

KIC 008521098

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})
008521098-01	OBS	No	0.976156	132.087067	3.7	7.436	8.7	1.6	2.18	6329	0.43	14475.91
008521098-02	OBS	No	6.364757	136.006832	523.7	0.714	18.0	18.4	2.18	6329	5.10	1188.40
008521098-03	OBS	No	3.066458	133.670019	131.3	2.357	12.3	11.2	2.18	6329	2.61	3146.46
008521098-04	OBS	No	8.166398	133.276628	390.3	0.916	14.5	14.2	2.18	6329	4.49	852.38
008521098-05	OBS	No	4.276784	133.722769	346.8	0.979	14.1	17.1	2.18	6329	4.22	2019.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008521098-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
008521098-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN
008521098-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS

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

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

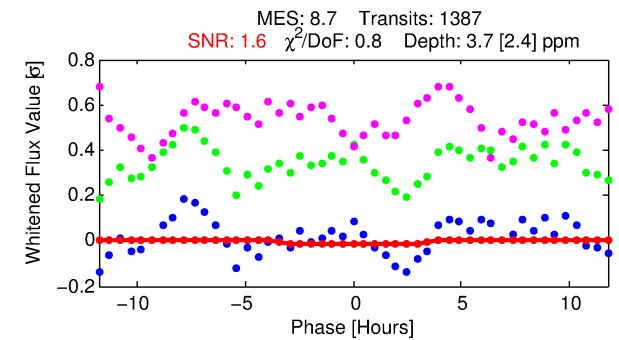
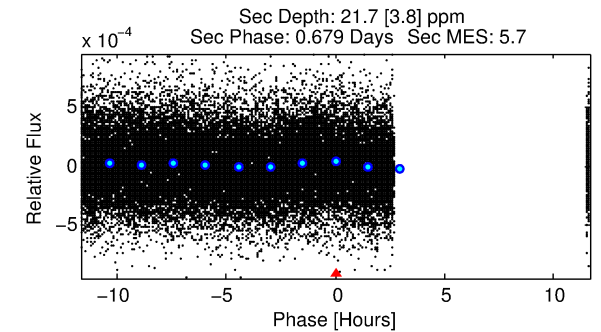
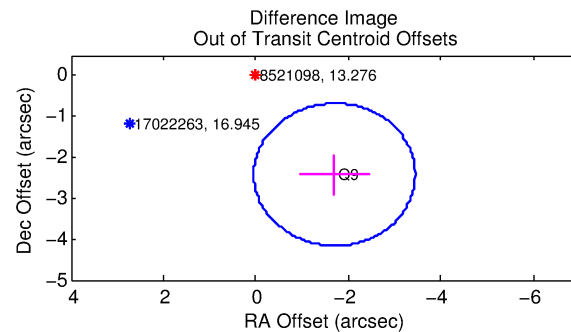
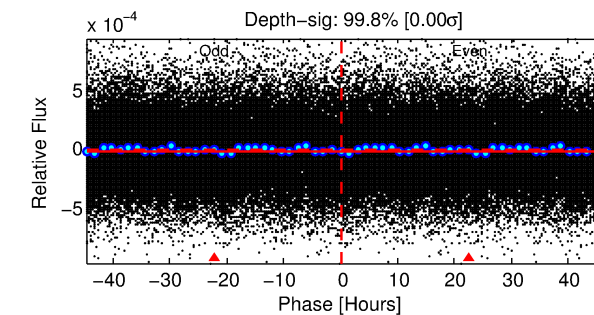
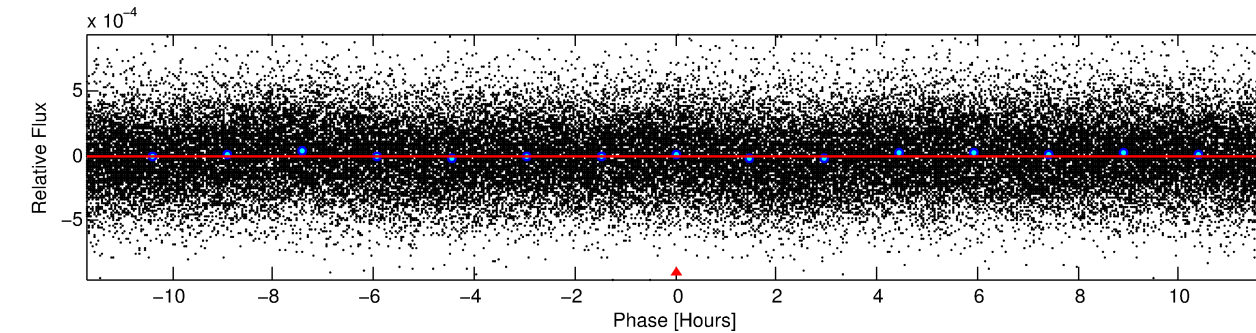
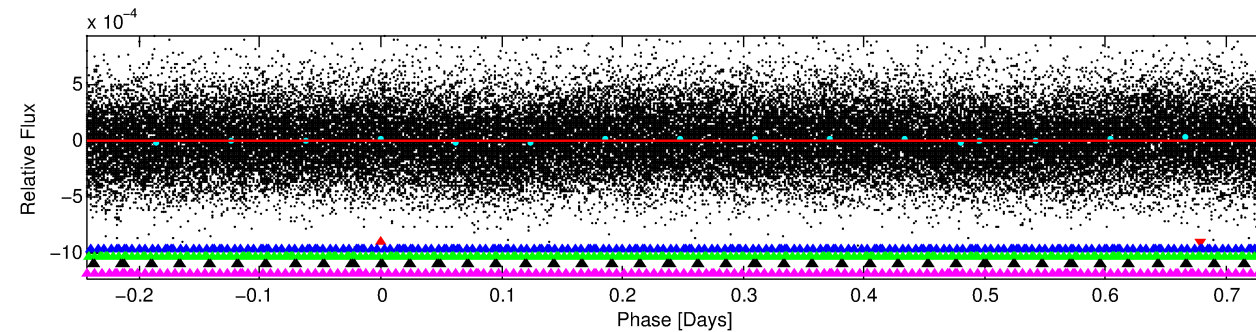
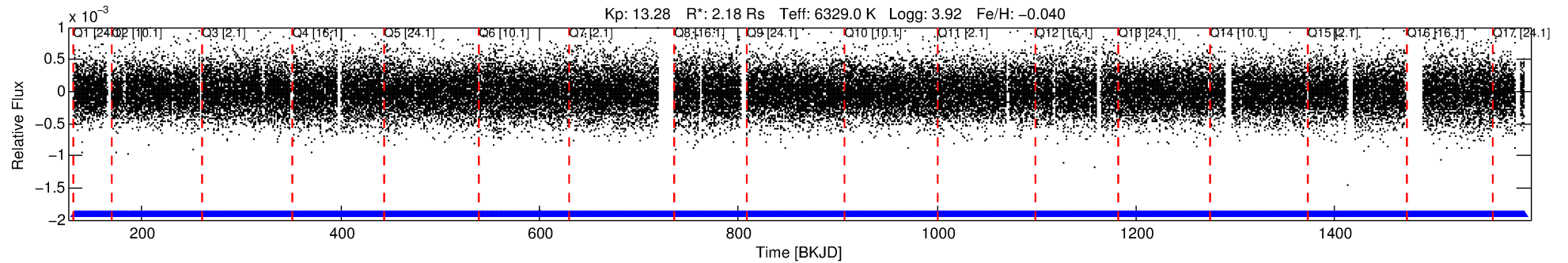
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521098-01

No Significant Match Found

DV One-Page Summary

KIC: 8521098 Candidate: 1 of 5 Period: 0.976 d



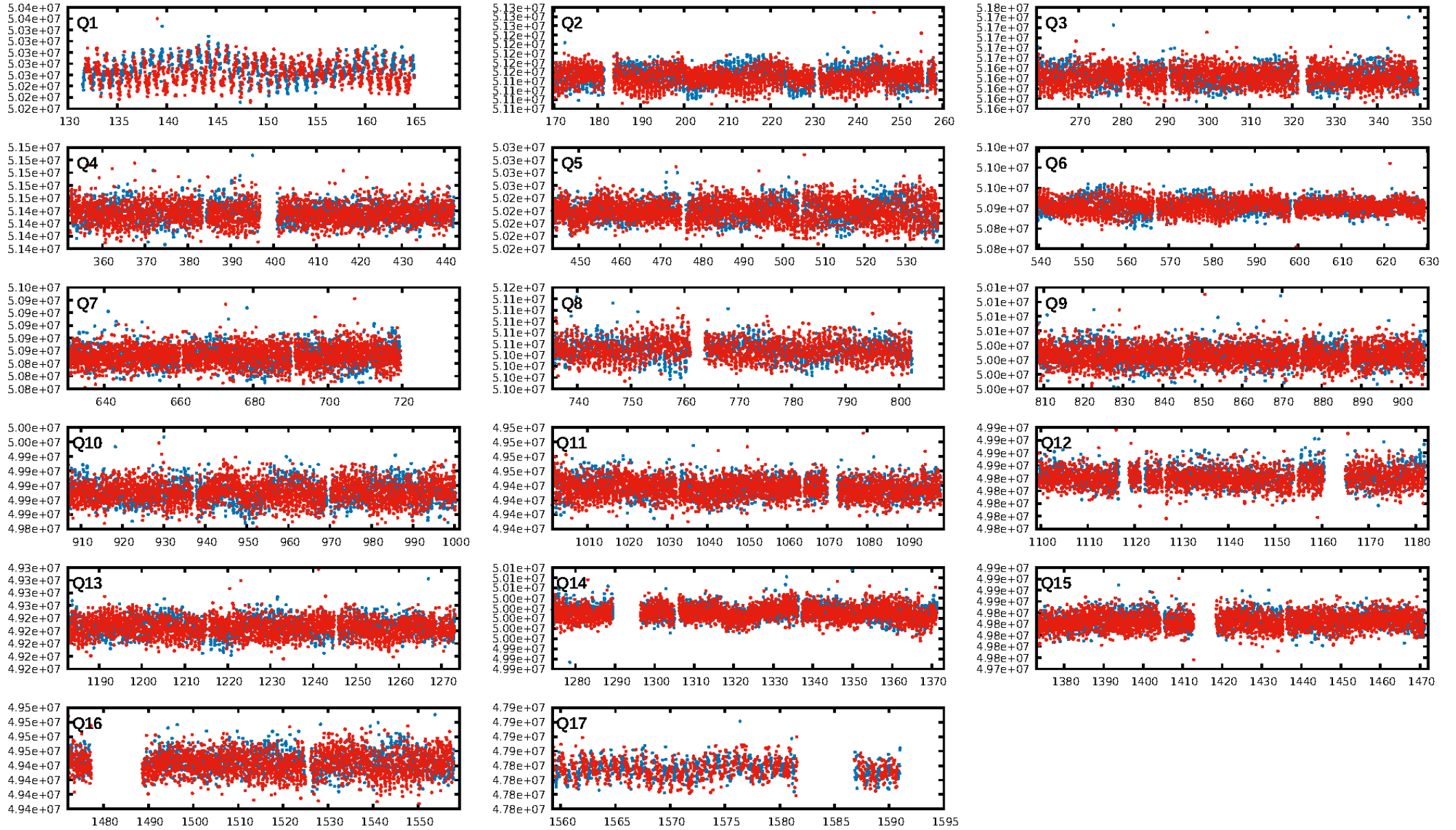
DV Fit Results:

Period = 0.97616 [0.00010] d
Epoch = 132.0871 [0.0422] BKJD
Rp/R* = 0.0018 [0.0059]
a/R* = 1.15 [4.56]
b = 0.51 [24.55]
Seff = 14475.91 [9997.85]
Teq = 2797 [483] K
Rp = 0.43 [1.41] Re
a = 0.0217 [0.0092] AU
Ag = 30.07 [194.70] [0.15σ]
Teffp = 10127 [16306] K [0.45σ]

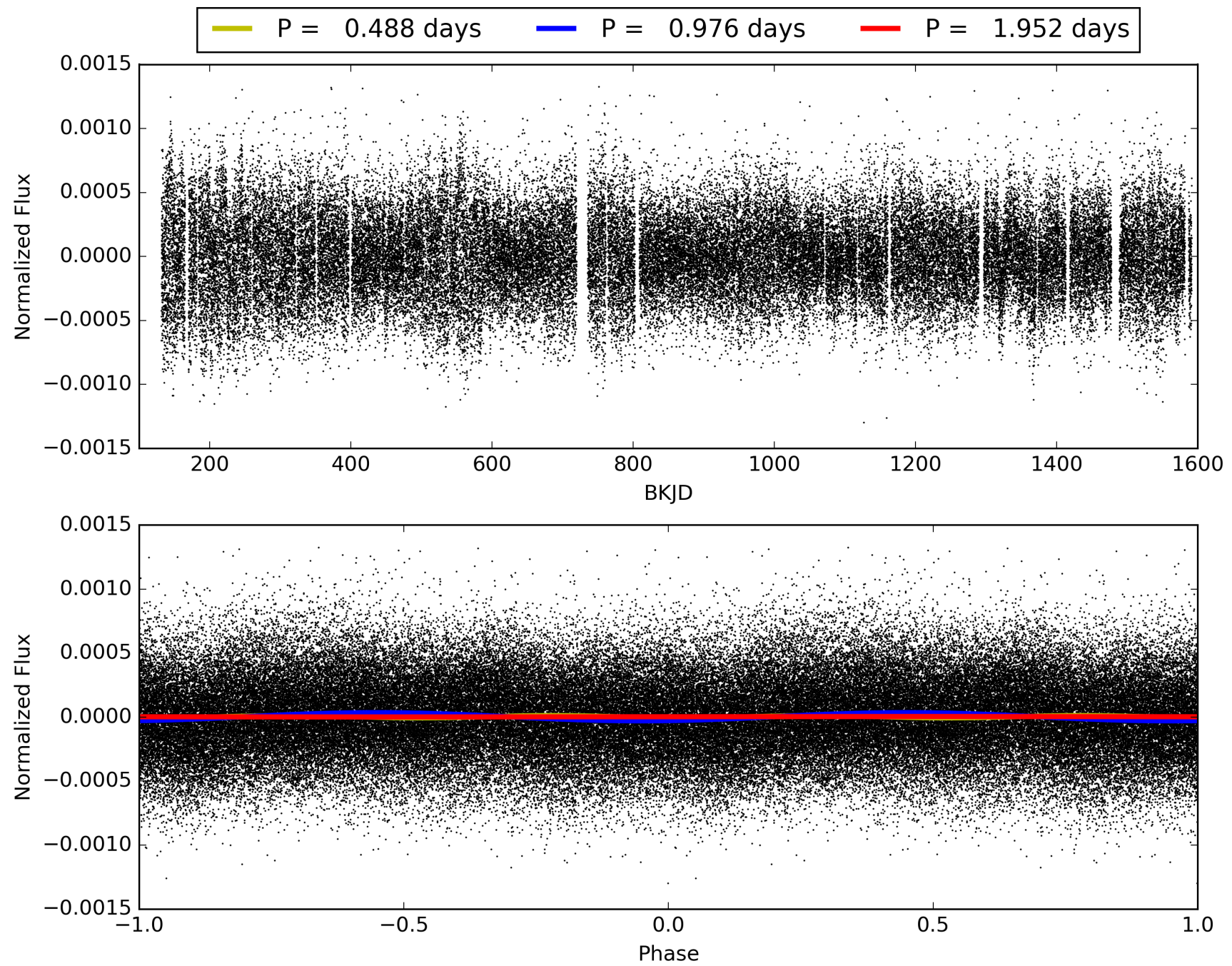
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.54e-24
RollingBand-fgt: 1.00 [1325/1325]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.956 arcsec [5.08σ]
KicOffset-rm: 2.959 arcsec [5.24σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 008521098-01, PDC Light Curves

