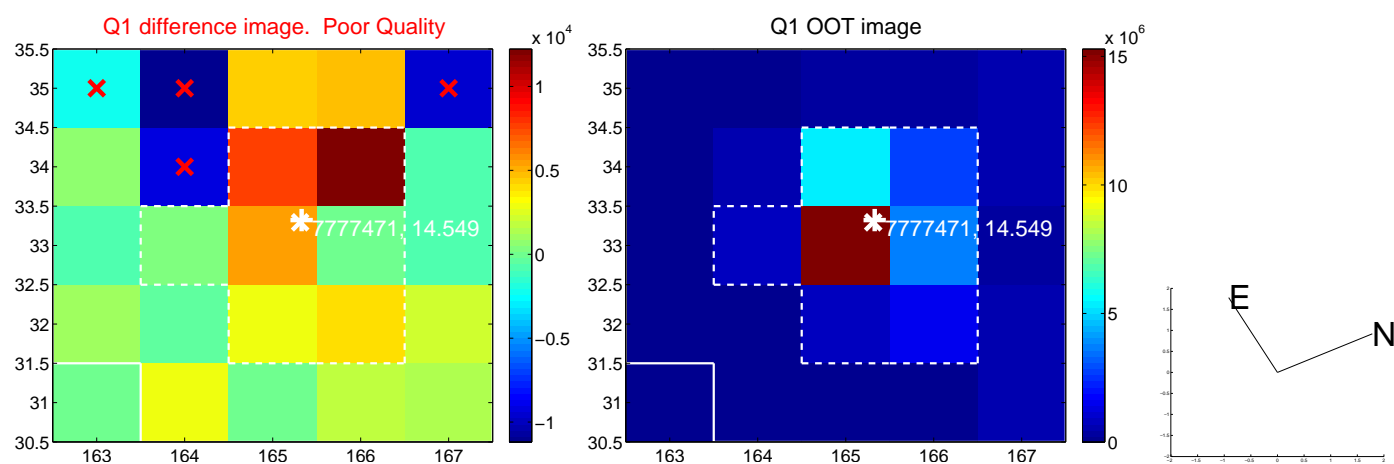
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.496 \pm 1.088	5.05	2.678 \pm 1.660	-4.800 \pm 0.833
PRF-fit source offset from KIC position	5.443 \pm 1.166	4.67	2.729 \pm 1.733	-4.709 \pm 0.898
