

KIC 009239681

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})
009239681-01	OBS	No	0.629983	132.122676	91.8	1.491	12.2	16.9	1.58	6292	1.56	16231.12
009239681-02	OBS	No	0.629971	131.939701	37.9	0.932	12.7	6.5	1.58	6292	1.15	16231.53
009239681-03	OBS	No	0.629950	131.894772	46.9	5.338	11.5	8.6	1.58	6292	1.10	16232.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009239681-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009239681-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009239681-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

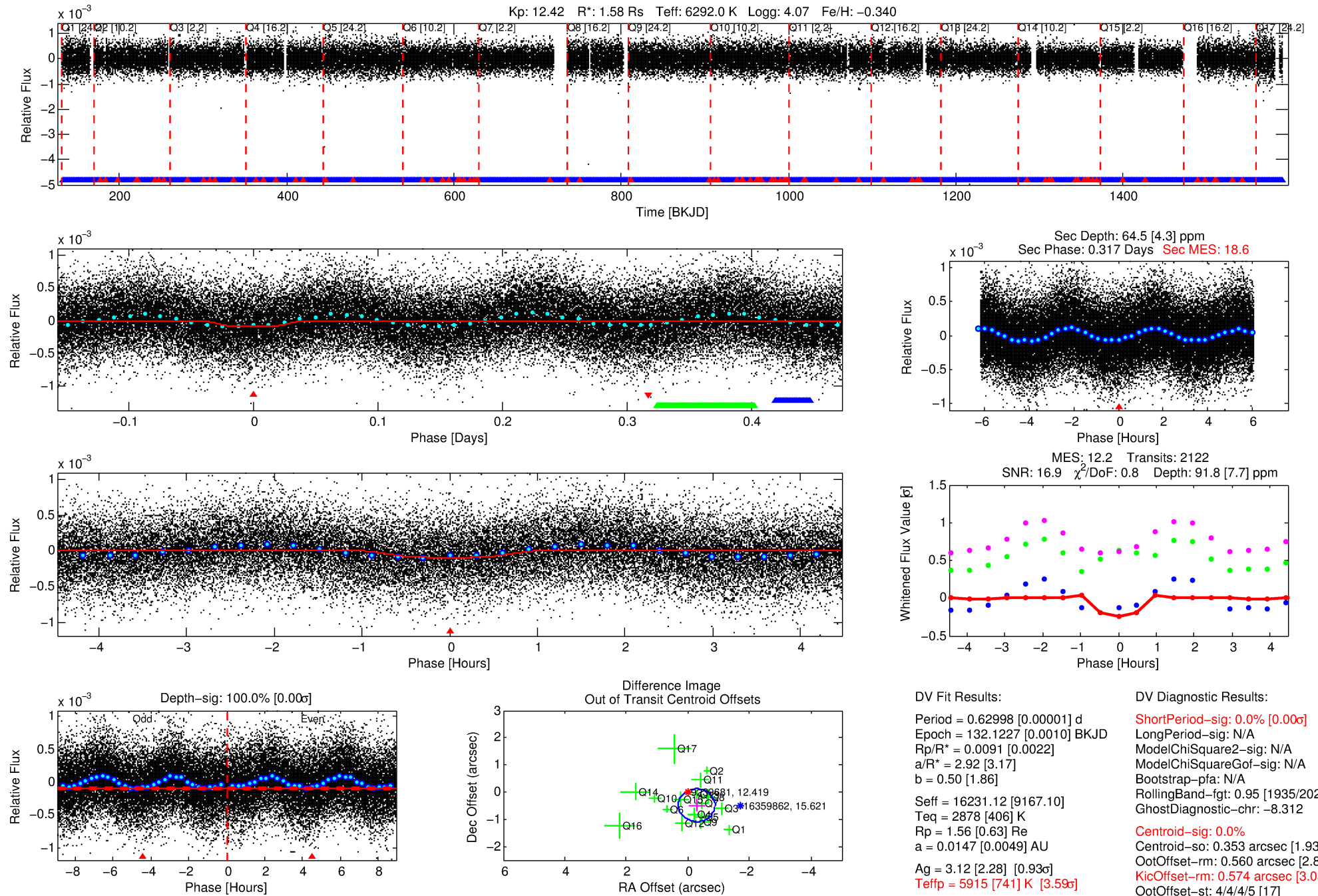
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009239681-01

No Significant Match Found

DV One-Page Summary

KIC: 9239681 Candidate: 1 of 3 Period: 0.630 d



DV Fit Results:

Period = 0.62998 [0.00001] d
Epoch = 132.1227 [0.0010] BKJD
Rp/R* = 0.0091 [0.0022]
a/R* = 2.92 [3.17]
b = 0.50 [1.86]
Seff = 16231.12 [9167.10]
Teff = 2878 [406] K
Rp = 1.56 [0.63] Re
a = 0.0147 [0.0049] AU
Ag = 3.12 [2.28] [0.93 σ]
Teffp = 5915 [741] K [3.59 σ]

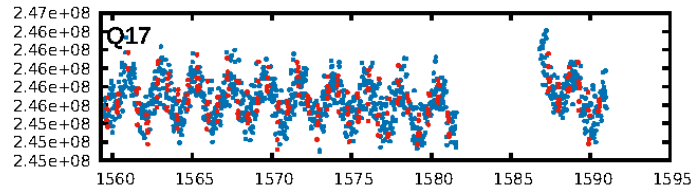
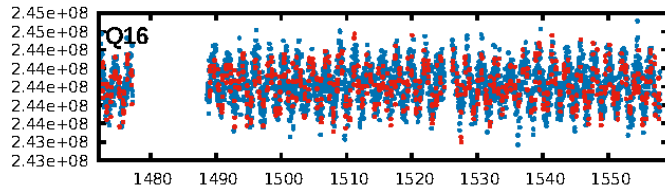
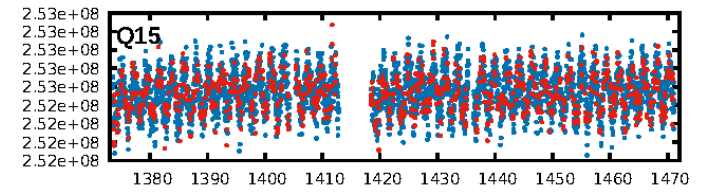
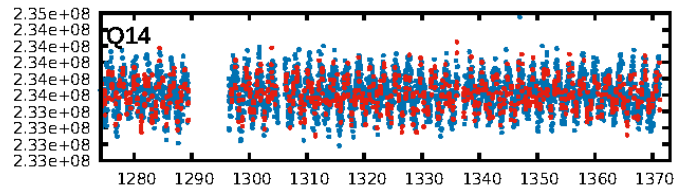
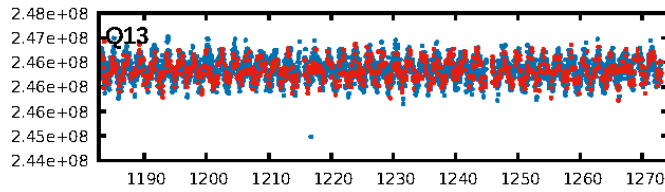
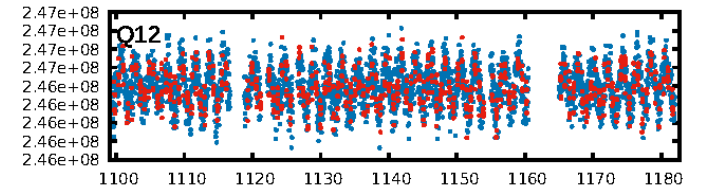
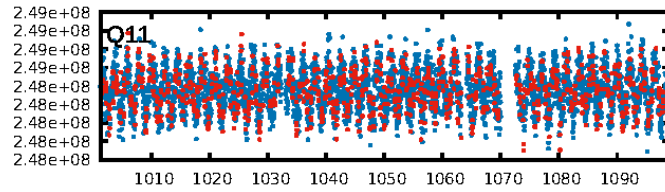
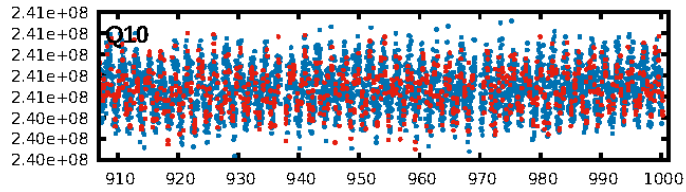
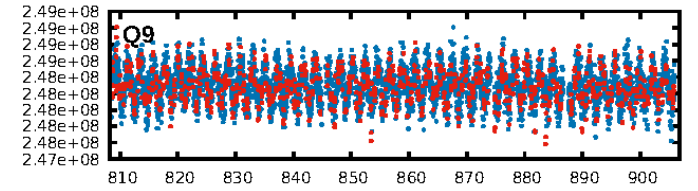
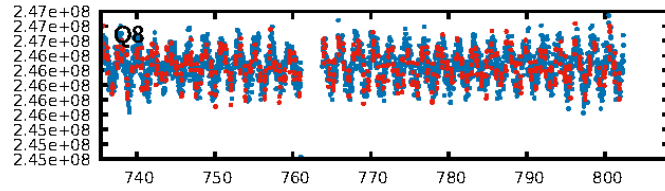
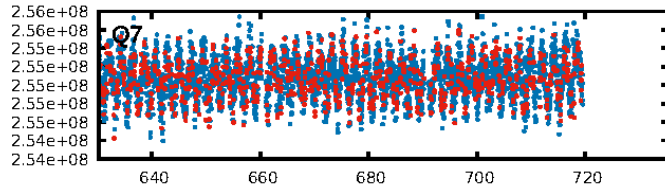
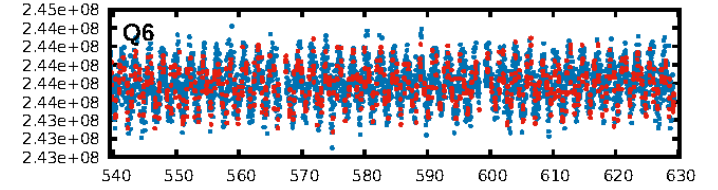
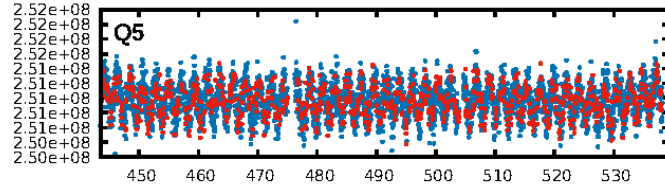
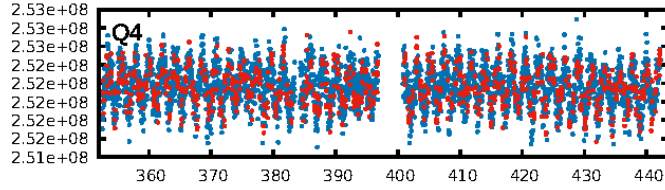
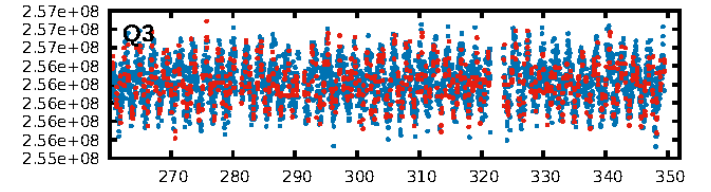
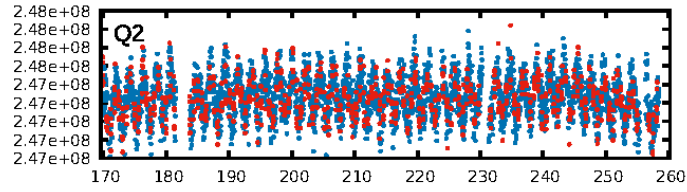
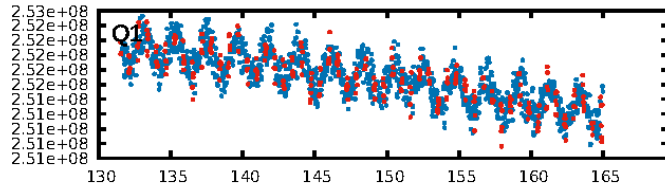
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.95 [1935/2027]
GhostDiagnostic-chr: -8.312
Centroid-sig: 0.0%
Centroid-so: 0.353 arcsec [1.93 σ]
OotOffset-rm: 0.560 arcsec [2.80 σ]
KicOffset-rm: 0.574 arcsec [3.03 σ]
OotOffset-st: 4/4/4/5 [17]
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DiffImageOverlap-fno: 0.00 [0/17]

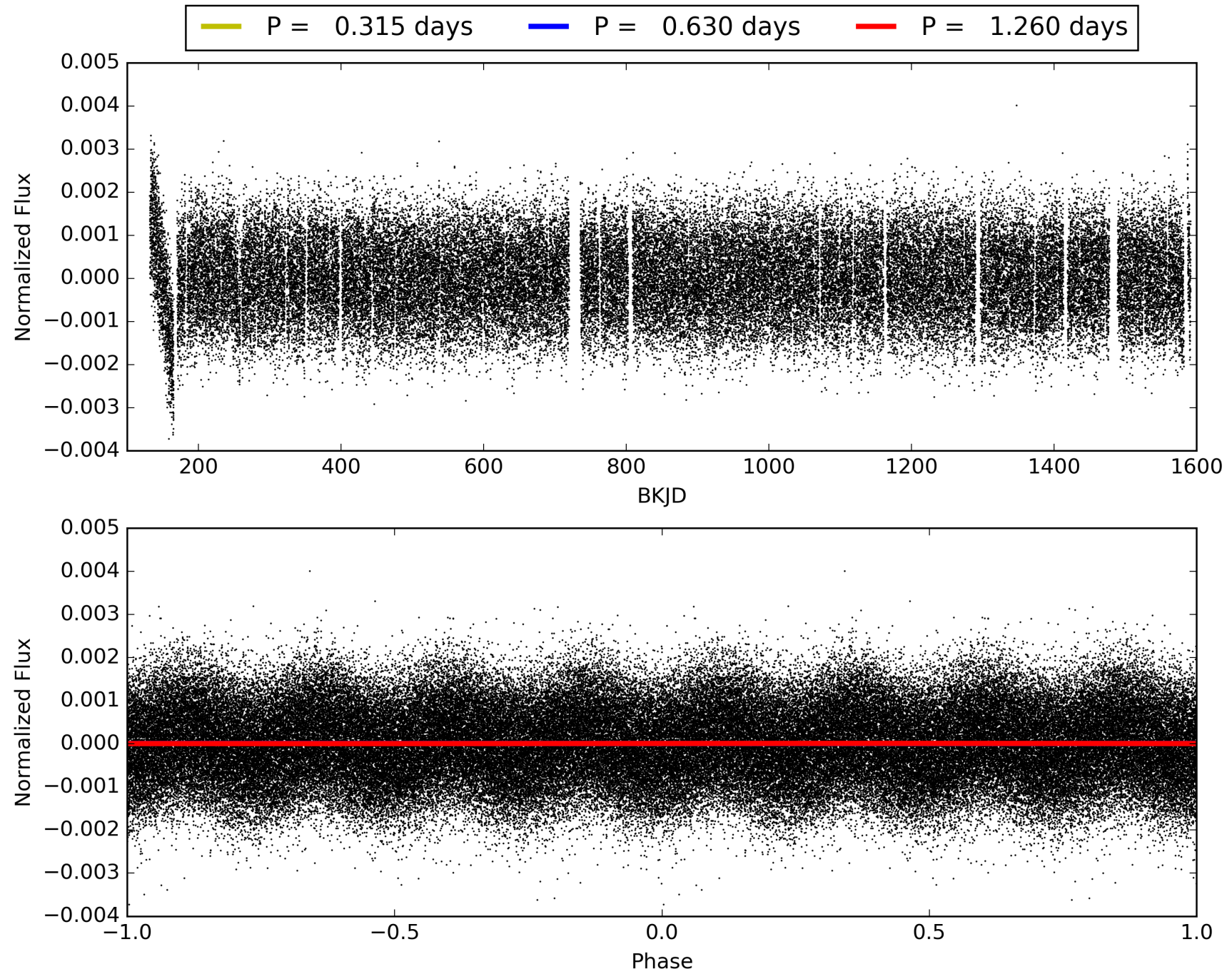
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009239681-01, PDC Light Curves

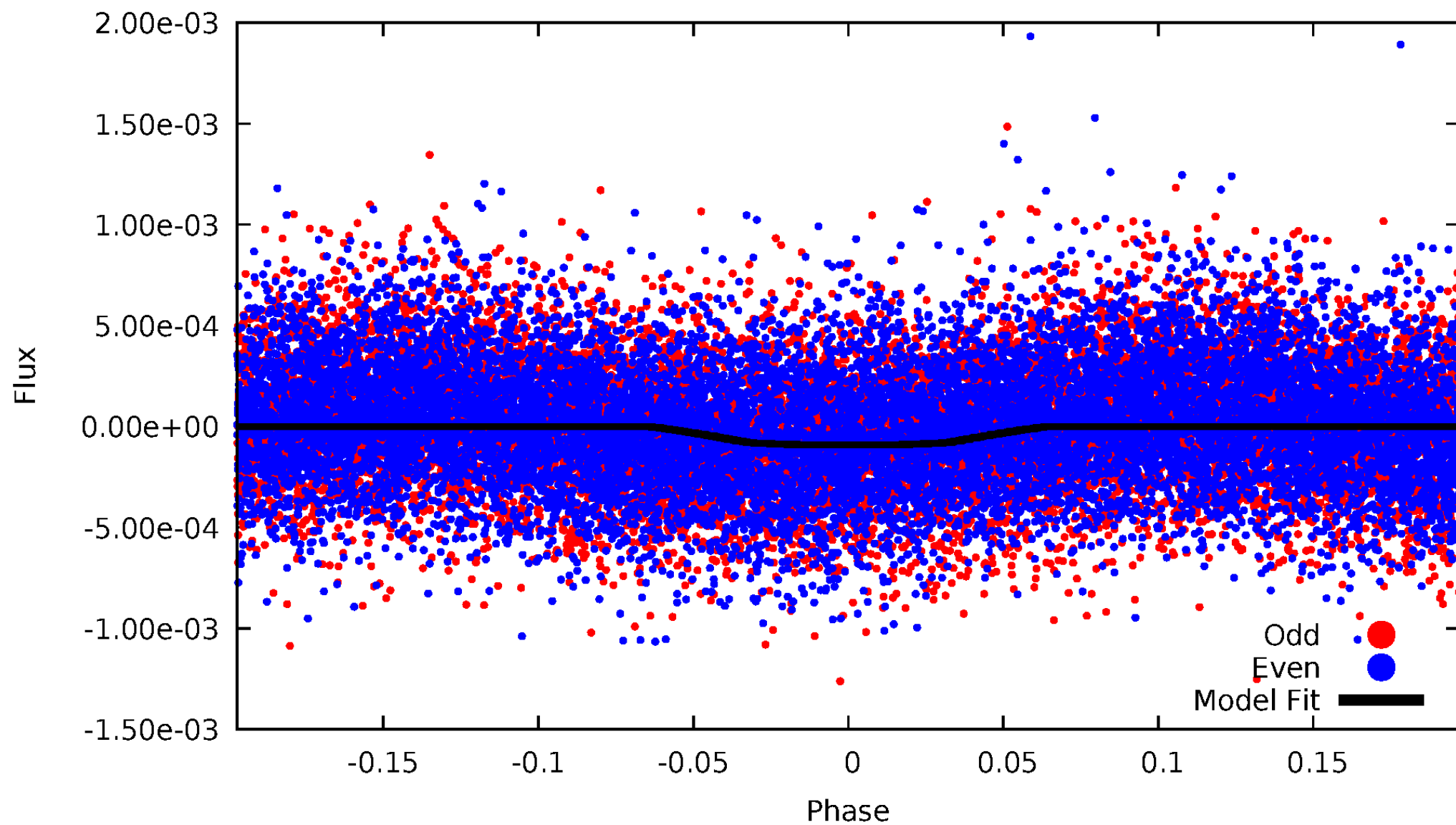


TCE 009239681-01



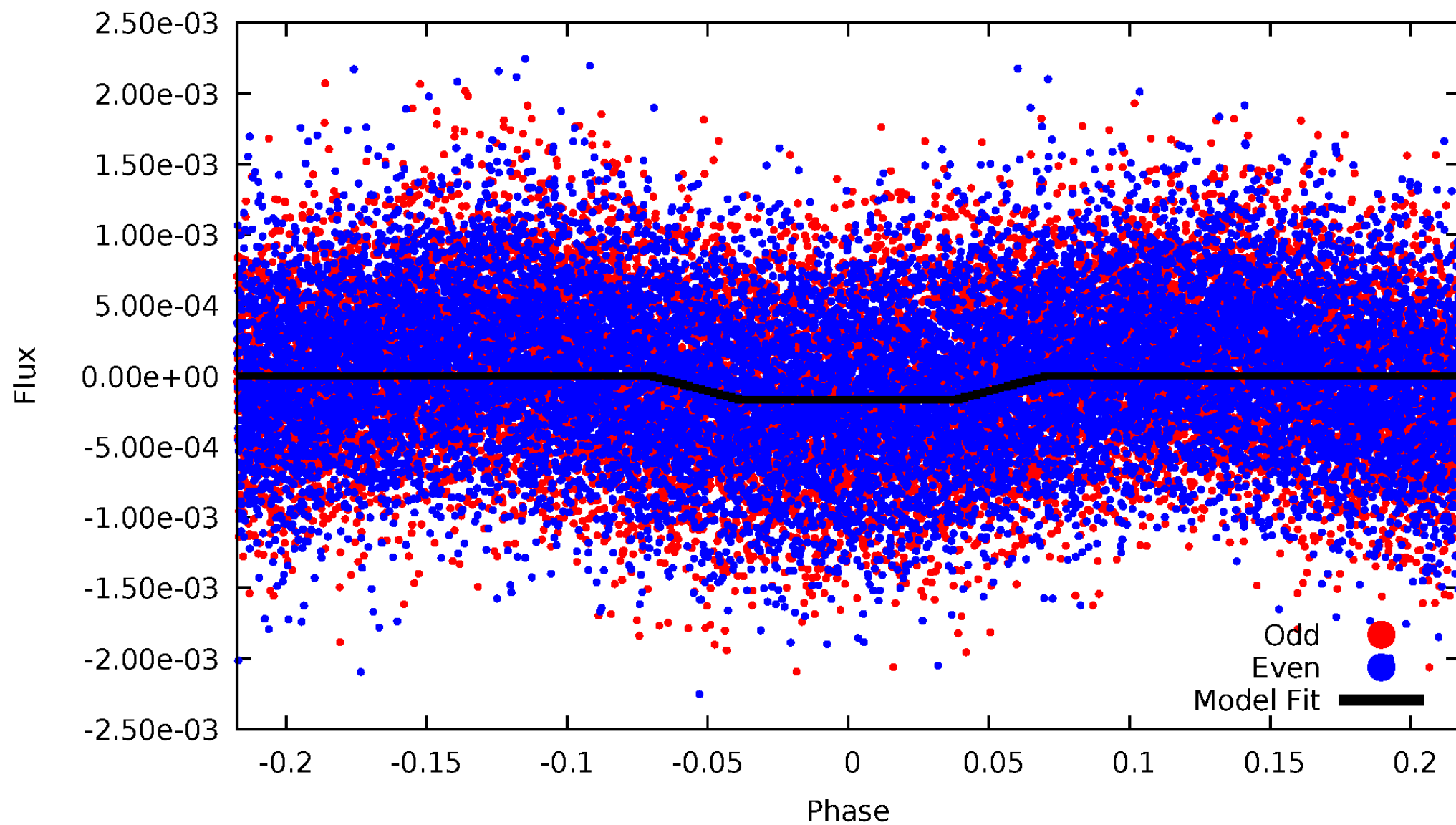
DV Odd/Even

TCE 009239681-01

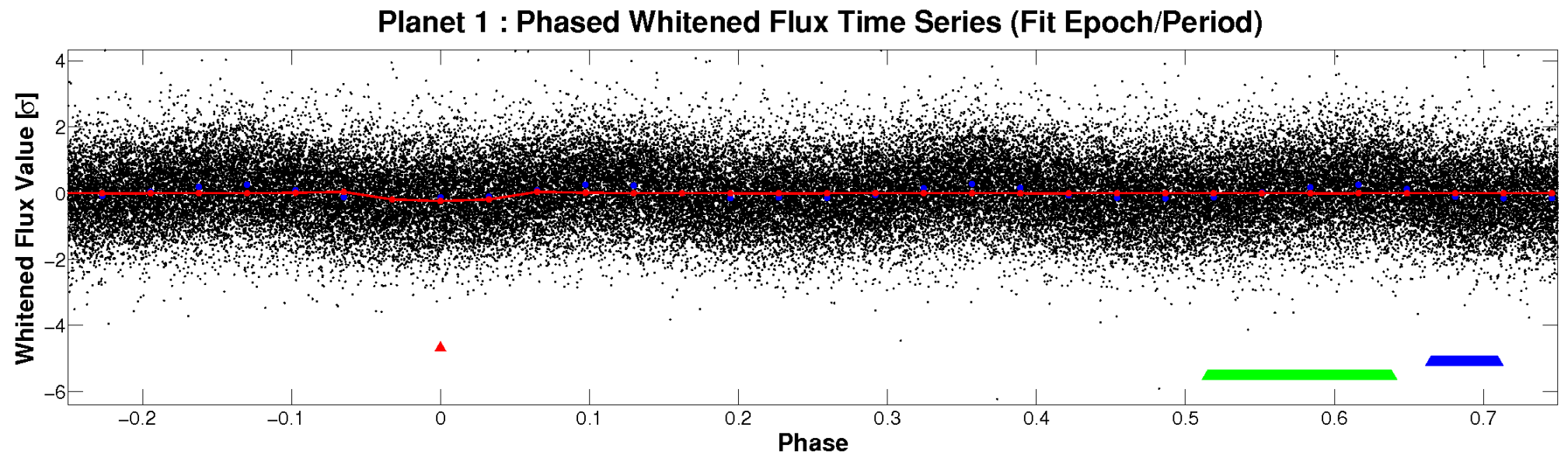
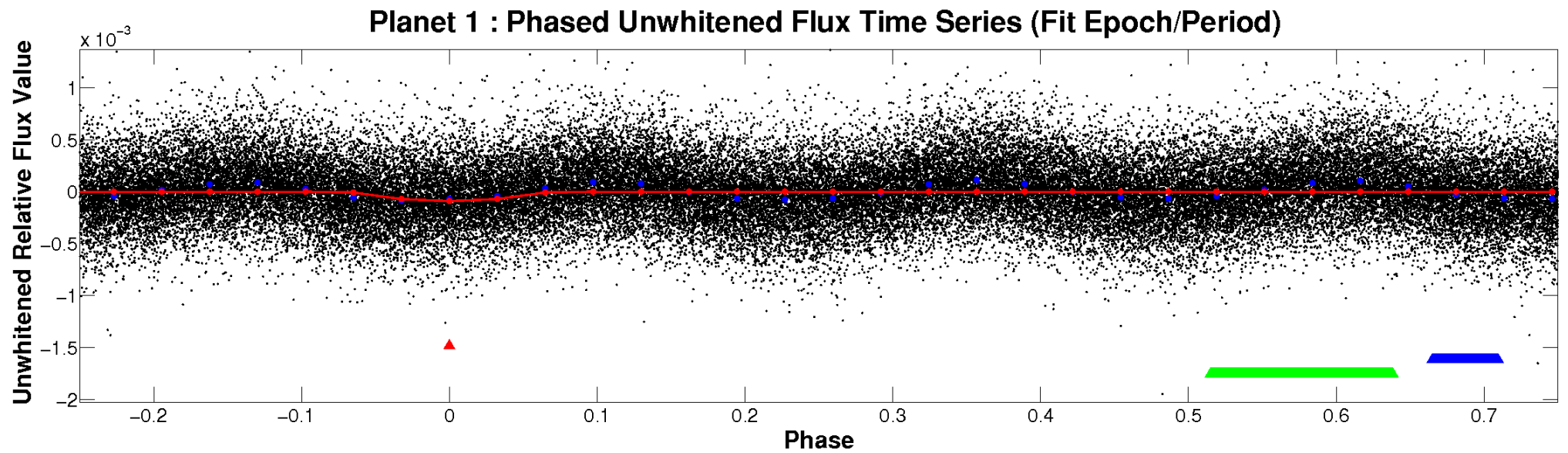


ALT Odd/Even

TCE 009239681-01

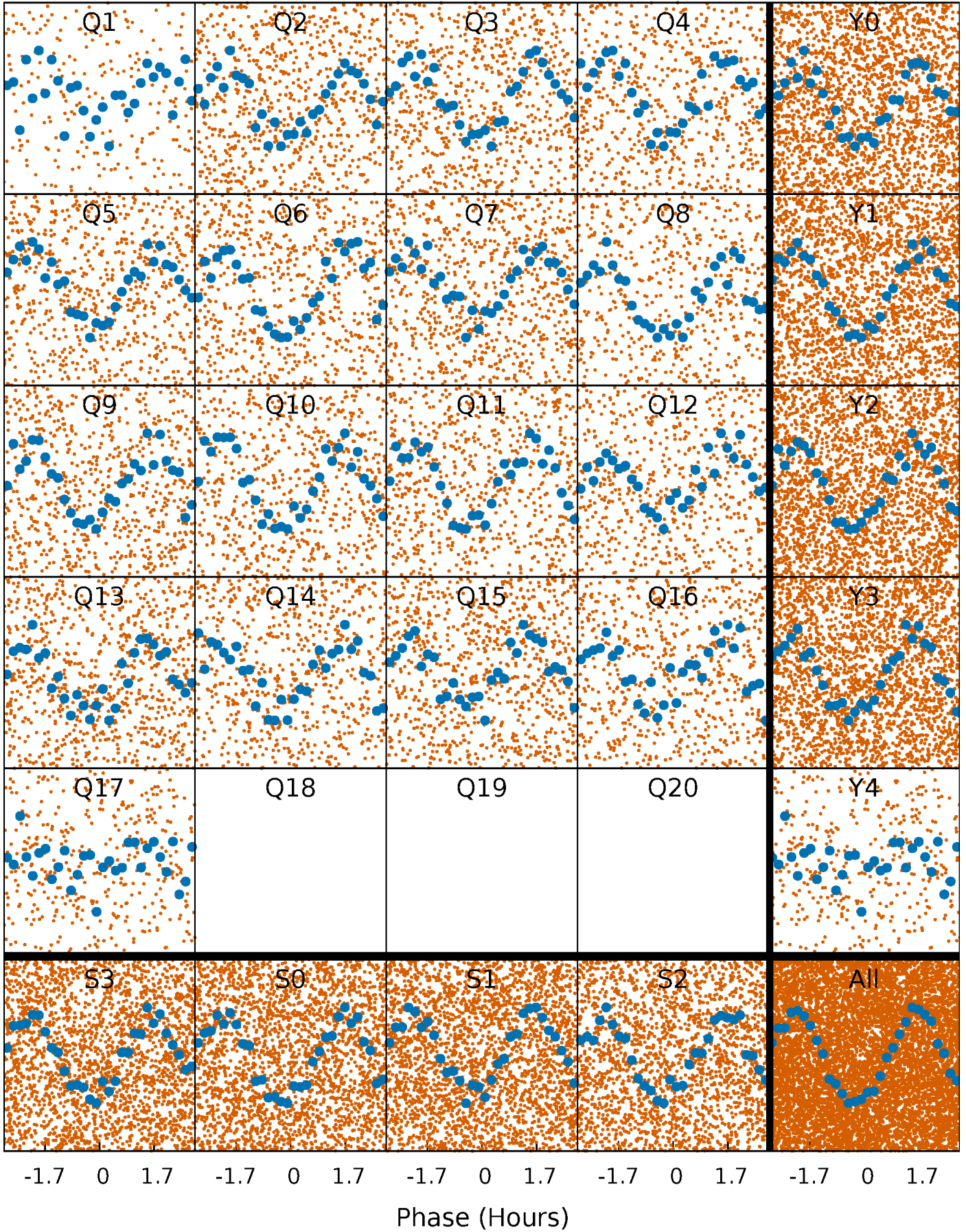


Non-Whitened Vs. Whitened Light Curve



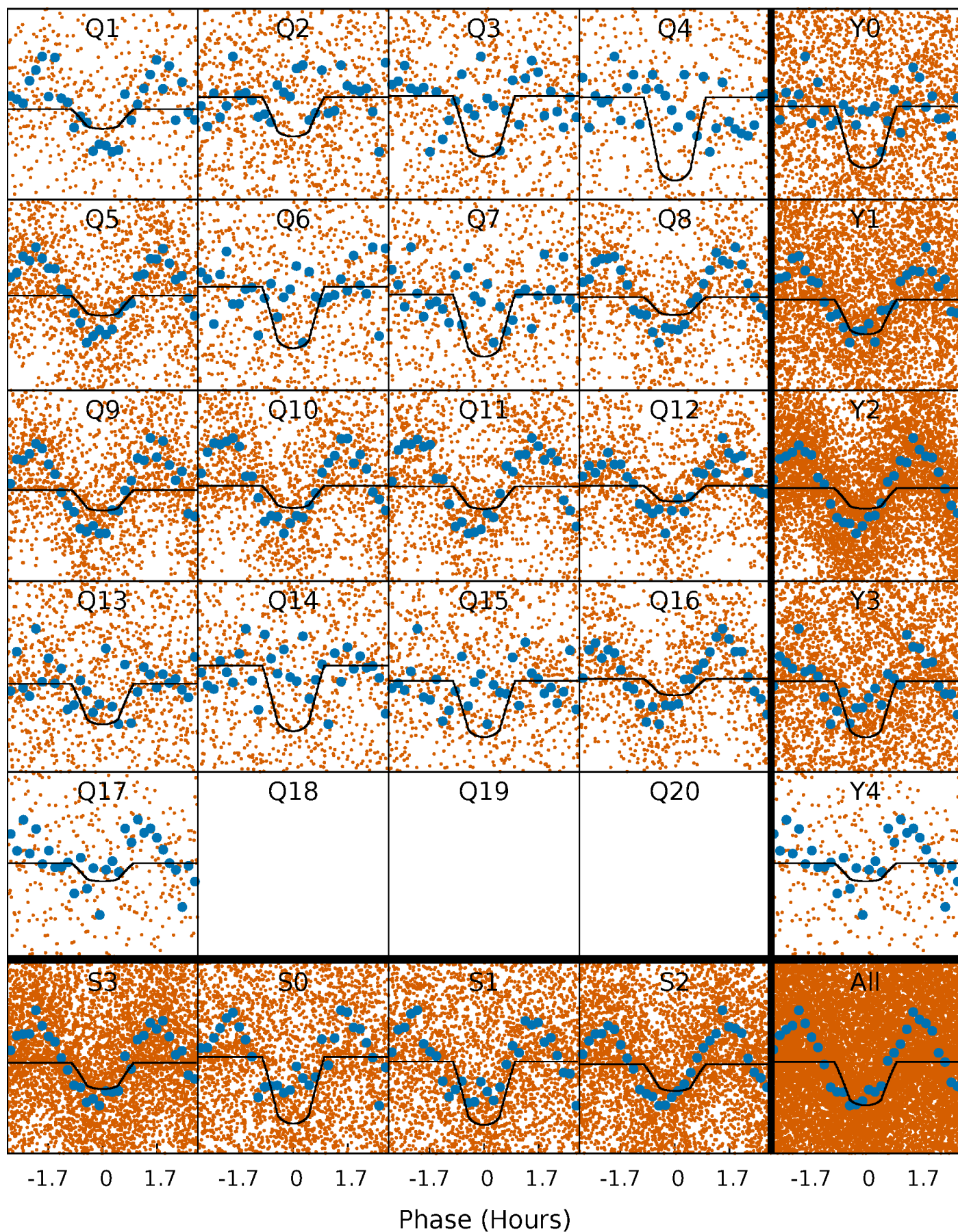
PDC Quarter-Phased Transit Curves

TCE 009239681-01 P= 0.629983 Days $T_0=132.122676$ (BKJD)