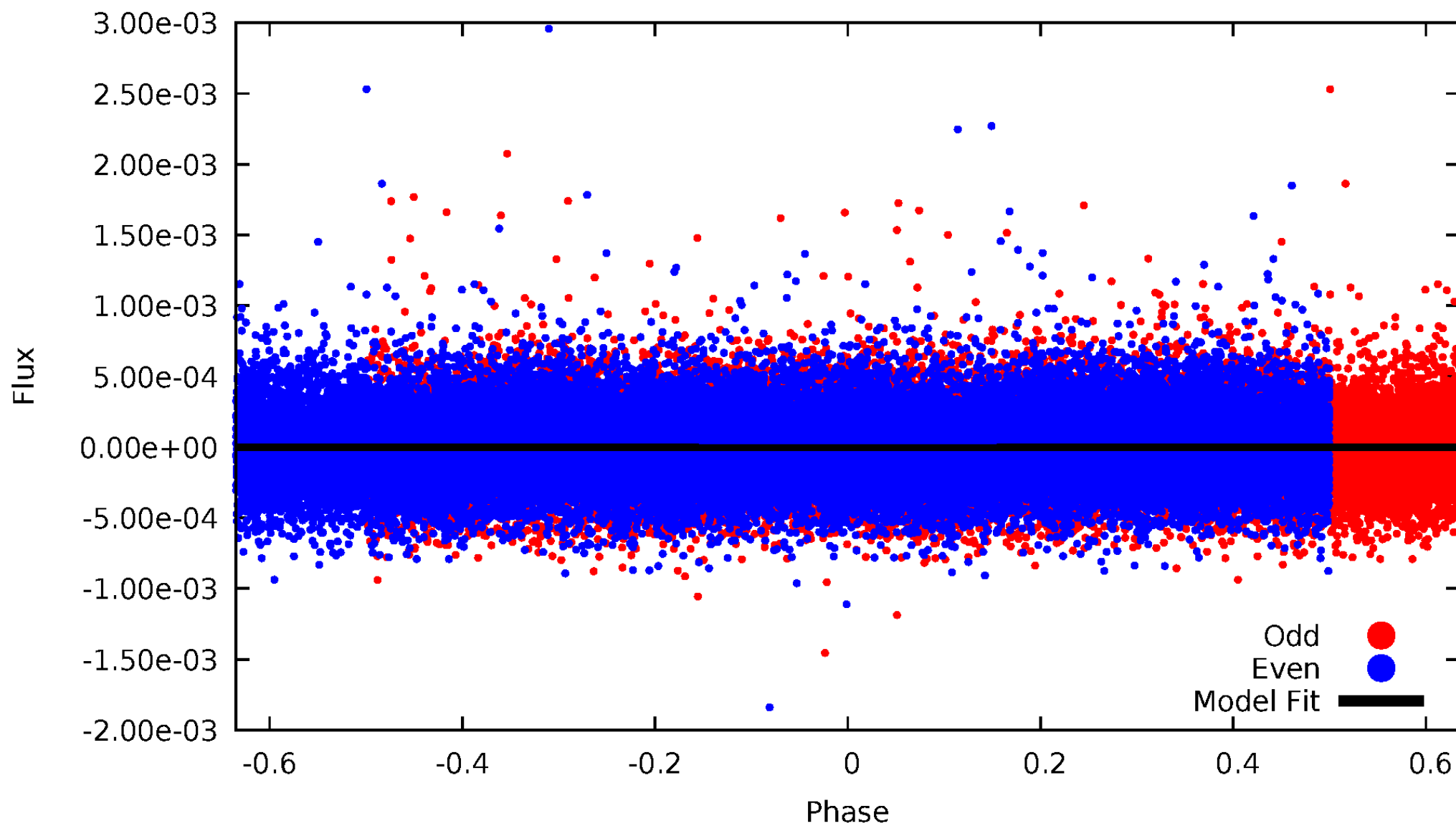


TCE 008521098-01



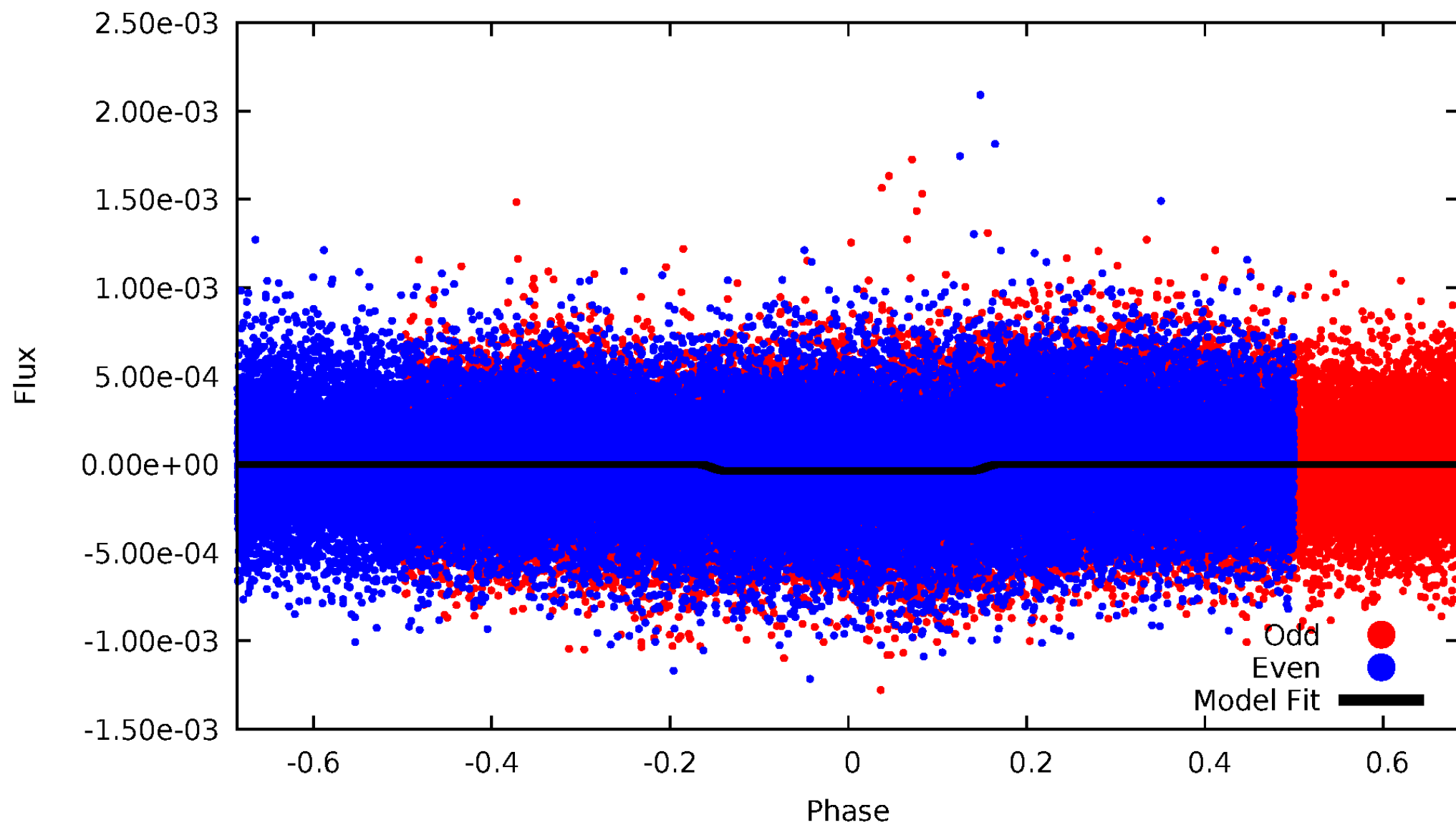
DV Odd/Even

TCE 008521098-01

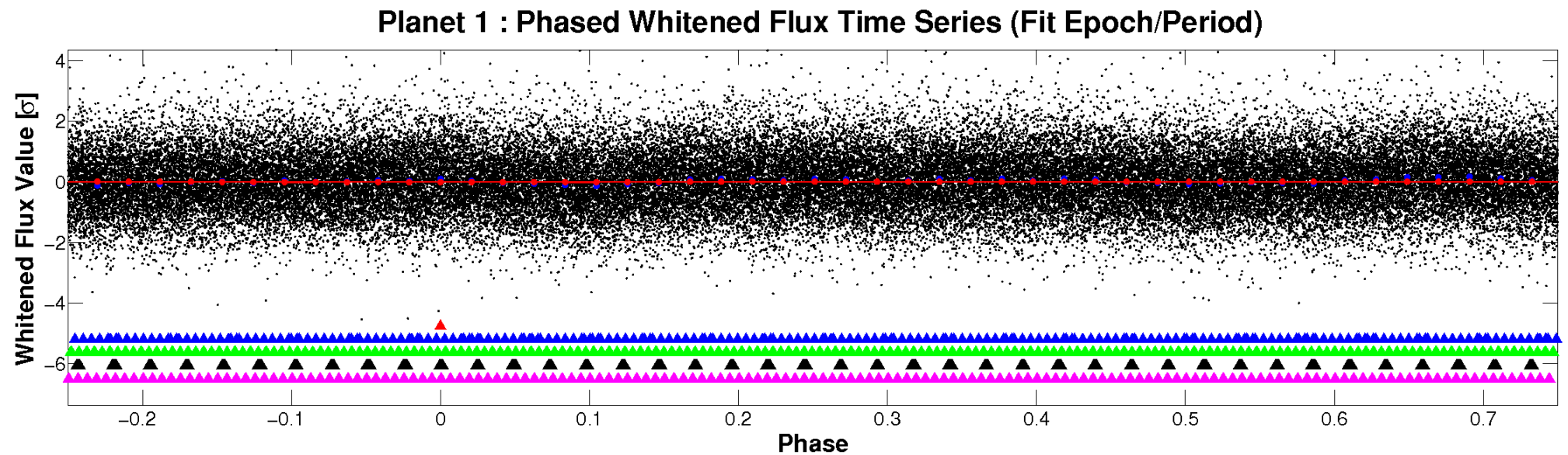
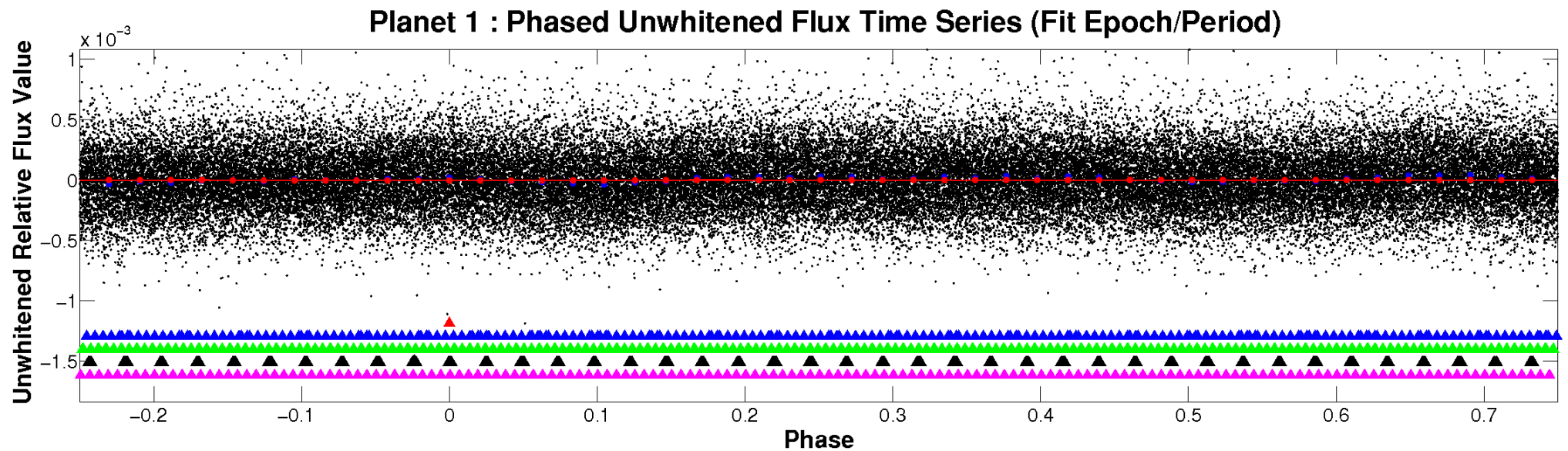


ALT Odd/Even

TCE 008521098-01

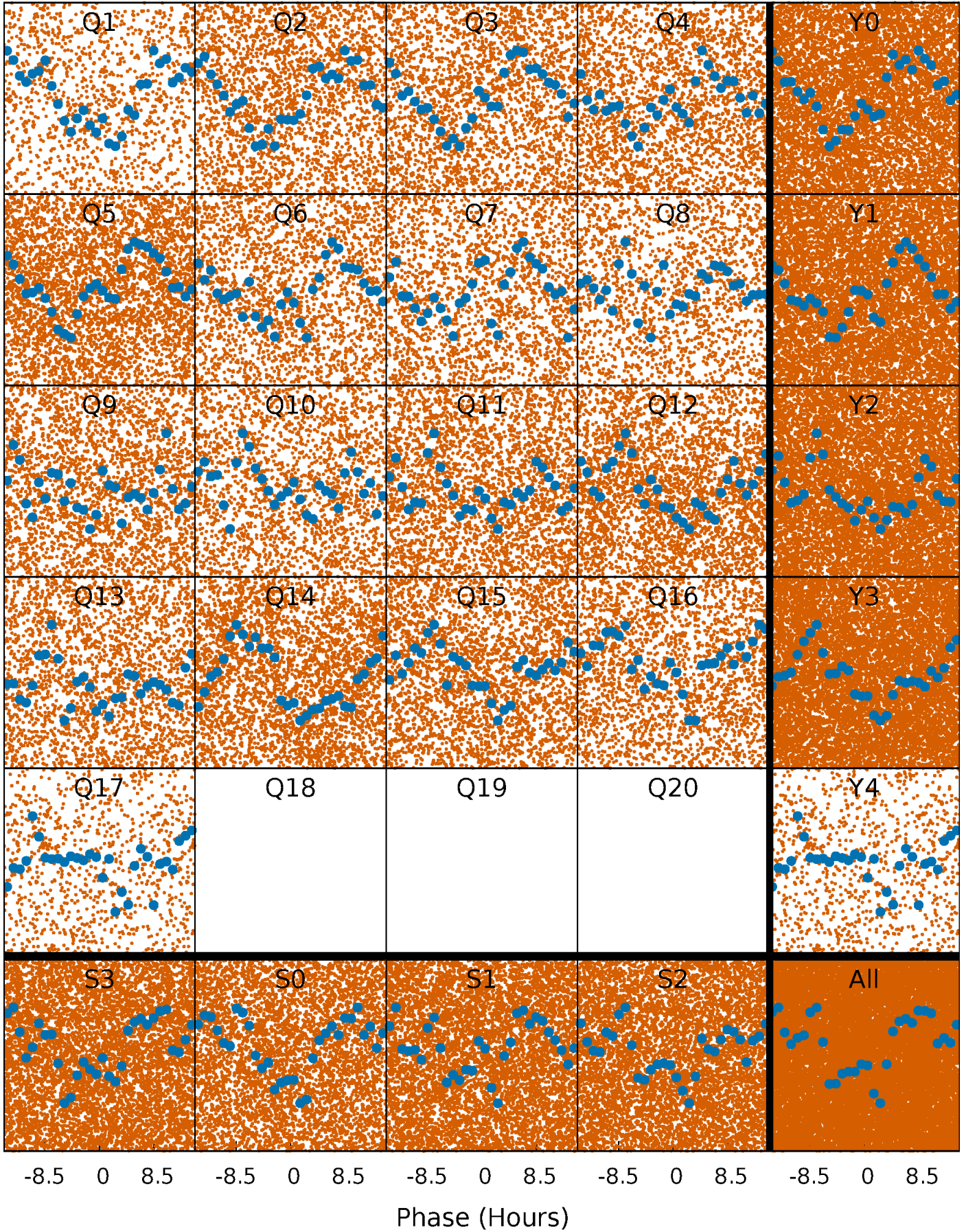


Non-Whitened Vs. Whitened Light Curve



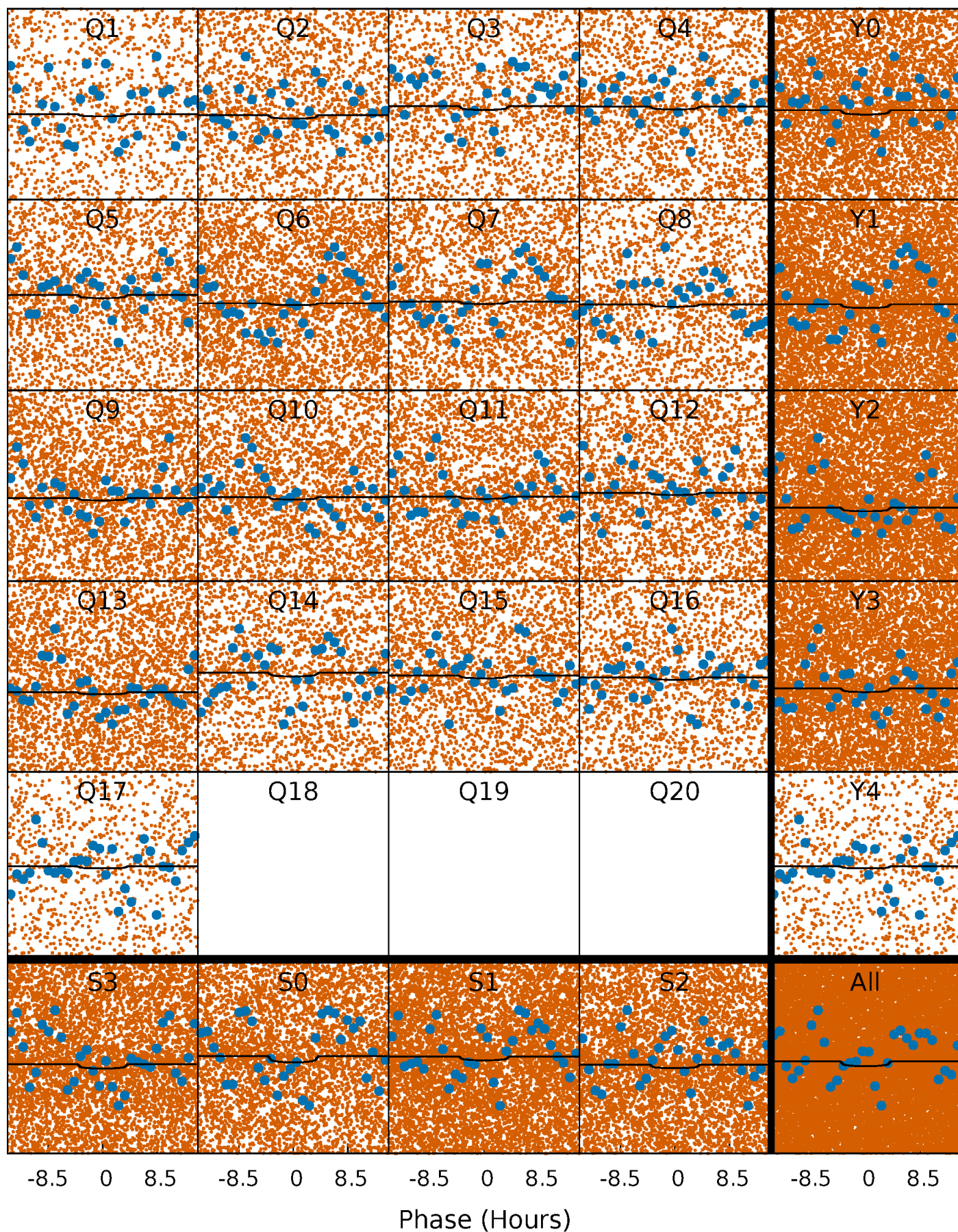
PDC Quarter-Phased Transit Curves

TCE 008521098-01 P= 0.976156 Days $T_0=132.087067$ (BKJD)