photometric centroid source offset	4.01 \pm 5.01	0.80	-3.04 \pm 5.26	-2.61 \pm 4.63



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.

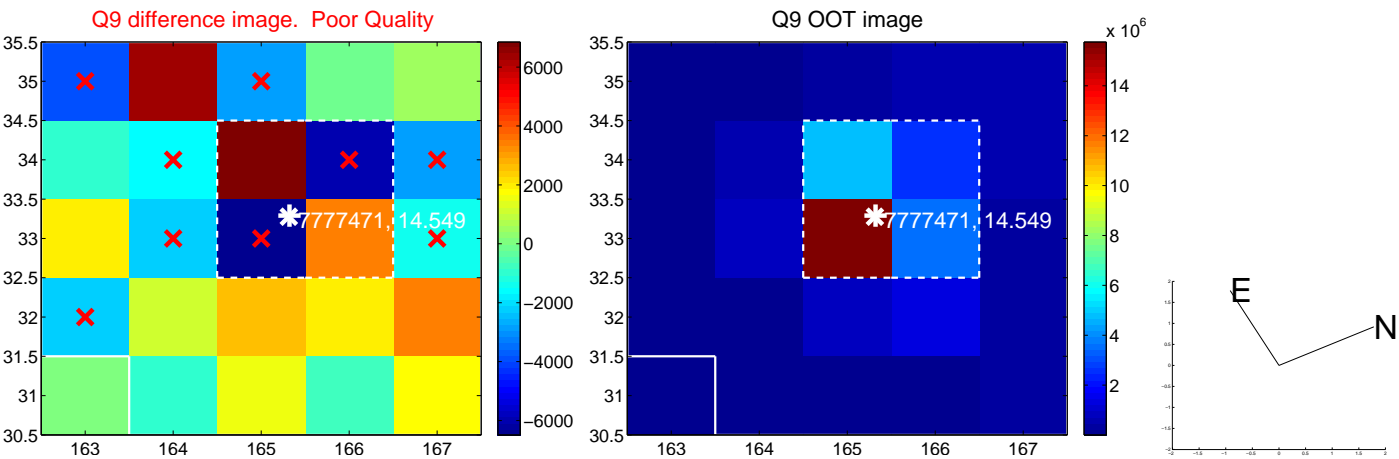
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