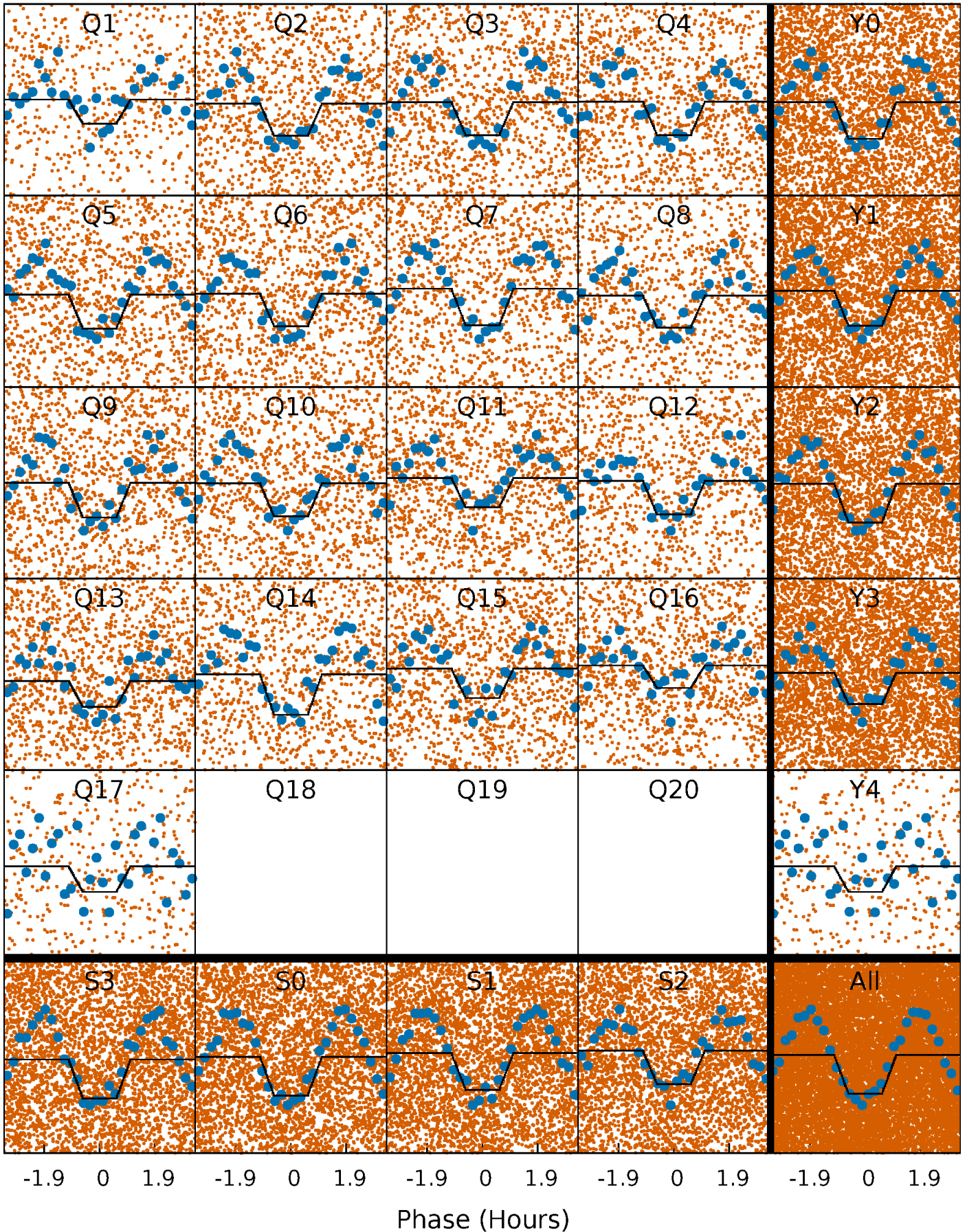
DV Quarter-Phased Transit Curves

TCE 009239681-01 P= 0.629983 Days $T_0=132.122676$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

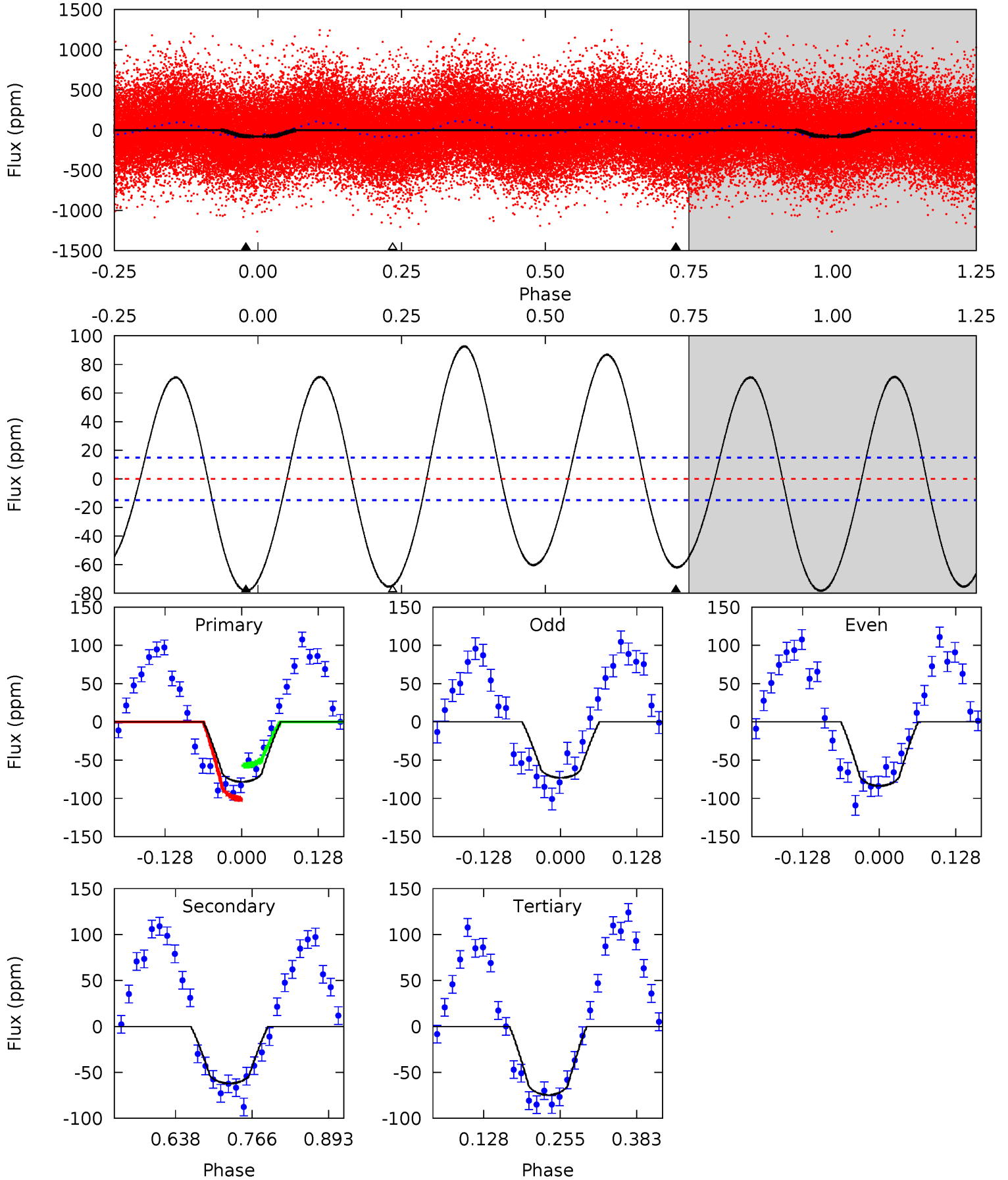
TCE 009239681-01 P= 0.629978 Days $T_0=132.122662$ (BKJD)



DV Model-Shift Uniqueness Test

009239681-01, P = 0.629983 Days, E = 131.492693 Days

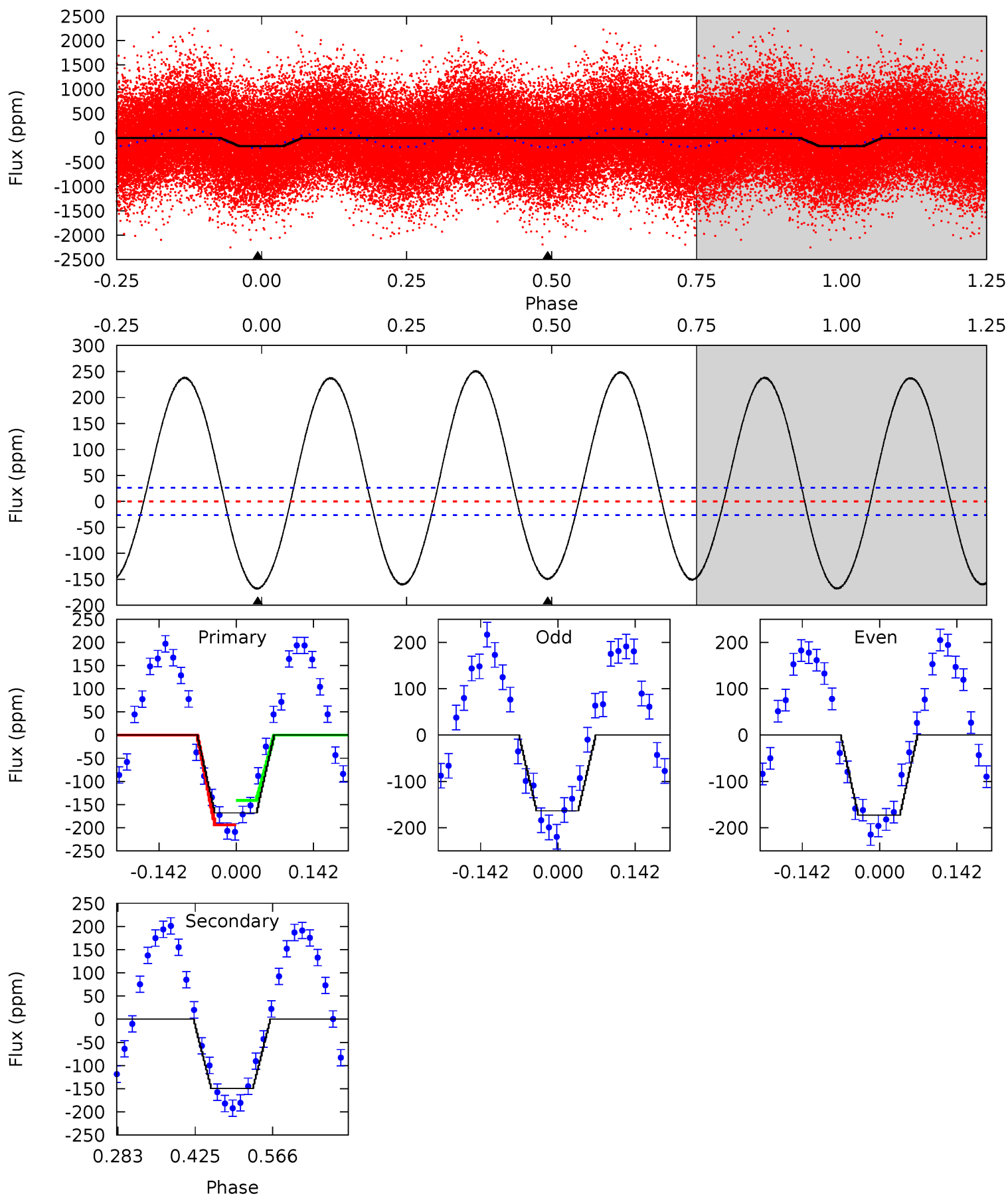
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	18.8	22.7	0	4.51	1.52	16.5	1.13	23.8	-3.82	18.8	1.62	0.99	0.54	6.77



Alt Model-Shift Uniqueness Test

009239681-01, P = 0.629978 Days, E = 131.492684 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.8	25.6	0	0	4.49	1.47	21.8	28.8	28.8	25.6	25.6	0.78	0.99	0.60	4.40



Stellar Parameters For KIC 009239681

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6292^{+188}_{-207}	$4.068^{+0.329}_{-0.141}$	$-0.340^{+0.300}_{-0.300}$	$1.578^{+0.418}_{-0.511}$	$1.062^{+0.169}_{-0.138}$	$0.381^{+0.865}_{-0.167}$
	+3%/-3%	+8%/-3%	+88%/-88%	+26%/-32%	+16%/-13%	+227%/-44%
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 009239681-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-62 ± 3	$1.49^{+0.49}_{-0.39}$	3938^{+324}_{-329}	5727^{+847}_{-608}	$3.397^{+2.804}_{-1.444}$
Alt.	-150 ± 6	$2.13^{+0.58}_{-0.47}$	3959^{+306}_{-357}	5953^{+748}_{-472}	$3.962^{+2.570}_{-1.510}$

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

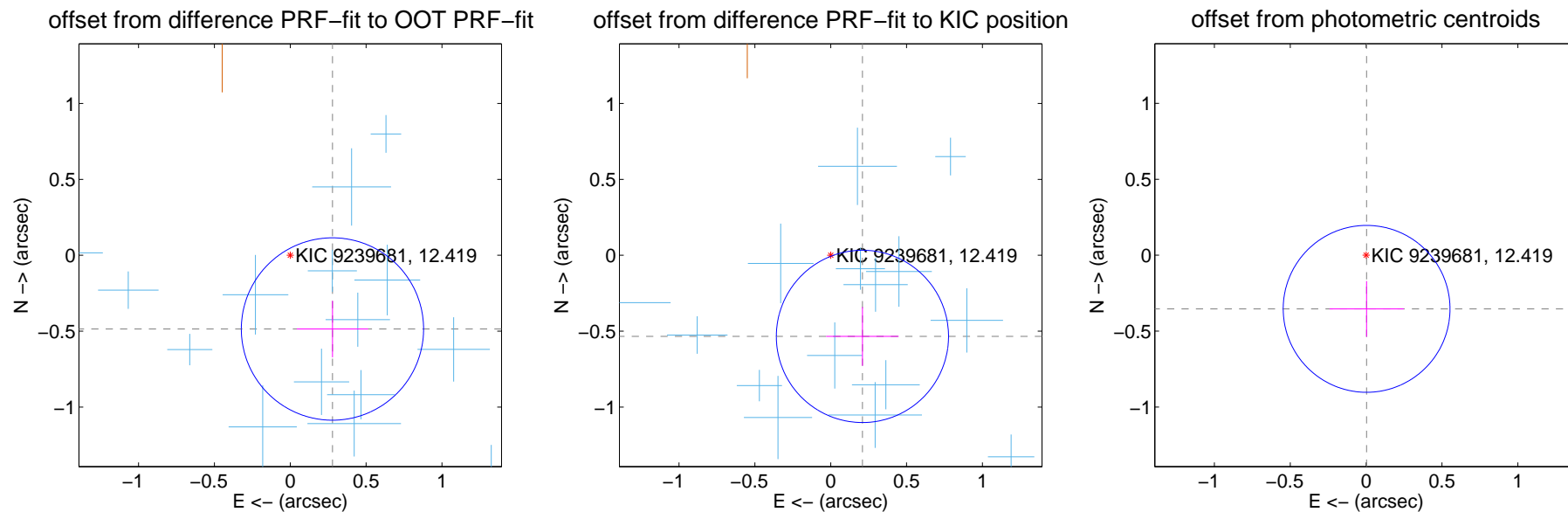
DV Centroid Data

Supplemental centroid analysis for 009239681-01. Kepler magnitude: 12.42. Transit SNR 16.85

There are 16 quarters with good PRF difference image offsets

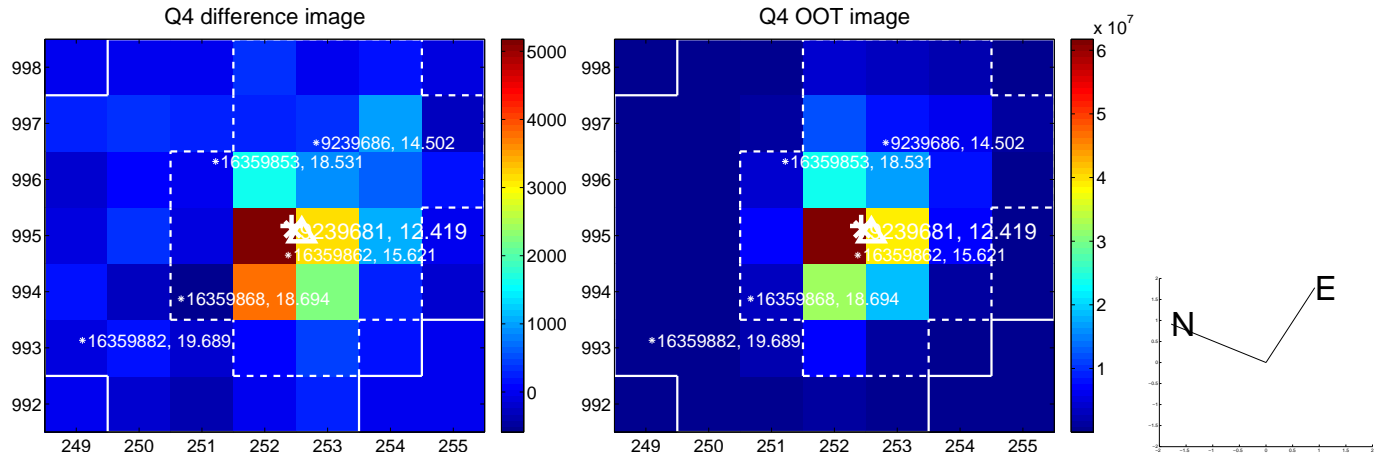
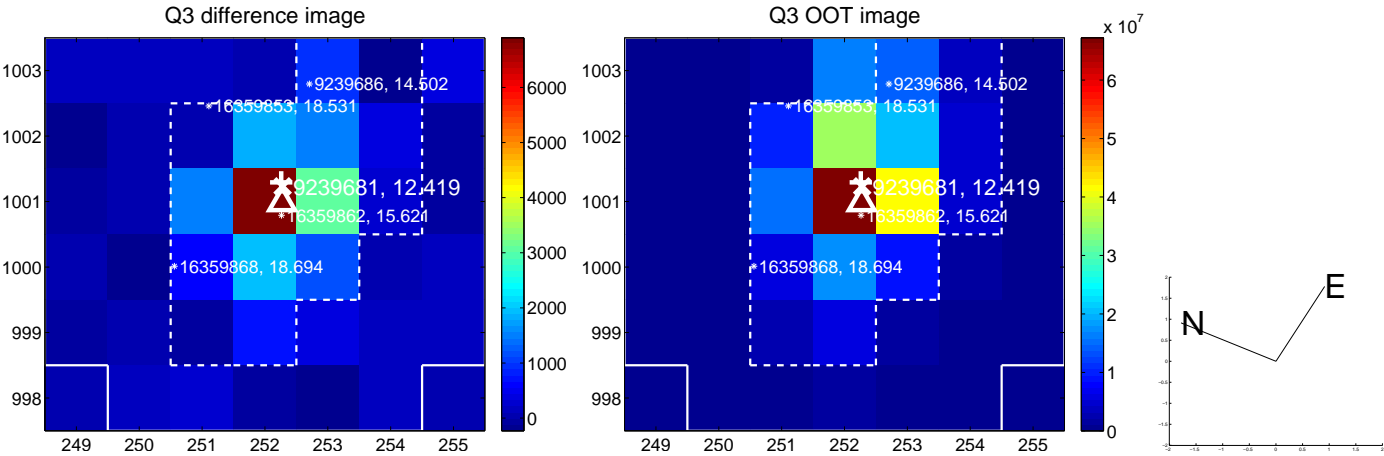
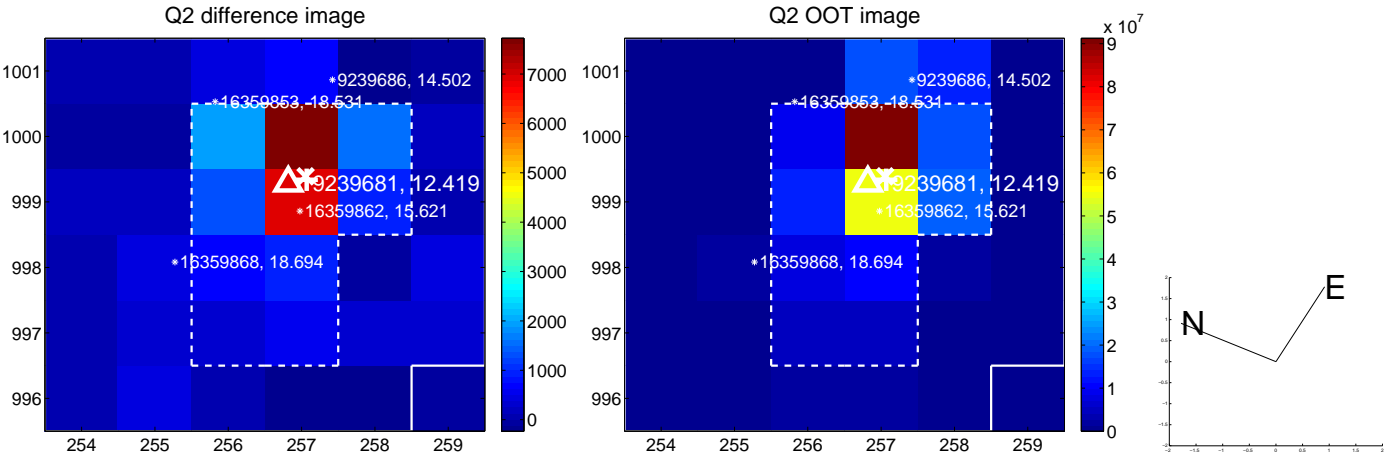
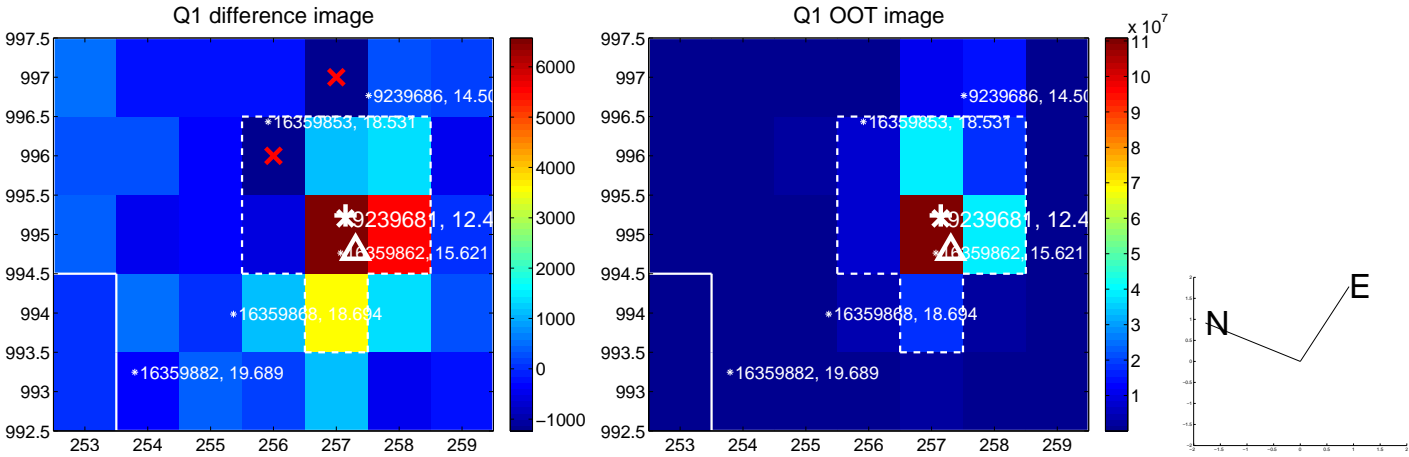
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.560 ± 0.200	2.80	-0.278 ± 0.235	-0.486 ± 0.186
PRF-fit source offset from KIC position	0.574 ± 0.189	3.03	-0.209 ± 0.239	-0.534 ± 0.194
photometric centroid source offset	0.35 ± 0.18	1.93	-0.00 ± 0.24	-0.35 ± 0.18

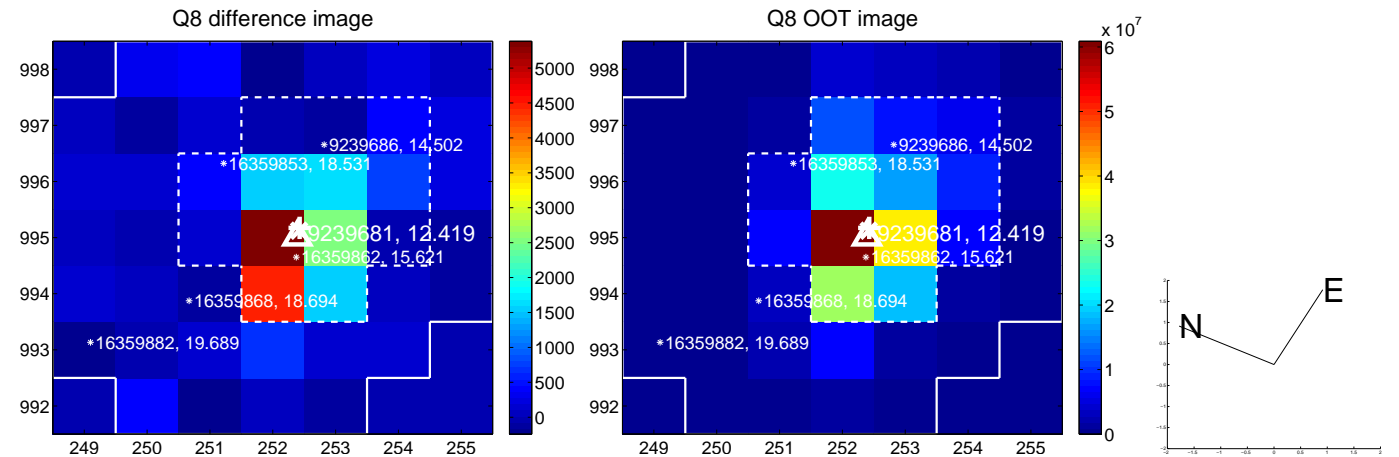
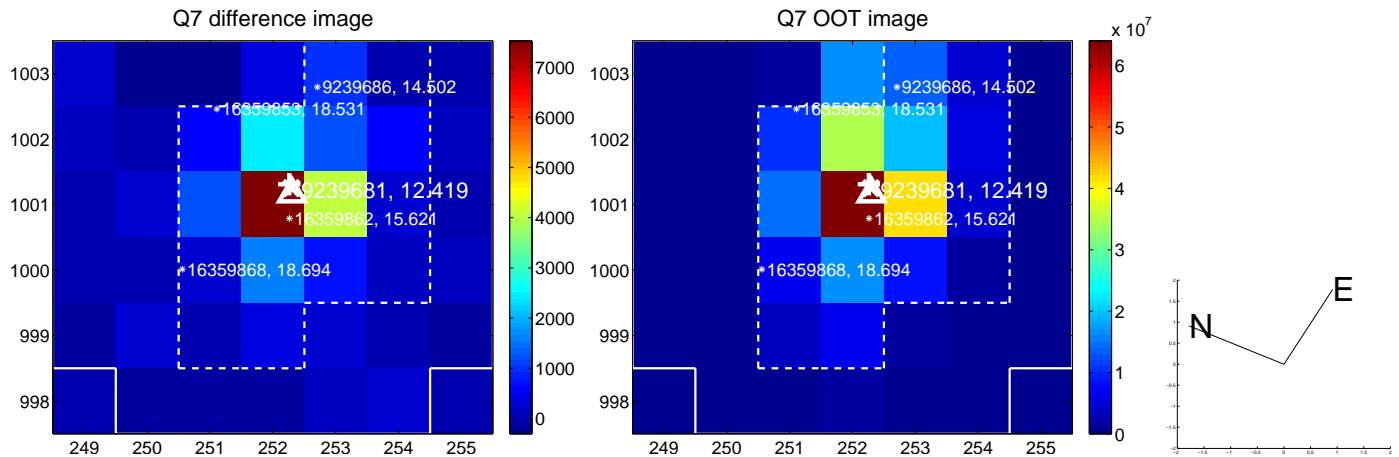
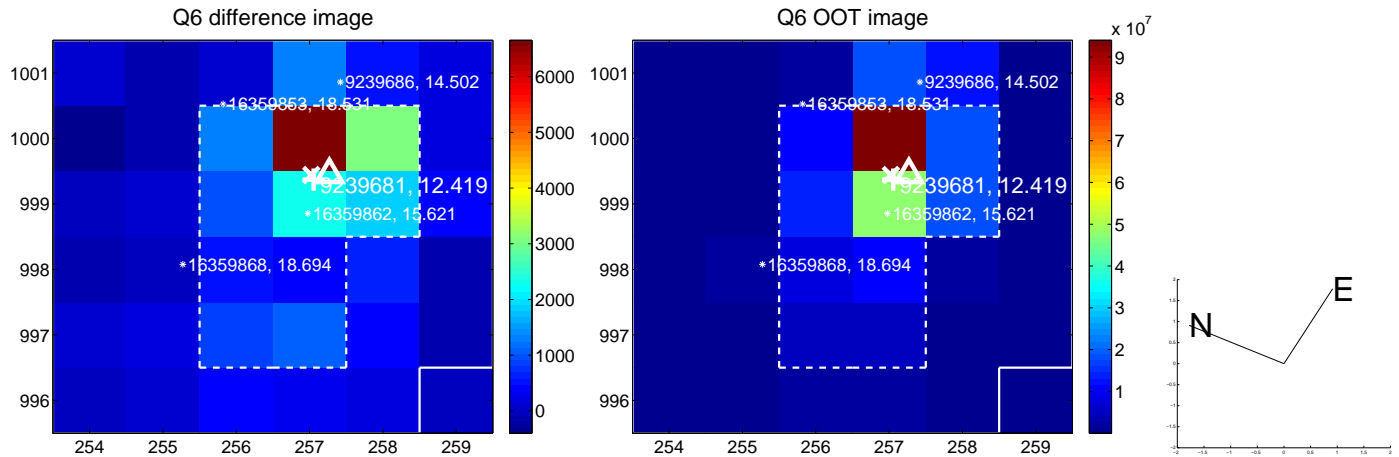
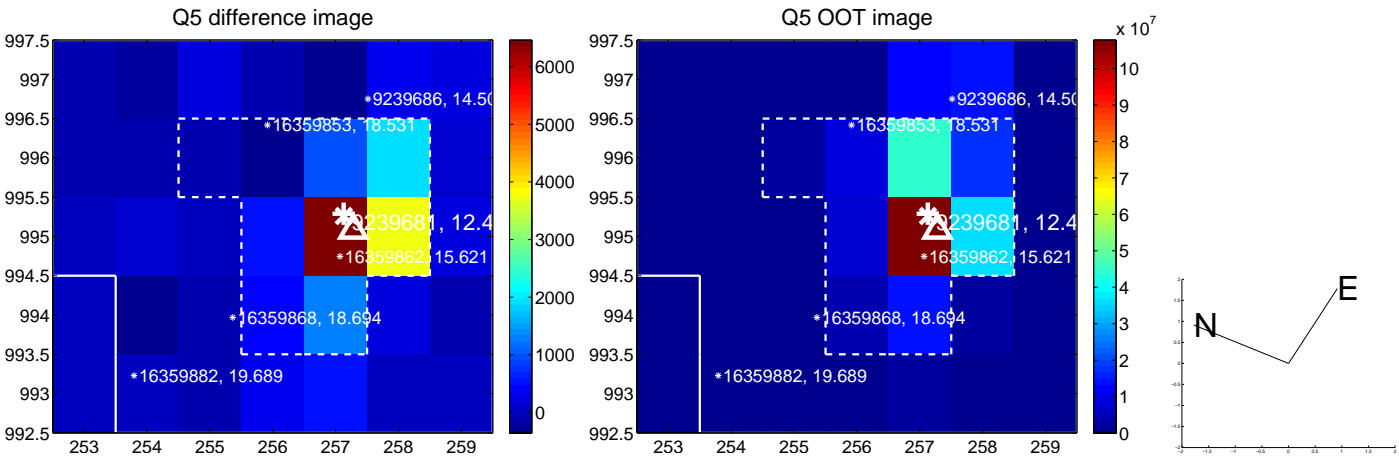