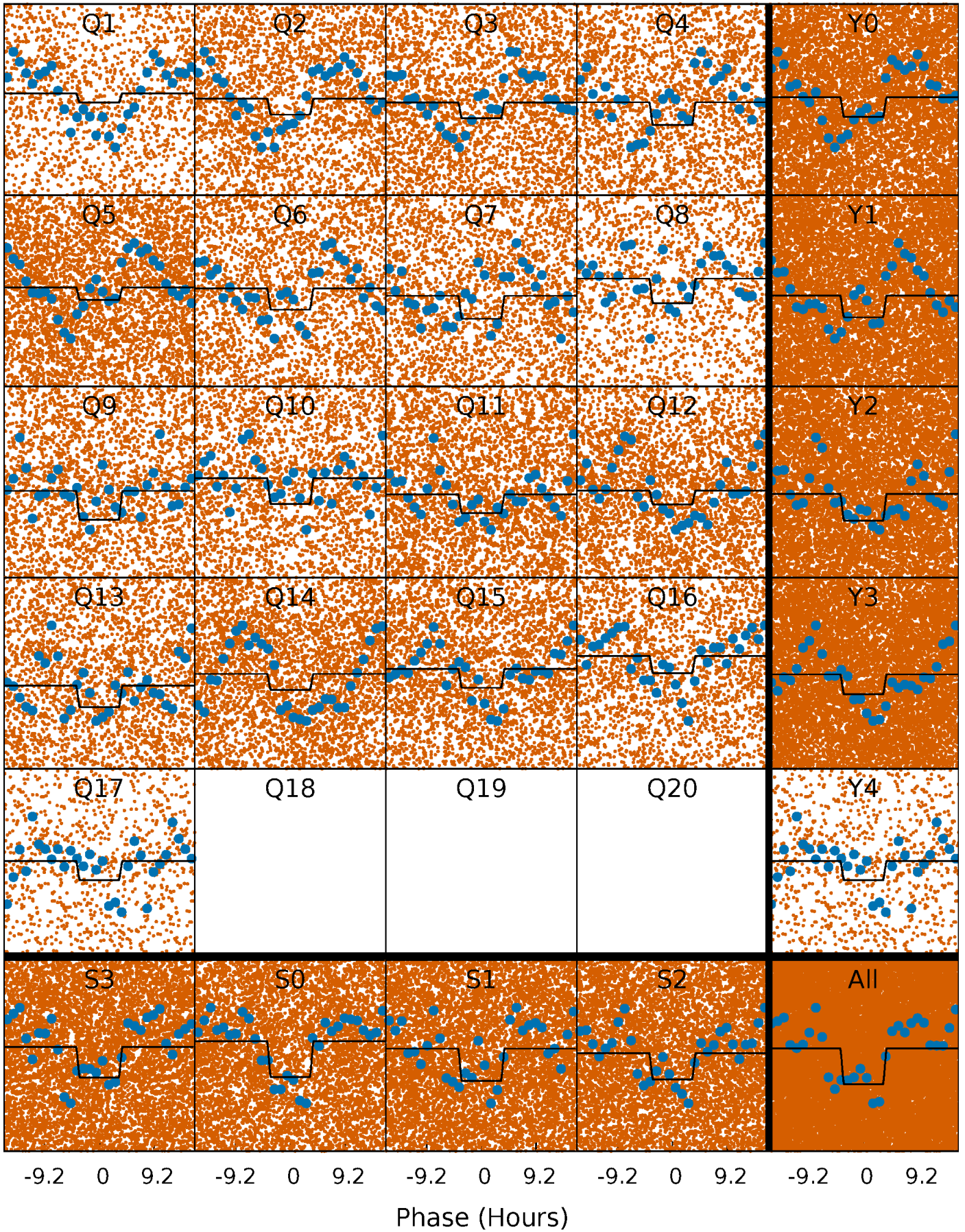
DV Quarter-Phased Transit Curves

TCE 008521098-01 P= 0.976156 Days $T_0=132.087067$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

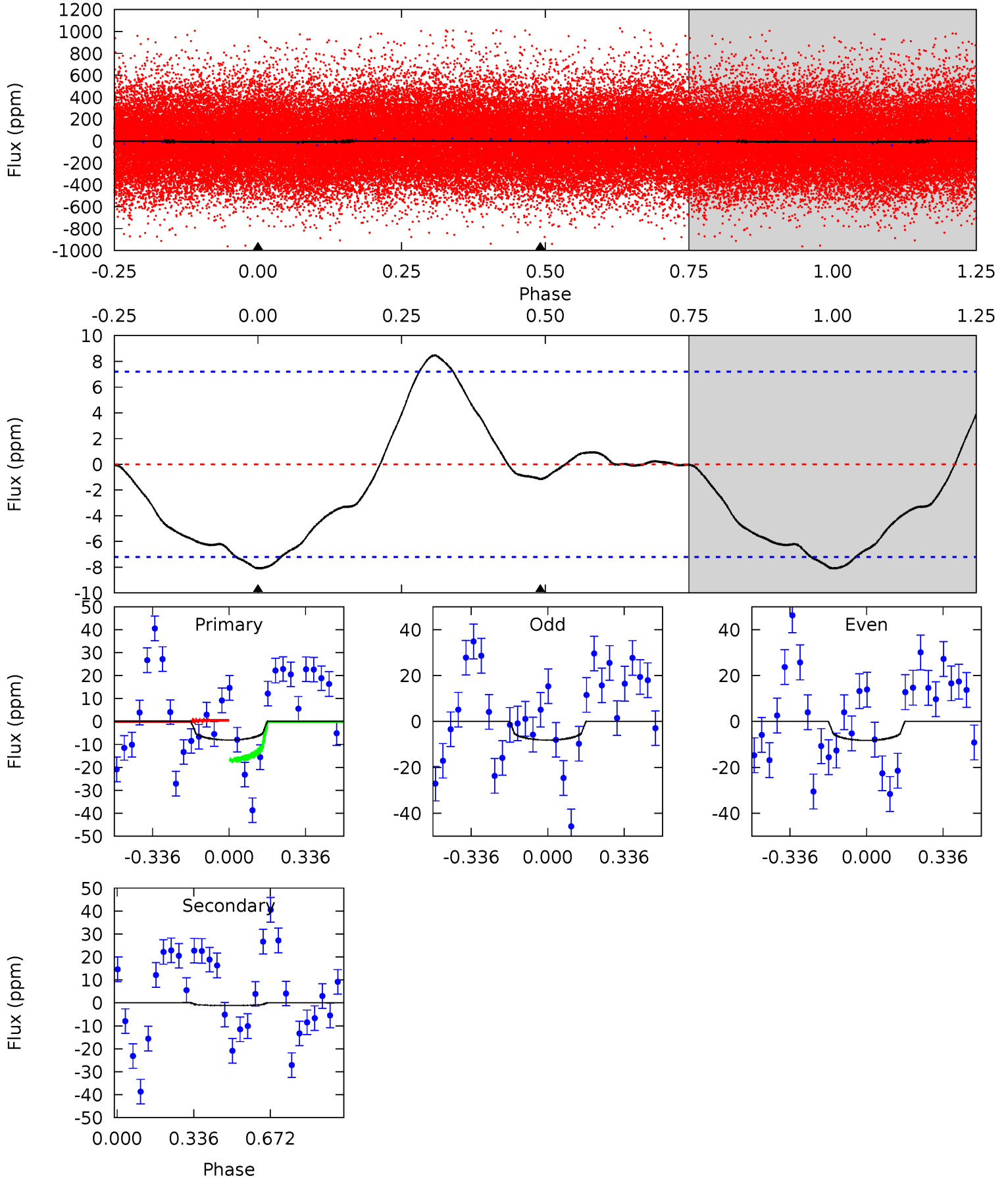
TCE 008521098-01 P= 0.976180 Days $T_0=132.076154$ (BKJD)



DV Model-Shift Uniqueness Test

008521098-01, P = 0.976156 Days, E = 131.110911 Days

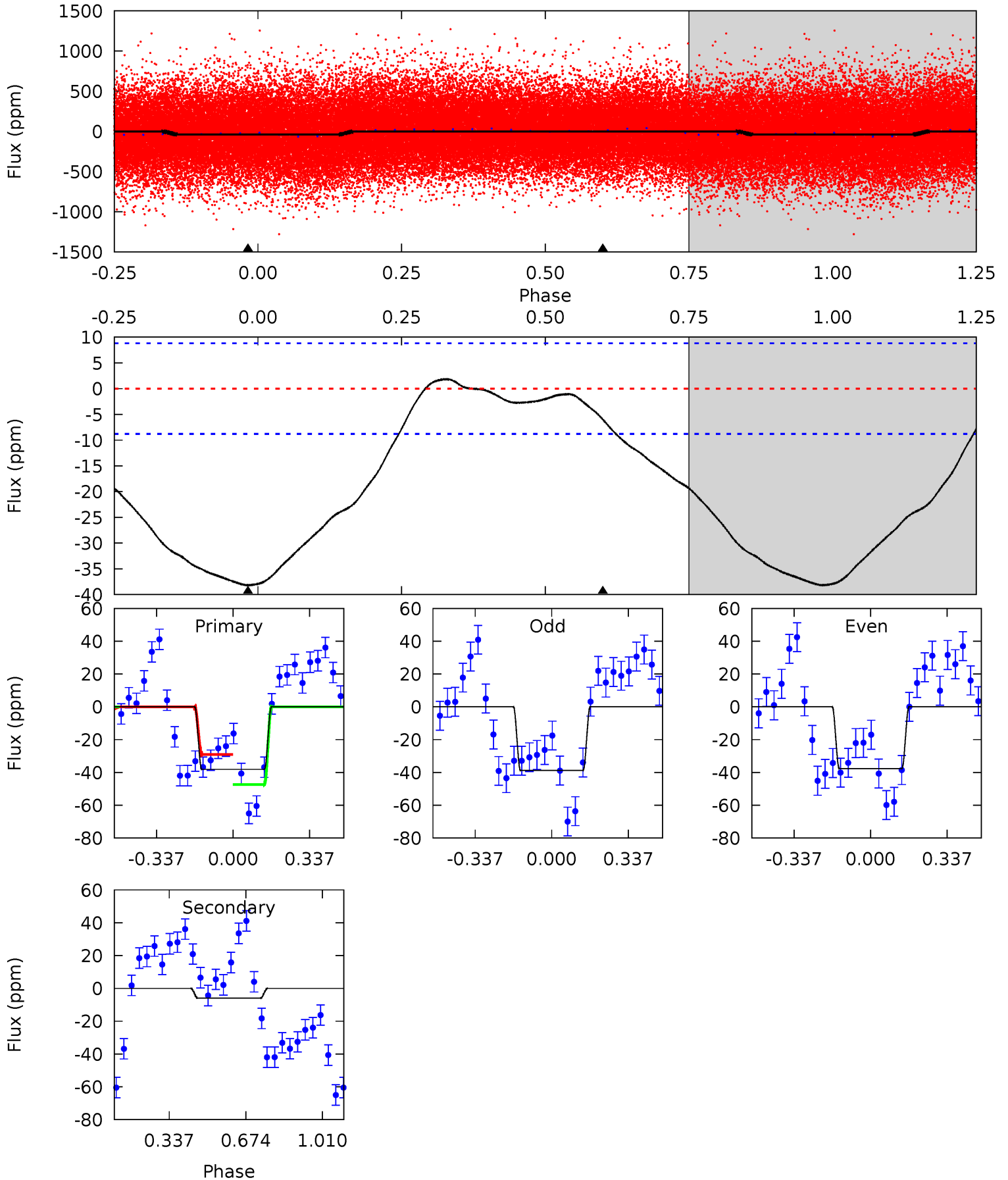
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.84	0.69	0	0	4.30	0.96	1.22	4.84	4.84	0.69	0.69	0.04	0.84	0.51	4.94



Alt Model-Shift Uniqueness Test

008521098-01, P = 0.976180 Days, E = 131.099974 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	2.93	0	0	4.30	0.96	1.78	18.7	18.7	2.93	2.93	0.27	1.08	0.05	4.55



Stellar Parameters For KIC 008521098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6329^{+202}_{-224}	$3.918^{+0.397}_{-0.132}$	$-0.040^{+0.250}_{-0.300}$	$2.181^{+0.515}_{-0.957}$	$1.437^{+0.192}_{-0.356}$	$0.195^{+0.681}_{-0.076}$
	+3%/-4%	+10%/-3%	+625%/-750%	+24%/-44%	+13%/-25%	+349%/-39%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008521098-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1 ± 2	$1.03^{+1.05}_{-0.73}$	3827^{+310}_{-437}	-3071^{+8081}_{-793}	$0.166^{+2.145}_{-0.274}$
Alt.	-6 ± 2	$1.62^{+1.20}_{-1.06}$	3834^{+303}_{-394}	3491^{+2312}_{-6661}	$0.586^{+4.004}_{-0.414}$

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

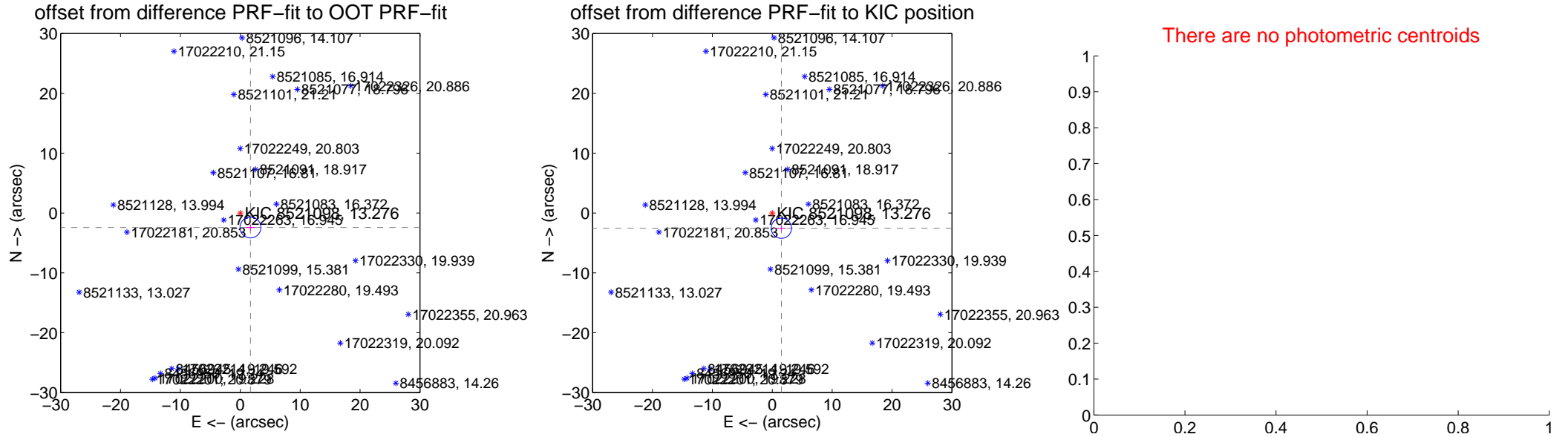
DV Centroid Data

Supplemental centroid analysis for 008521098-01. Kepler magnitude: 13.28. Transit SNR 1.64