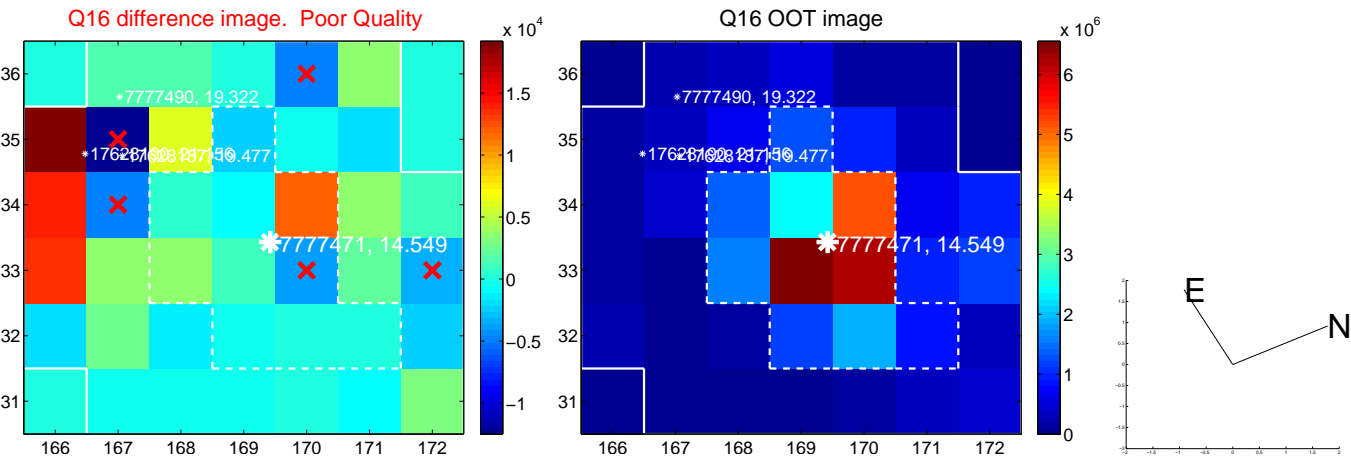
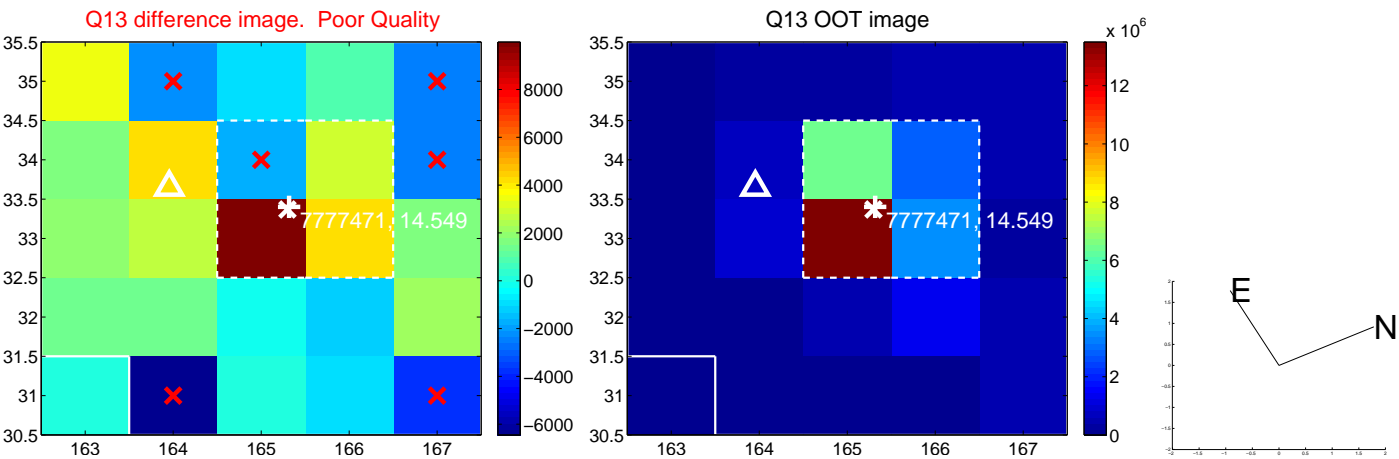
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



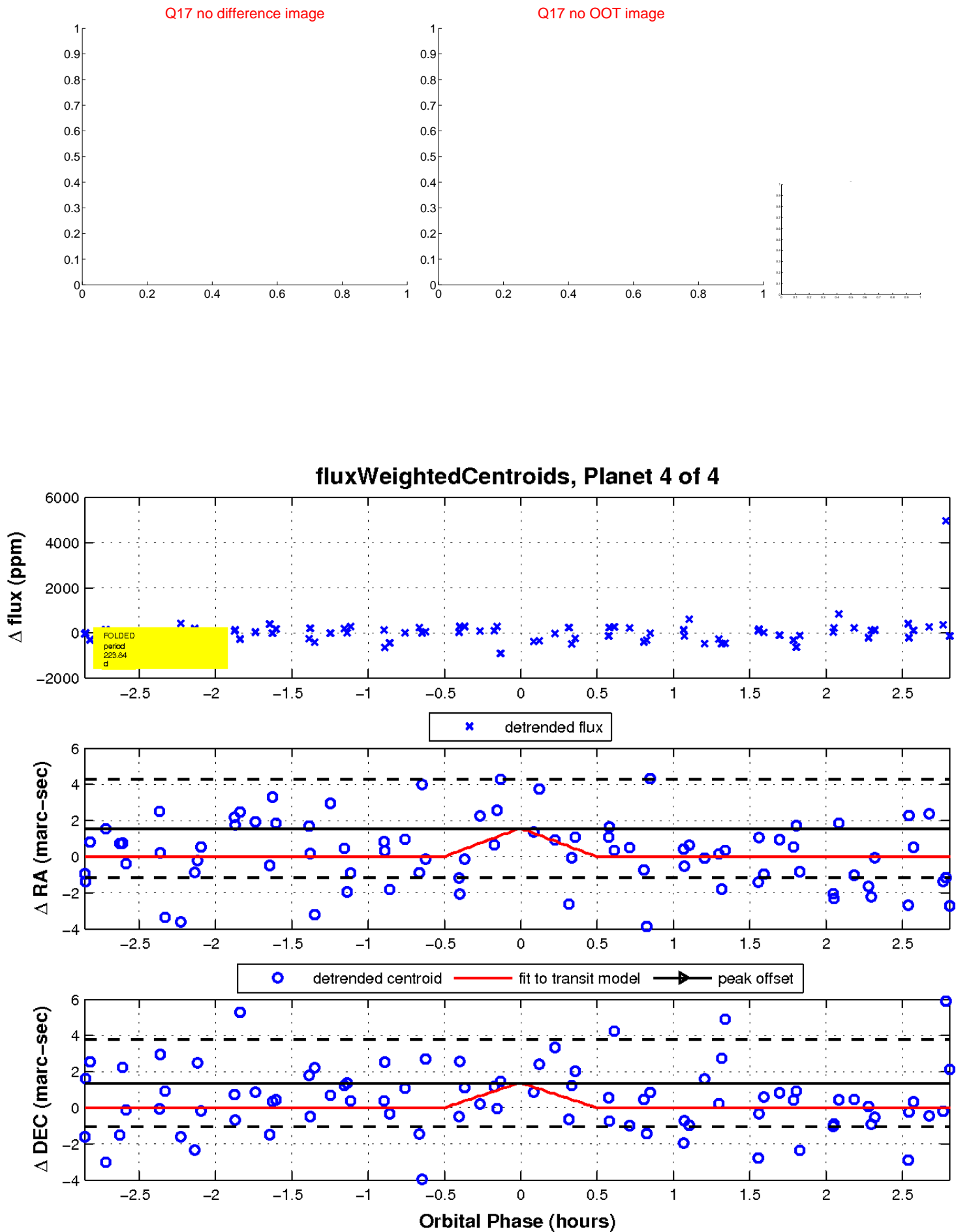
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