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

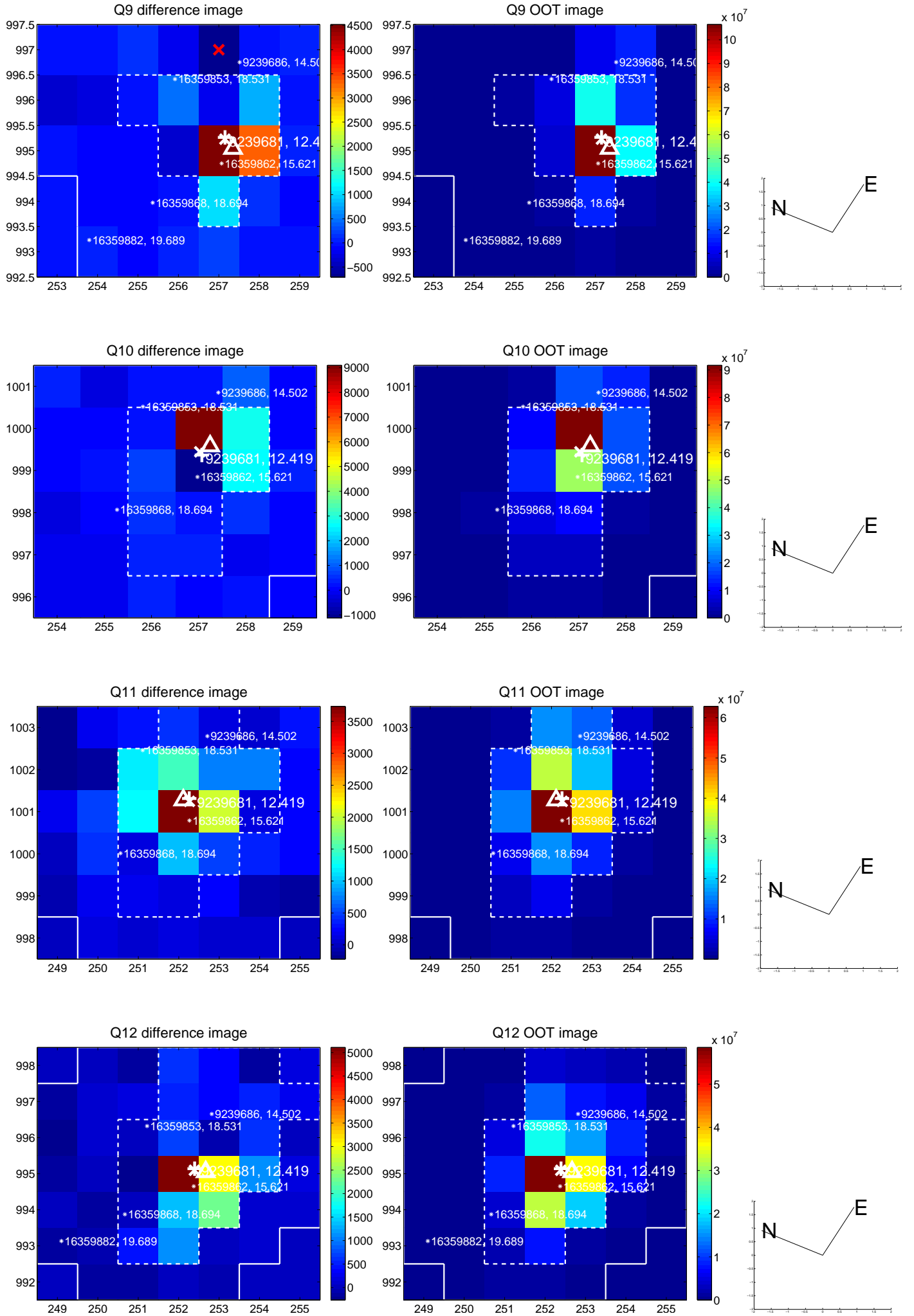
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



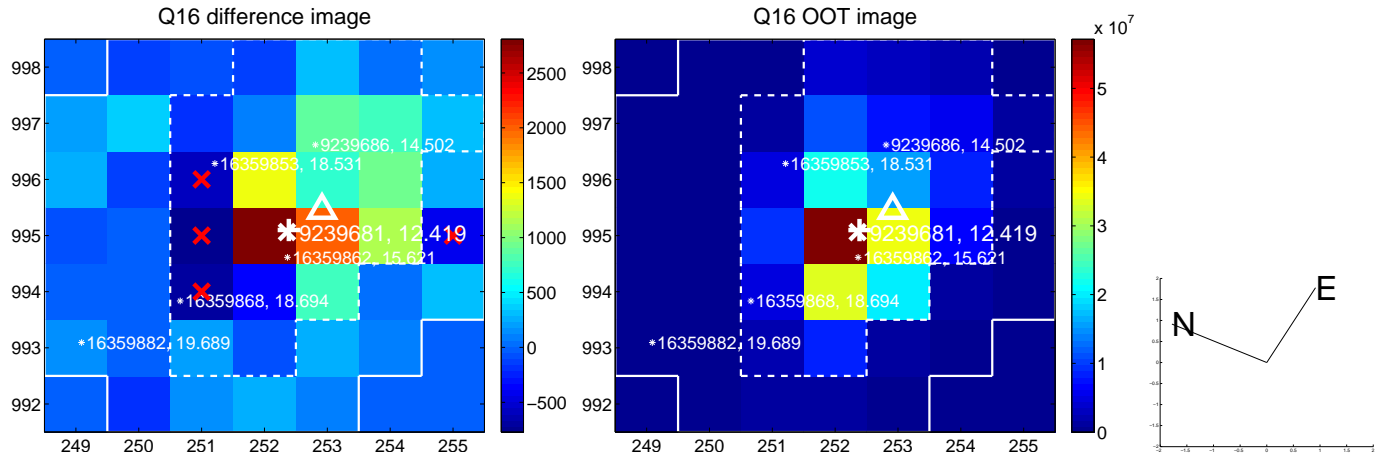
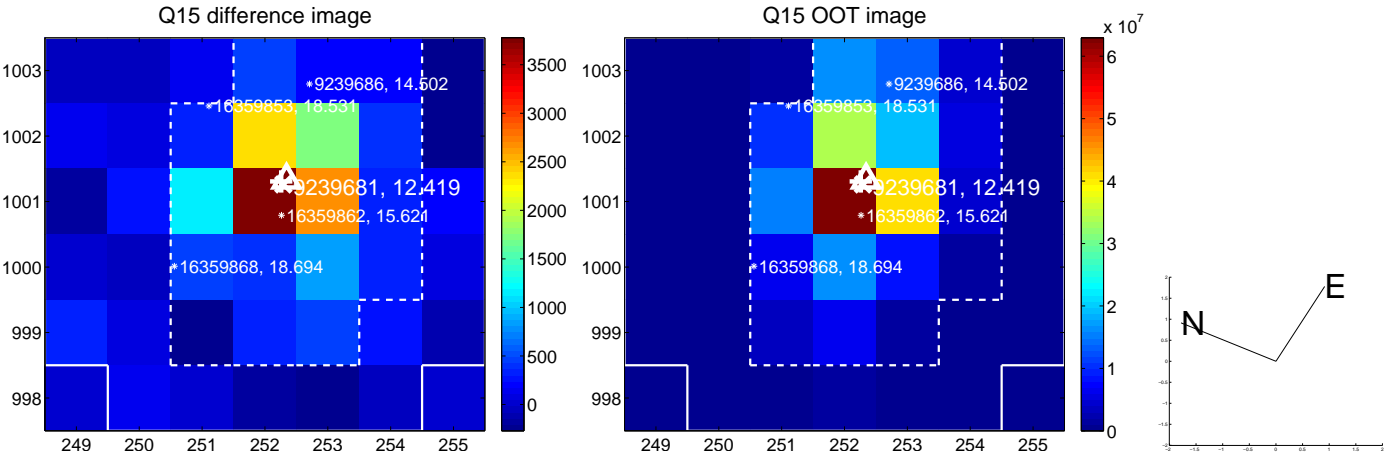
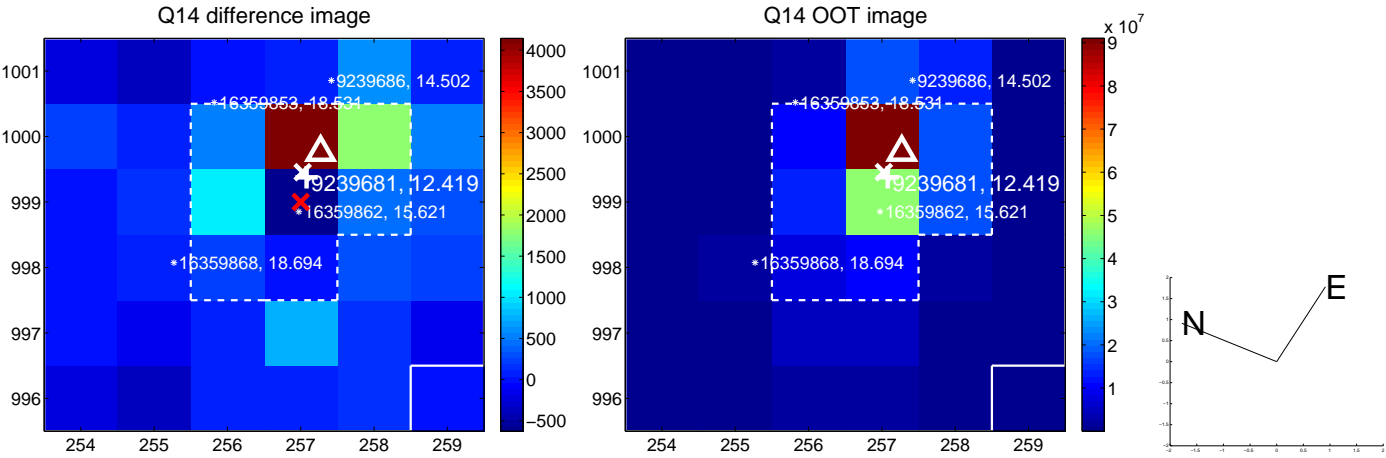
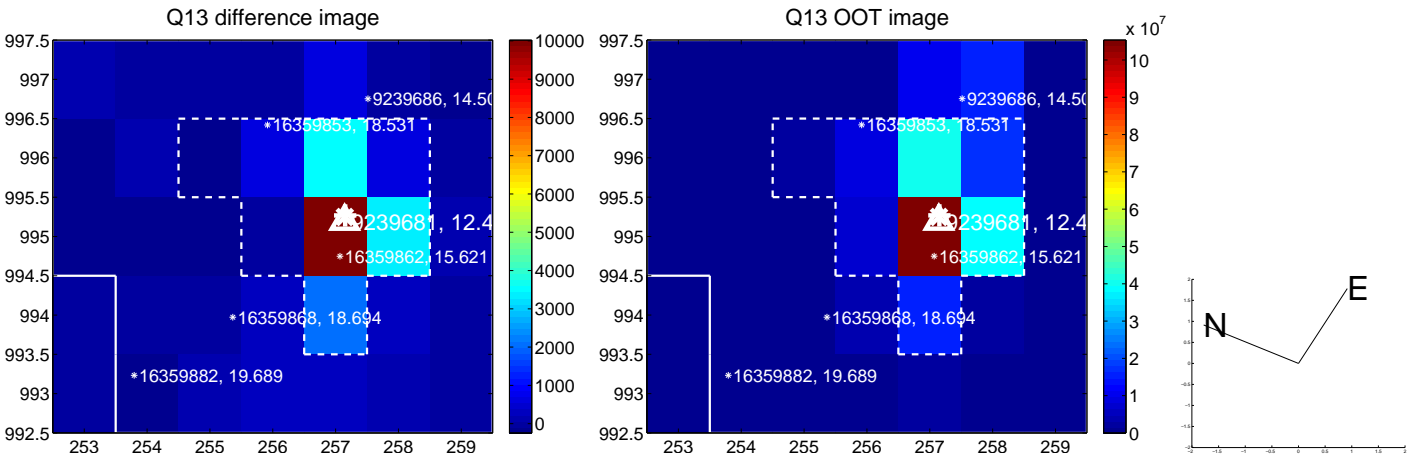
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



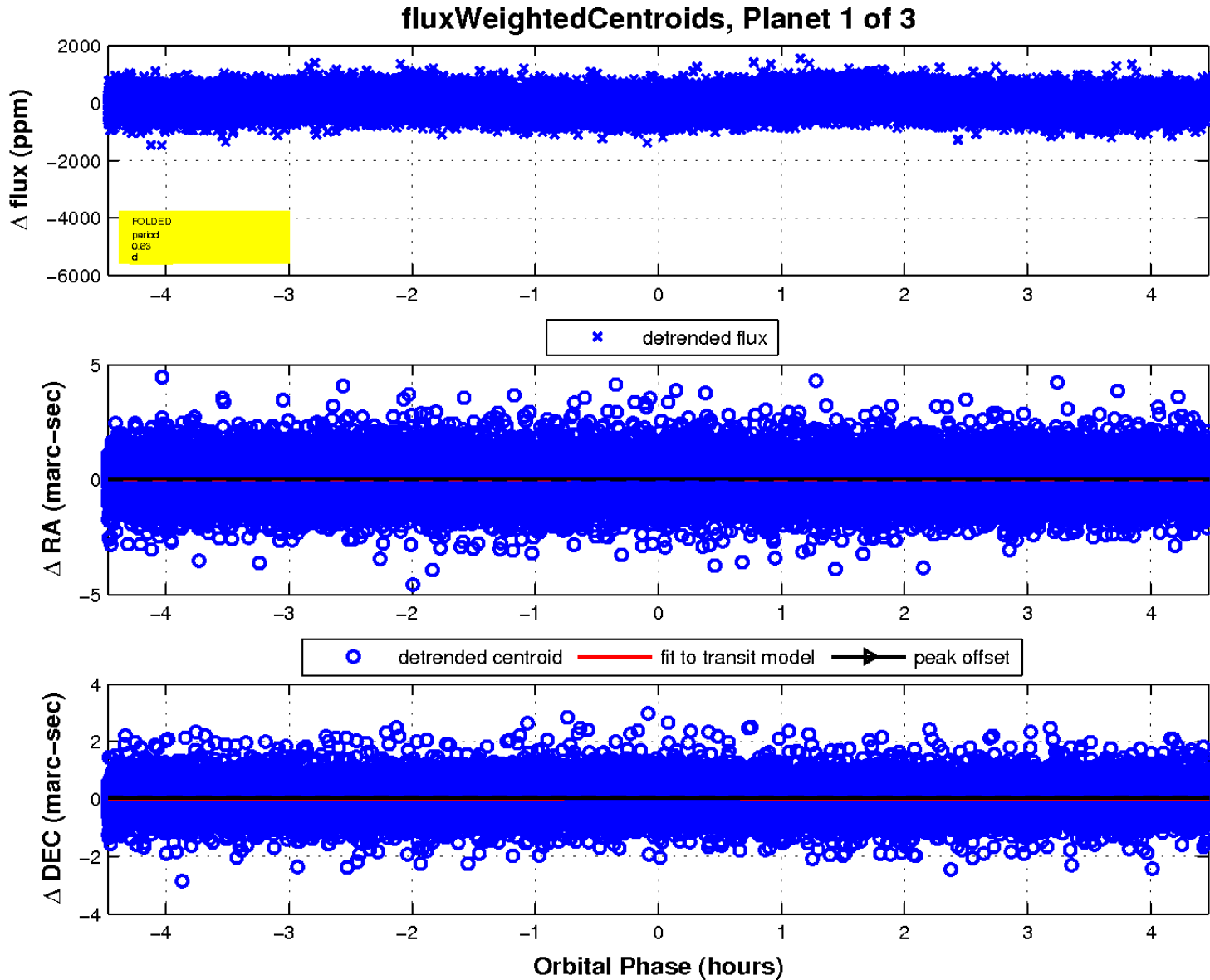
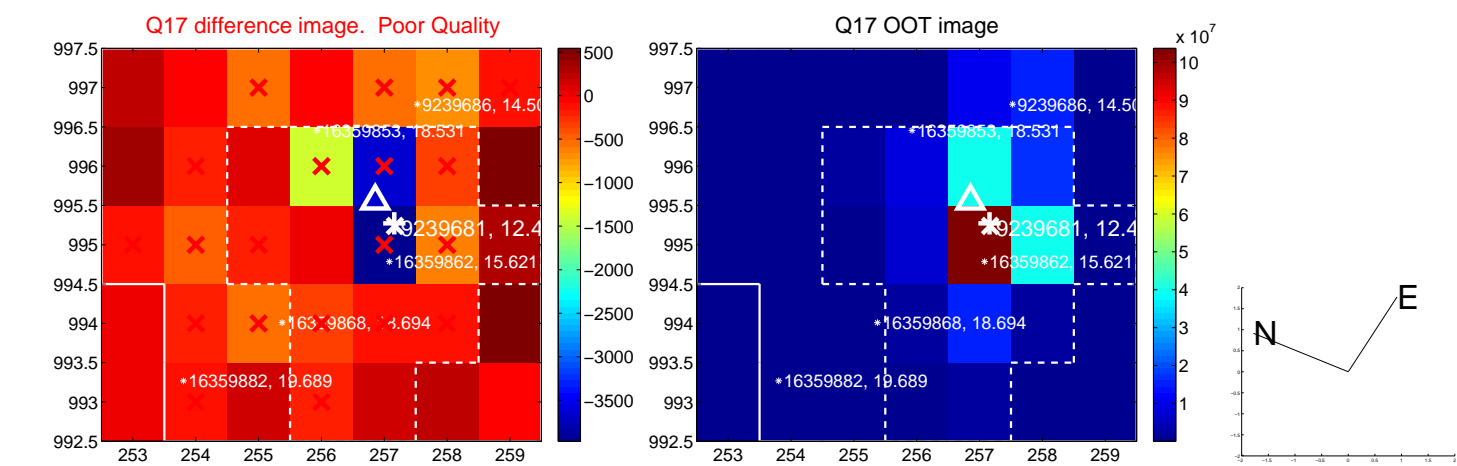
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

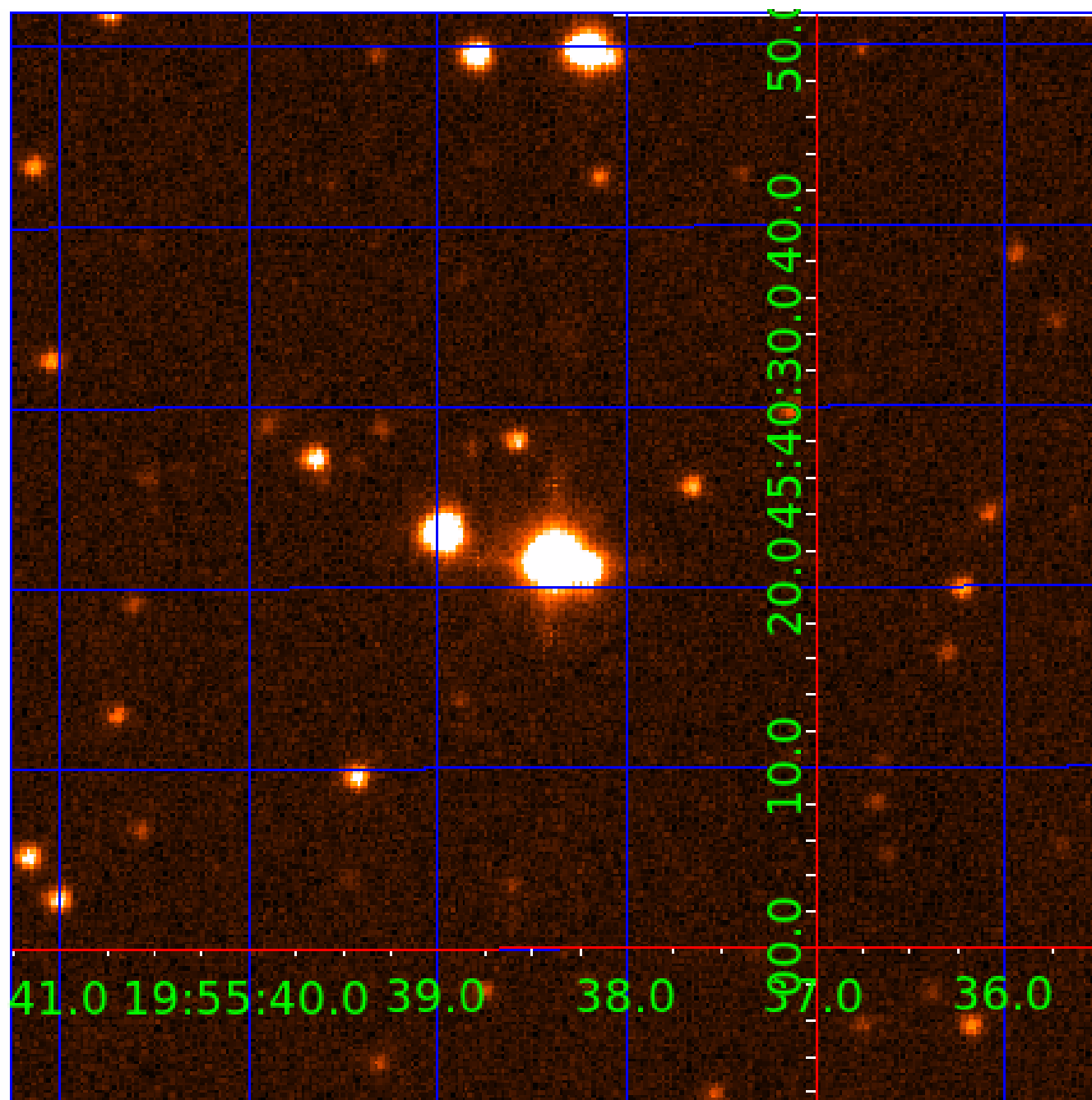


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009239681

Q1-17 DR25 TCE Parameters

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Robovetter Results

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009239681-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009239681-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

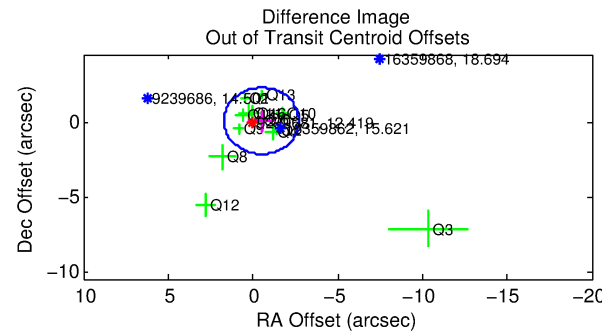
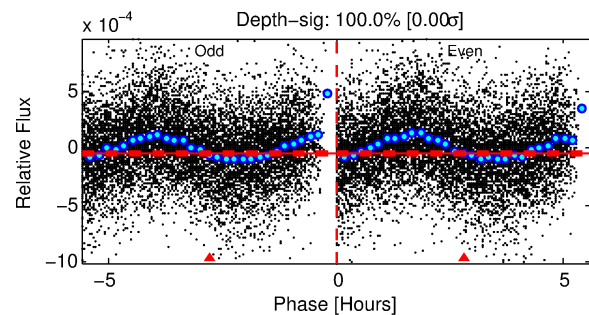
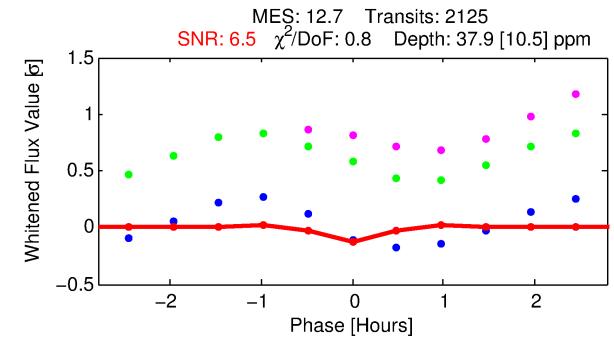
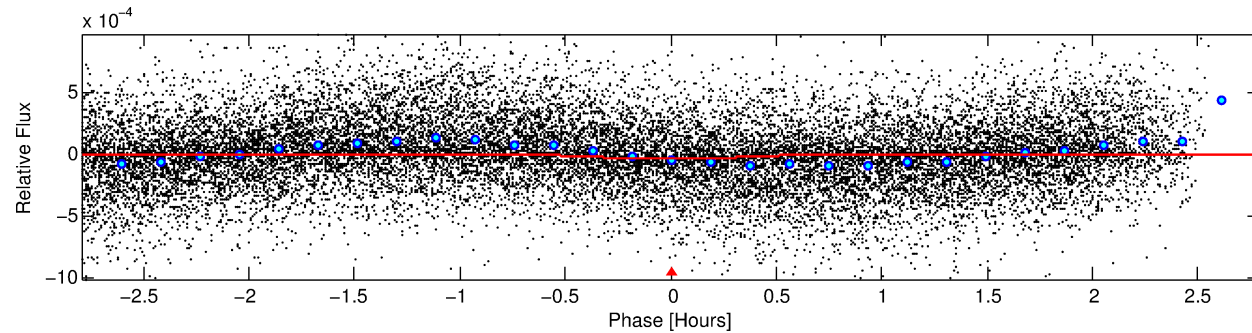
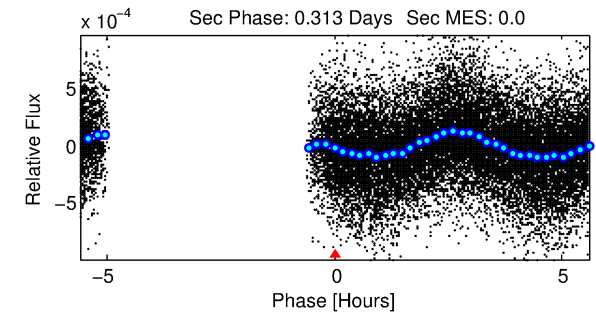
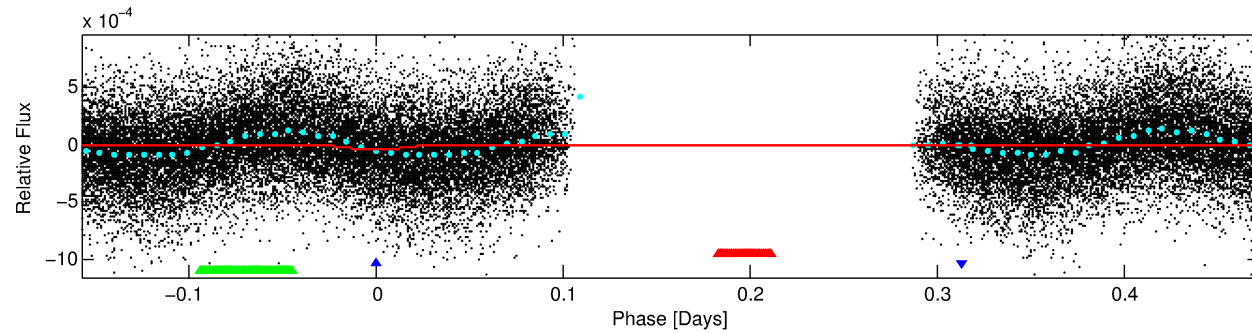
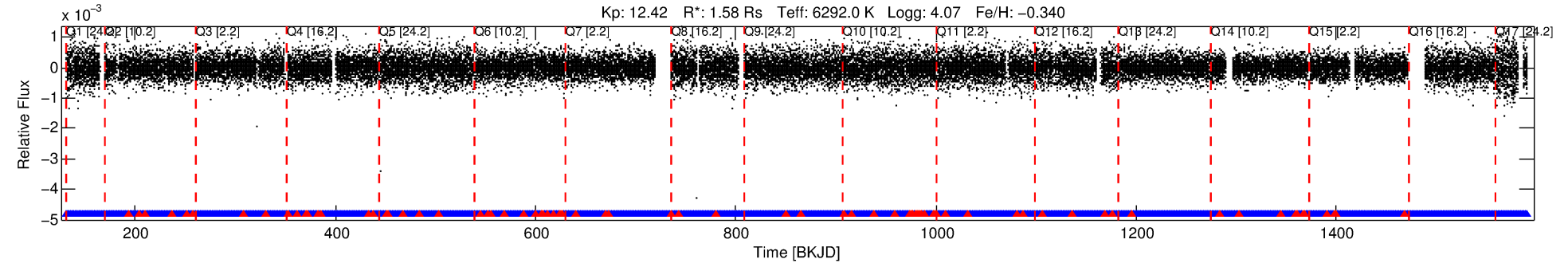
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009239681-02

No Significant Match Found

DV One-Page Summary

KIC: 9239681 Candidate: 2 of 3 Period: 0.630 d



DV Fit Results:

Period = 0.62997 [0.00002] d
Epoch = 131.9397 [0.0021] BKJD
Rp/R* = 0.0067 [0.0023]
a/R* = 2.51 [3.79]
b = 0.90 [0.39]
Seff = 16231.53 [9167.34]
Teq = 2878 [406] K
Rp = 1.15 [0.54] Re
a = 0.0147 [0.0049] AU
Ag = N/A
Teffp = N/A