There are 0 quarters with good PRF difference image offsets

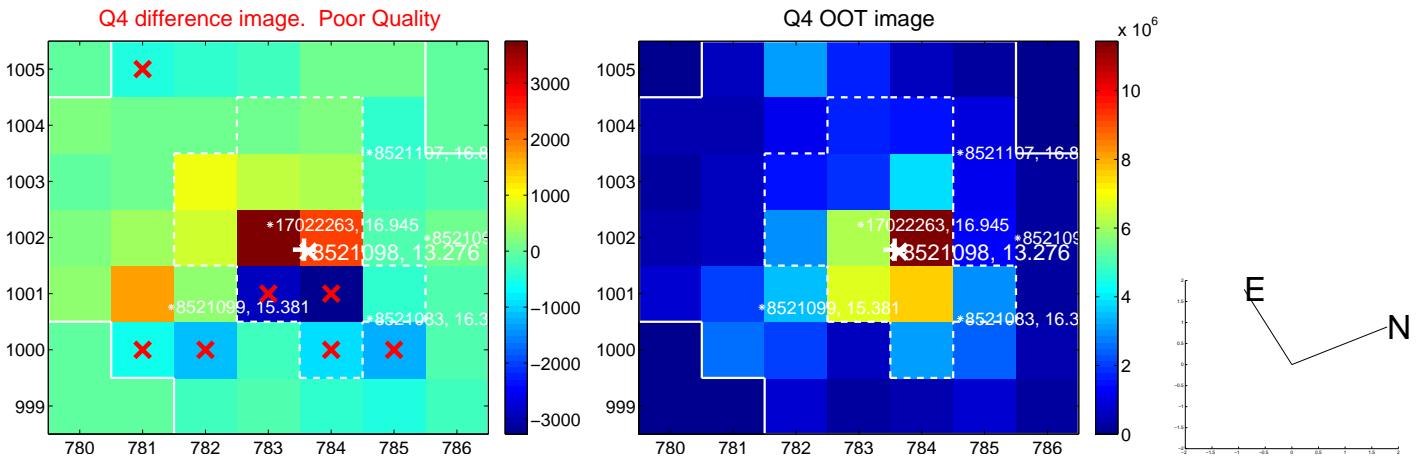
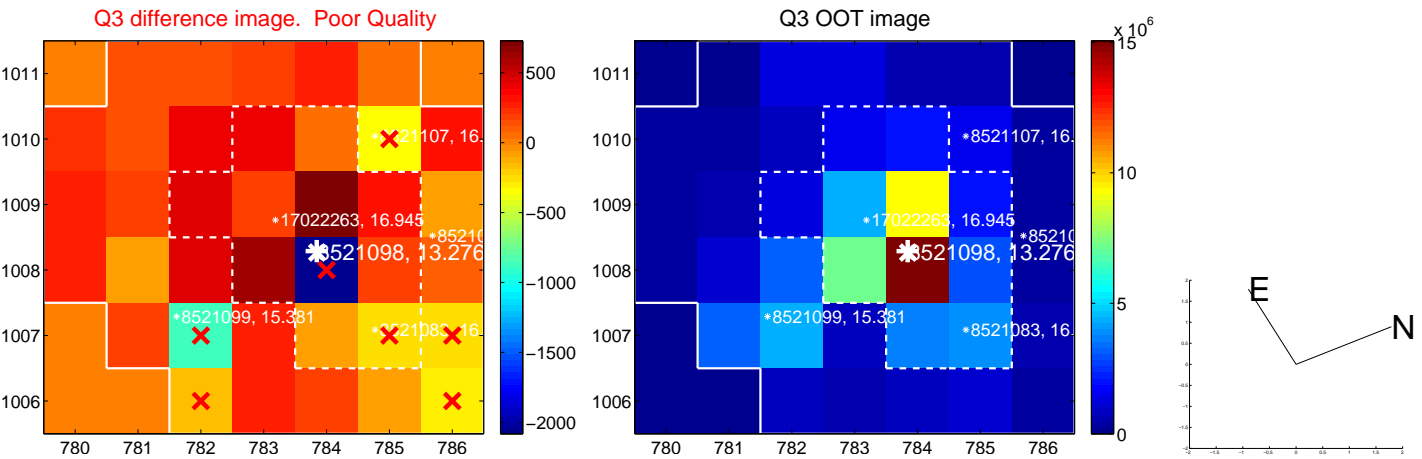
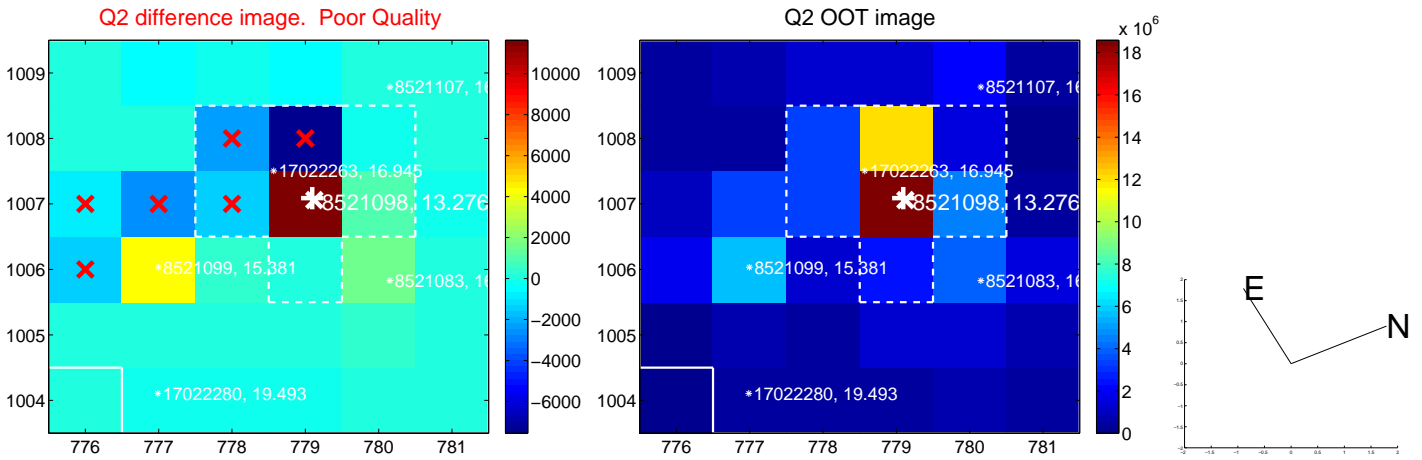
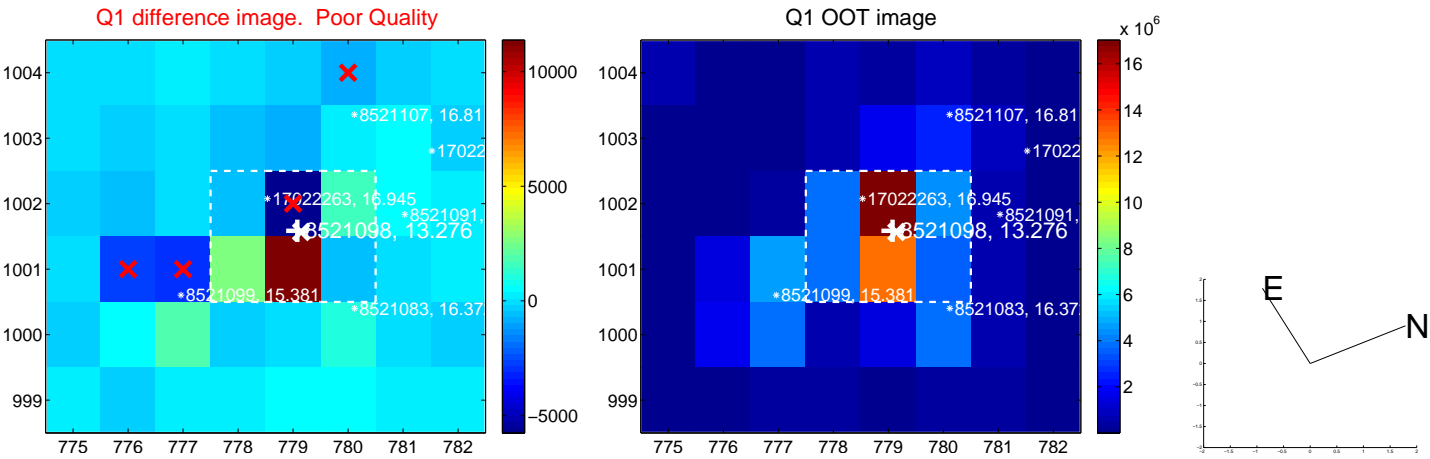
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.956 ± 0.581	5.08	-1.697 ± 0.734	-2.420 ± 0.489
PRF-fit source offset from KIC position	2.959 ± 0.565	5.24	-1.522 ± 0.734	-2.537 ± 0.489
photometric centroid source offset	—	—	—	—

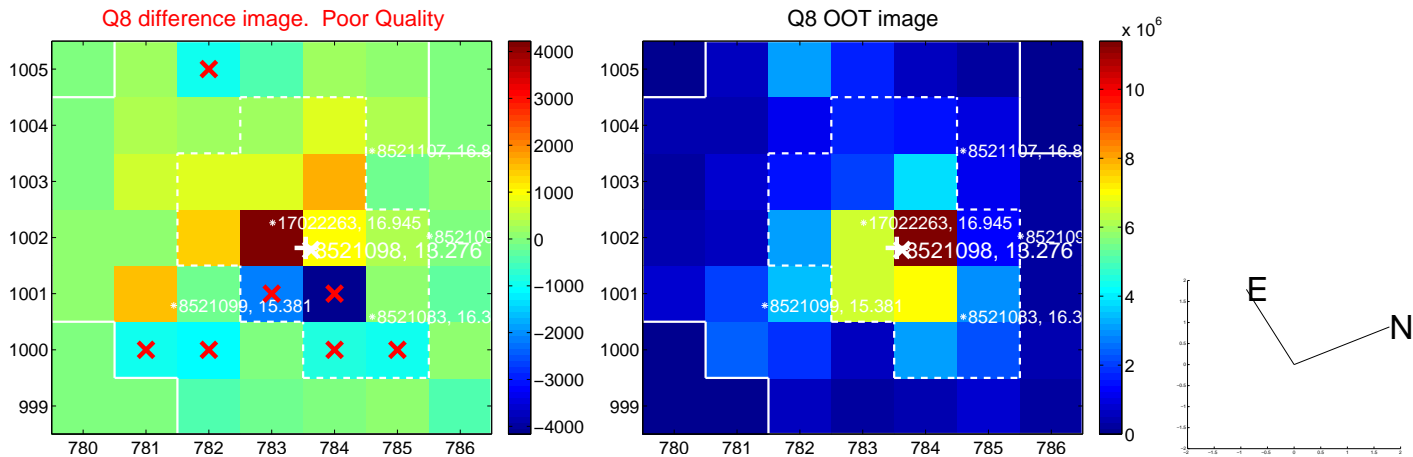
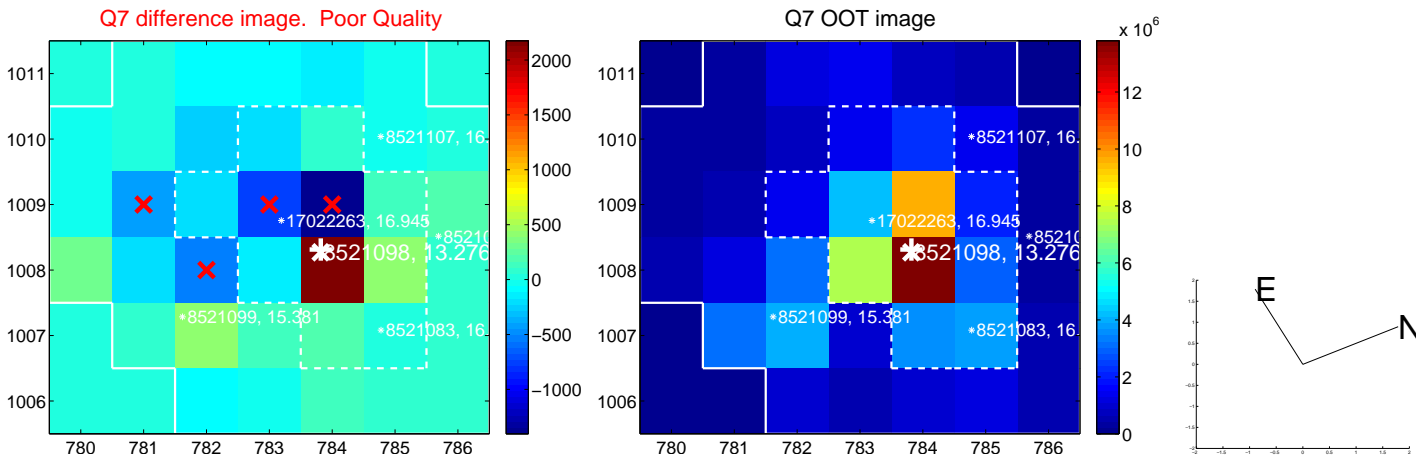
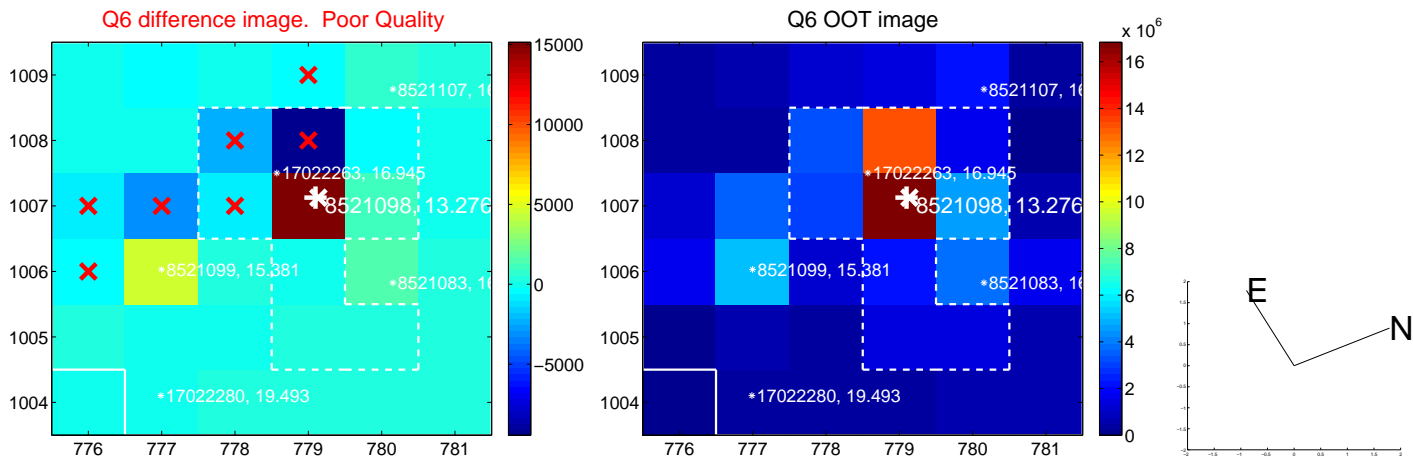
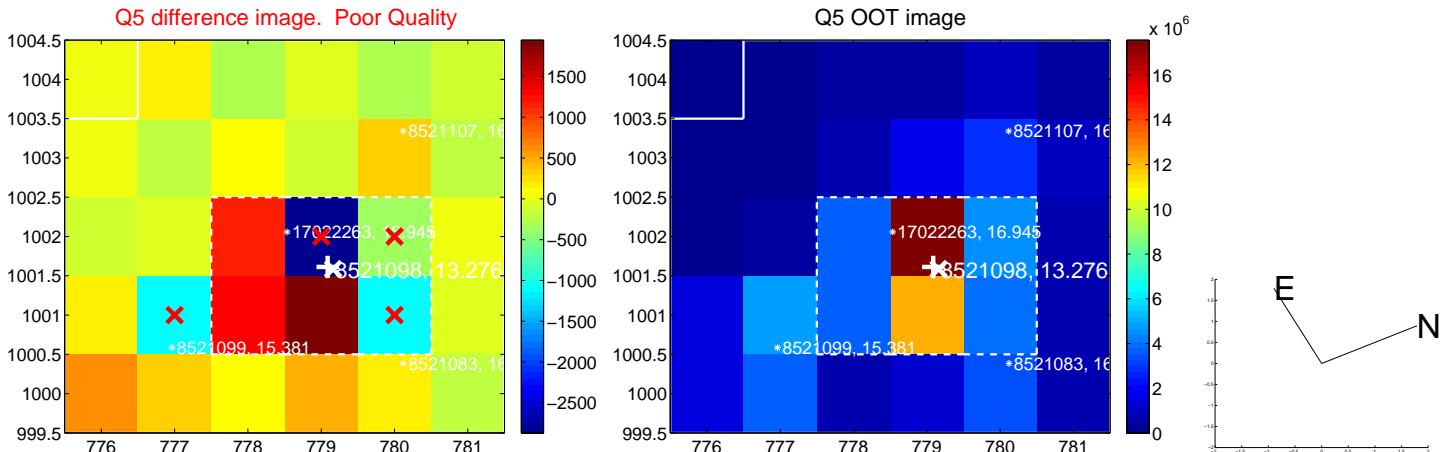