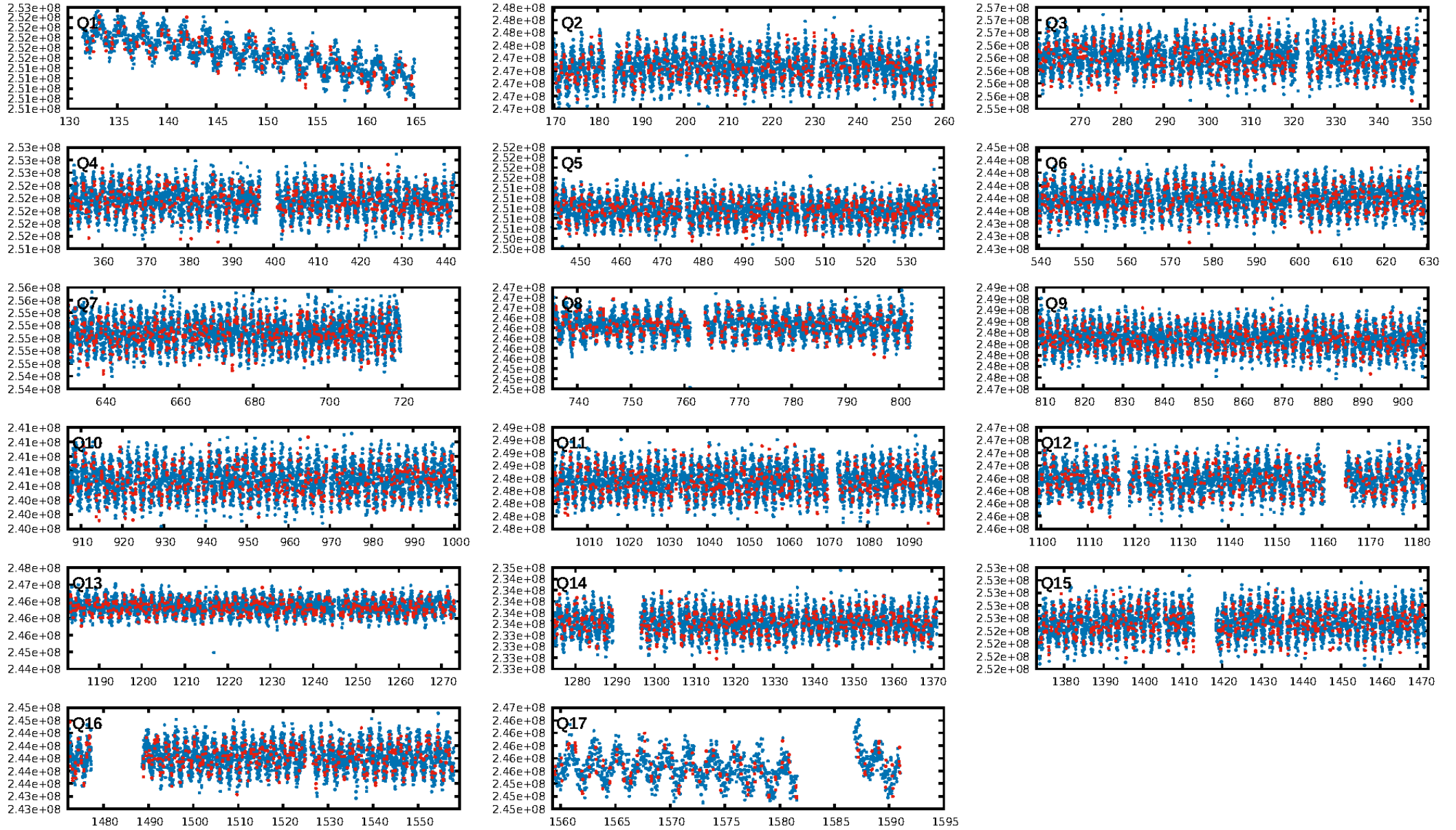
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [1946/2029]
GhostDiagnostic-chr: -24.38
Centroid-sig: 19.2%
Centroid-so: 0.542 arcsec [0.71σ]
OotOffset-rm: 0.497 arcsec [0.67σ]
KicOffset-rm: 0.491 arcsec [0.63σ]
OotOffset-st: 4/3/4/4 [15]
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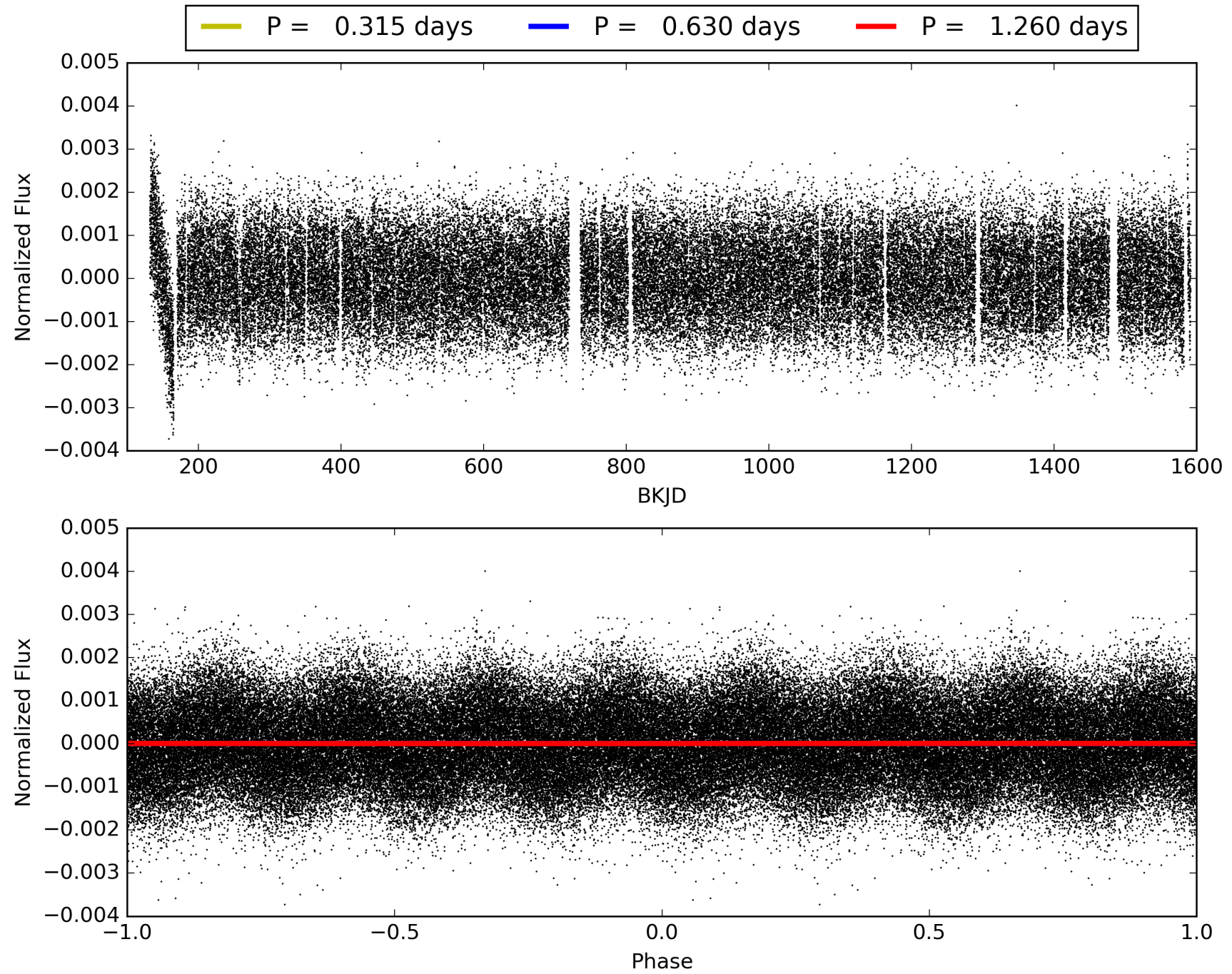
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:49:49 Z

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

TCE 009239681-02, PDC Light Curves

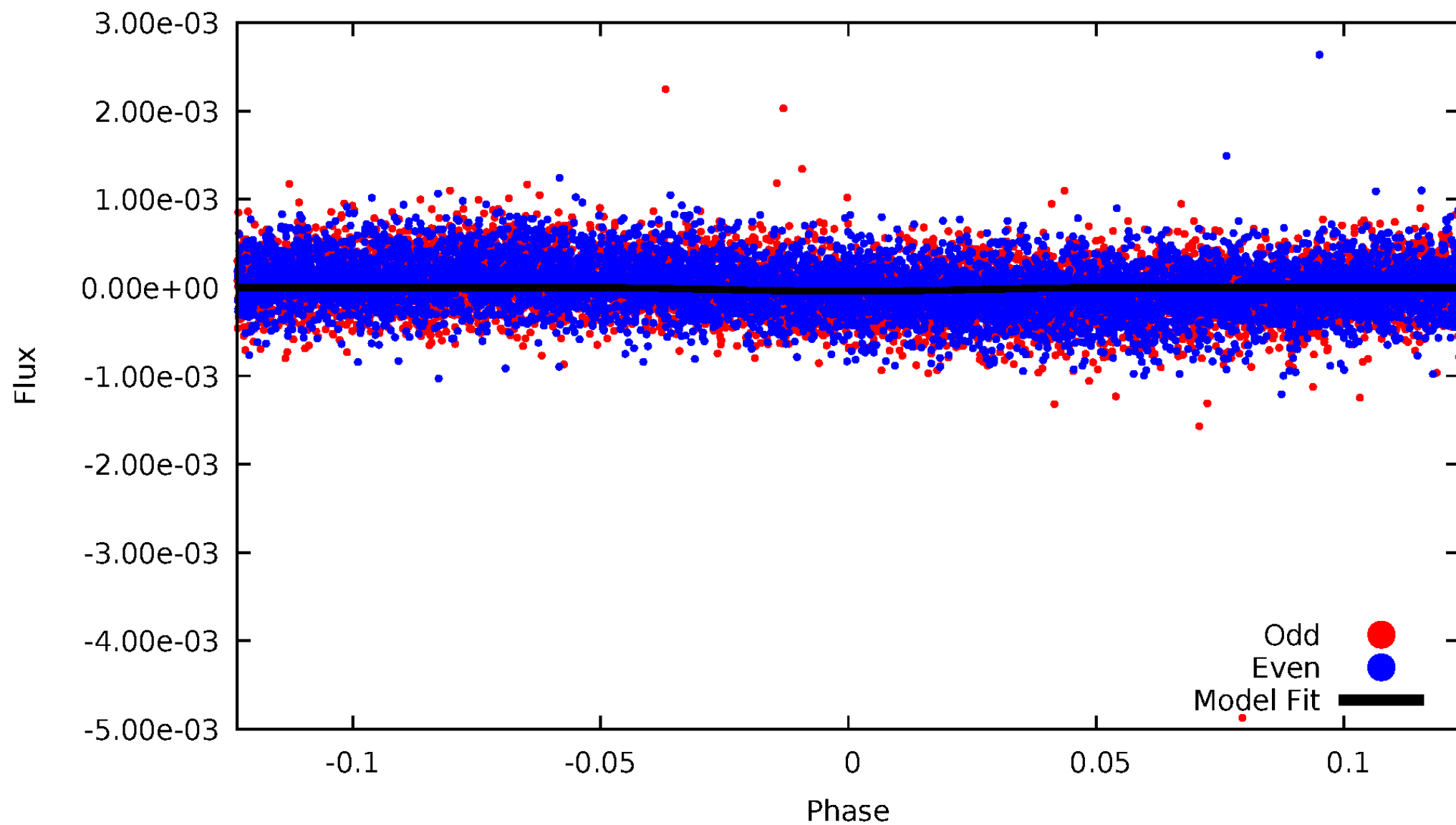


TCE 009239681-02



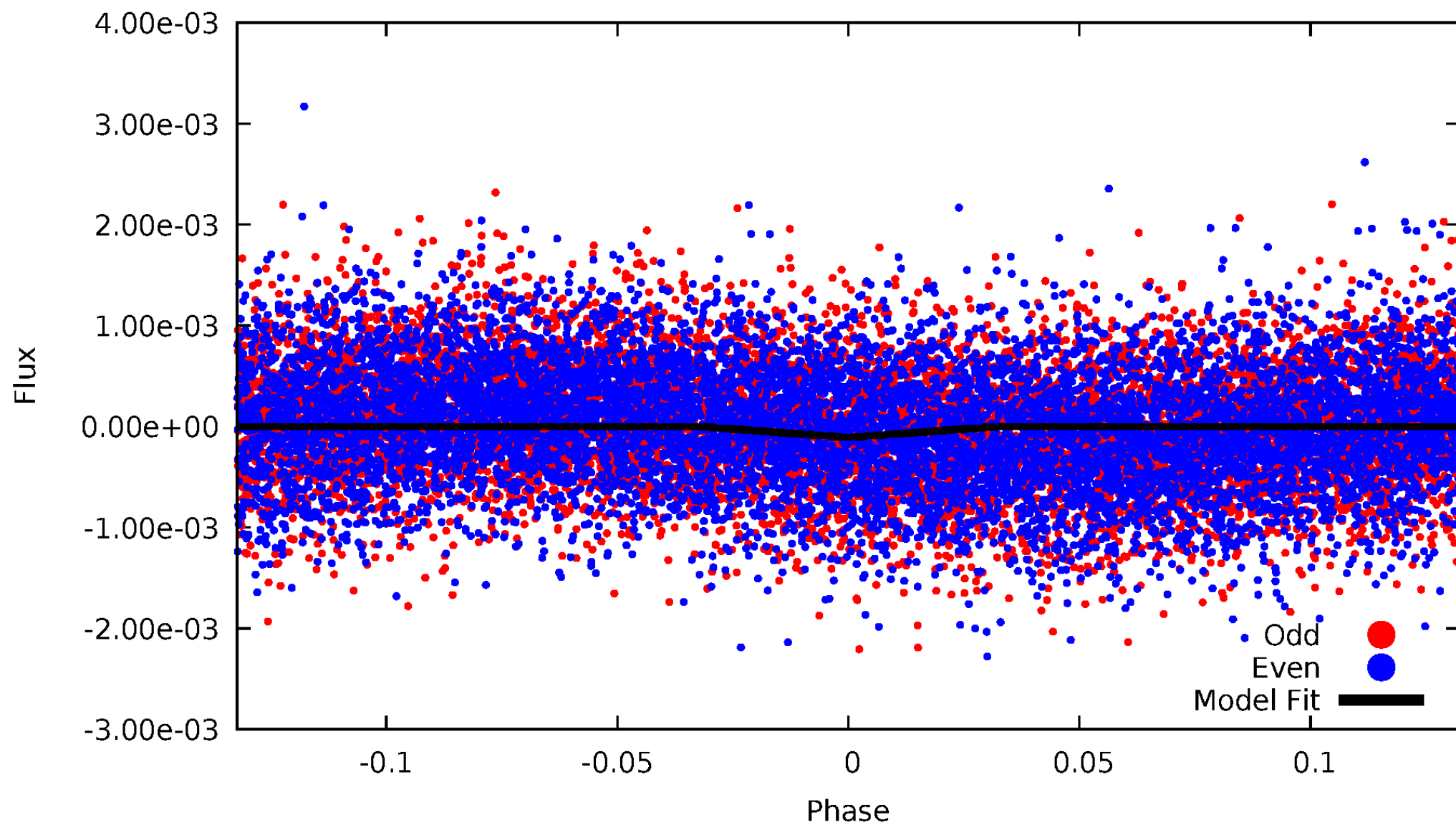
DV Odd/Even

TCE 009239681-02



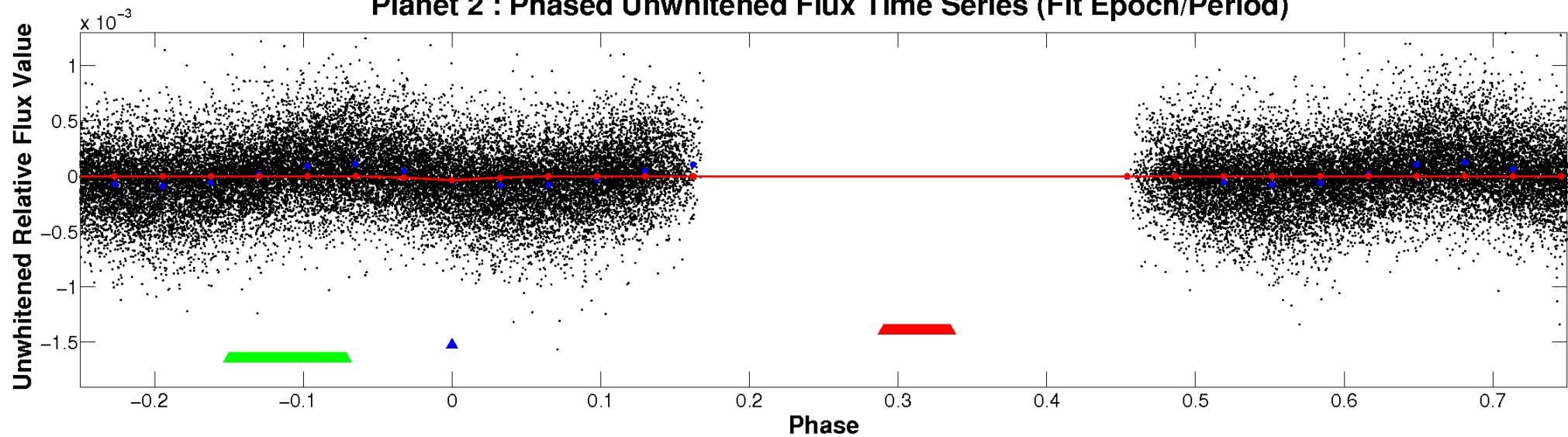
ALT Odd/Even

TCE 009239681-02

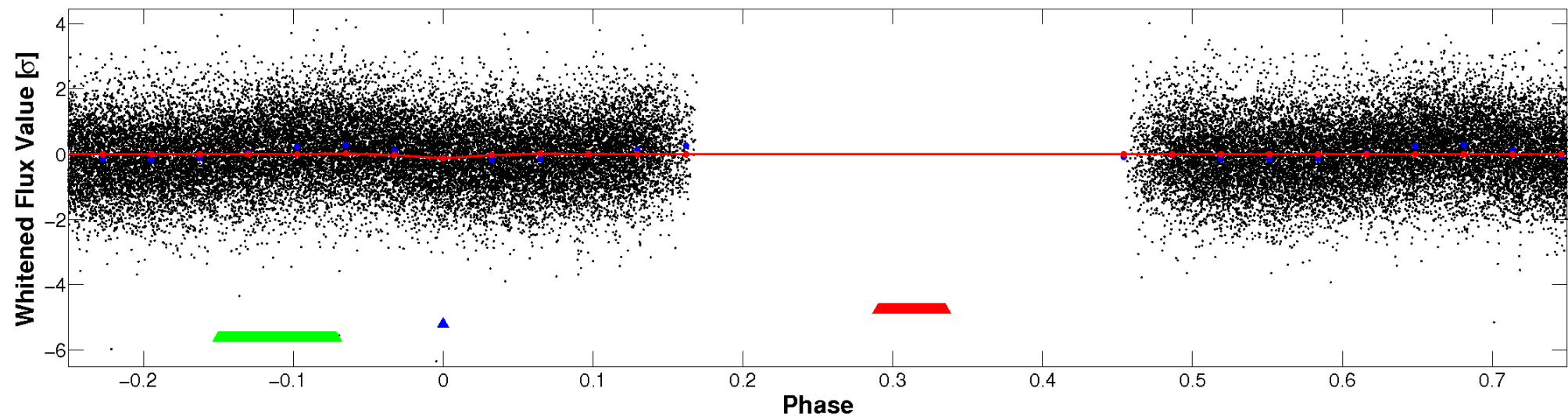


Non-Whitened Vs. Whitened Light Curve

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

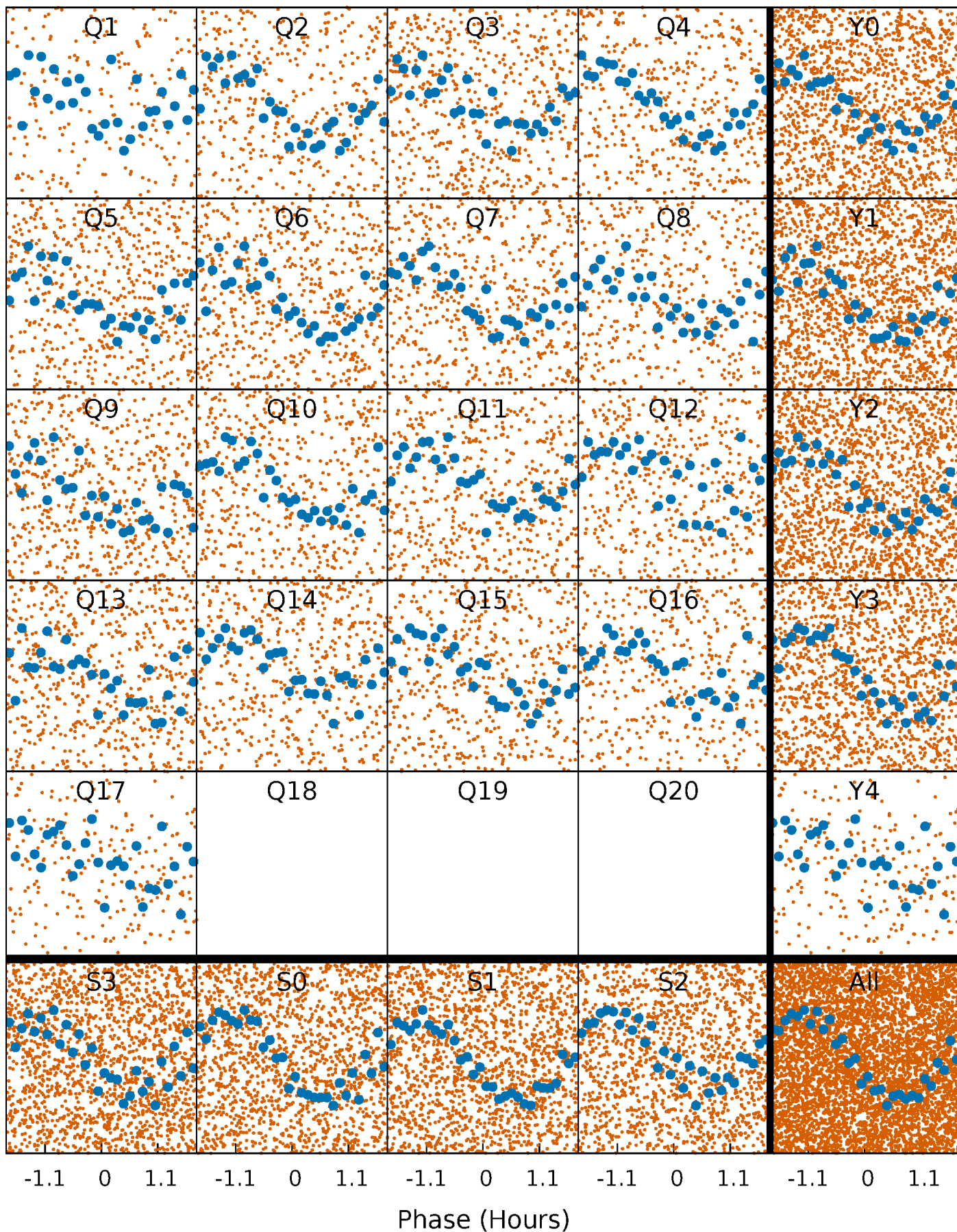


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



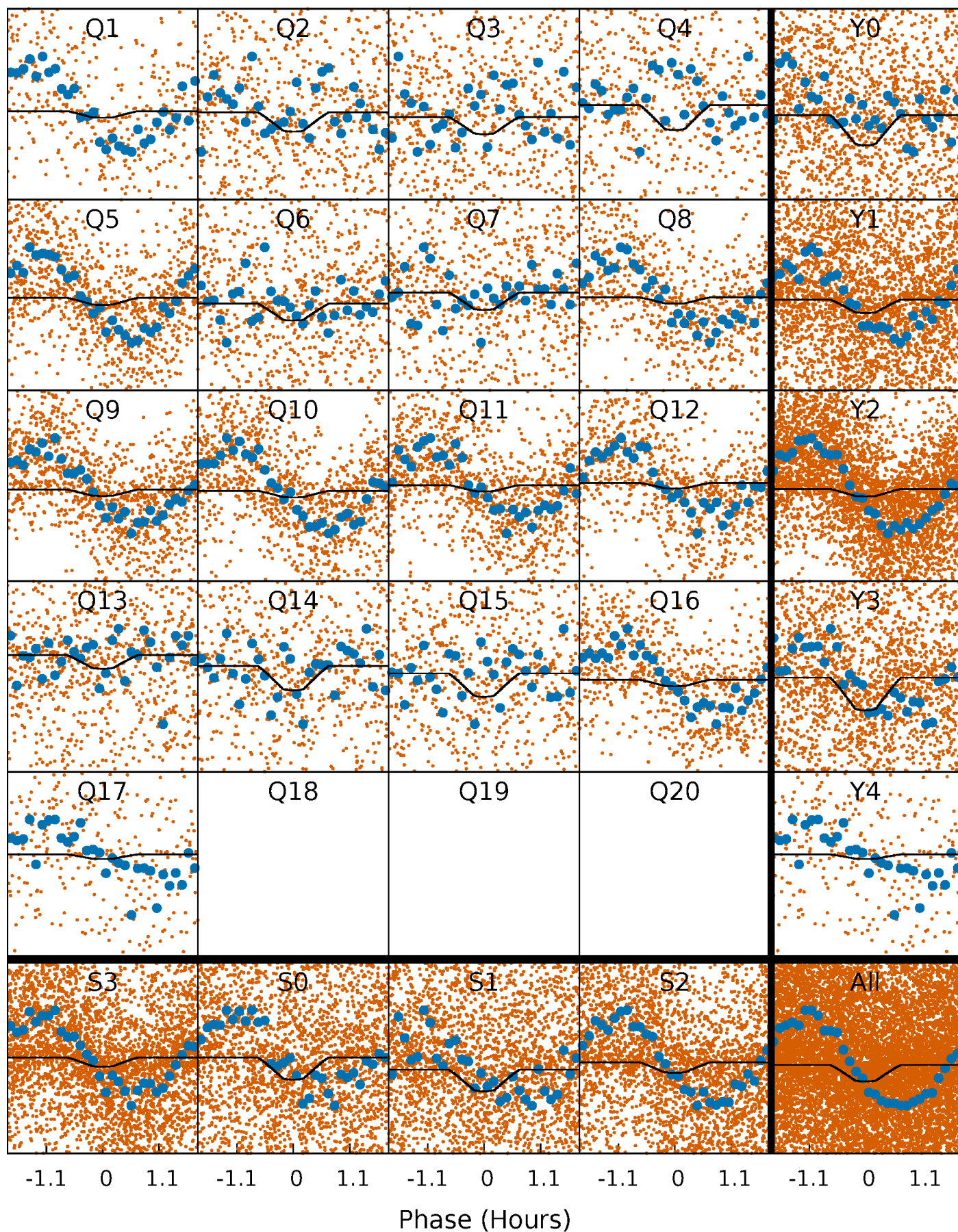
PDC Quarter-Phased Transit Curves

TCE 009239681-02 $P = 0.629971$ Days $T_0 = 131.939701$ (BKJD)



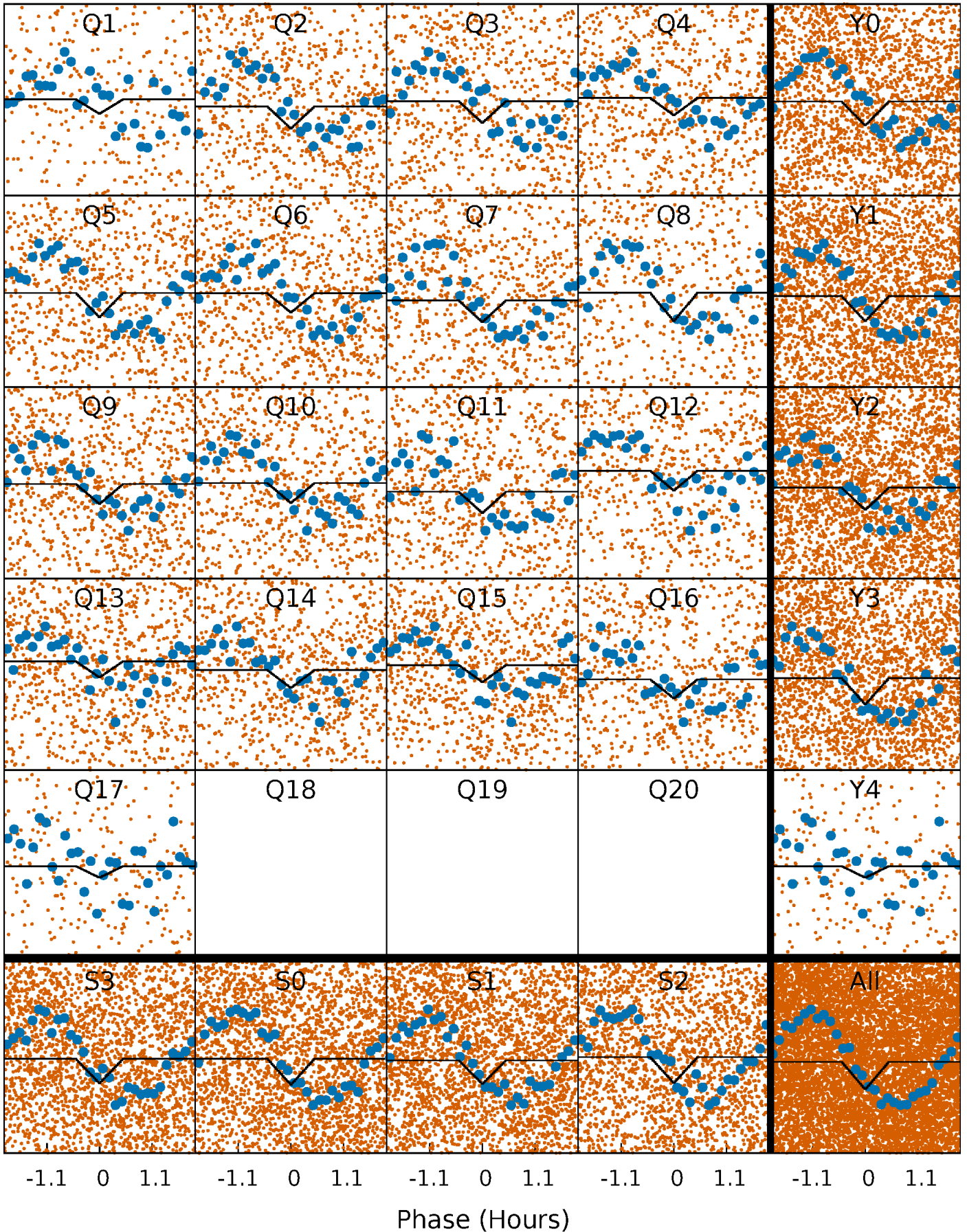
DV Quarter-Phased Transit Curves

TCE 009239681-02 P= 0.629971 Days $T_0=131.939701$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

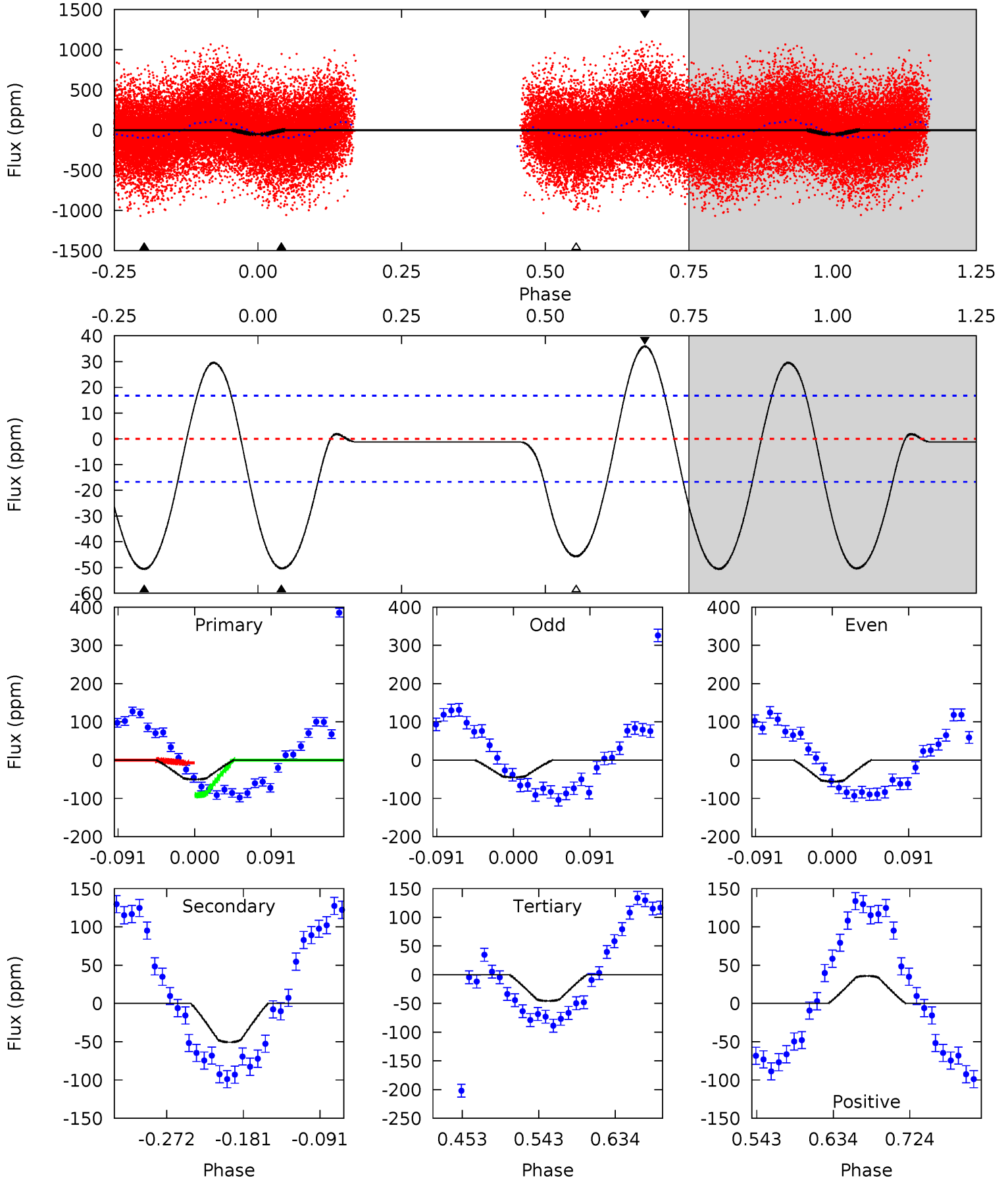
TCE 009239681-02 $P = 0.629985$ Days $T_0 = 131.922828$ (BKJD)



DV Model-Shift Uniqueness Test

009239681-02, P = 0.629971 Days, E = 131.309730 Days

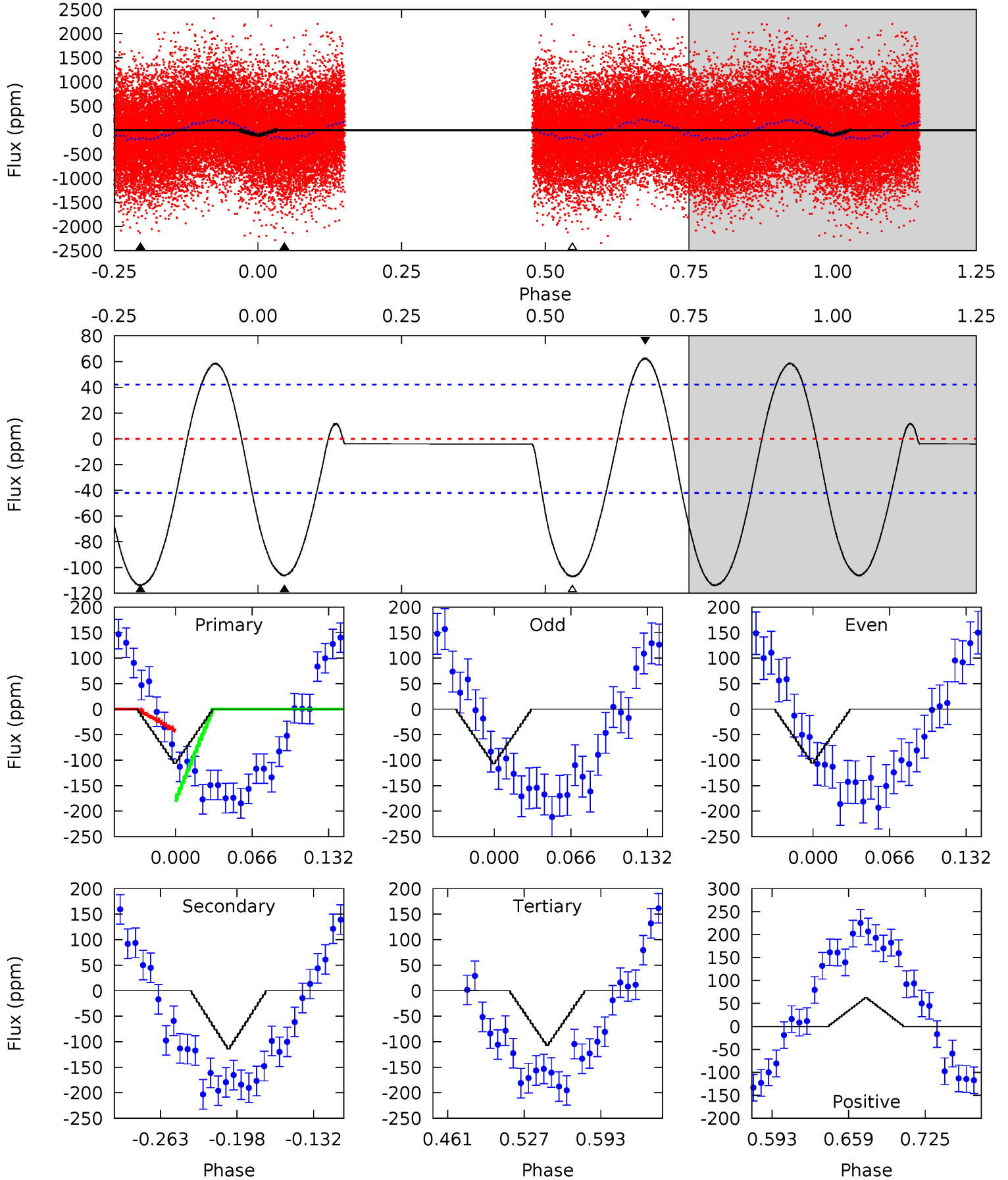
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	13.9	12.5	9.85	4.59	1.69	7.50	1.29	3.95	1.35	4.01	1.51	1.14	0.42	11.8



Alt Model-Shift Uniqueness Test

009239681-02, P = 0.629985 Days, E = 131.292843 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	12.6	11.8	6.92	4.65	1.84	5.95	-0.07	4.83	0.76	5.66	0.04	1.09	0.35	7.66



Stellar Parameters For KIC 009239681

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6292^{+188}_{-207}	$4.068^{+0.329}_{-0.141}$	$-0.340^{+0.300}_{-0.300}$	$1.578^{+0.418}_{-0.511}$	$1.062^{+0.169}_{-0.138}$	$0.381^{+0.865}_{-0.167}$
	+3%/-3%	+8%/-3%	+88%/-88%	+26%/-32%	+16%/-13%	+227%/-44%
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 009239681-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-51 ± 4	$1.08^{+0.44}_{-0.40}$	3930^{+308}_{-361}	6423^{+1955}_{-958}	$5.273^{+8.458}_{-2.612}$
Alt.	-114 ± 9	$1.70^{+0.48}_{-0.44}$	3939^{+290}_{-333}	6296^{+969}_{-694}	$4.789^{+3.781}_{-1.932}$

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 $A_{obs} \gg 1.0$

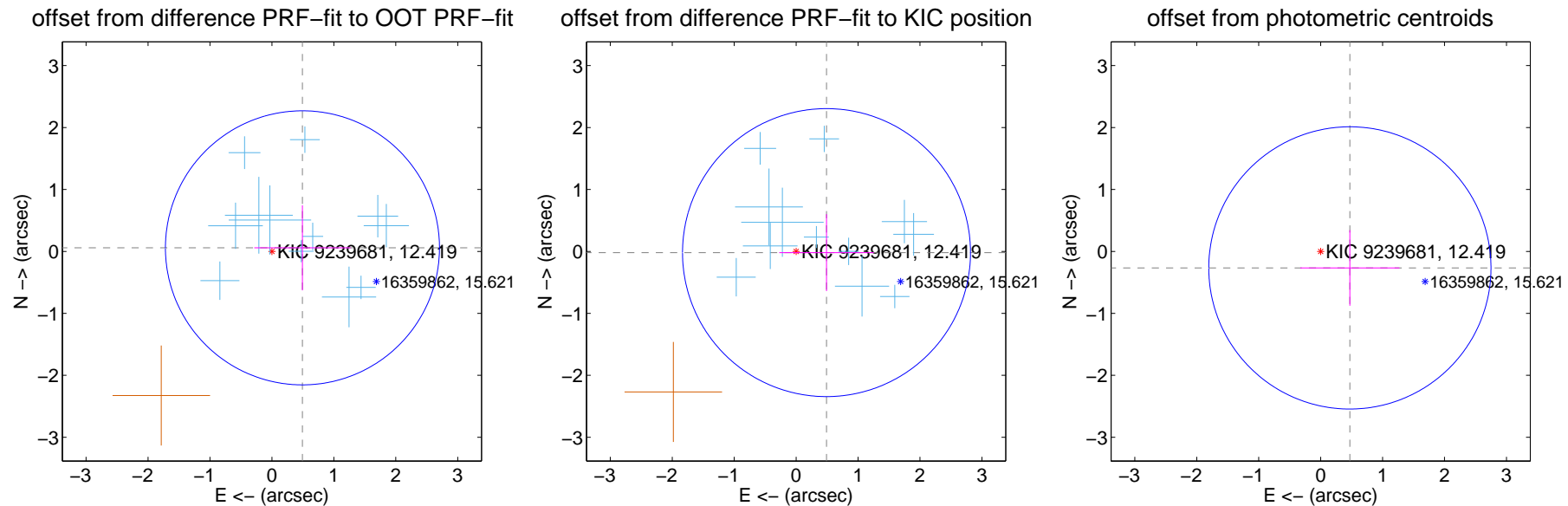
DV Centroid Data

Supplemental centroid analysis for 009239681-02. Kepler magnitude: 12.42. Transit SNR 6.54

There are 12 quarters with good PRF difference image offsets

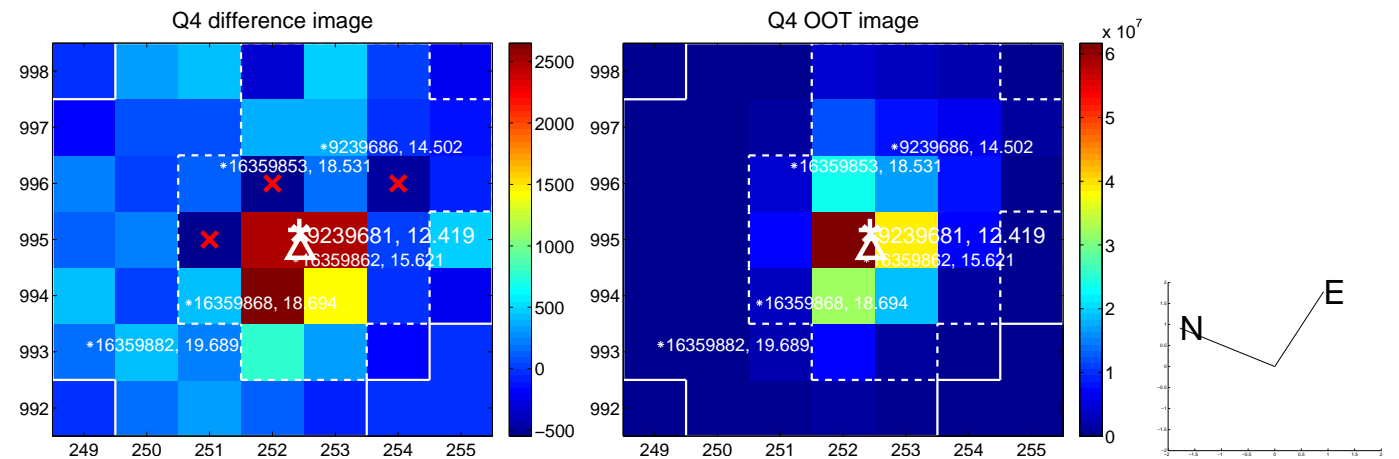
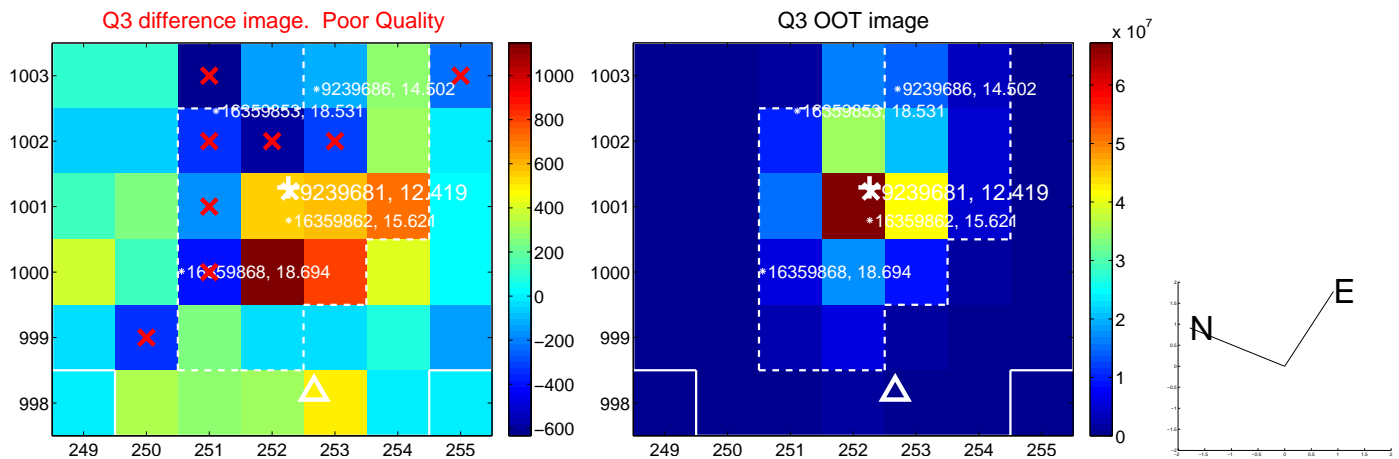
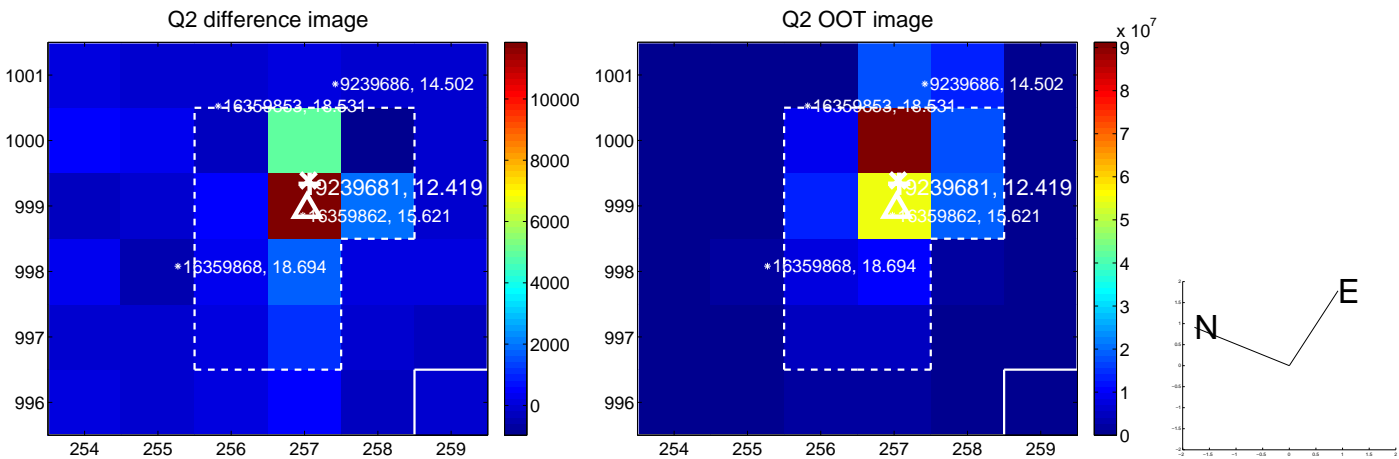
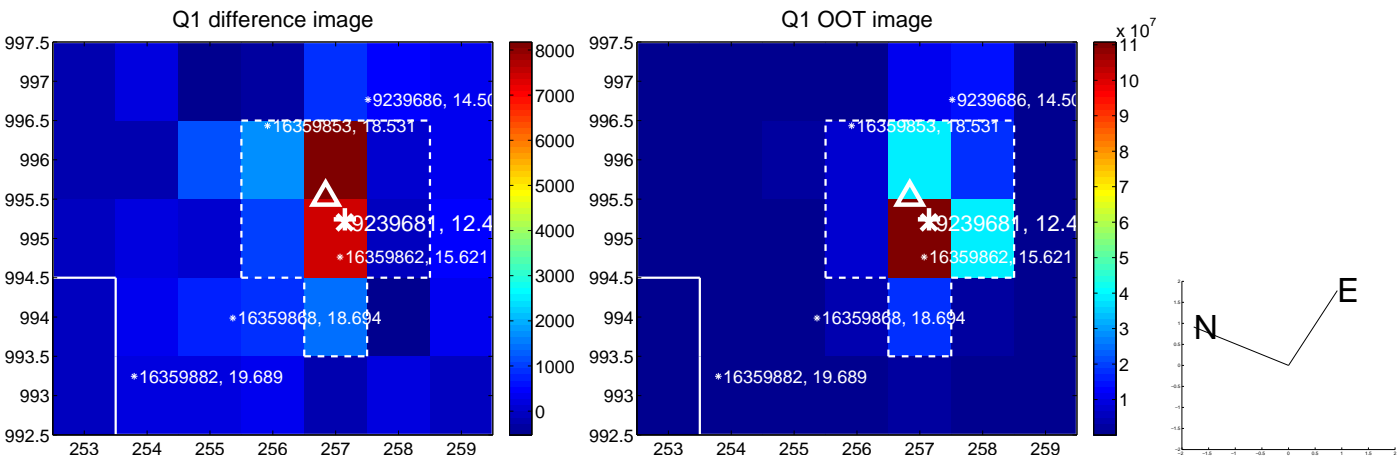
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.497 ± 0.737	0.67	-0.493 ± 0.778	0.058 ± 0.687
PRF-fit source offset from KIC position	0.491 ± 0.775	0.63	-0.491 ± 0.764	-0.019 ± 0.621
photometric centroid source offset	0.54 ± 0.76	0.71	-0.47 ± 0.80	-0.27 ± 0.61

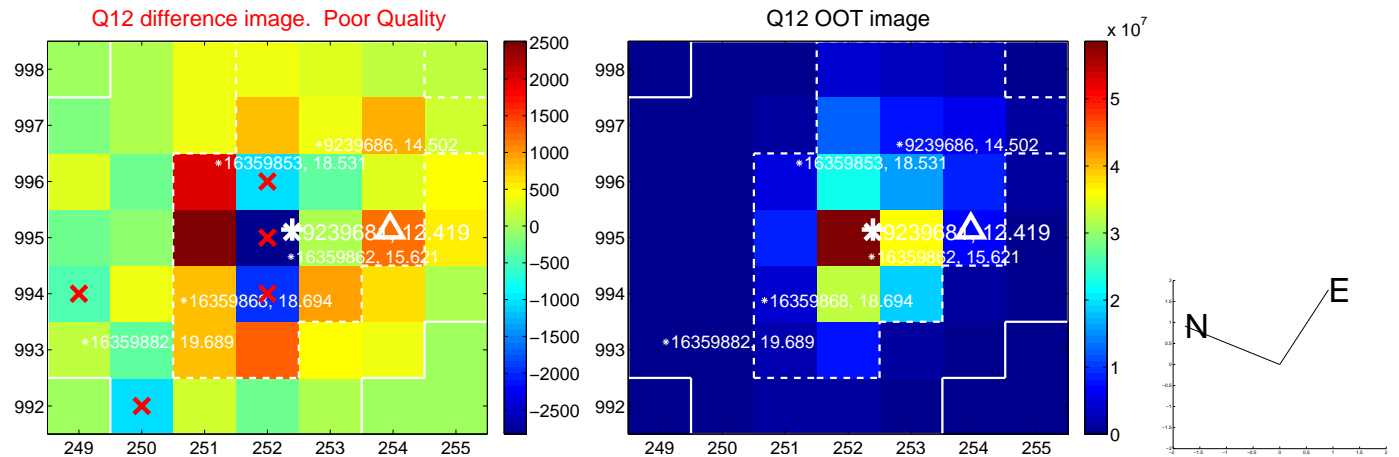
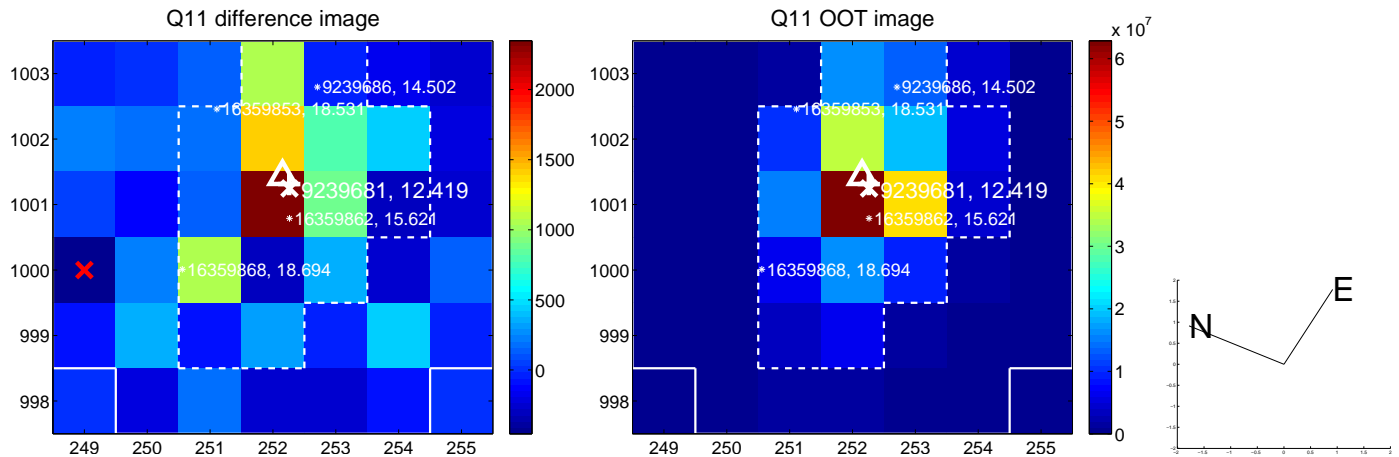
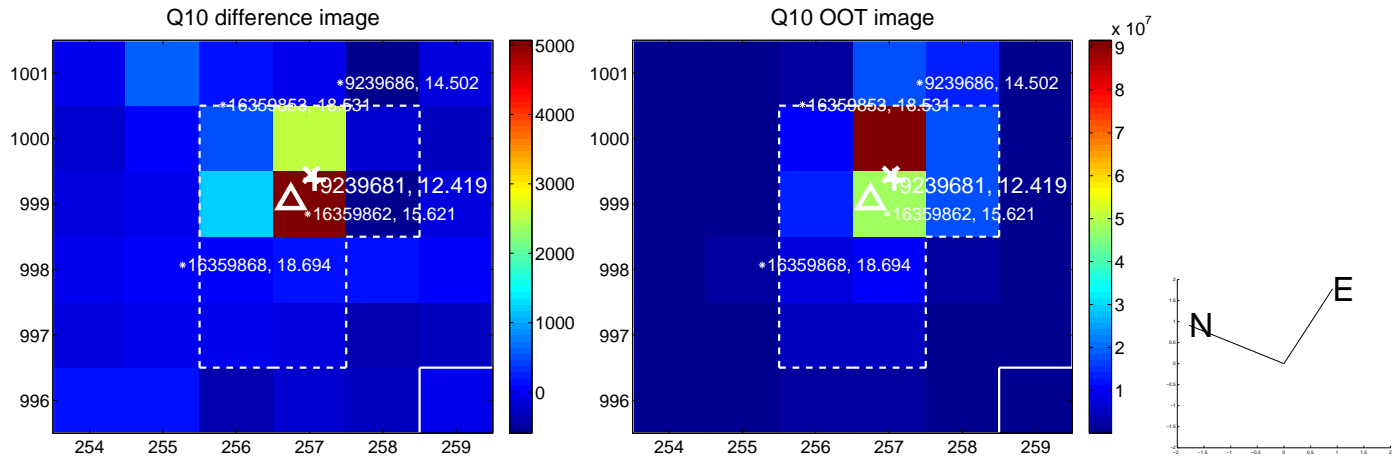
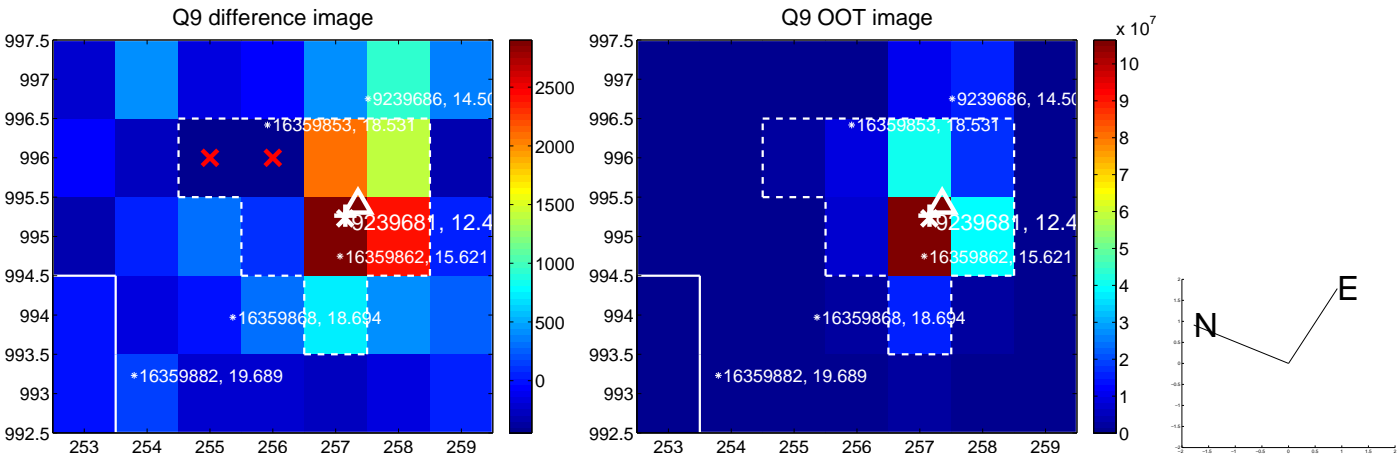


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

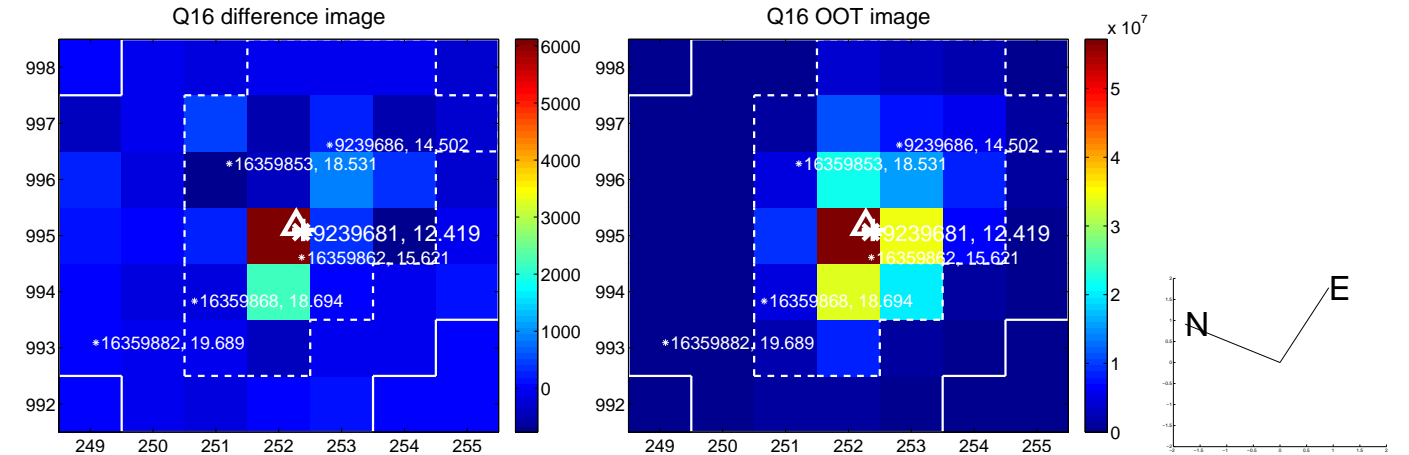
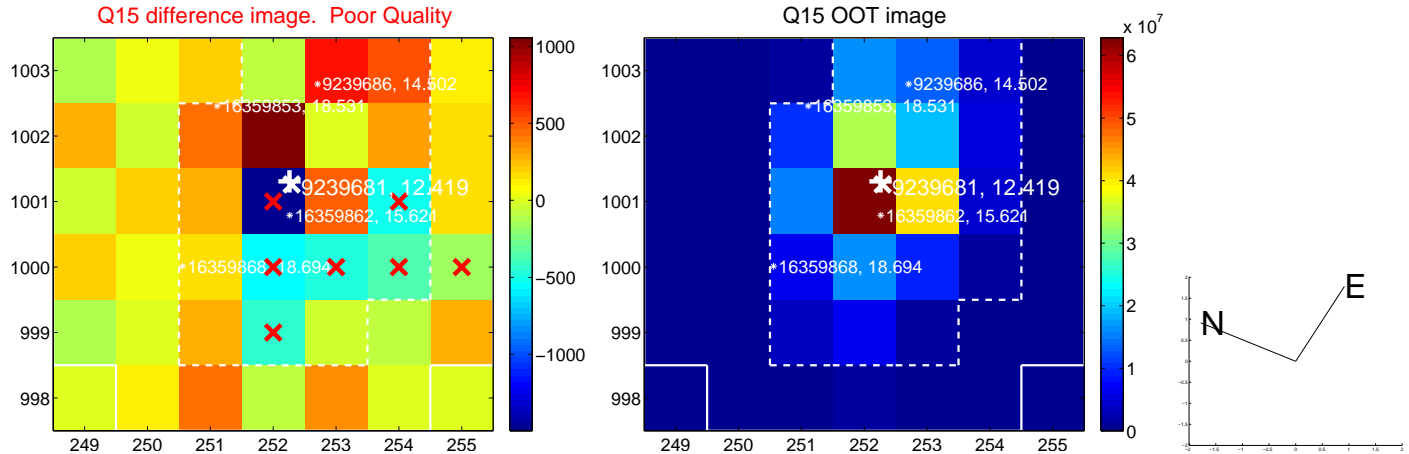
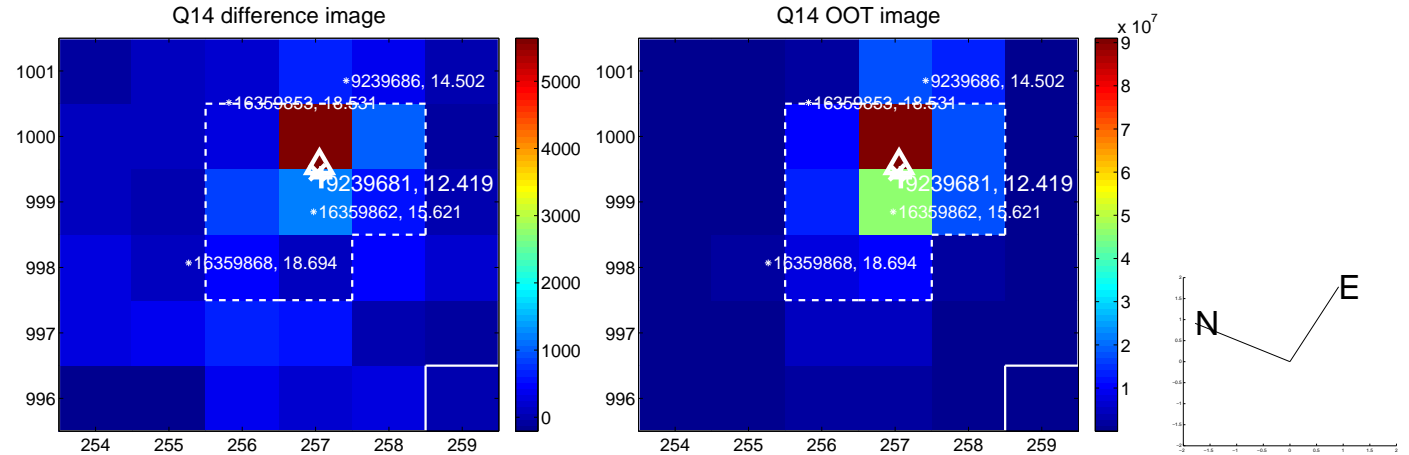
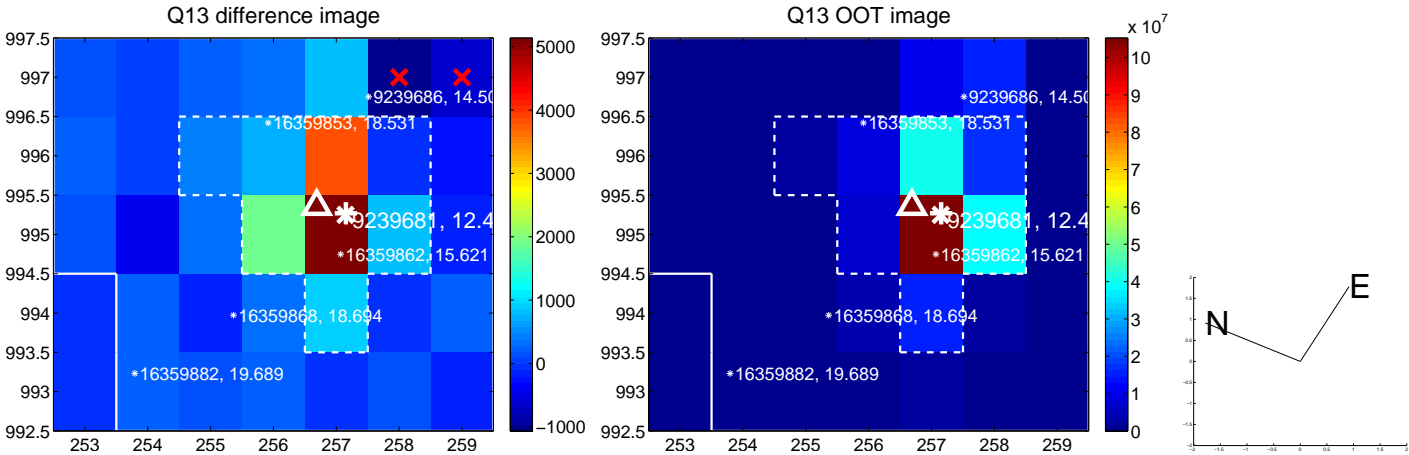
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