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

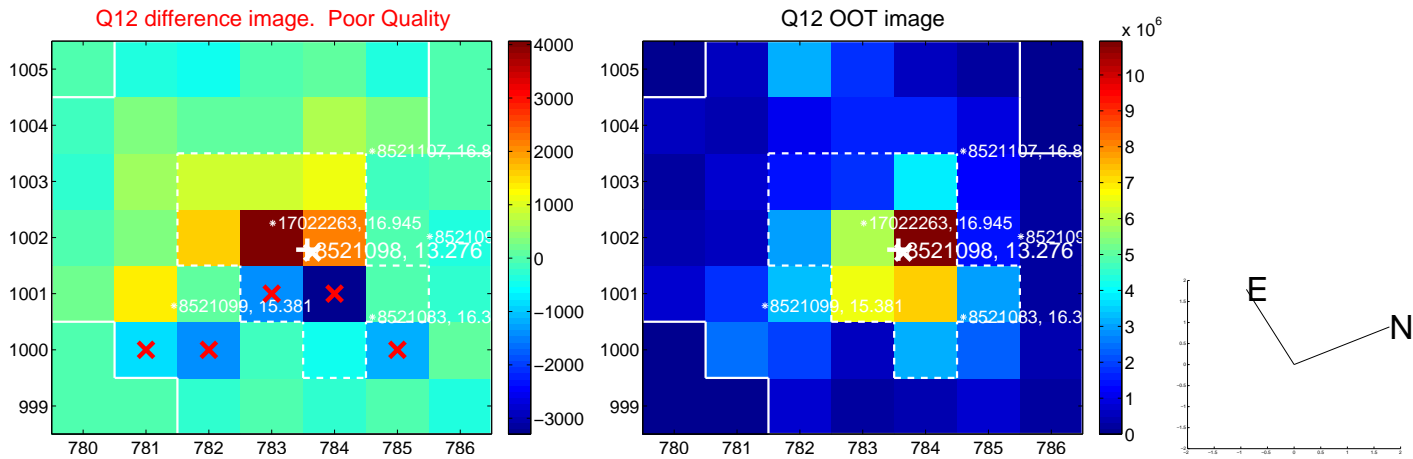
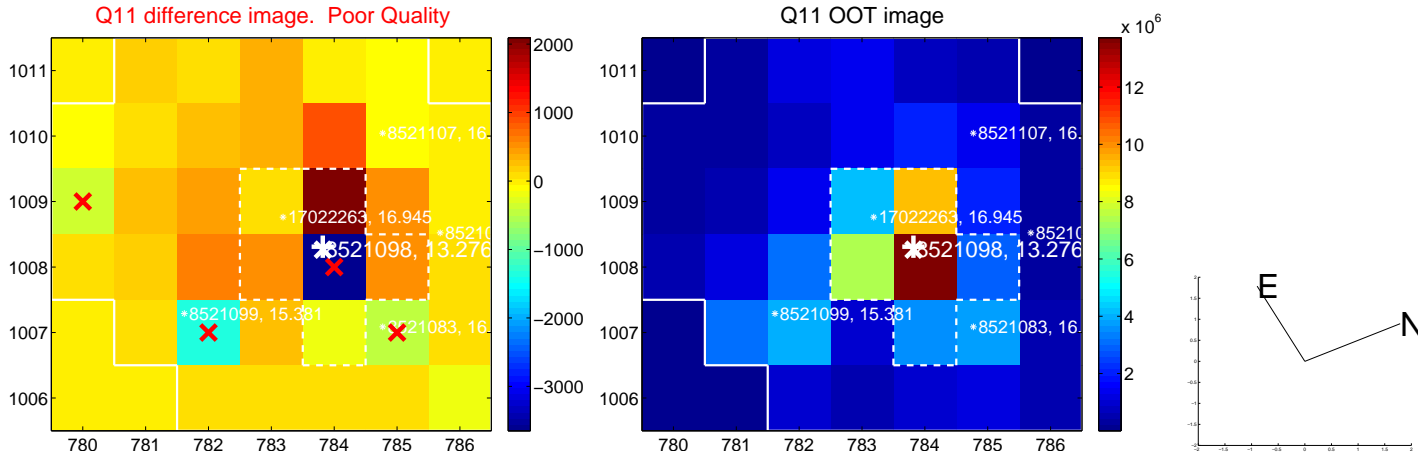
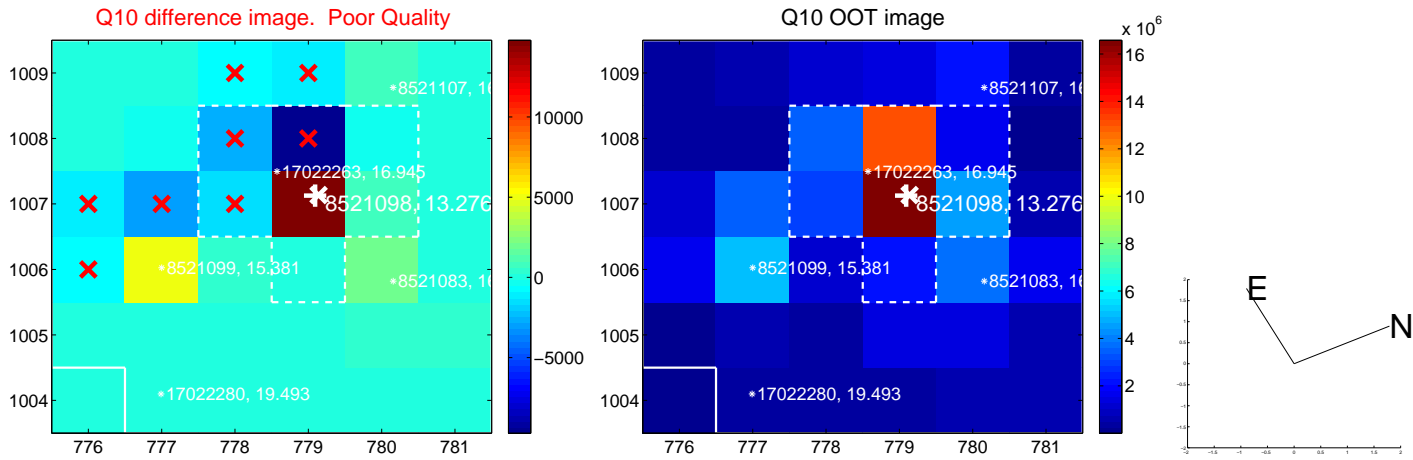
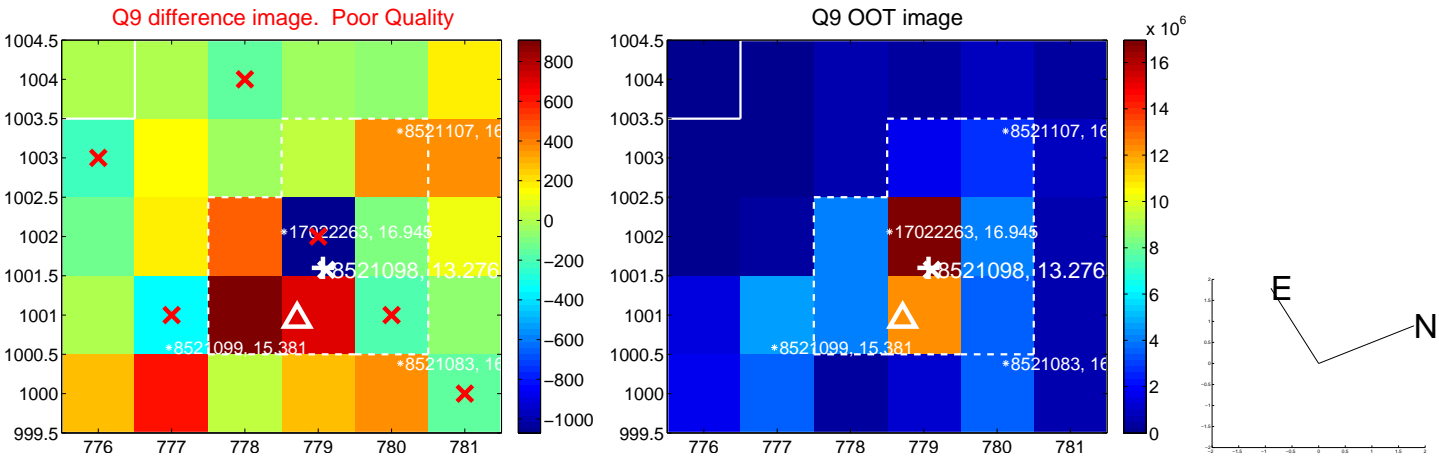
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



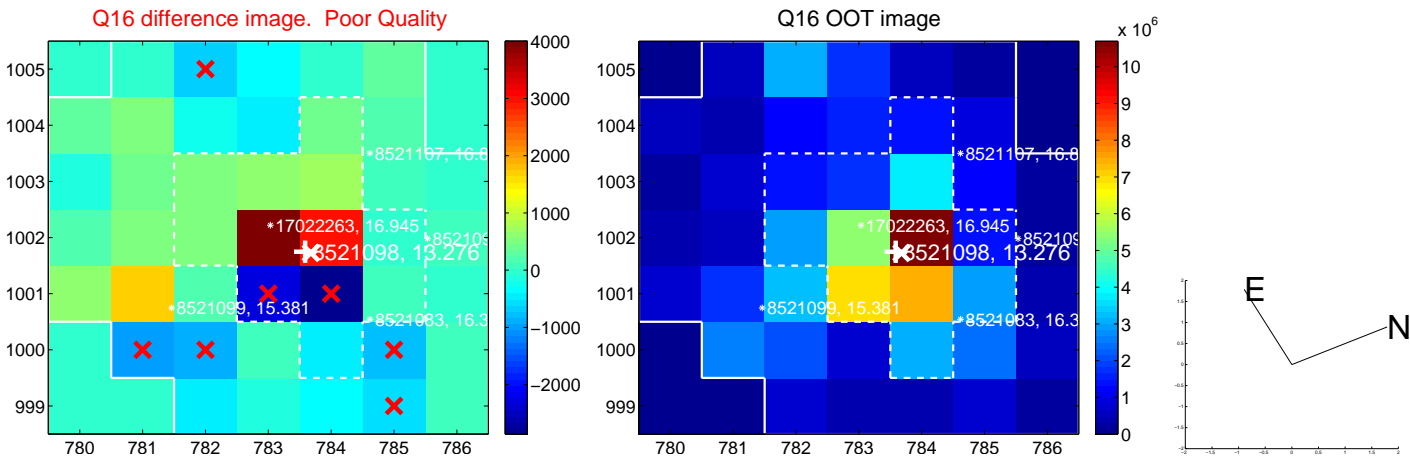
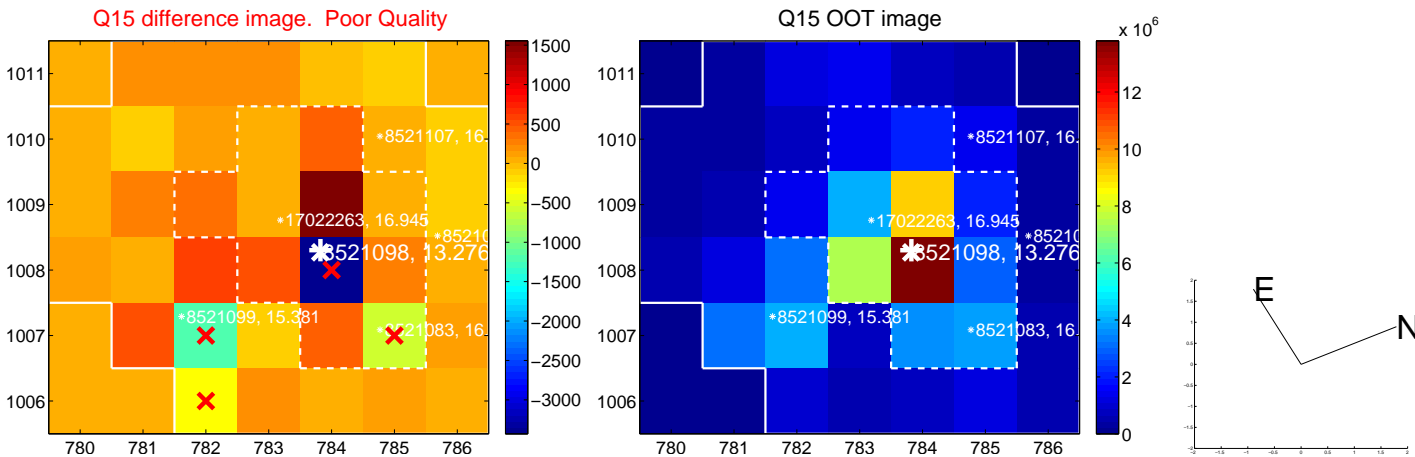
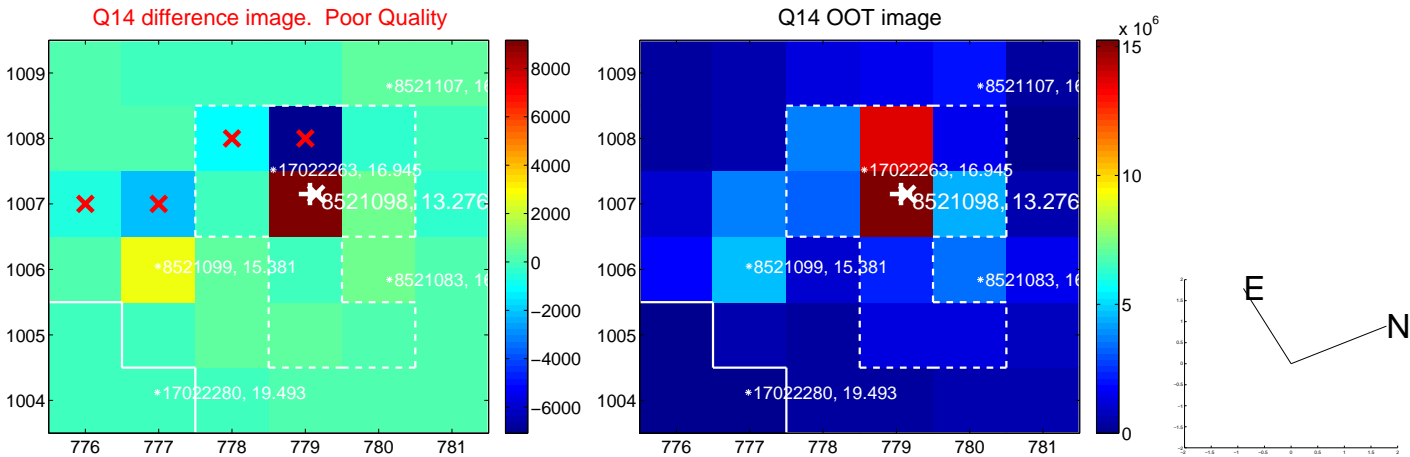
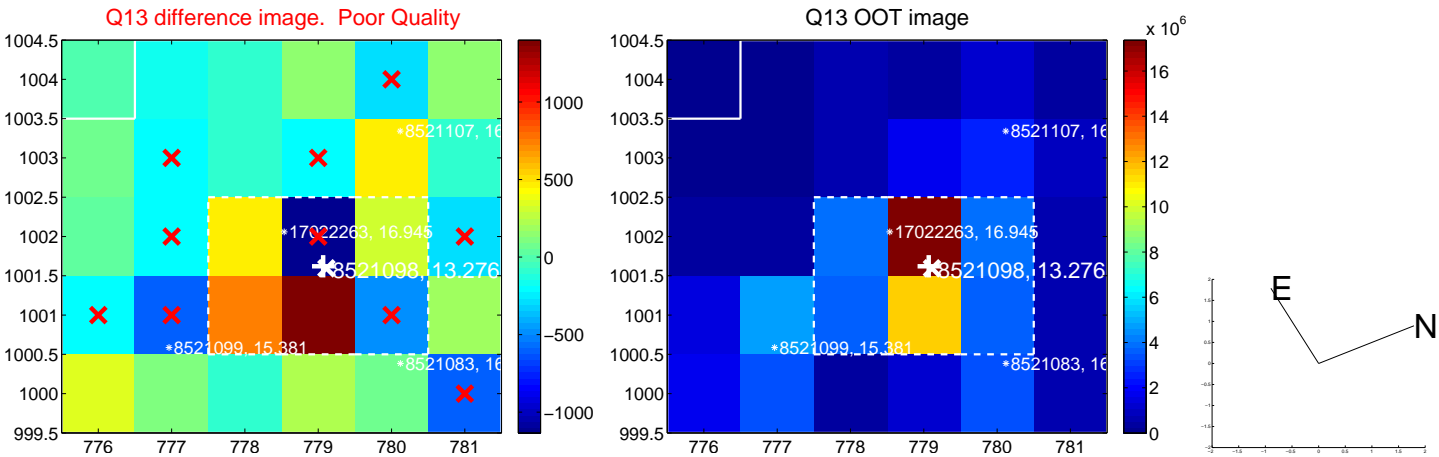
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