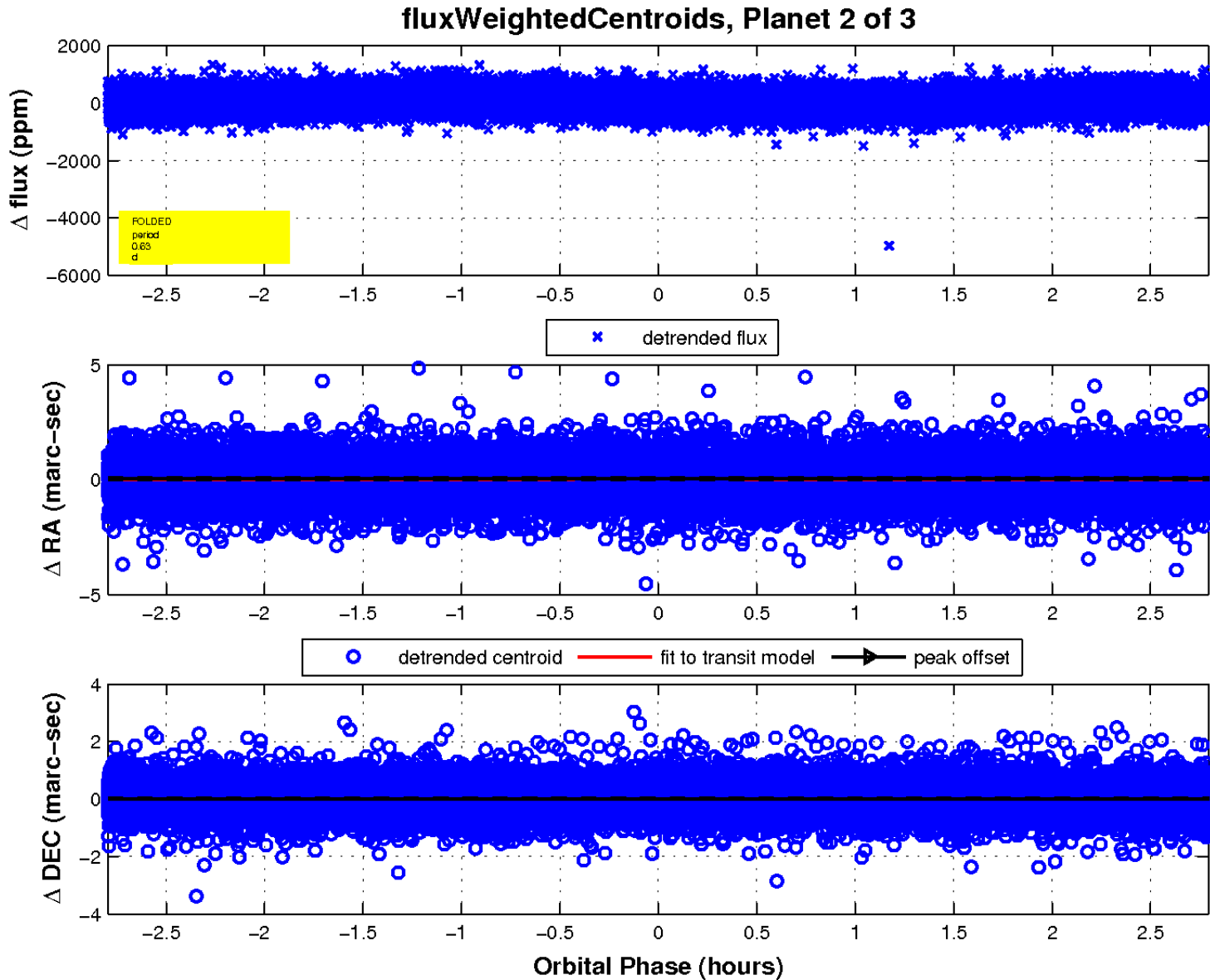
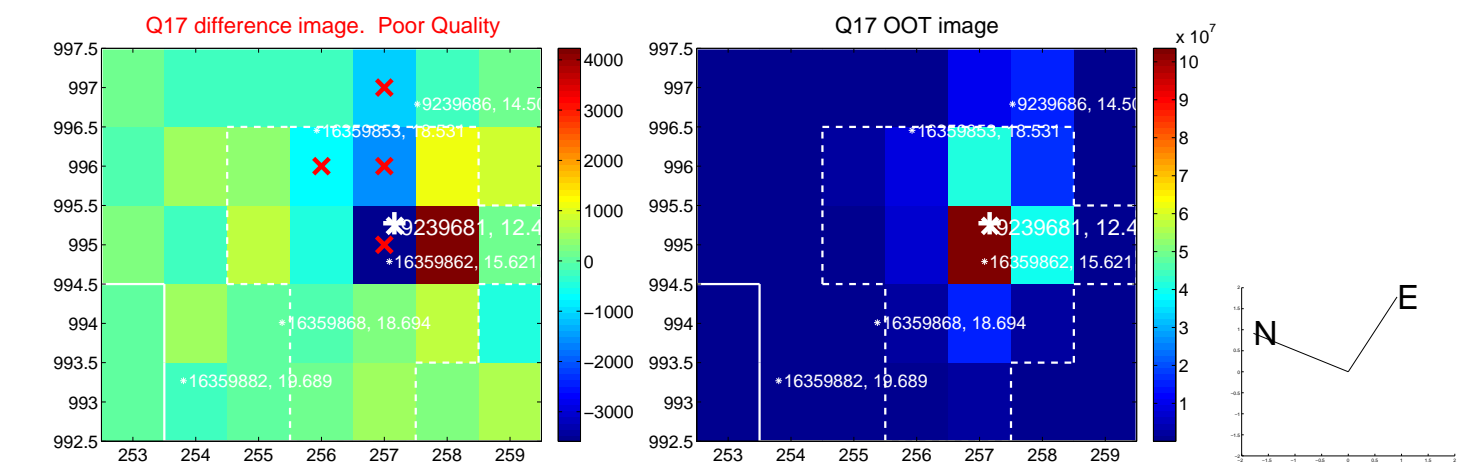
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

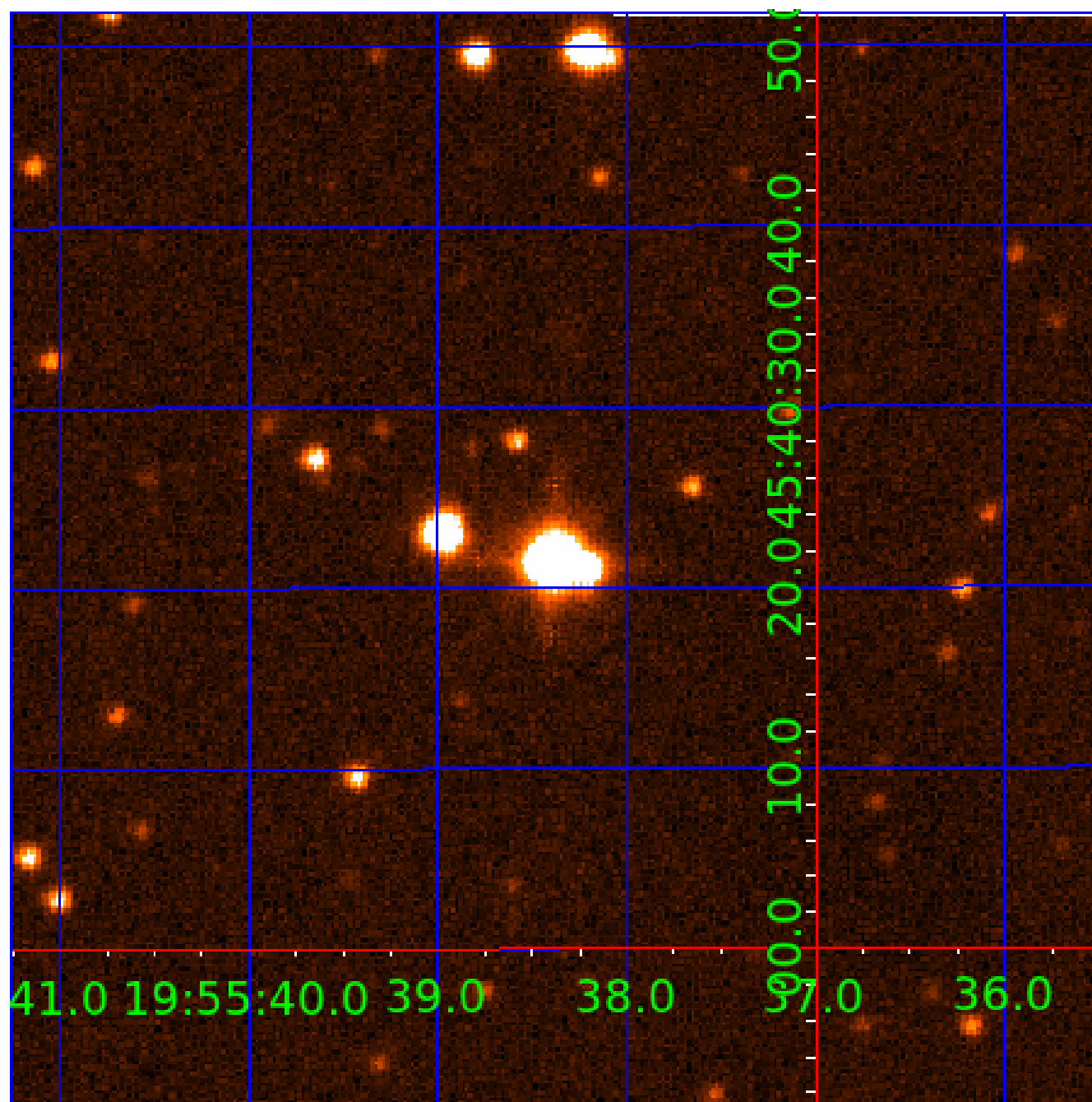


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009239681

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})
009239681-01	OBS	No	0.629983	132.122676	91.8	1.491	12.2	16.9	1.58	6292	1.56	16231.12
009239681-02	OBS	No	0.629971	131.939701	37.9	0.932	12.7	6.5	1.58	6292	1.15	16231.53
009239681-03	OBS	No	0.629950	131.894772	46.9	5.338	11.5	8.6	1.58	6292	1.10	16232.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009239681-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009239681-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD
009239681-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

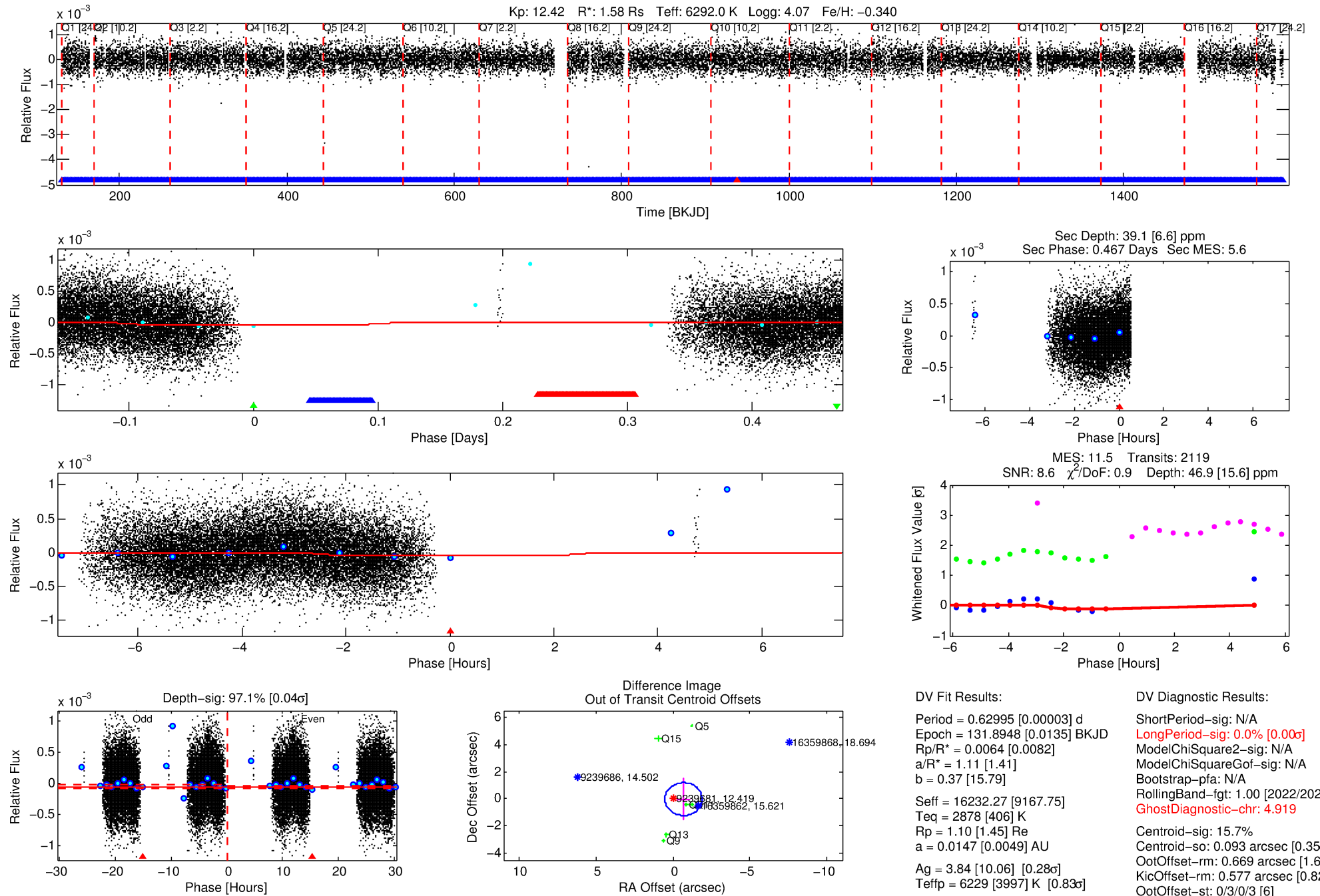
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009239681-03

No Significant Match Found

DV One-Page Summary

KIC: 9239681 Candidate: 3 of 3 Period: 0.630 d



DV Fit Results:

Period = 0.62995 [0.00003] d
Epoch = 131.8948 [0.0135] BKJD
Rp/R* = 0.0064 [0.0082]
a/R* = 1.11 [1.41]
b = 0.37 [15.79]
Seff = 16232.27 [9167.75]
Teff = 2878 [406] K
Rp = 1.10 [1.45] Re
a = 0.0147 [0.0049] AU
Ag = 3.84 [10.06] [0.28 σ]
Teffp = 6229 [3997] K [0.83 σ]

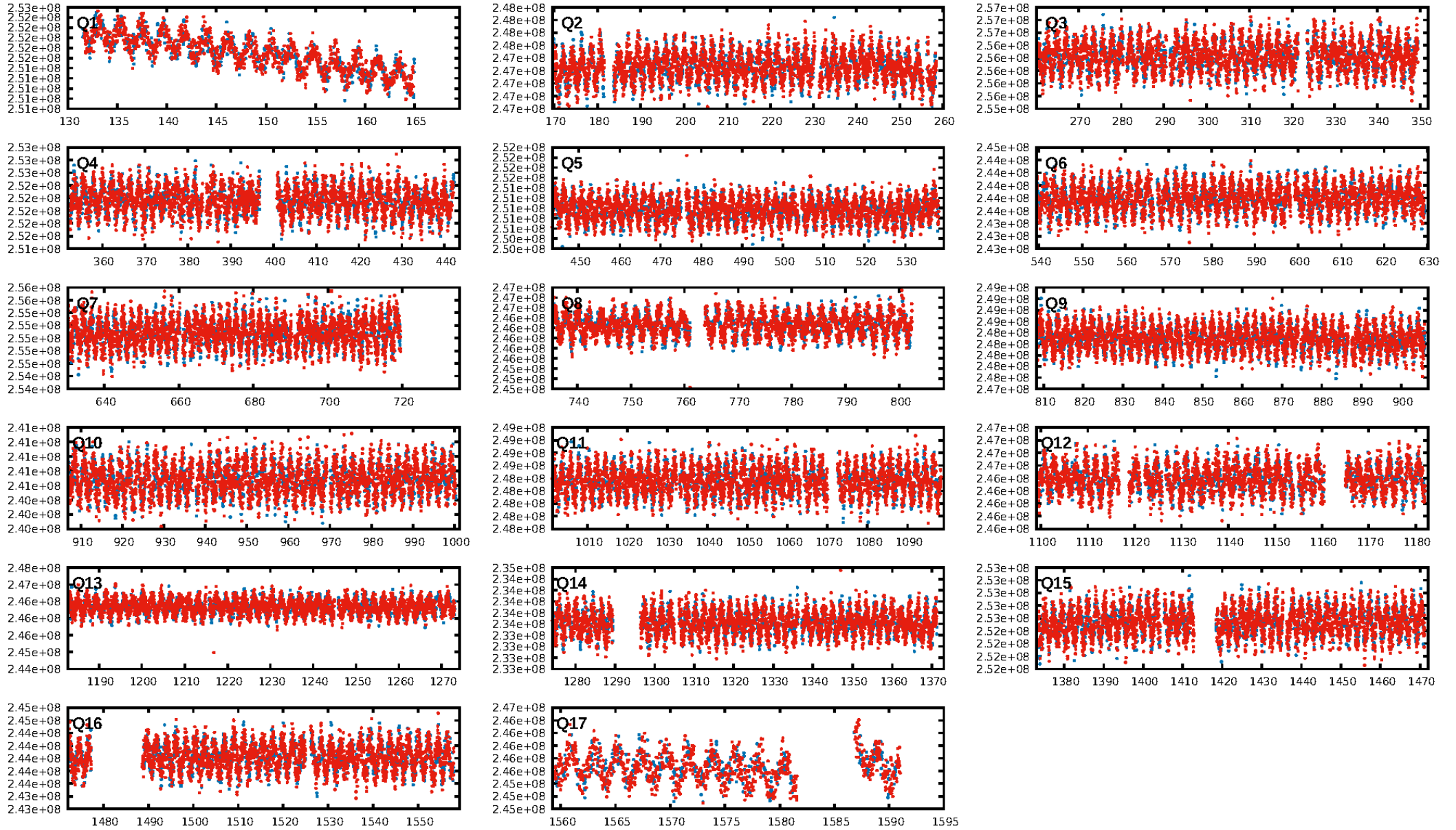
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2022/2023]
GhostDiagnostic-chr: 4.919
Centroid-sig: 15.7%
Centroid-so: 0.093 arcsec [0.35 σ]
OotOffset-rm: 0.669 arcsec [1.67 σ]
KicOffset-rm: 0.577 arcsec [0.82 σ]
OotOffset-st: 0/3/0/3 [6]
KicOffset-st: 0/3/0/3 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/17]

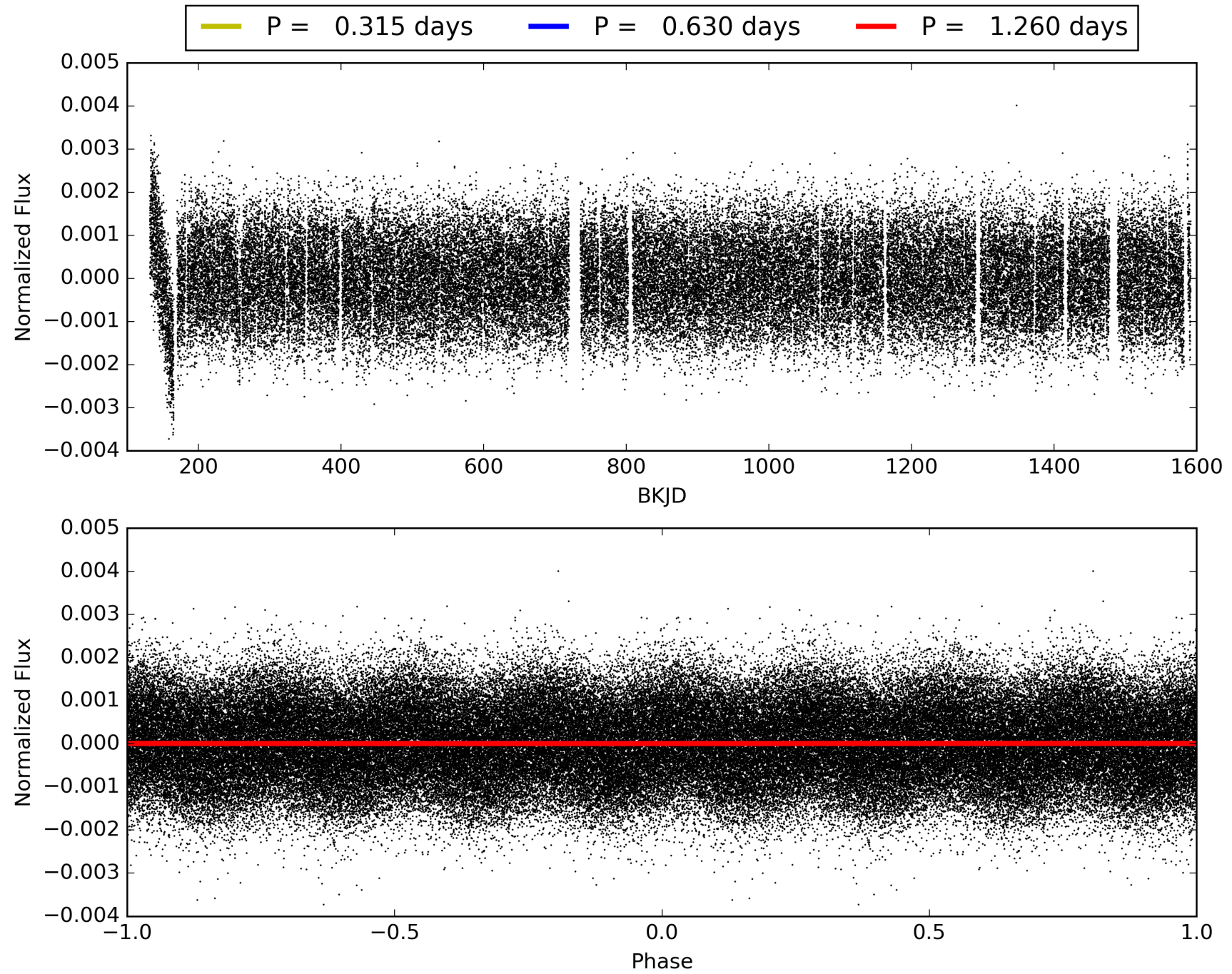
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 16:50:01 Z

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TCE 009239681-03, PDC Light Curves

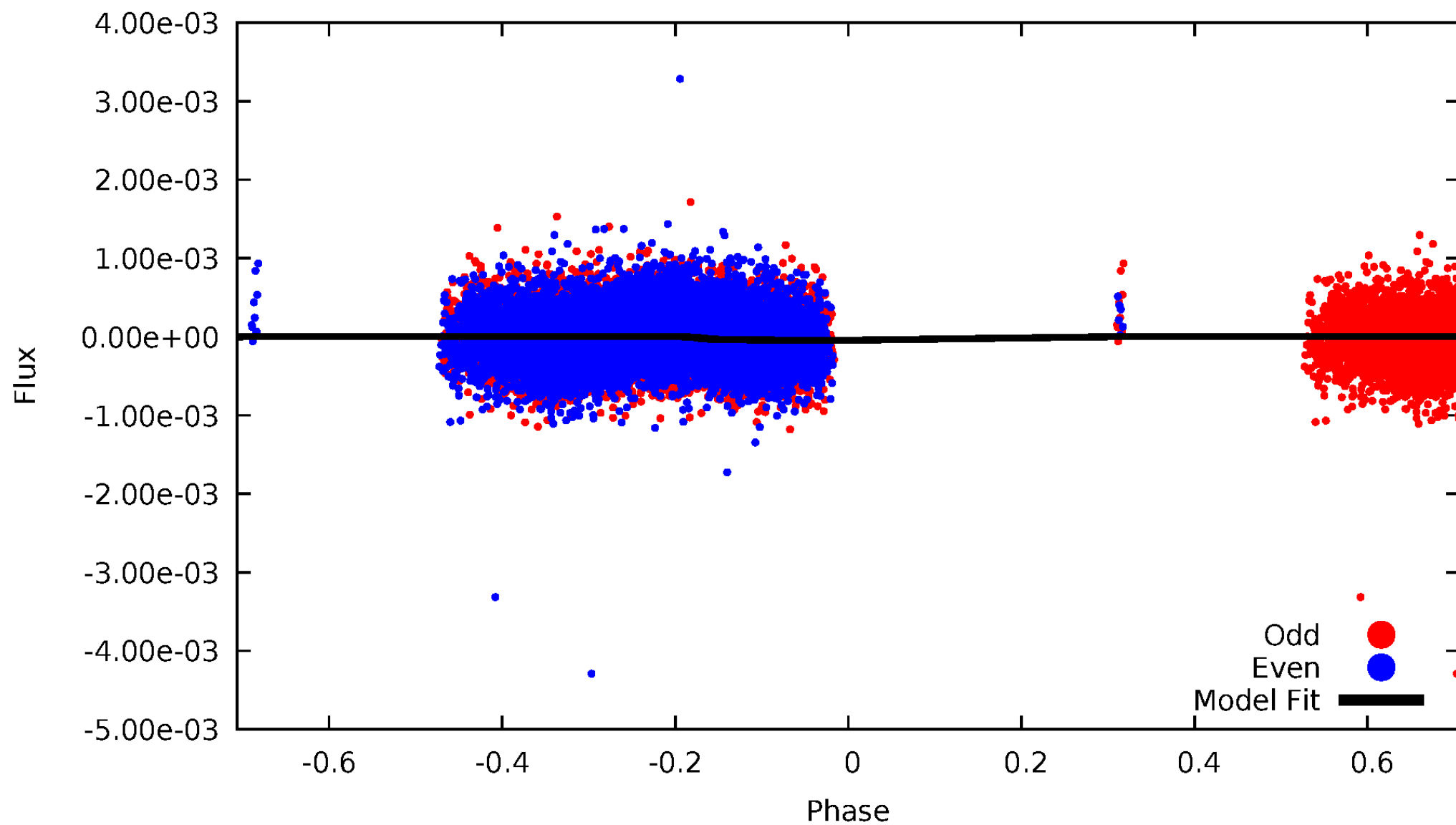


TCE 009239681-03



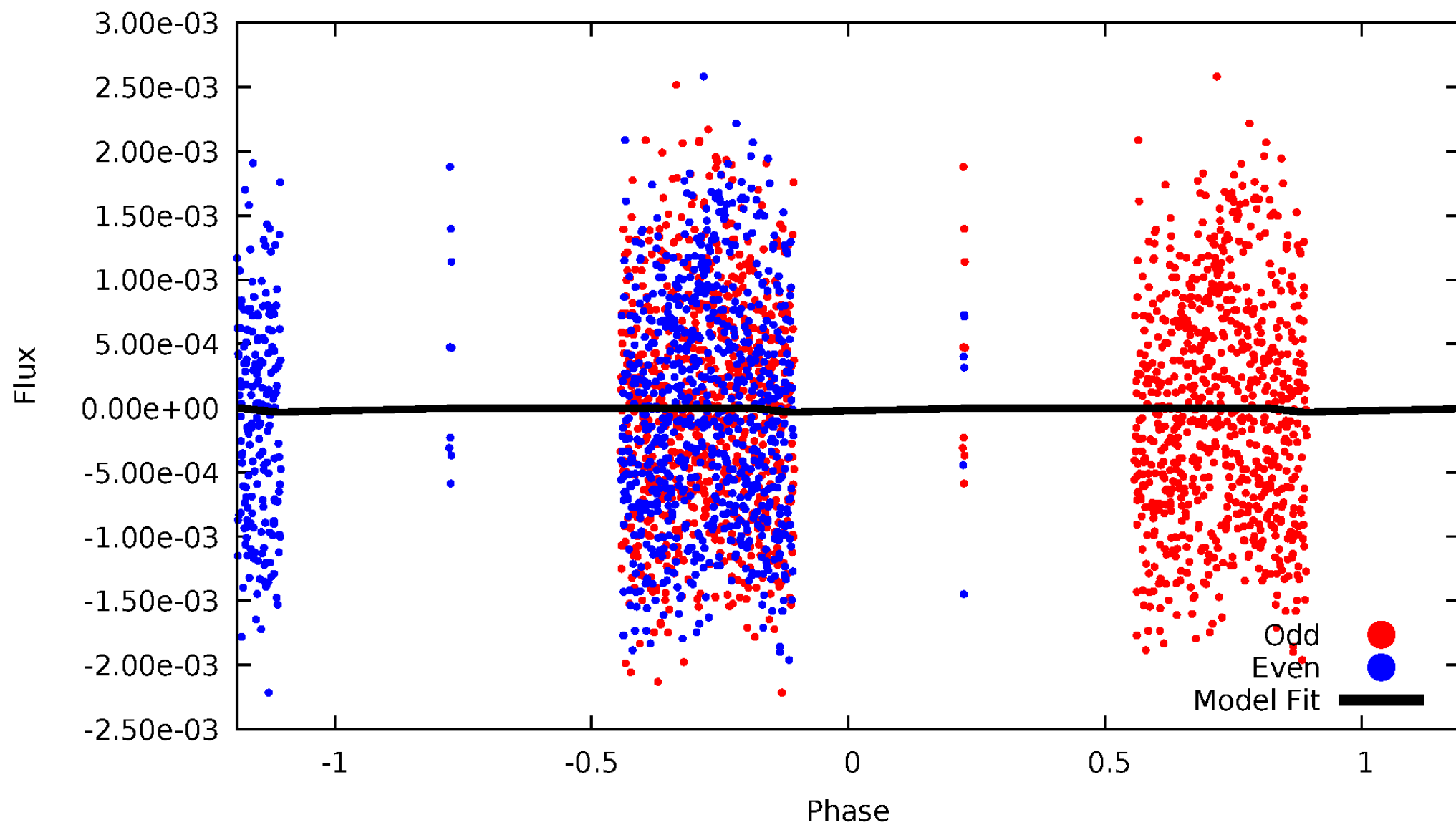
DV Odd/Even

TCE 009239681-03



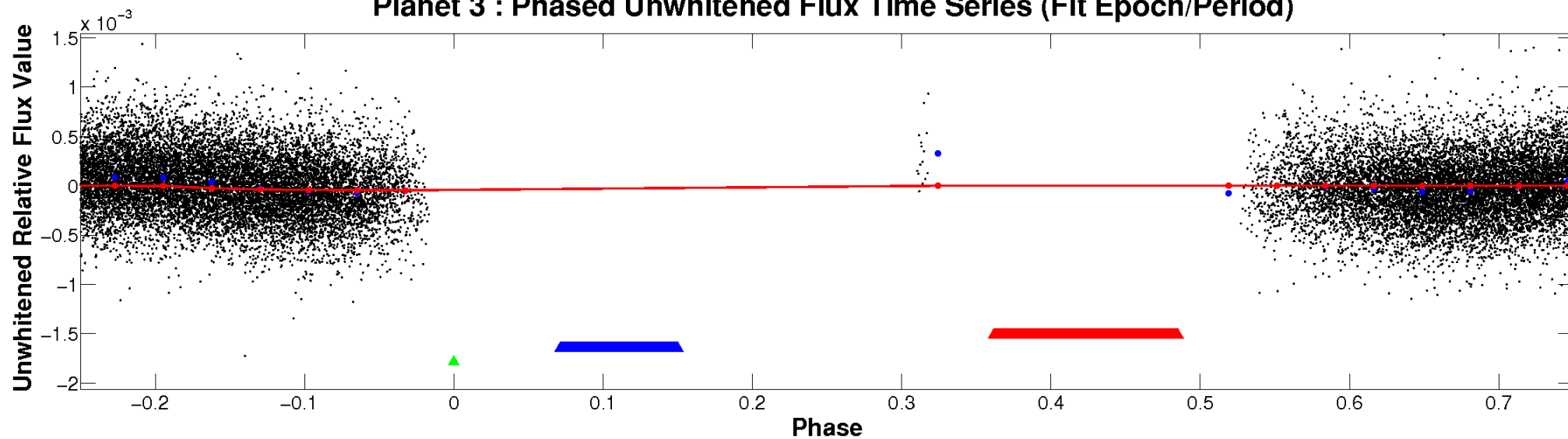
ALT Odd/Even

TCE 009239681-03

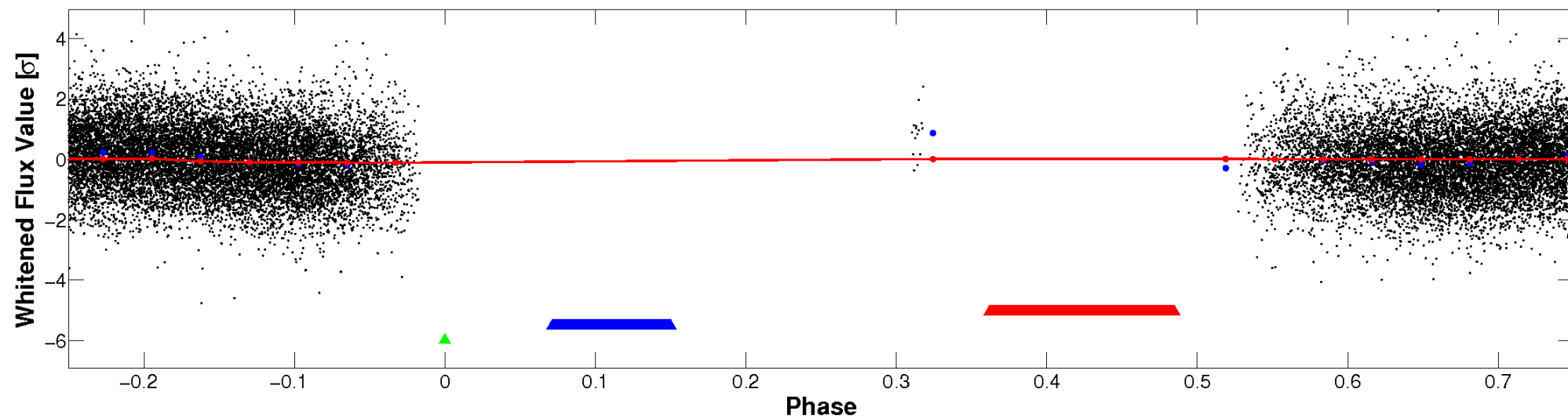


Non-Whitened Vs. Whitened Light Curve

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

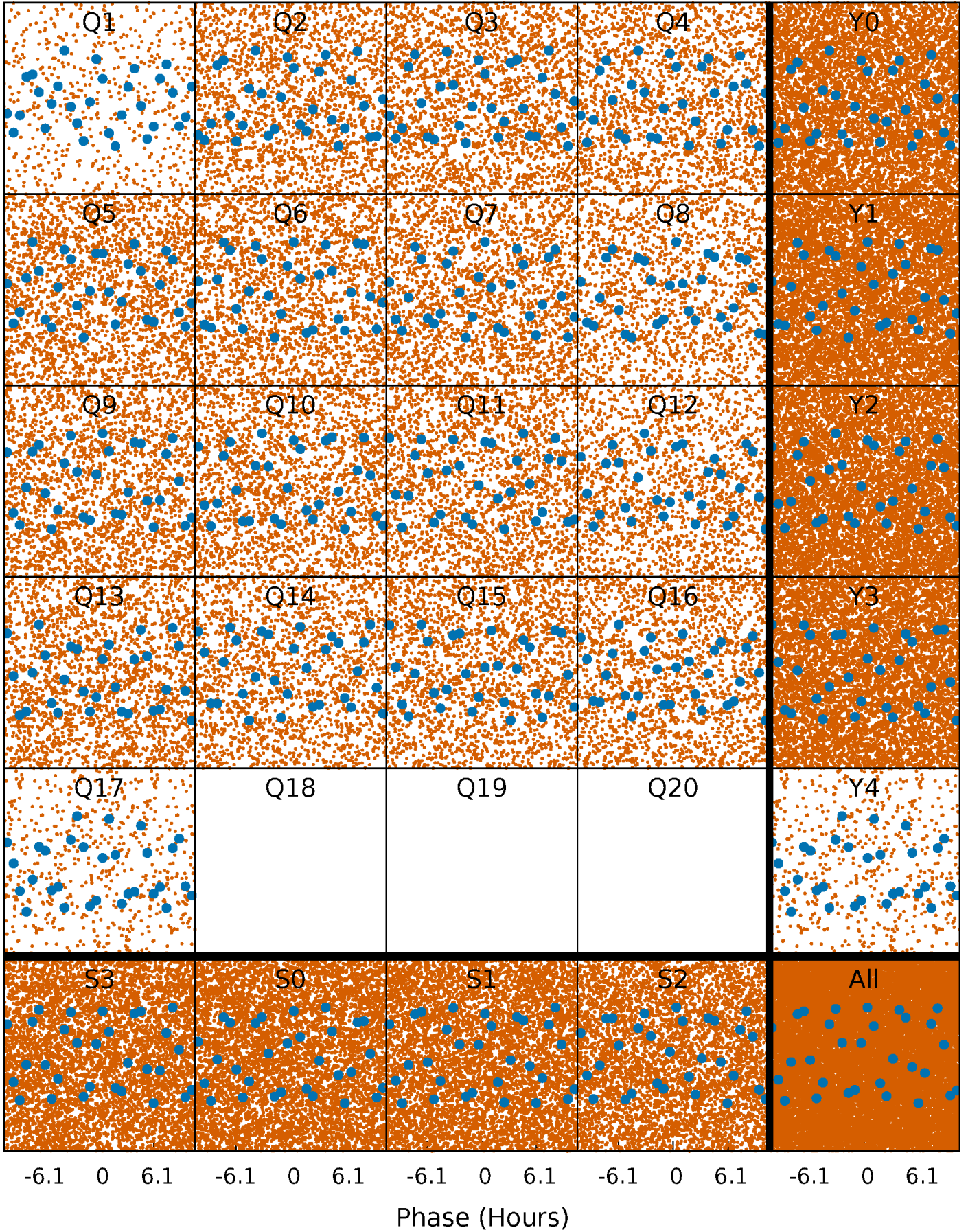


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



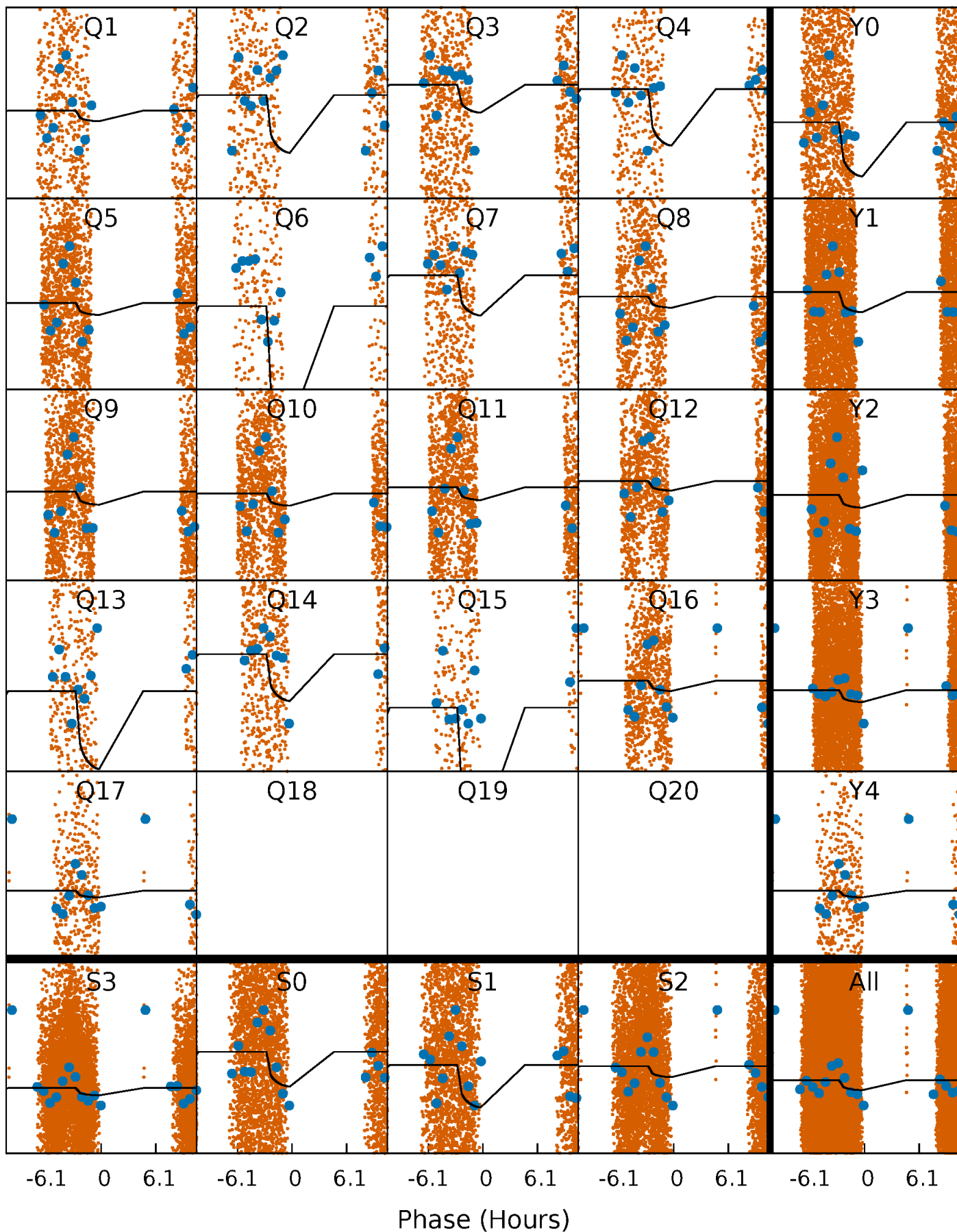
PDC Quarter-Phased Transit Curves

TCE 009239681-03 P= 0.629950 Days $T_0=131.894772$ (BKJD)



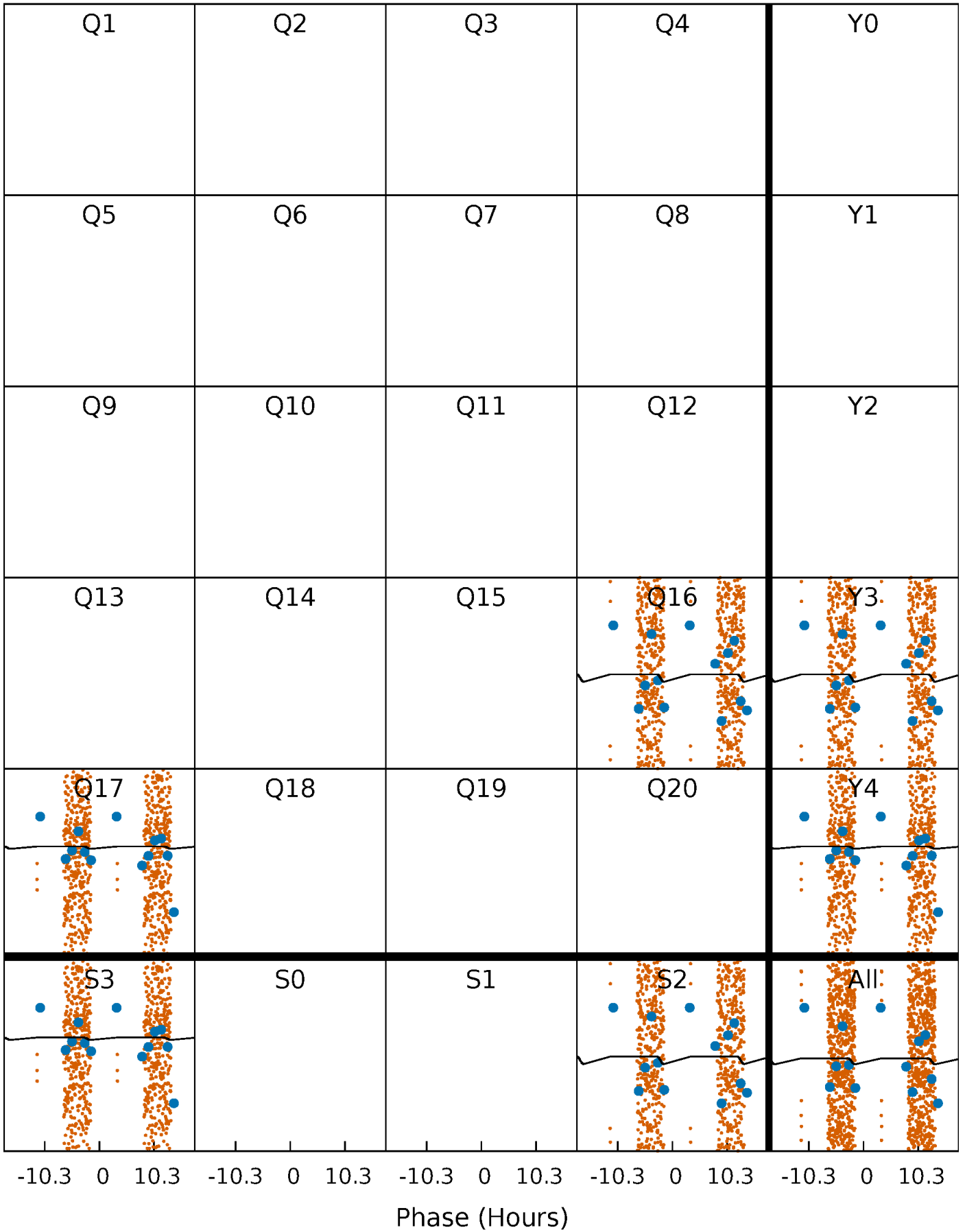
DV Quarter-Phased Transit Curves

TCE 009239681-03 P= 0.629950 Days $T_0=131.894772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

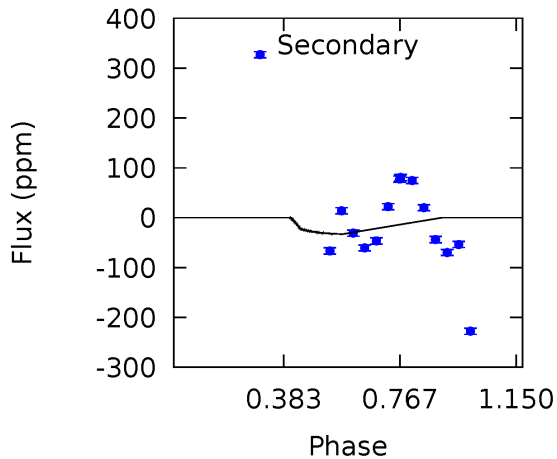
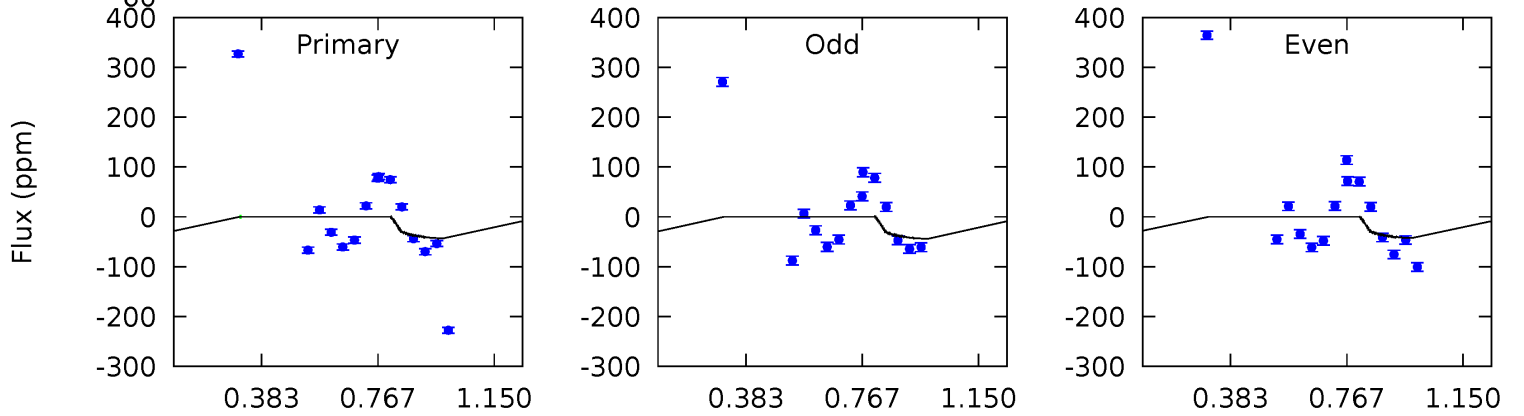
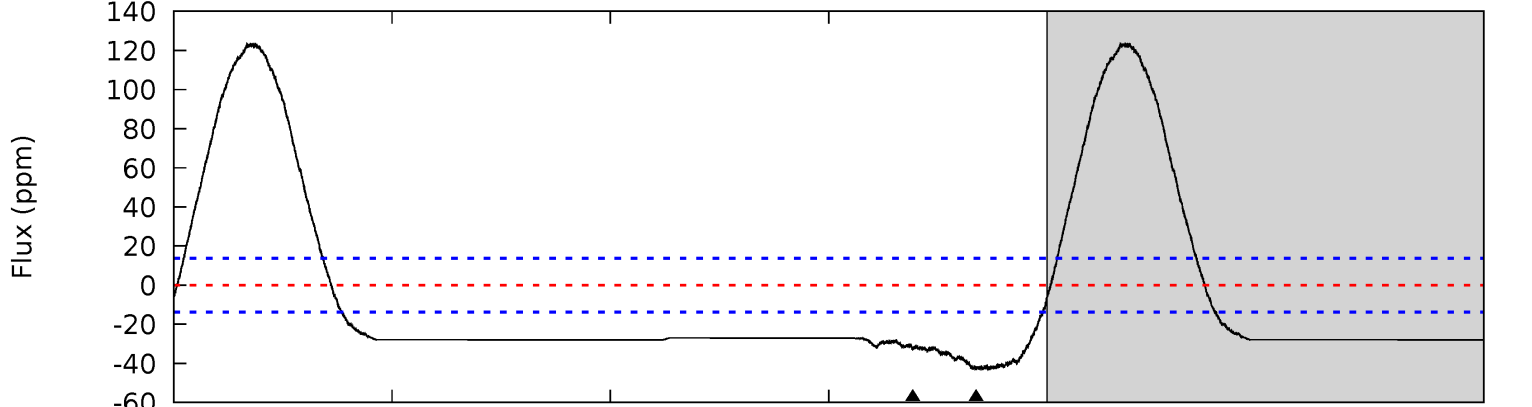
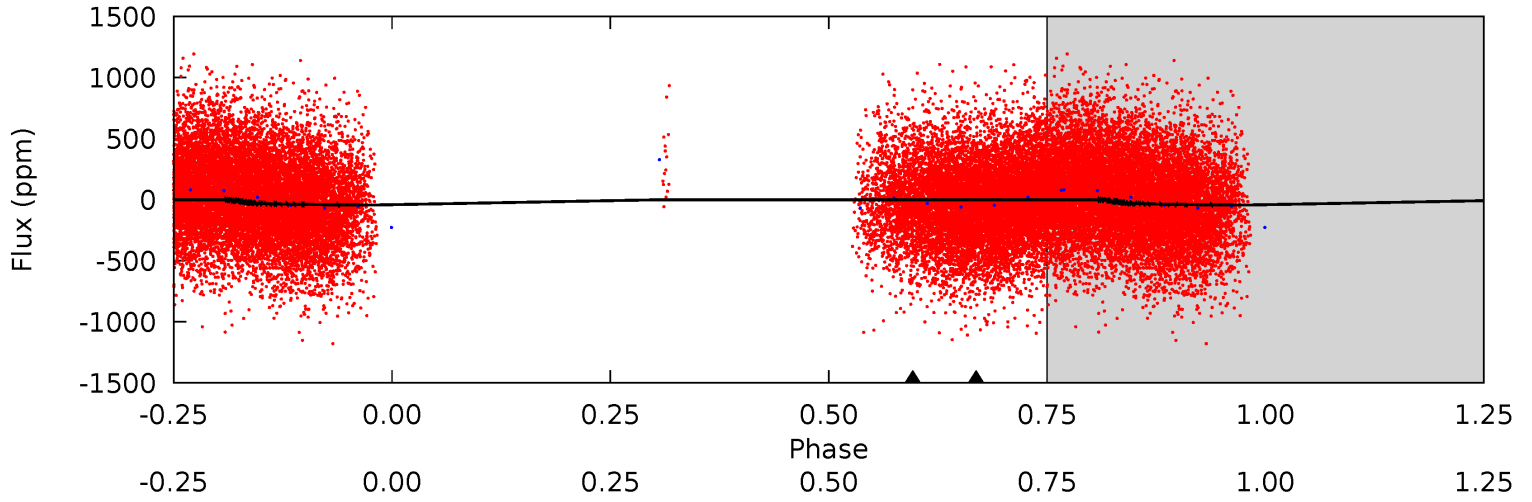
TCE 009239681-03 P= 0.629989 Days $T_0=131.863424$ (BKJD)



DV Model-Shift Uniqueness Test

009239681-03, P = 0.629950 Days, E = 131.264822 Days

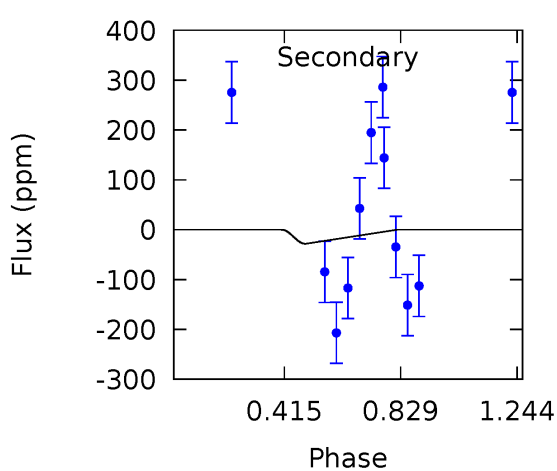
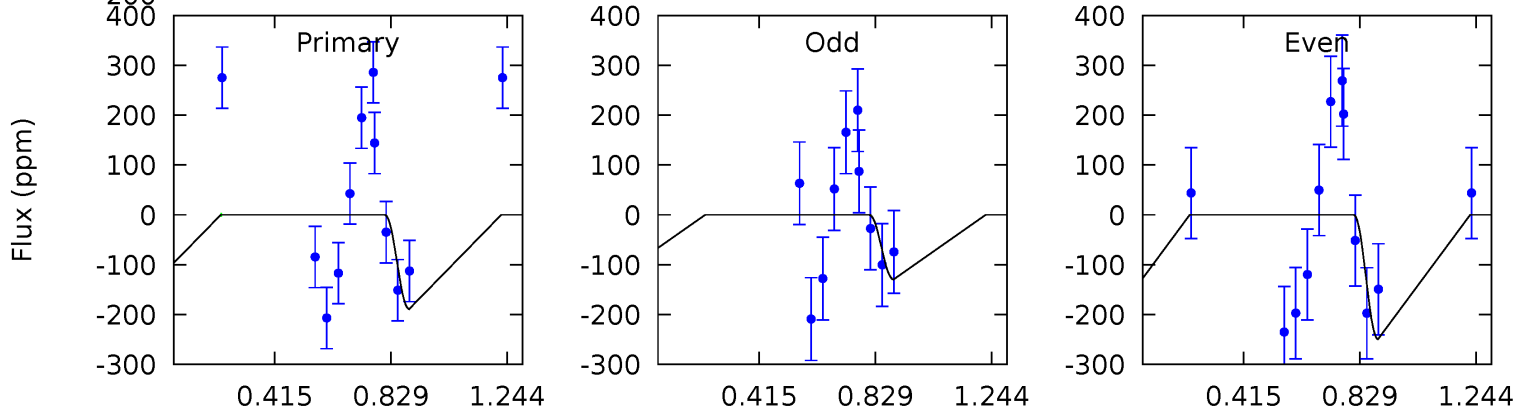
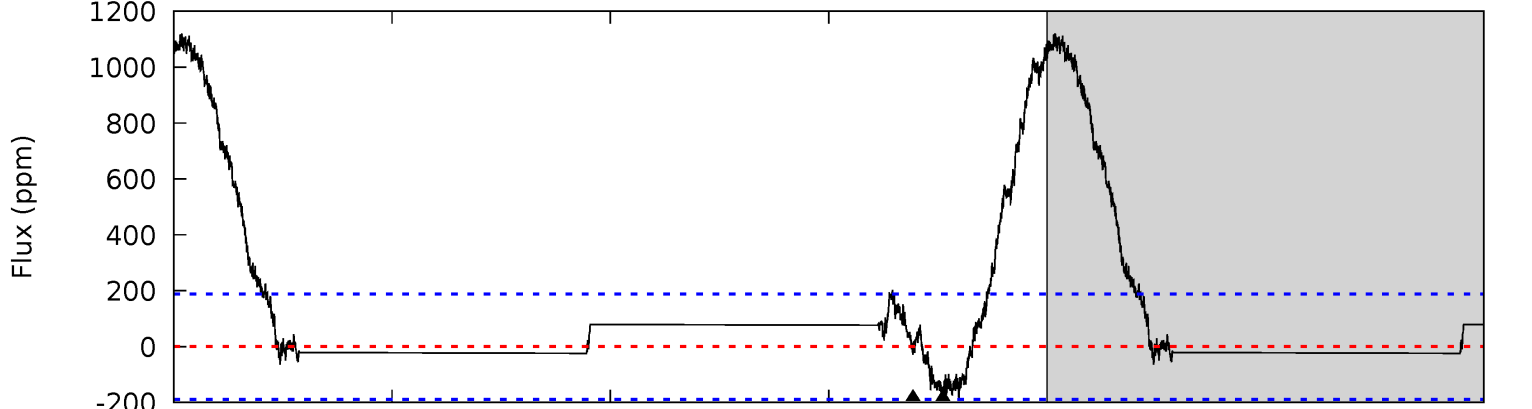
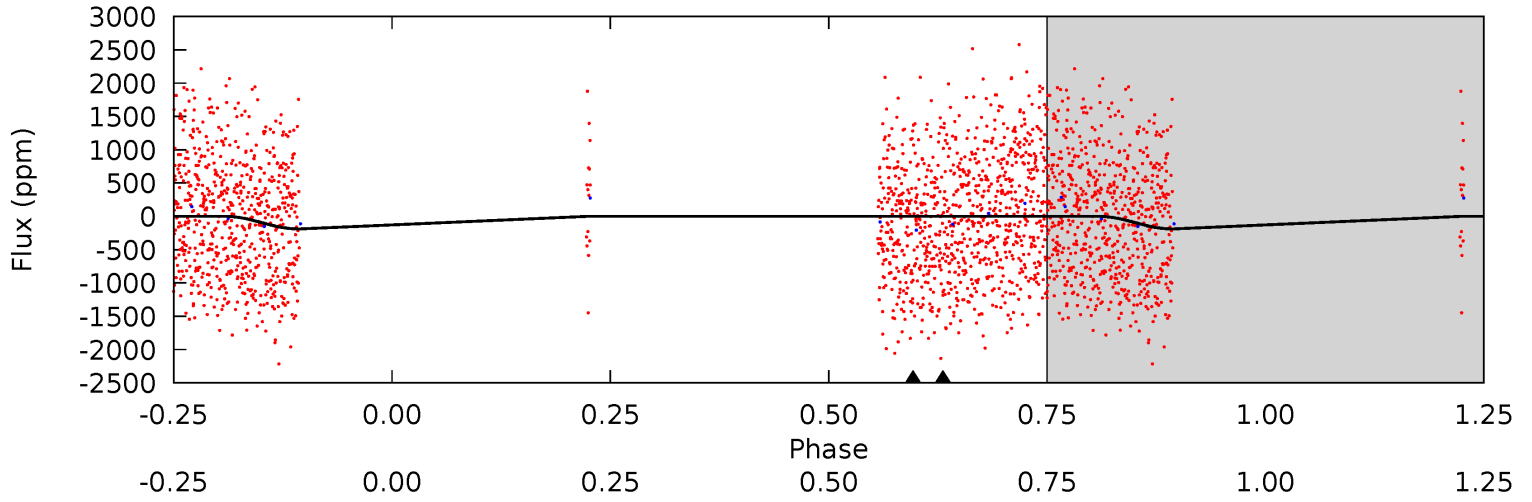
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	10.2	0	0	4.27	0.87	5.85	13.4	13.4	10.2	10.2	0.27	0	0.74	0



Alt Model-Shift Uniqueness Test

009239681-03, P = 0.629989 Days, E = 131.863424 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.27	0.64	0	0	4.26	0.82	0.92	4.27	4.27	0.64	0.64	1.36	0	0.86	0



Stellar Parameters For KIC 009239681

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6292^{+188}_{-207}	$4.068^{+0.329}_{-0.141}$	$-0.340^{+0.300}_{-0.300}$	$1.578^{+0.418}_{-0.511}$	$1.062^{+0.169}_{-0.138}$	$0.381^{+0.865}_{-0.167}$
	+3%/-3%	+8%/-3%	+88%/-88%	+26%/-32%	+16%/-13%	+227%/-44%
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 009239681-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-33 ± 3	$1.41^{+1.29}_{-0.90}$	3966^{+305}_{-382}	4976^{+3871}_{-1434}	$1.961^{+12.846}_{-1.411}$
Alt.	-28 ± 44	$1.35^{+1.28}_{-0.91}$	3960^{+298}_{-366}	4447^{+4416}_{-9286}	$1.221^{+14.455}_{-2.258}$

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

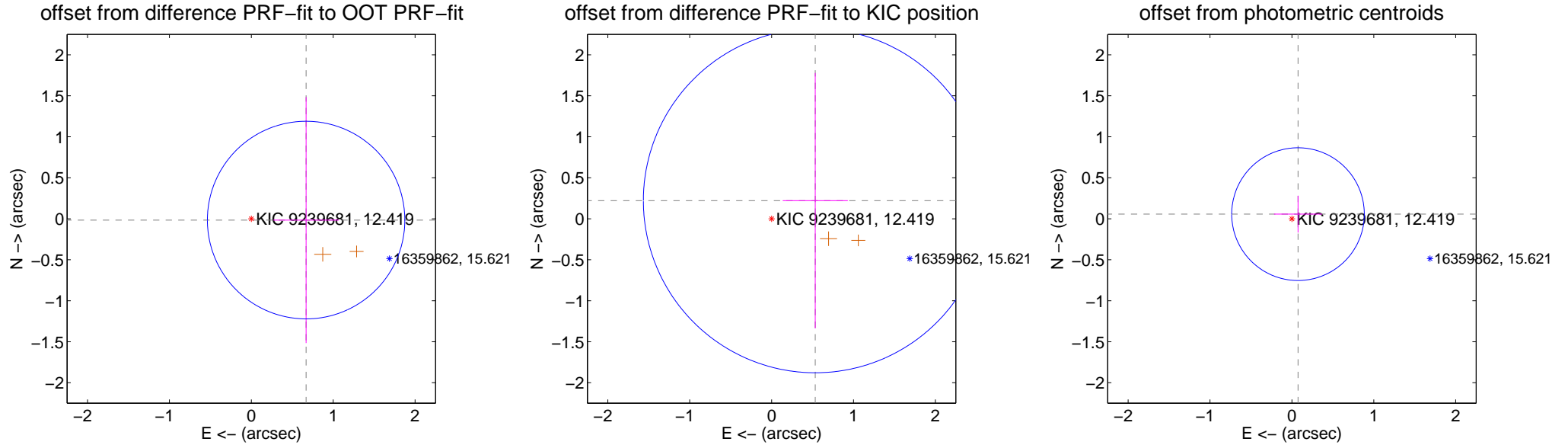
DV Centroid Data

Supplemental centroid analysis for 009239681-03. Kepler magnitude: 12.42. Transit SNR 8.62

There are 2 quarters with good PRF difference image offsets

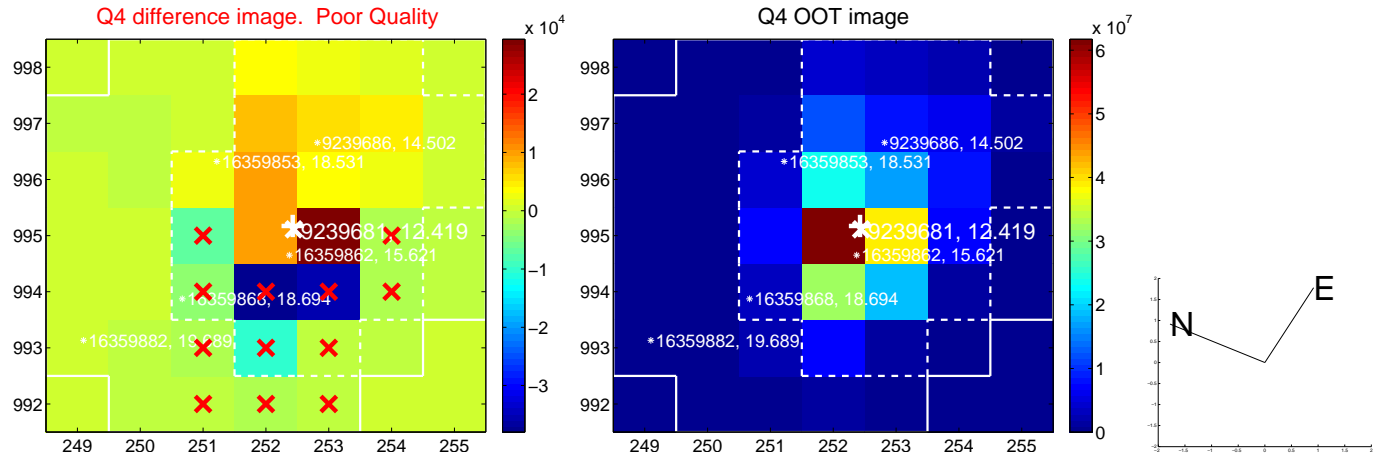
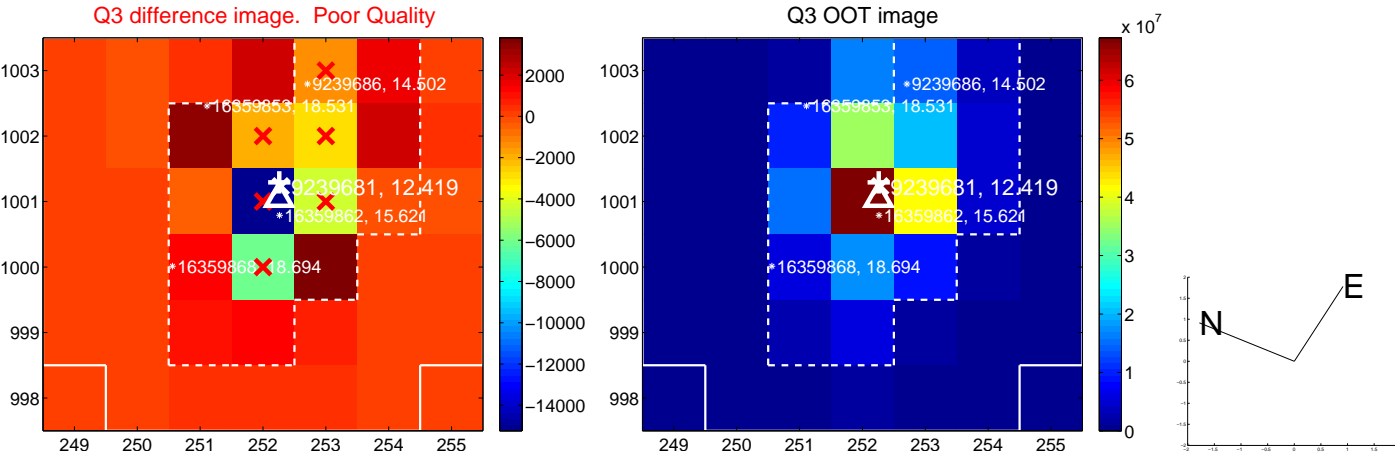
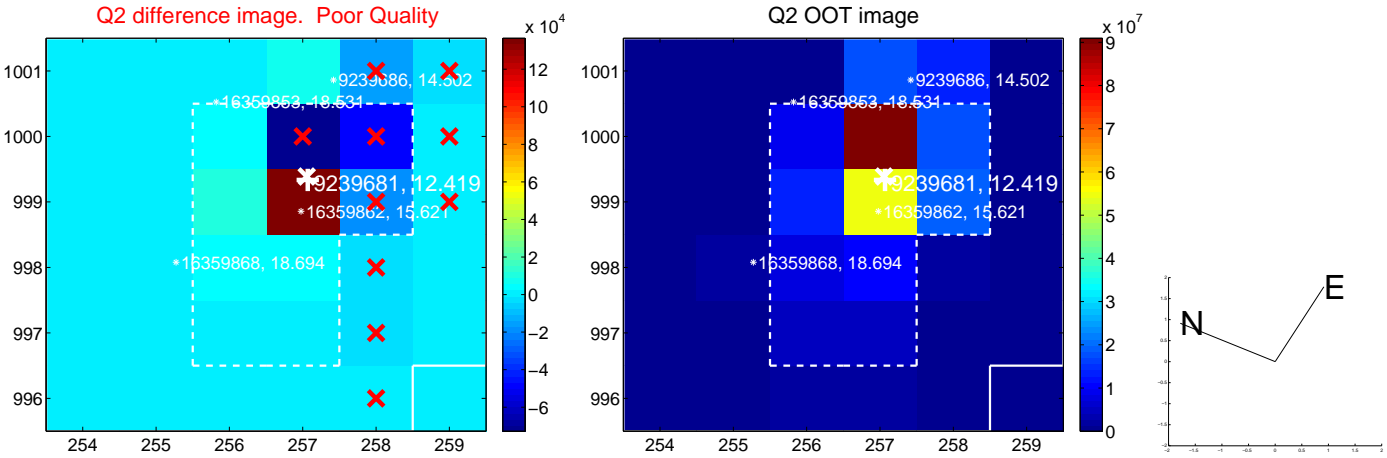
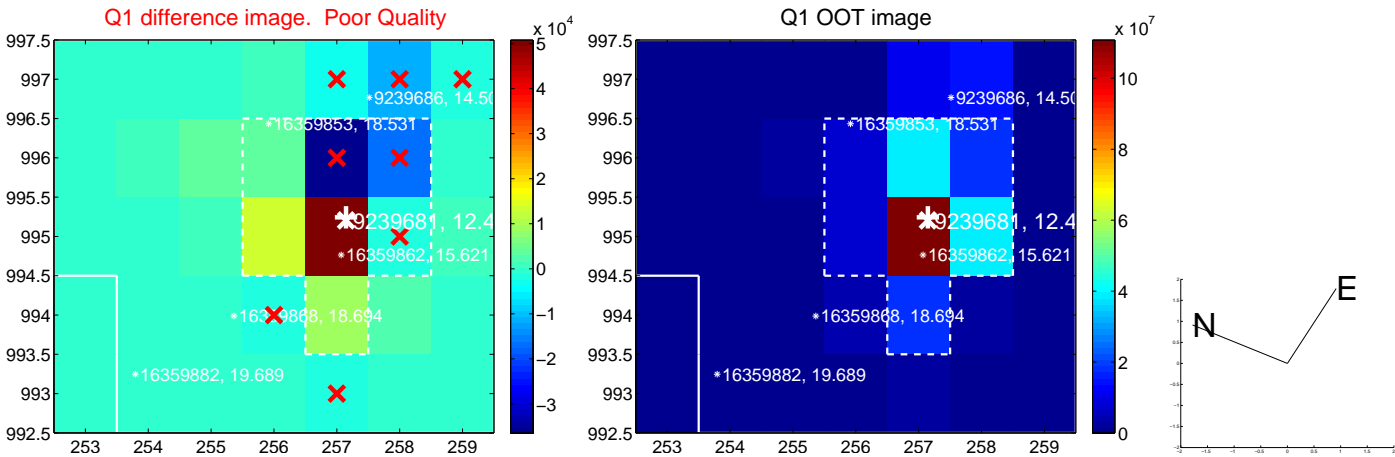
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.669 ± 0.402	1.67	-0.669 ± 0.400	-0.016 ± 1.500
PRF-fit source offset from KIC position	0.577 ± 0.700	0.82	-0.533 ± 0.397	0.221 ± 1.558
photometric centroid source offset	0.09 ± 0.27	0.35	-0.07 ± 0.29	0.06 ± 0.23