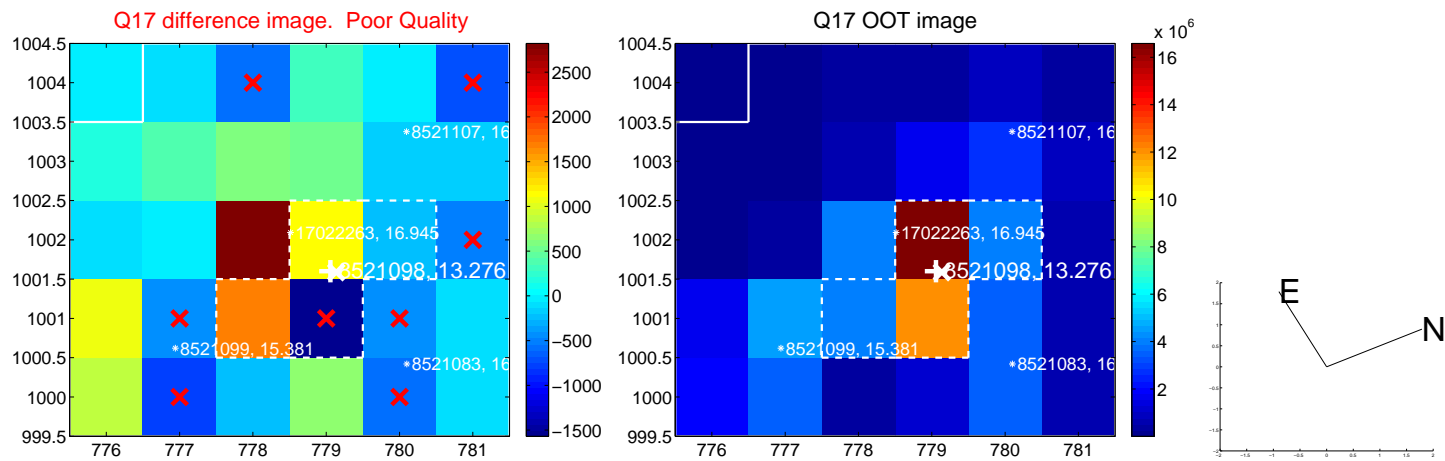
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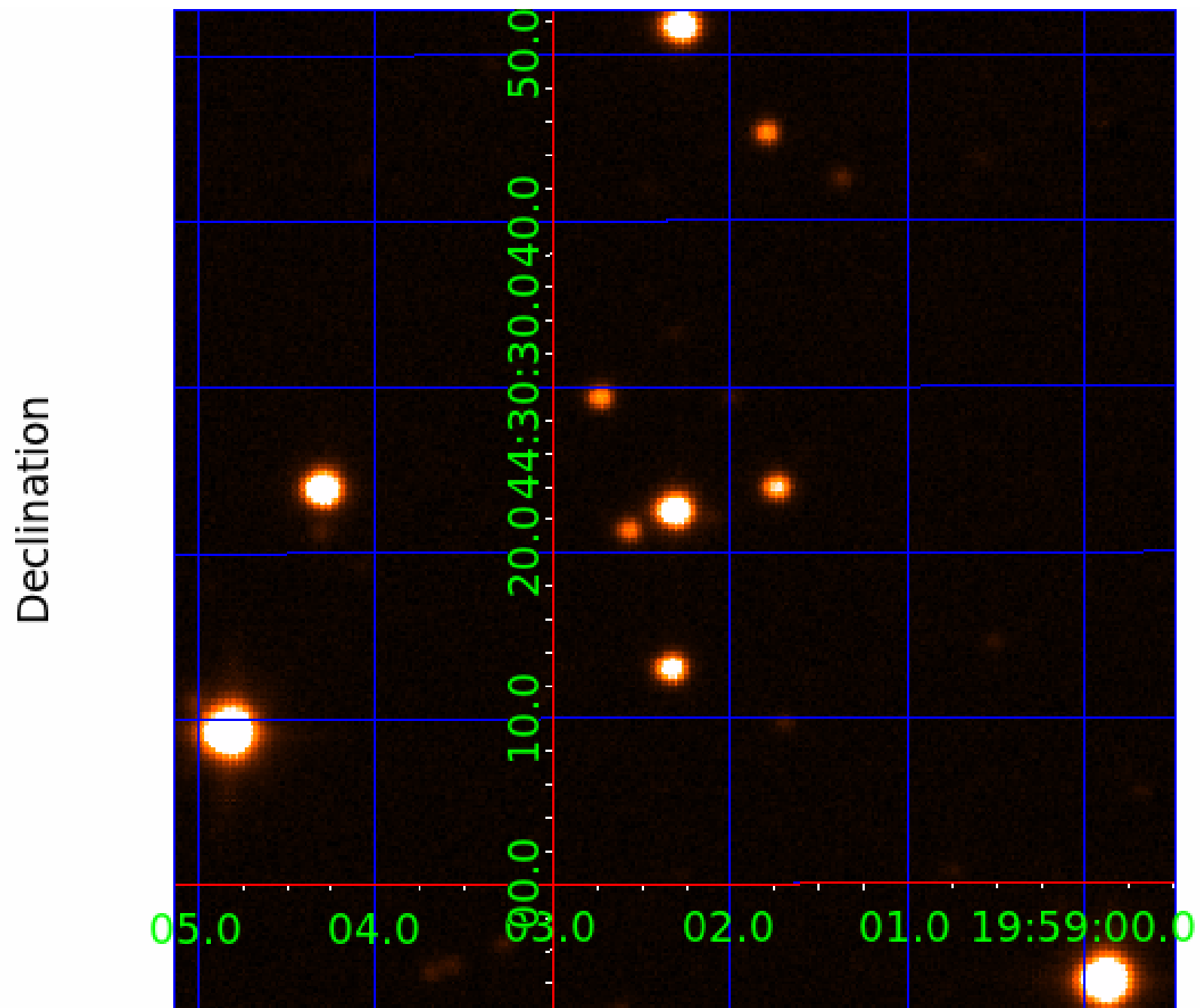


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 008521098

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})
008521098-01	OBS	No	0.976156	132.087067	3.7	7.436	8.7	1.6	2.18	6329	0.43	14475.91
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008521098-05	OBS	No	4.276784	133.722769	346.8	0.979	14.1	17.1	2.18	6329	4.22	2019.21

Robovetter Results

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008521098-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN
008521098-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS

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

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

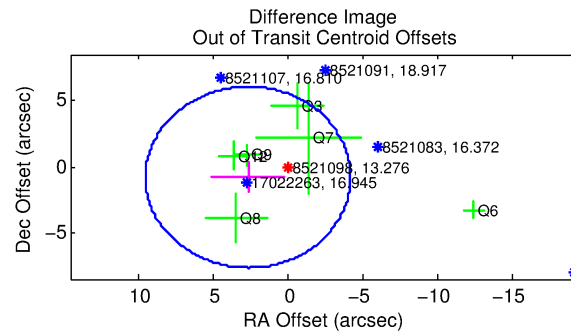
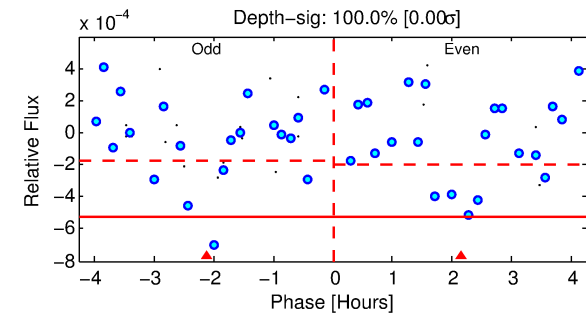
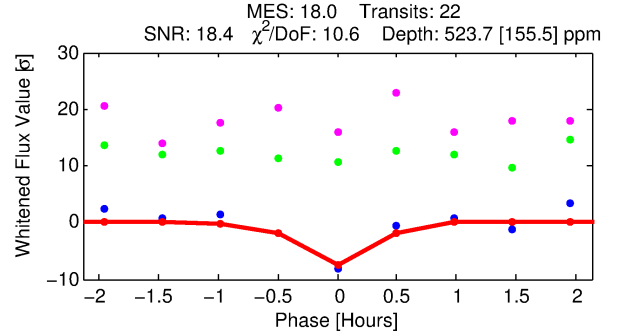
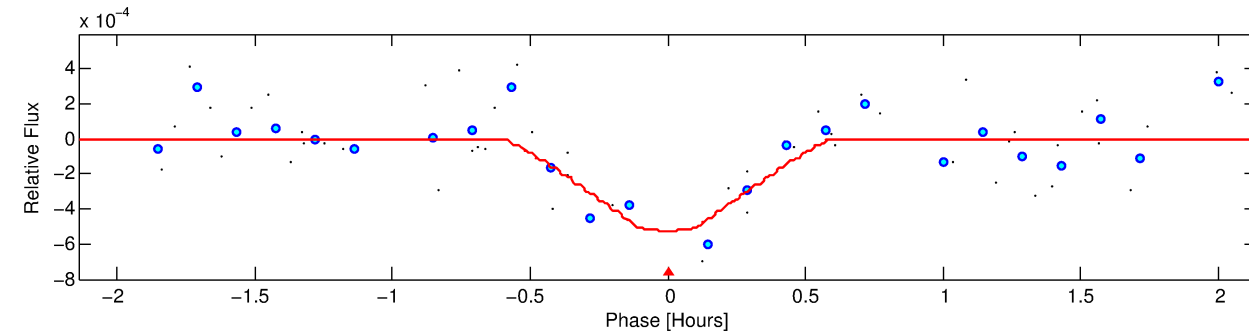
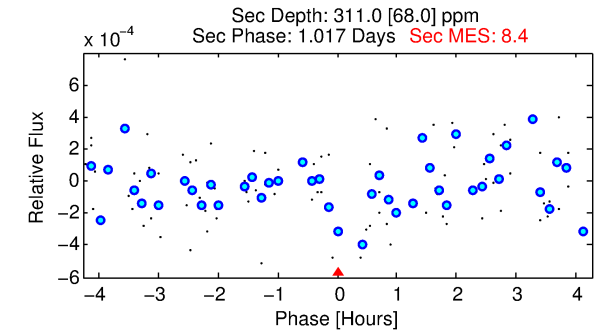
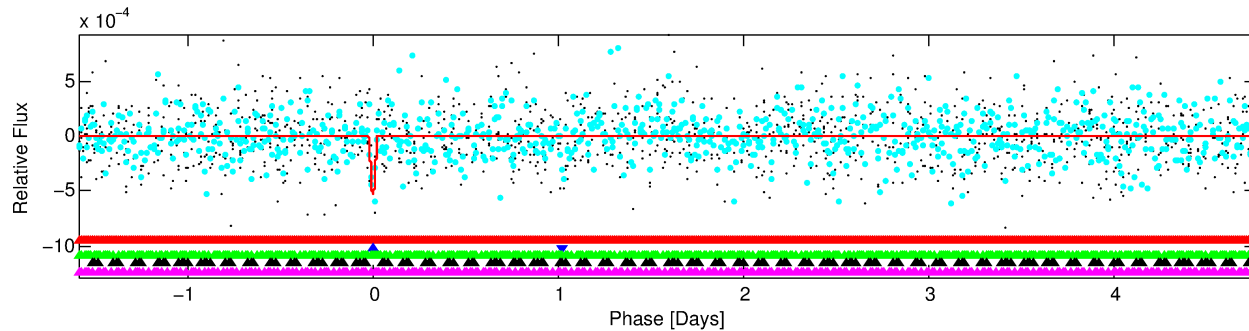
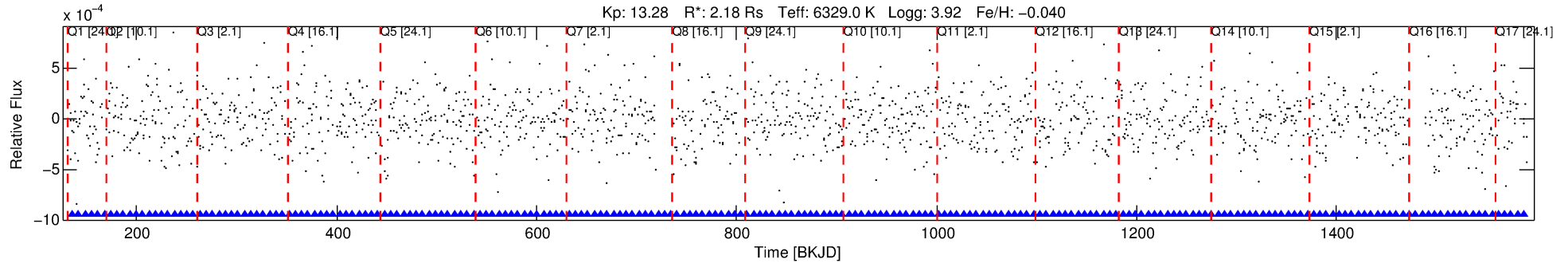
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521098-02

No Significant Match Found

DV One-Page Summary

KIC: 8521098 Candidate: 2 of 5 Period: 6.365 d



DV Fit Results:

Period = 6.36476 [0.00004] d
Epoch = 136.0068 [0.0043] BKJD
Rp/R* = 0.0214 [0.0786]
a/R* = 69.24 [1275.10]
b = 0.10 [184.64]
Seff = 1188.40 [820.77]
Teq = 1497 [259] K
Rp = 5.10 [18.84] Re
a = 0.0759 [0.0320] AU
Ag = 37.89 [279.30] [0.13 σ]
Teffp = 5743 [10542] K [0.40 σ]

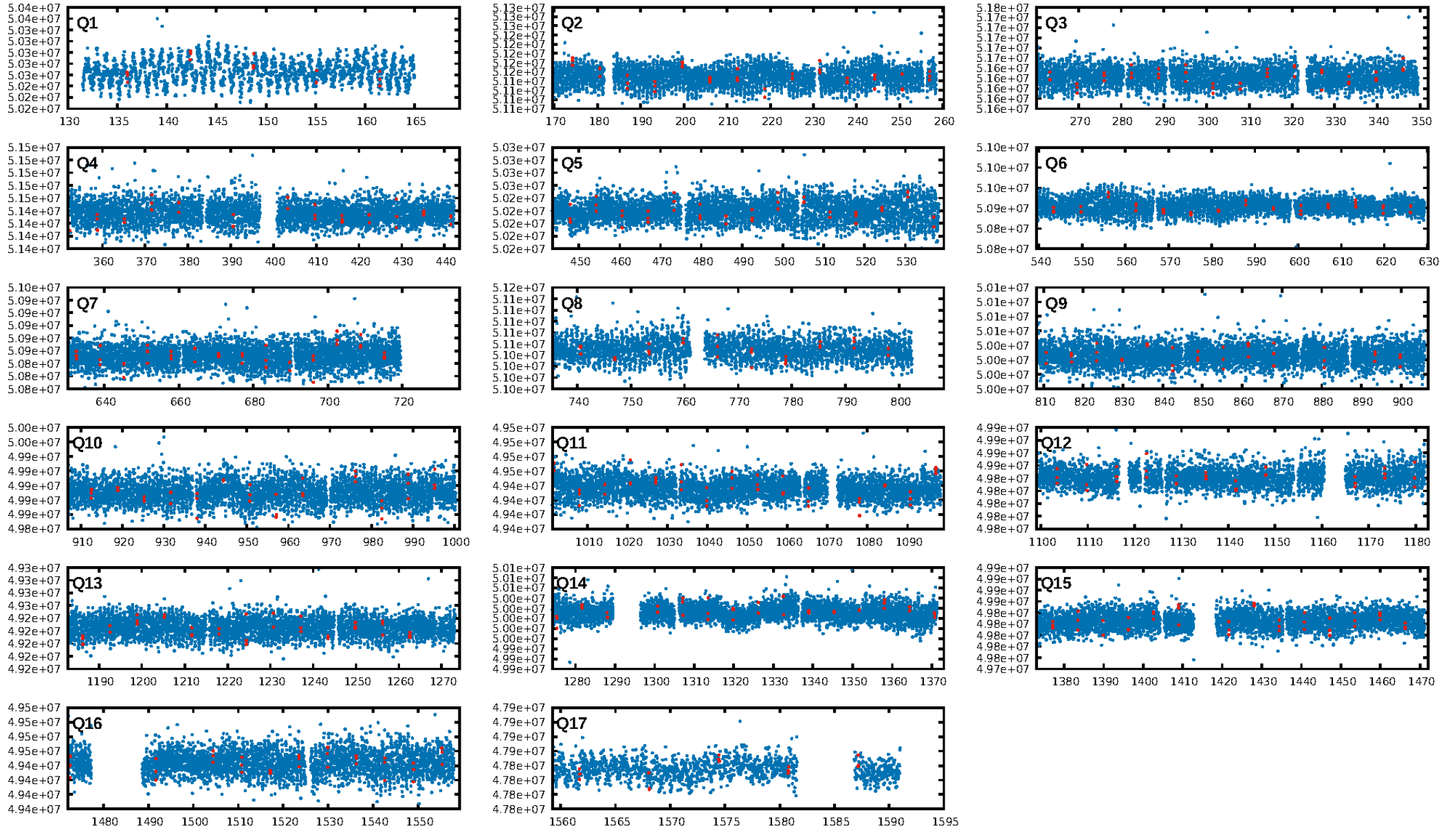
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.35 σ]
LongPeriod-sig: 100.0% [37.23 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.96e-35
RollingBand-fgt: 1.00 [20/20]
GhostDiagnostic-chr: -1.185
Centroid-sig: 55.8%
Centroid-so: 1.140 arcsec [2.94 σ]
OotOffset-rm: 2.741 arcsec [1.20 σ]
OotOffset-st: 1/2/2/1 [6]
KicOffset-rm: 3.002 arcsec [1.60 σ]
KicOffset-st: 1/2/2/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.75 [12/16]