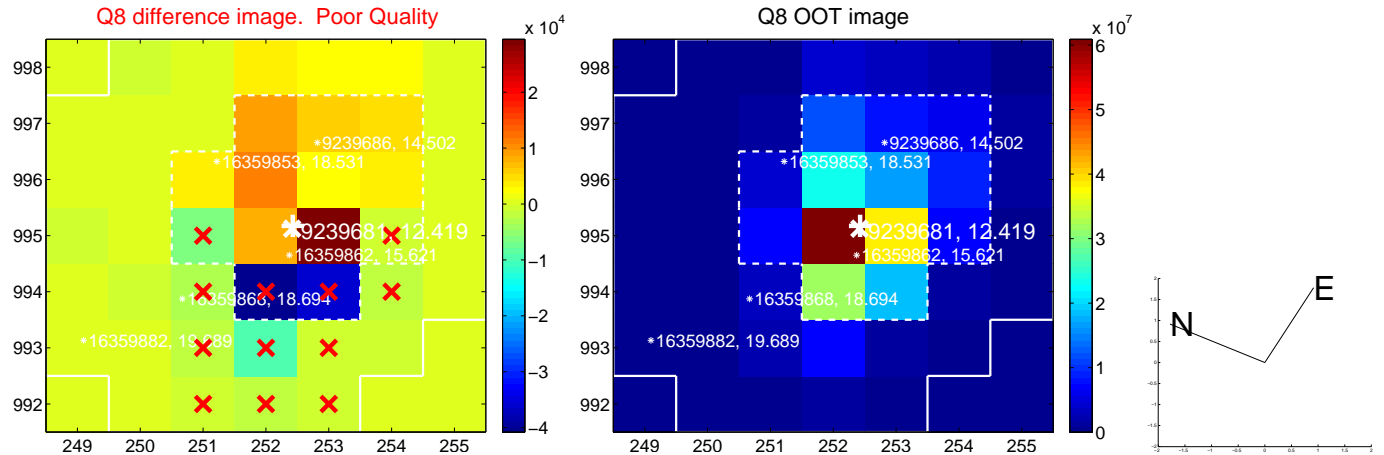
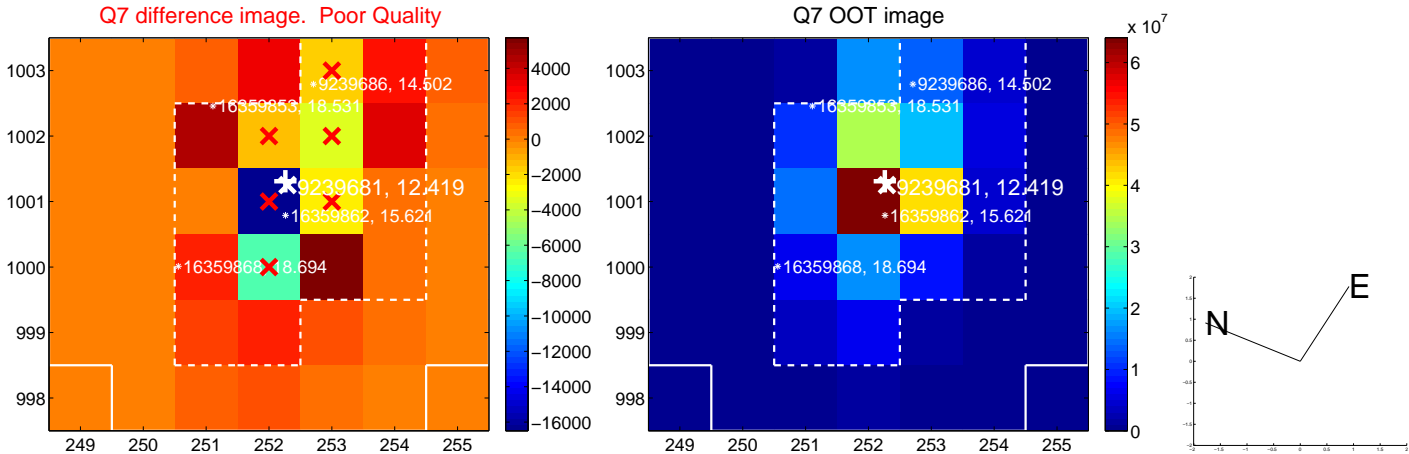
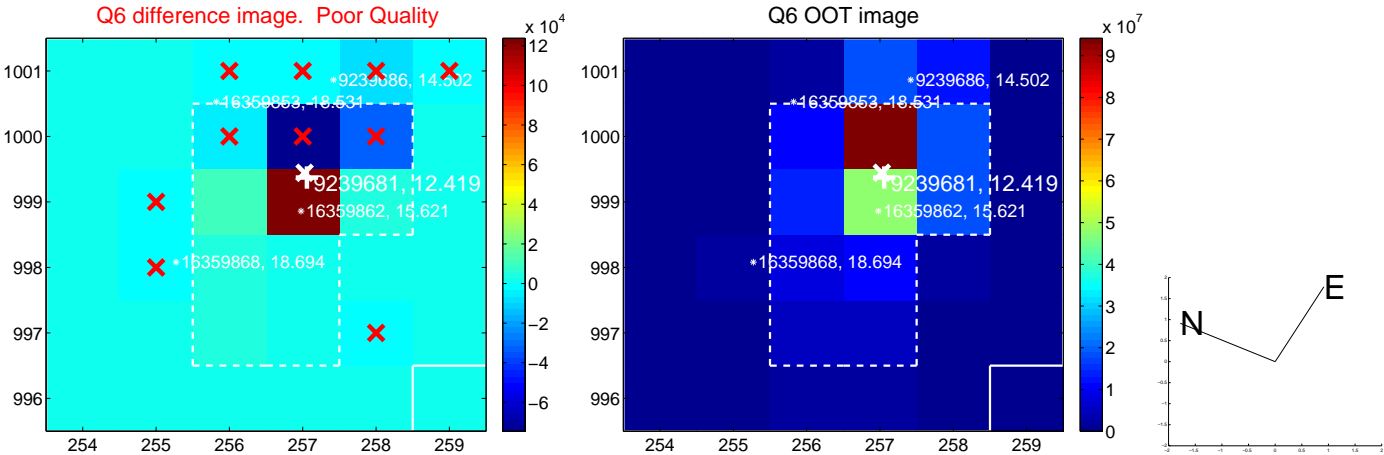
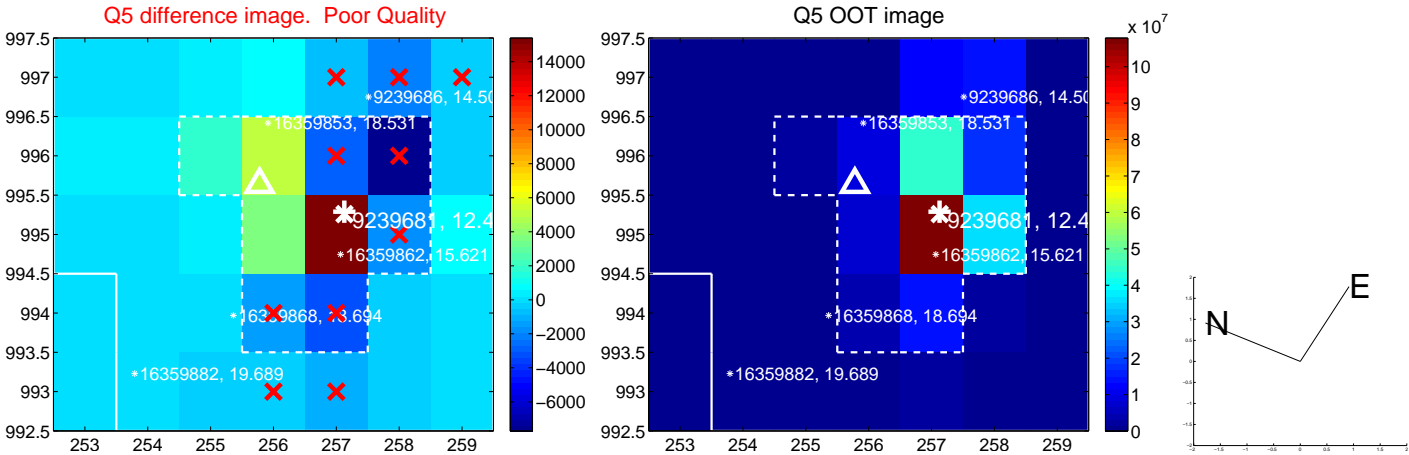


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

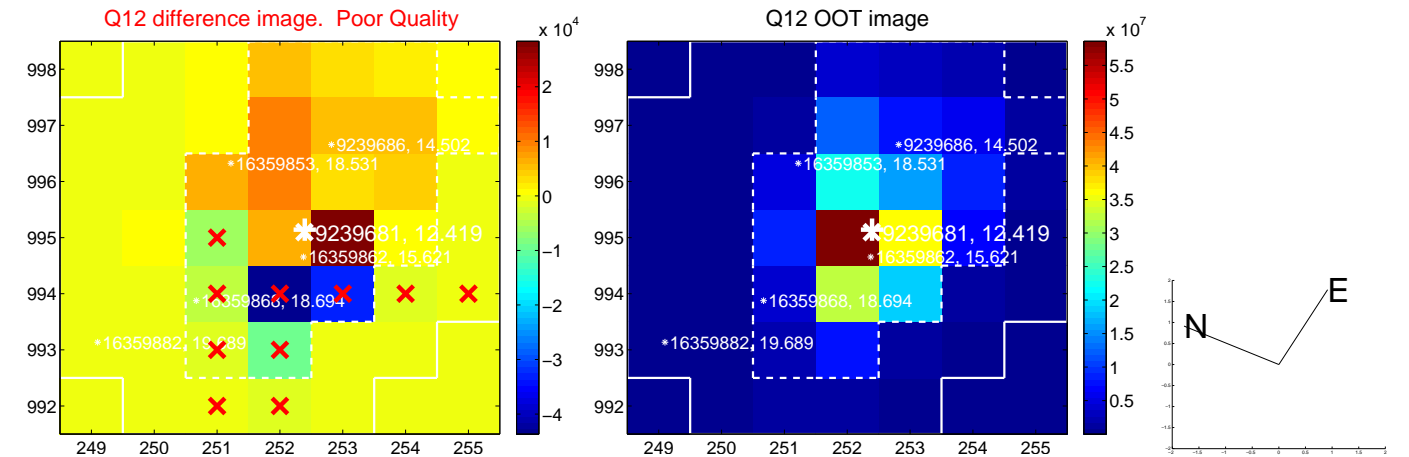
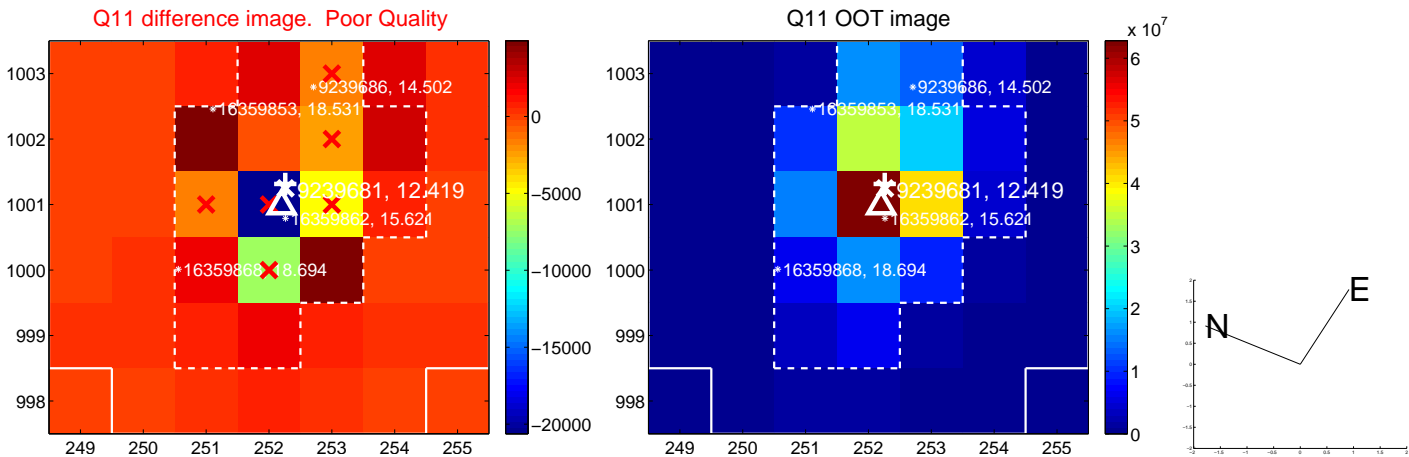
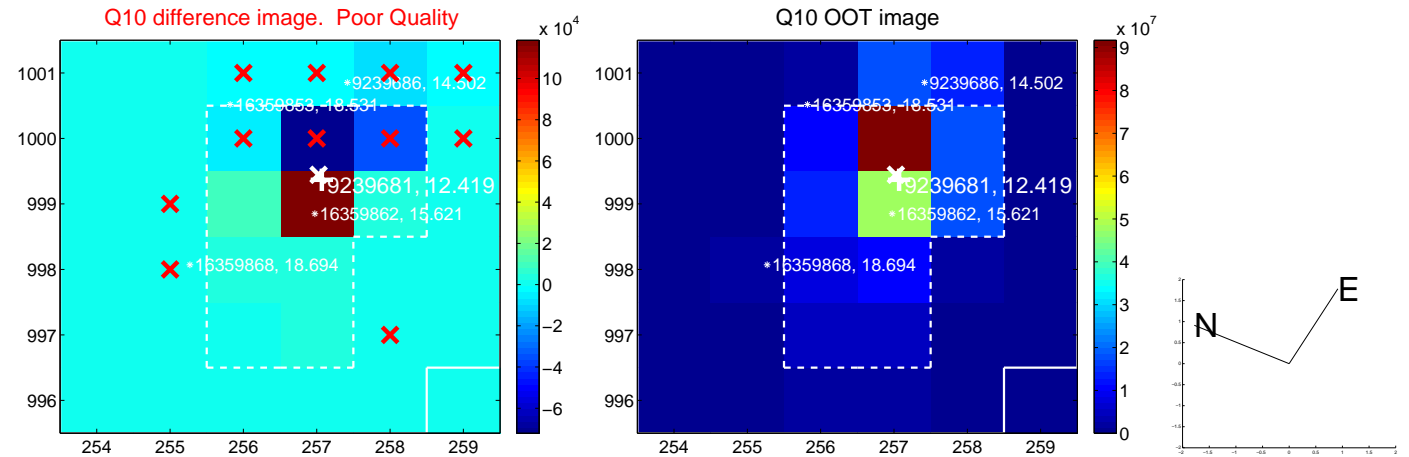
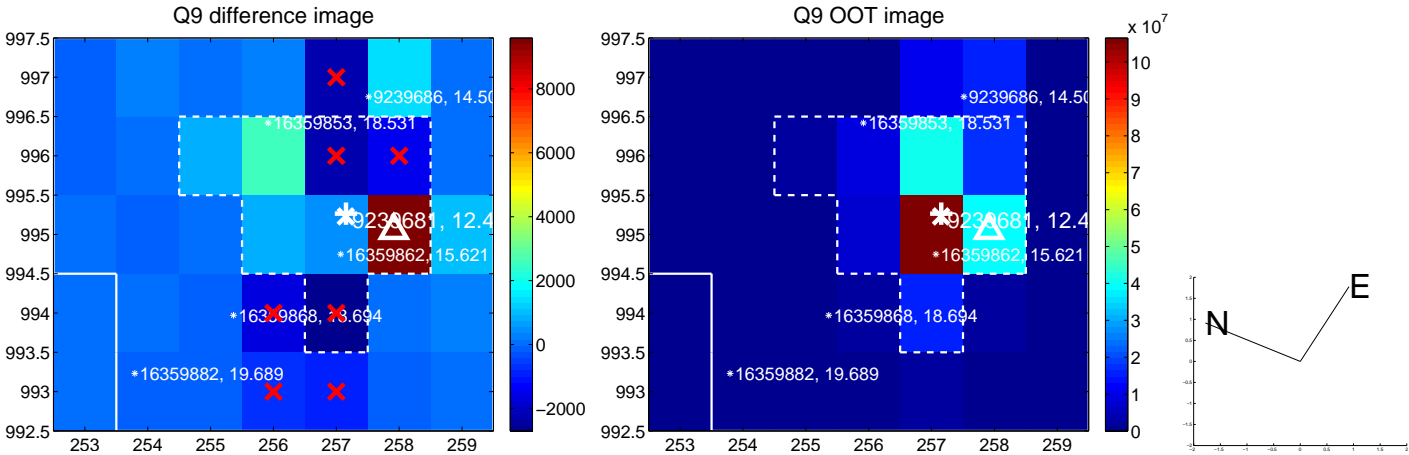
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



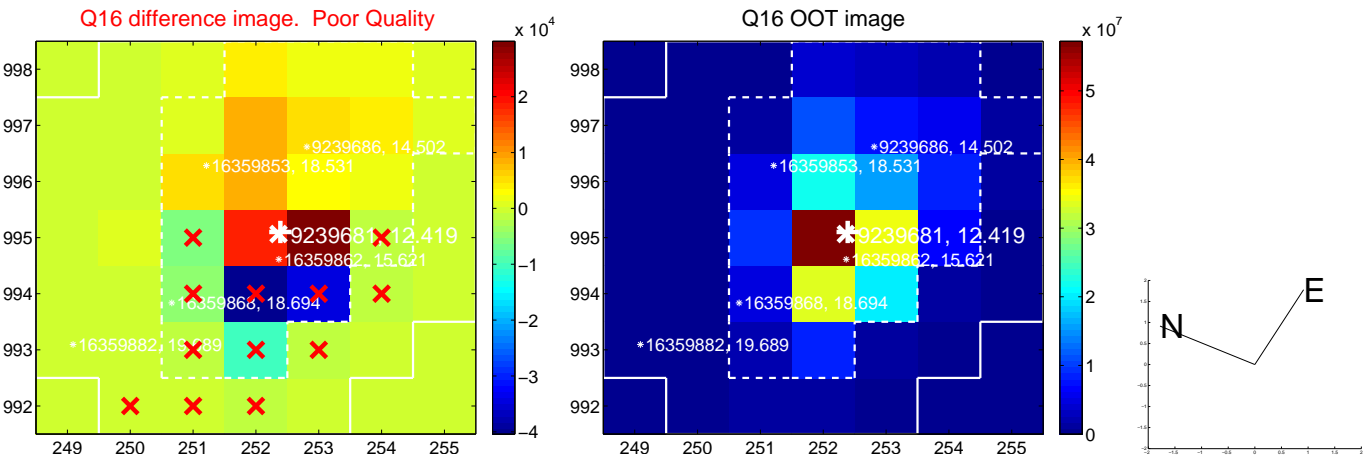
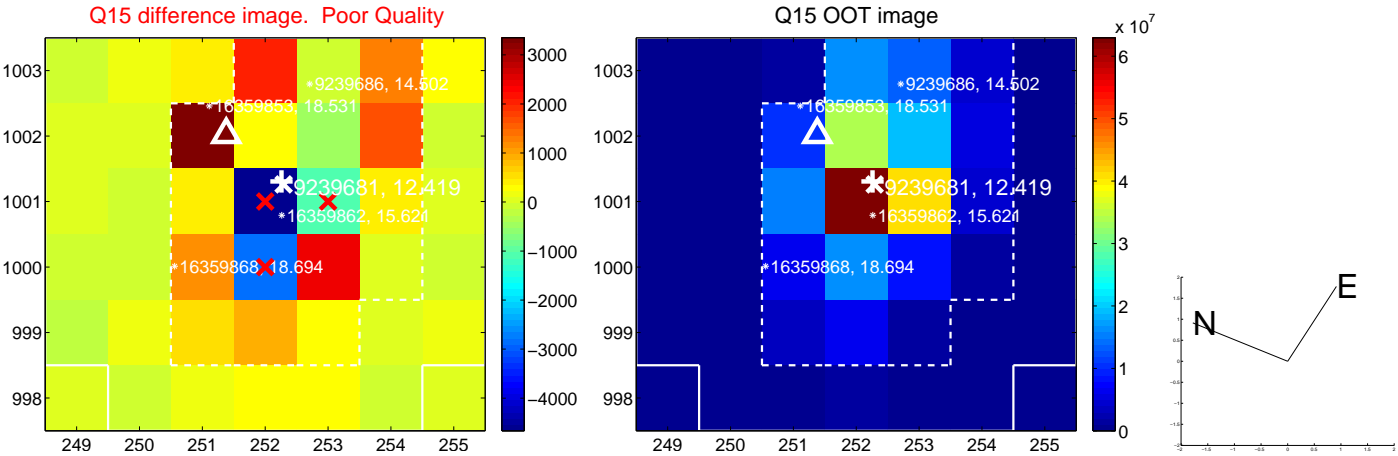
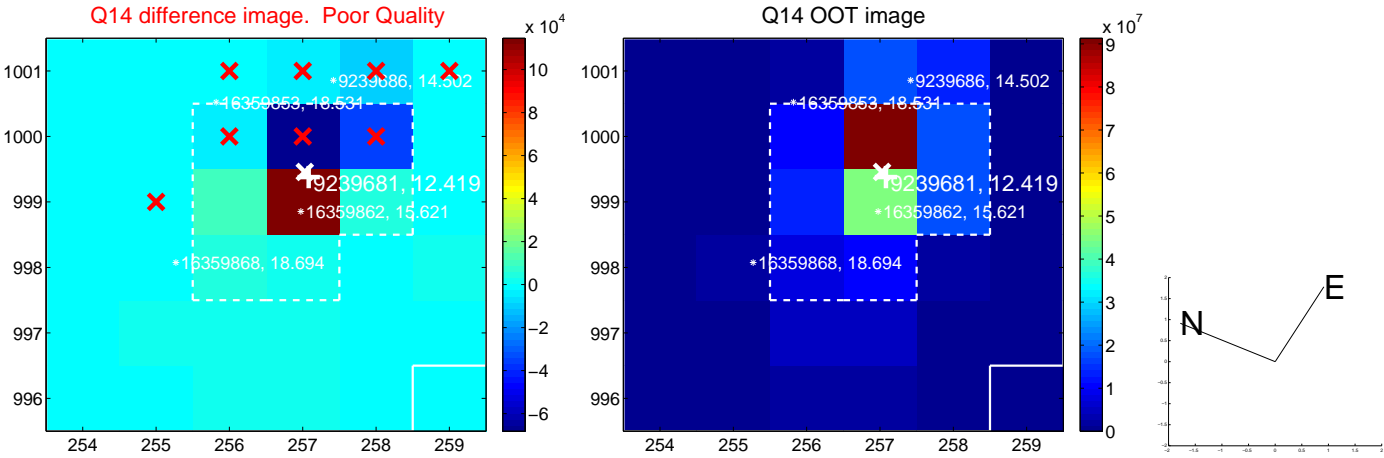
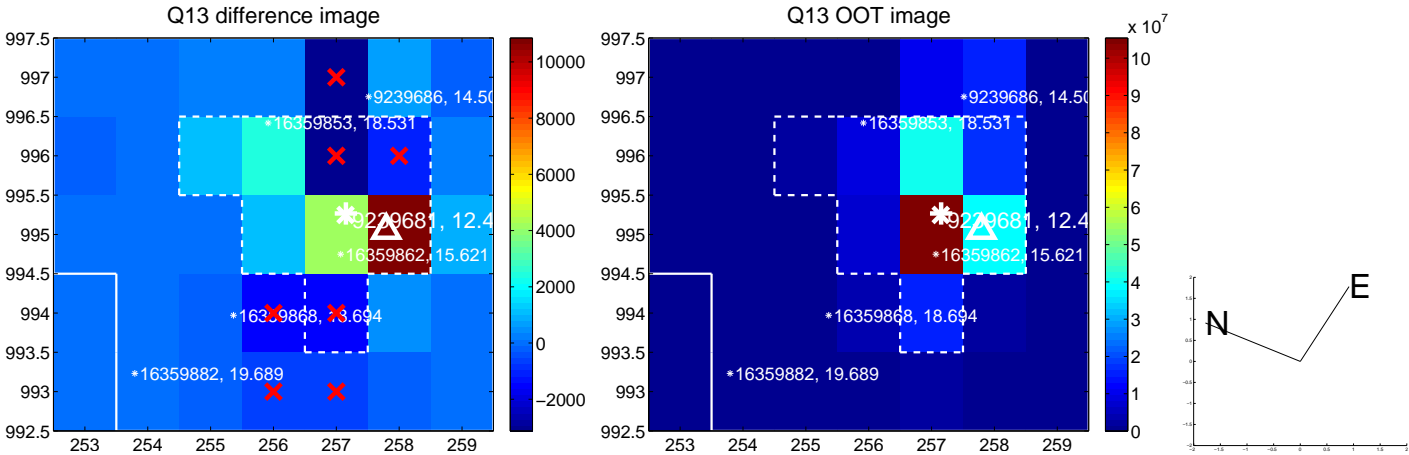
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



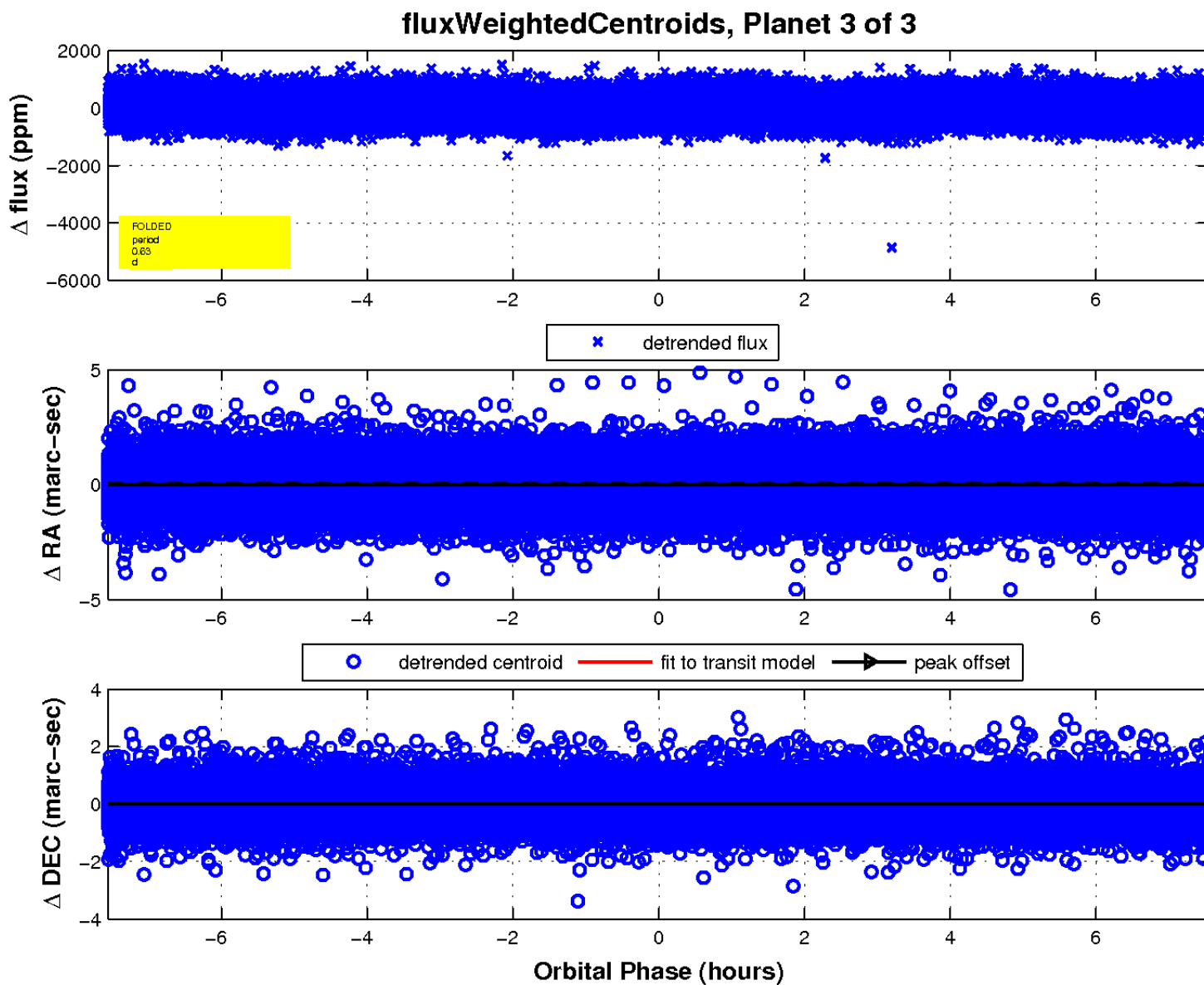
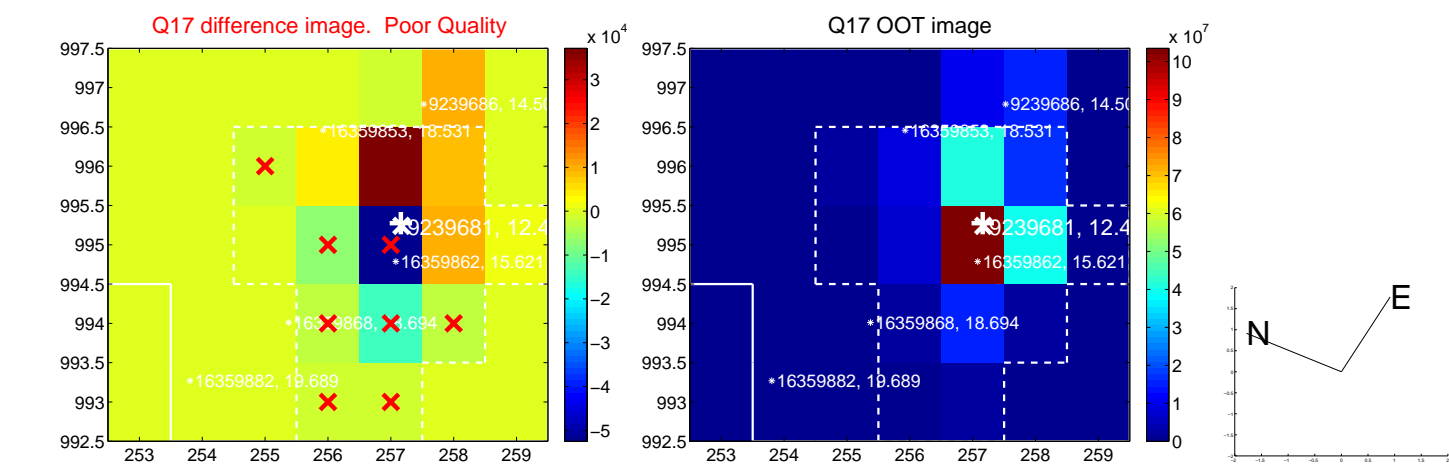
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