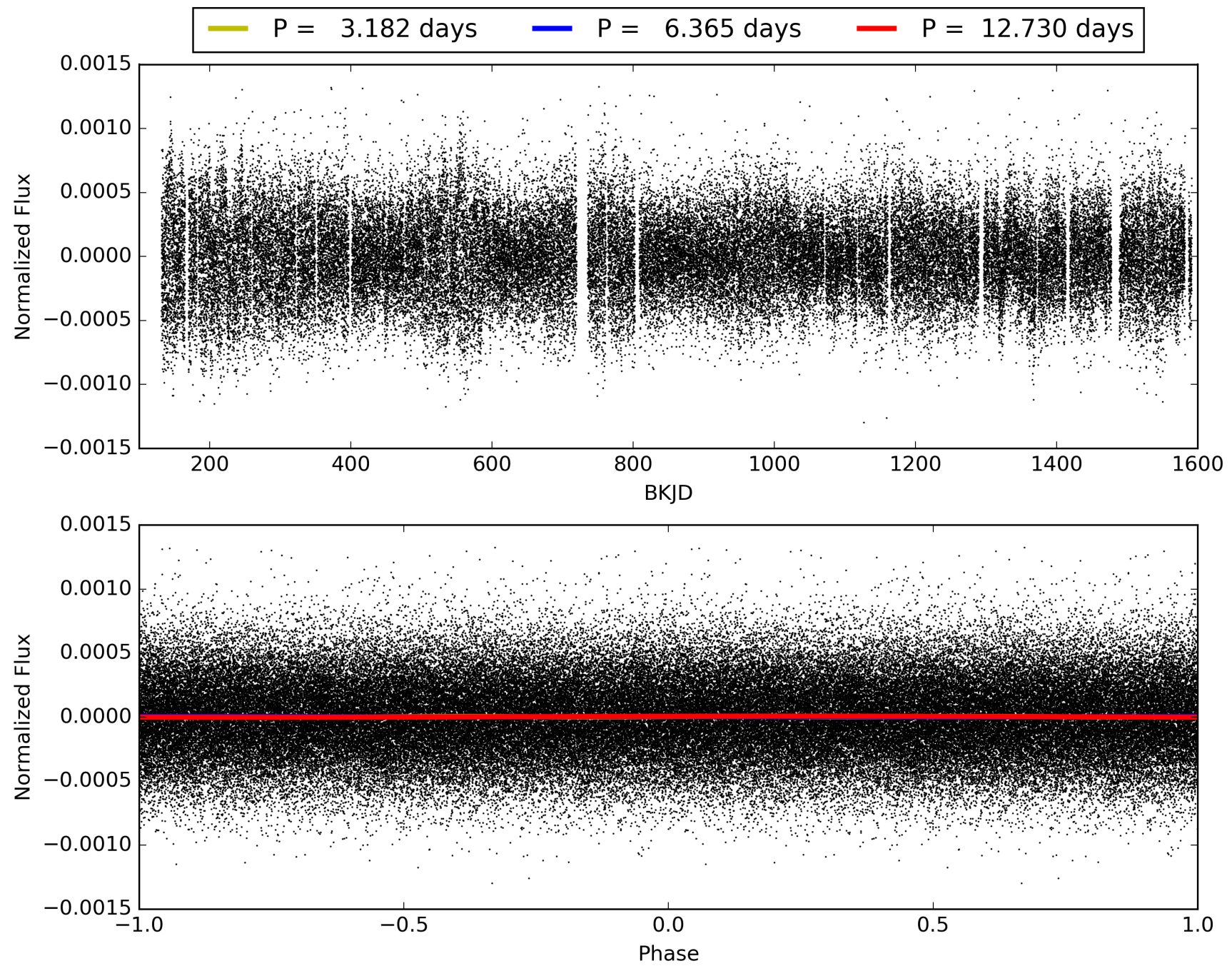
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008521098-02, PDC Light Curves

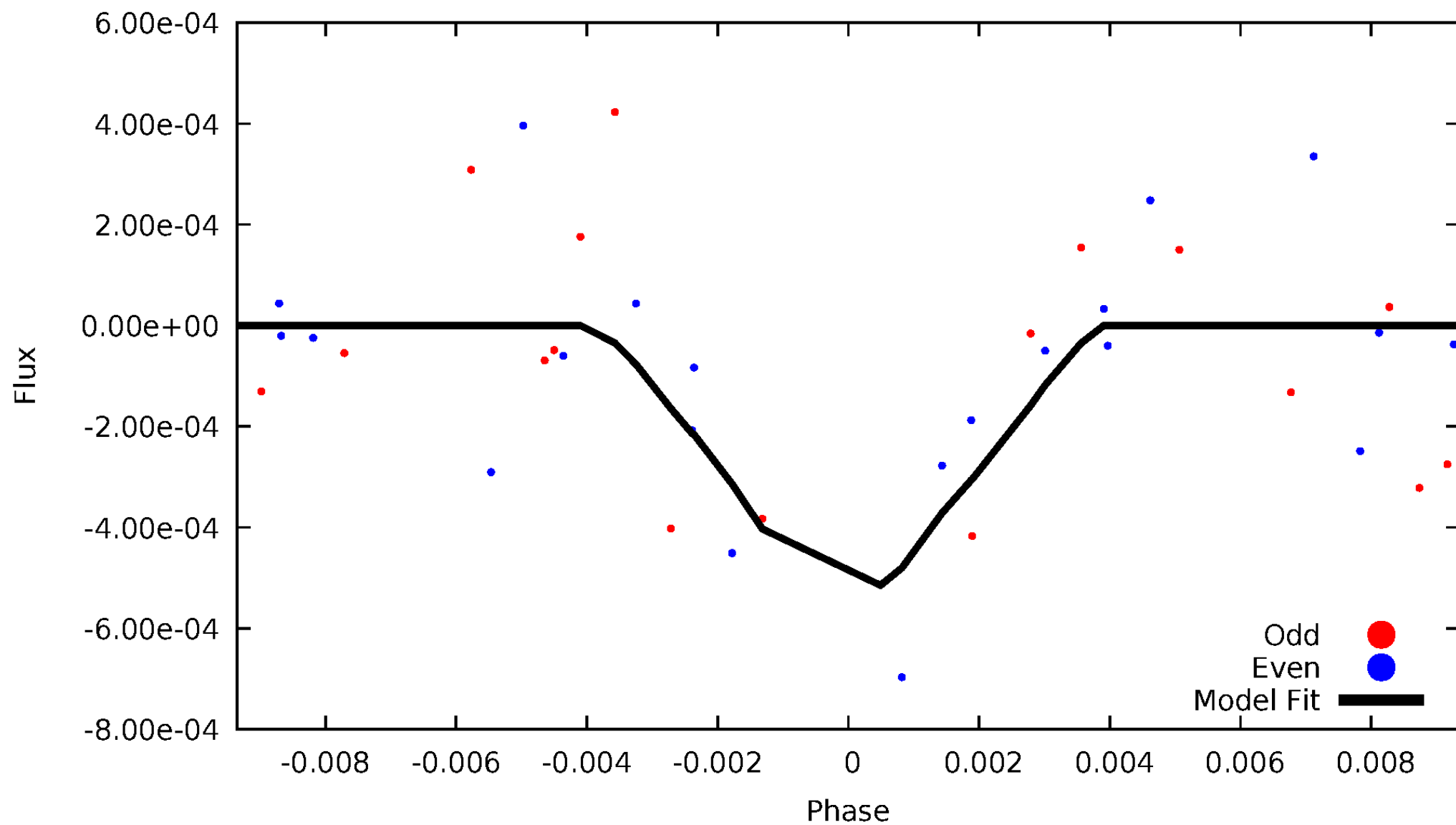


TCE 008521098-02



DV Odd/Even

TCE 008521098-02

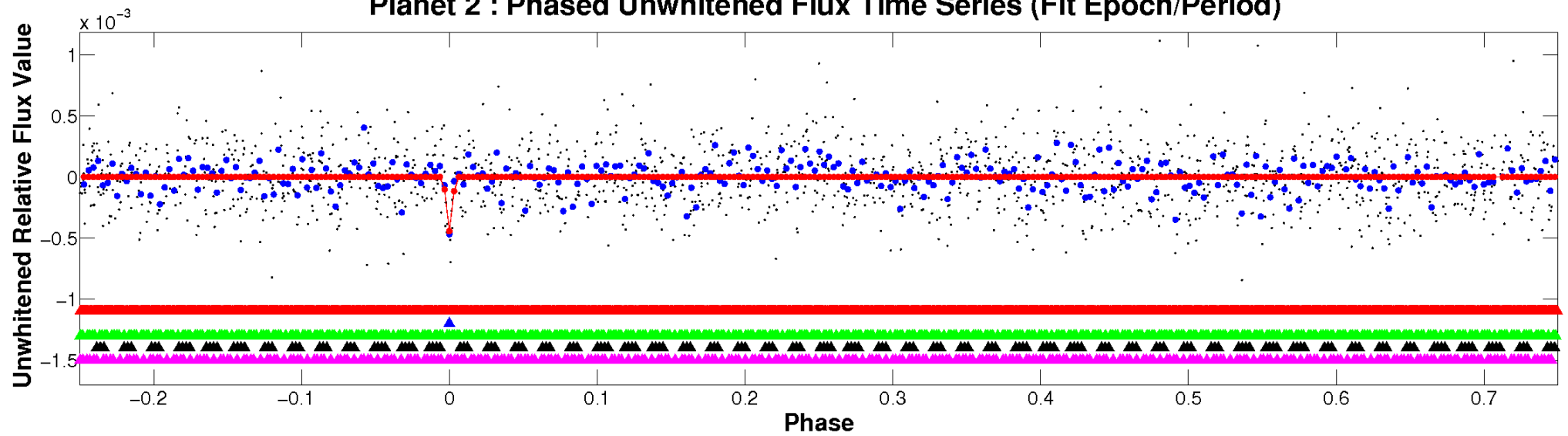


ALT Odd/Even

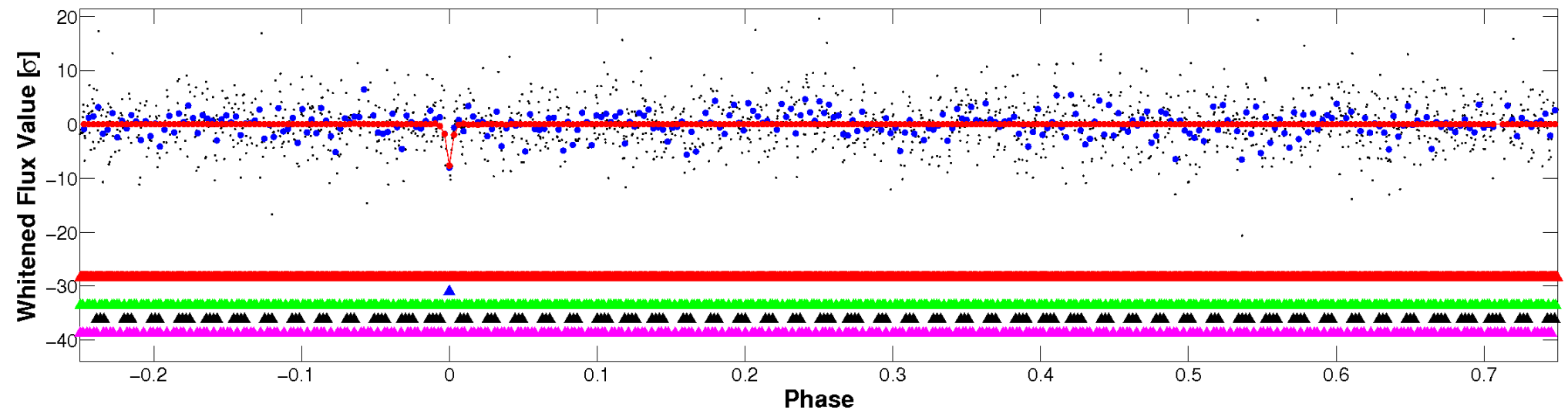
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

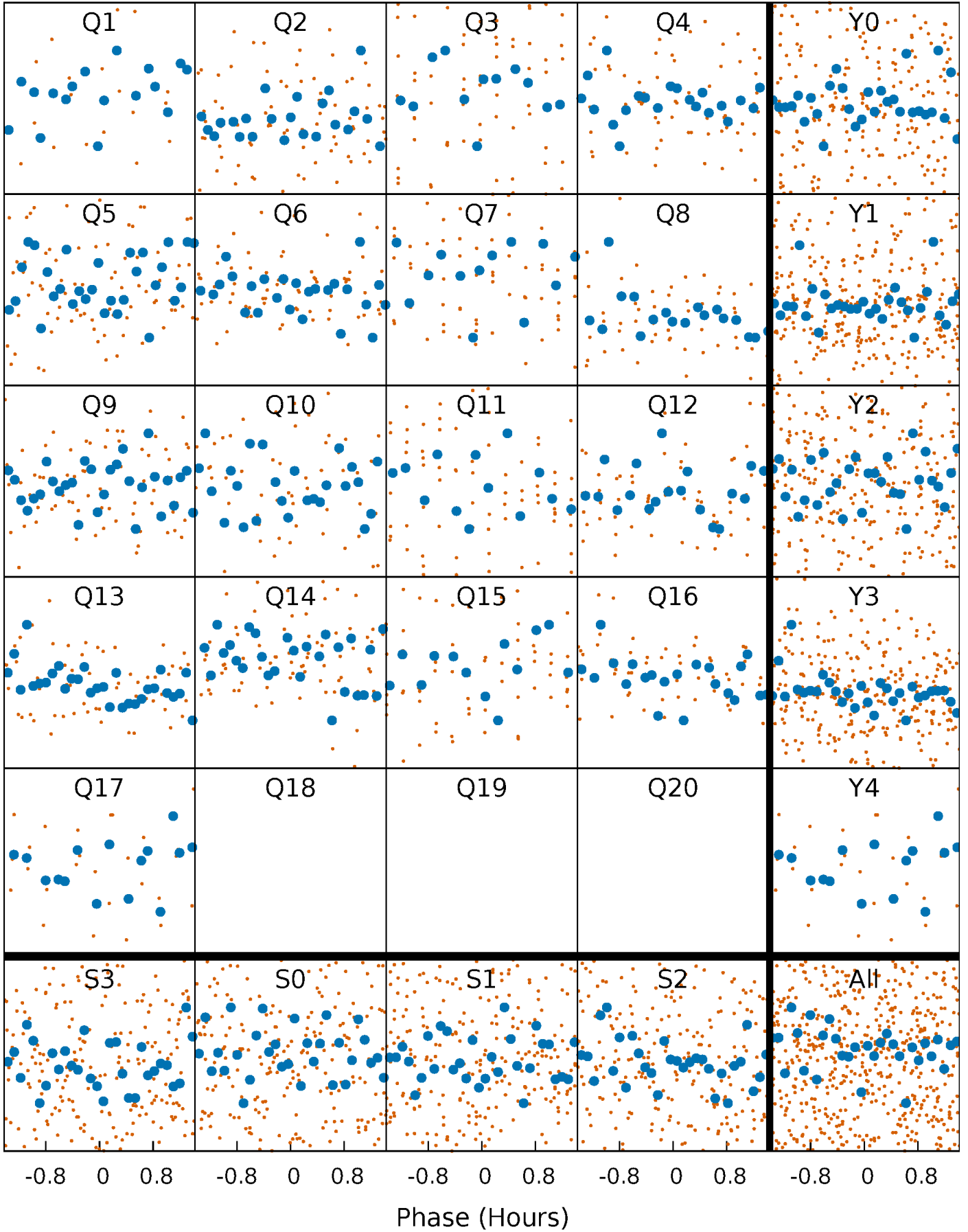


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



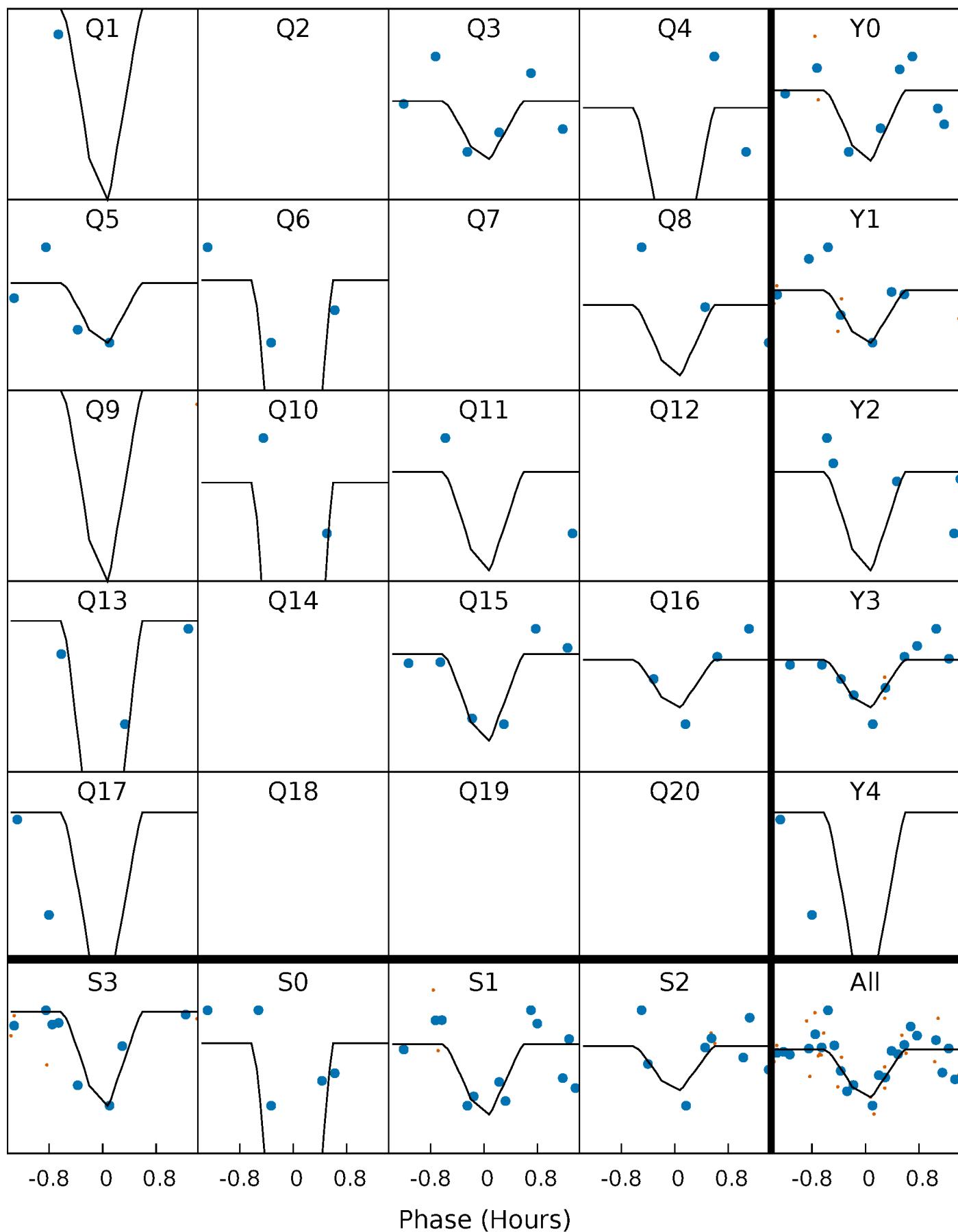
PDC Quarter-Phased Transit Curves

TCE 008521098-02 P= 6.364757 Days $T_0=136.006832$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008521098-02 P= 6.364757 Days $T_0=136.006832$ (BKJD)

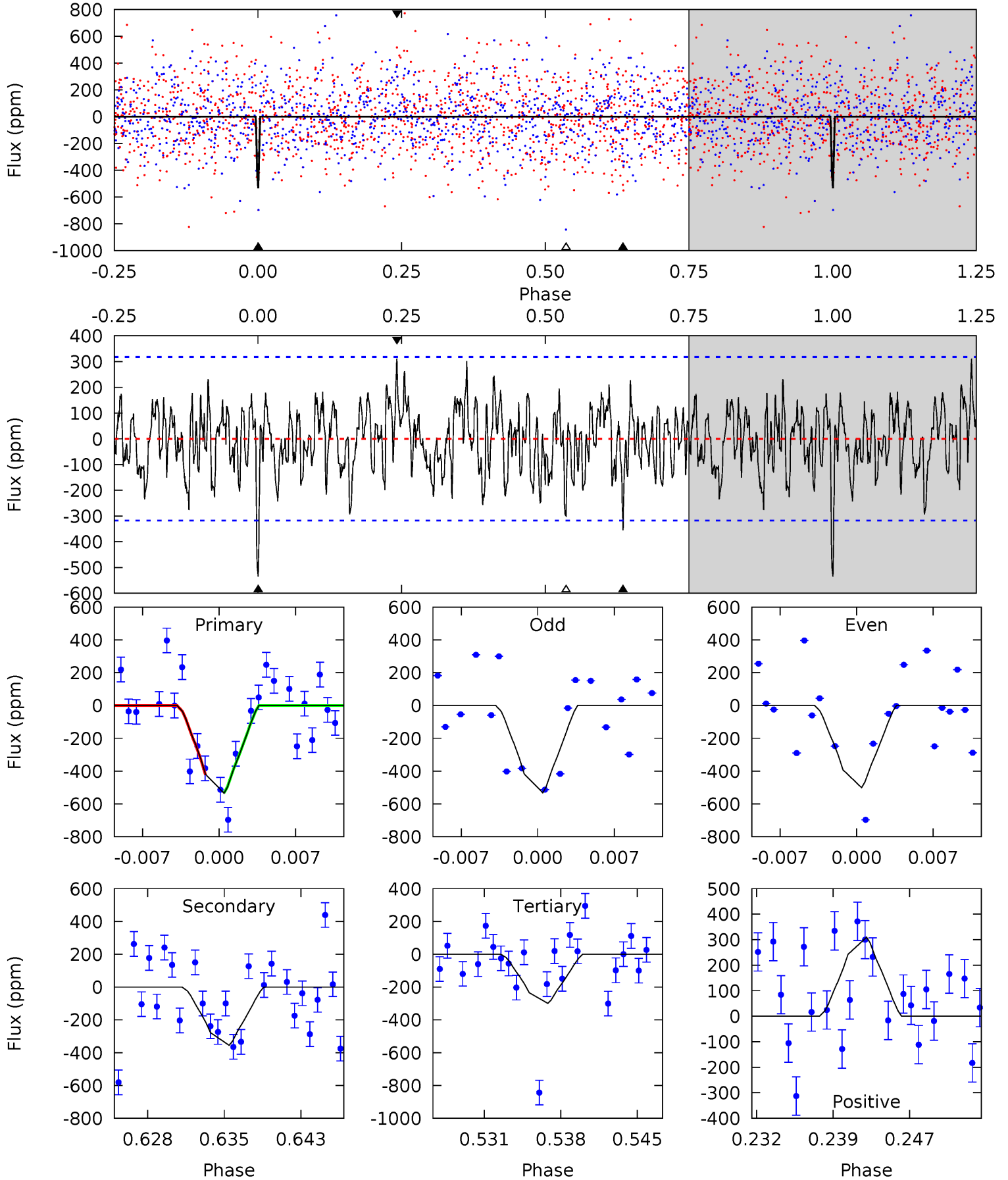


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008521098-02, P = 6.364757 Days, E = 129.642075 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.56	5.68	4.79	4.95	5.08	2.68	1.73	3.77	3.61	0.89	0.73	0.25	1.04	0.37	0.88



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 008521098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6329^{+202}_{-224}	$3.918^{+0.397}_{-0.132}$	$-0.040^{+0.250}_{-0.300}$	$2.181^{+0.515}_{-0.957}$	$1.437^{+0.192}_{-0.356}$	$0.195^{+0.681}_{-0.076}$
	+3%/-4%	+10%/-3%	+625%/-750%	+24%/-44%	+13%/-25%	+349%/-39%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008521098-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-355 ± 62	$13.58^{+14.76}_{-9.61}$	2052^{+161}_{-224}	3815^{+2512}_{-846}	$5.821^{+62.074}_{-4.471}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

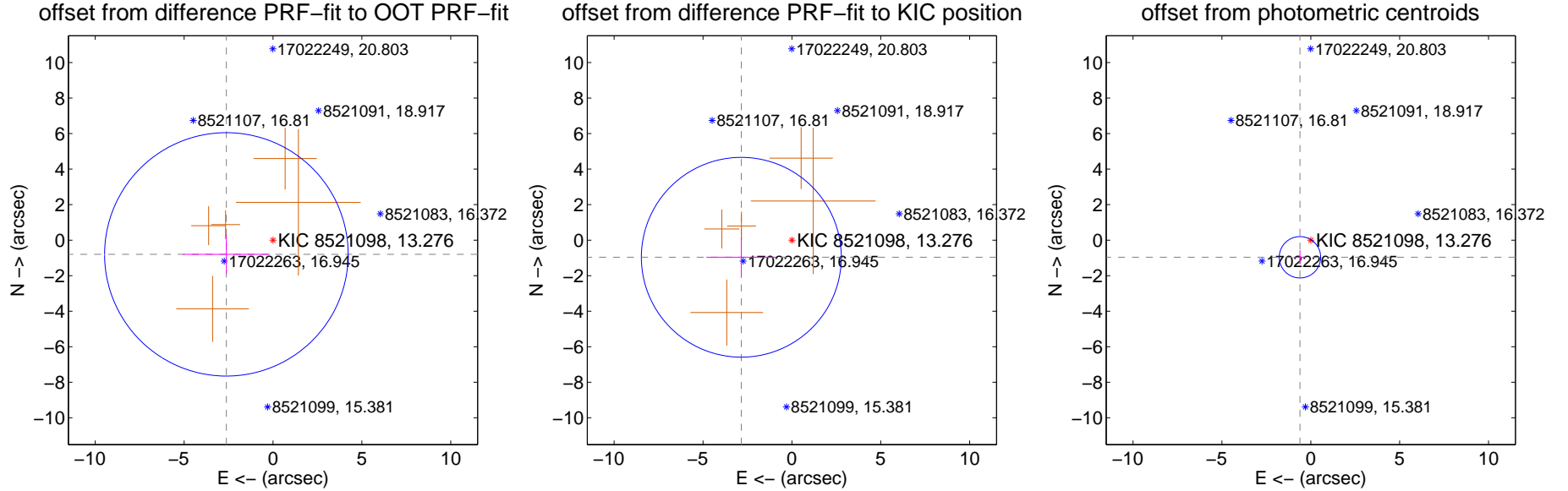
DV Centroid Data

Supplemental centroid analysis for 008521098-02. Kepler magnitude: 13.28. Transit SNR 18.35

There are 0 quarters with good PRF difference image offsets

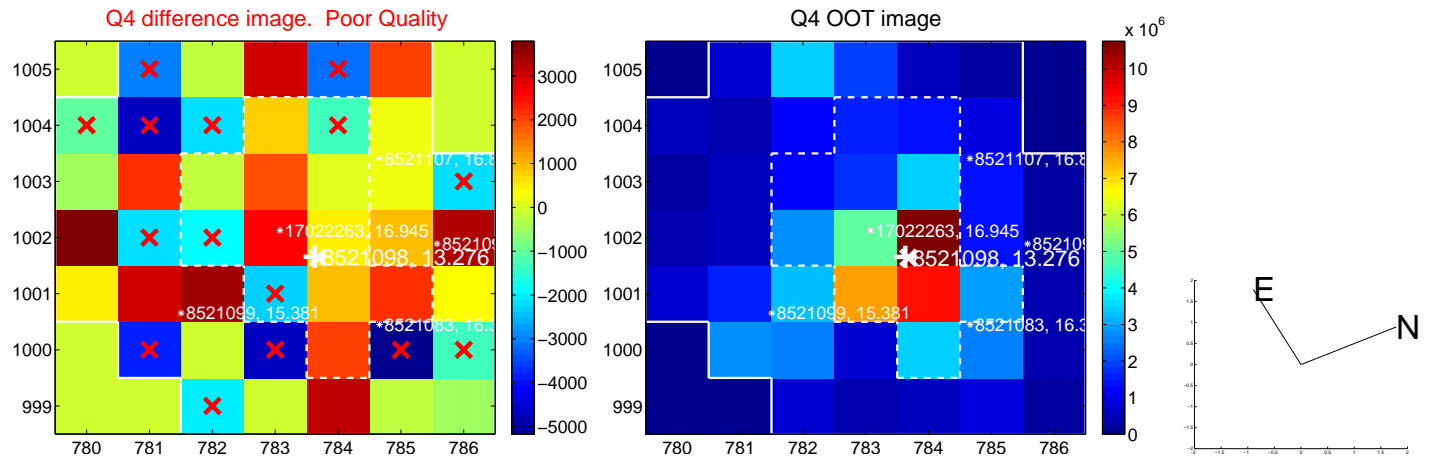
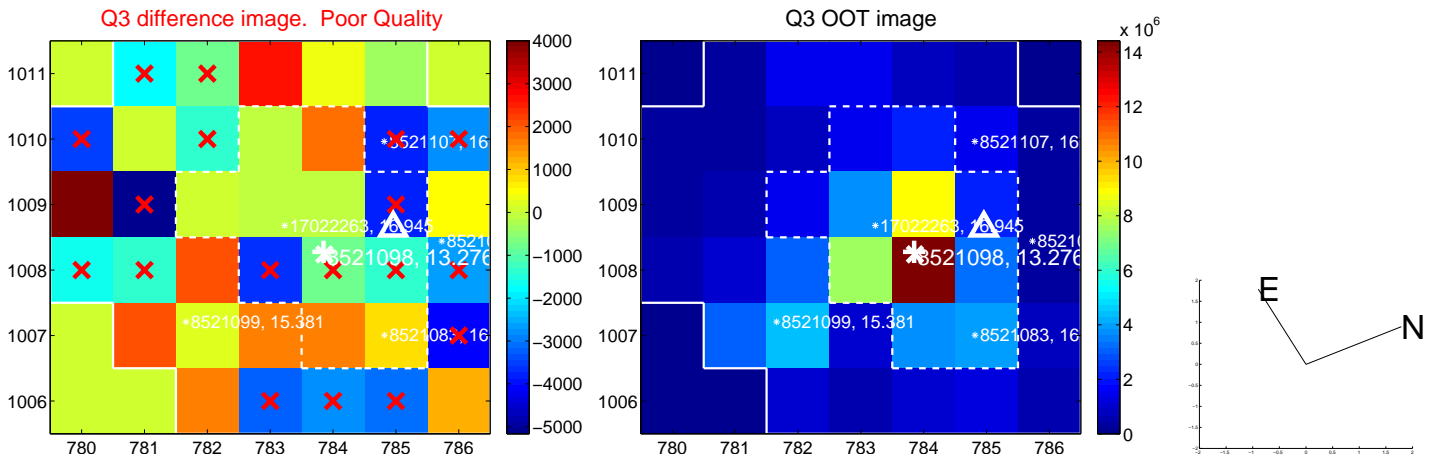
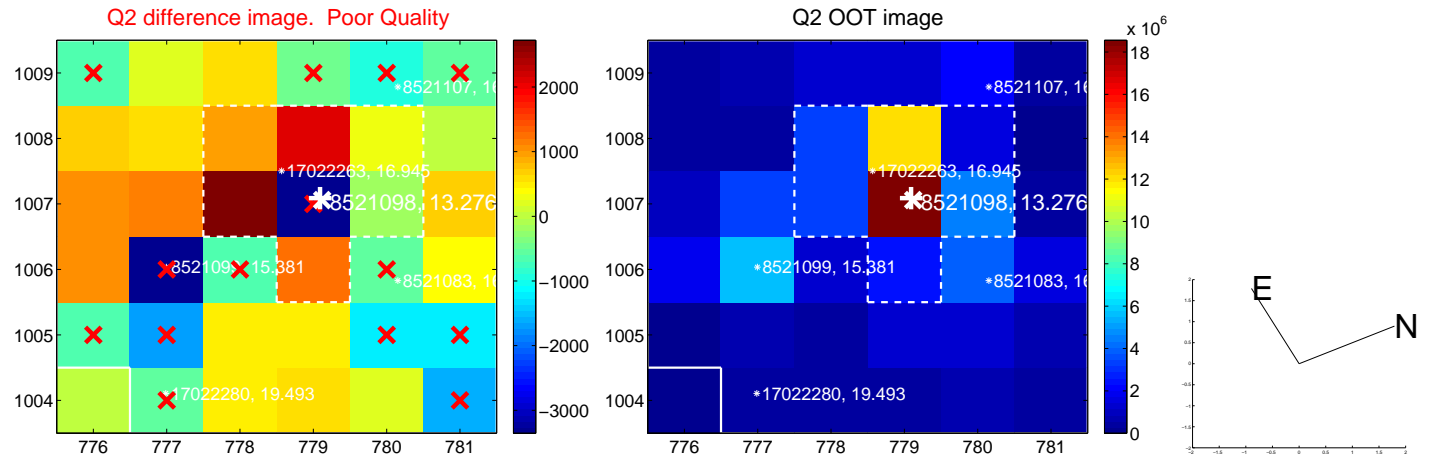
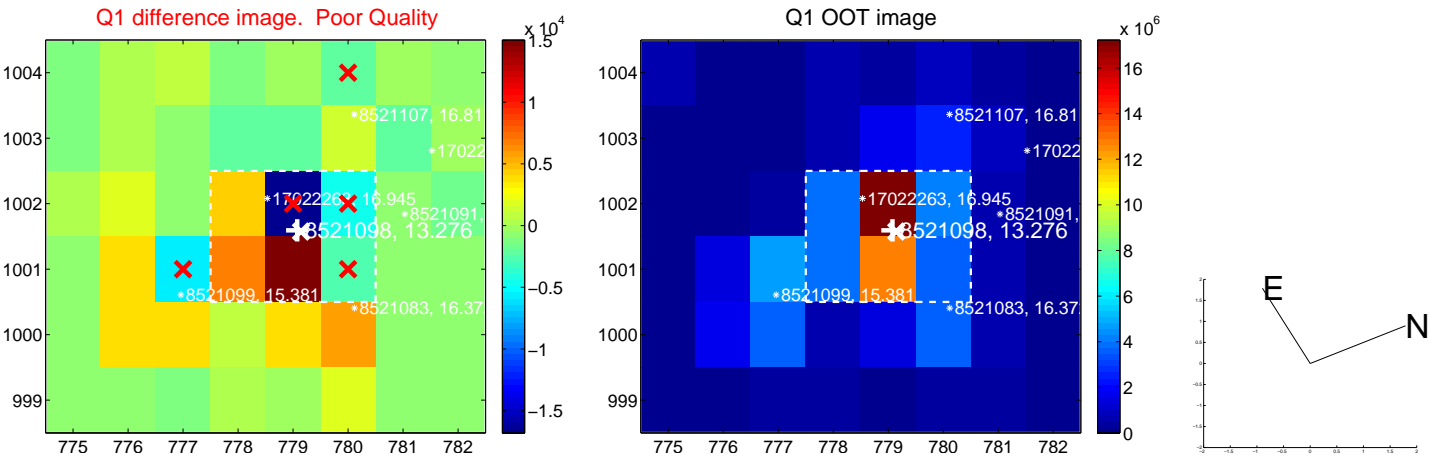
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.741 ± 2.283	1.20	2.622 ± 2.438	-0.801 ± 1.104
PRF-fit source offset from KIC position	3.002 ± 1.874	1.60	2.843 ± 1.971	-0.963 ± 1.154
photometric centroid source offset	1.14 ± 0.39	2.94	0.61 ± 0.37	-0.96 ± 0.40

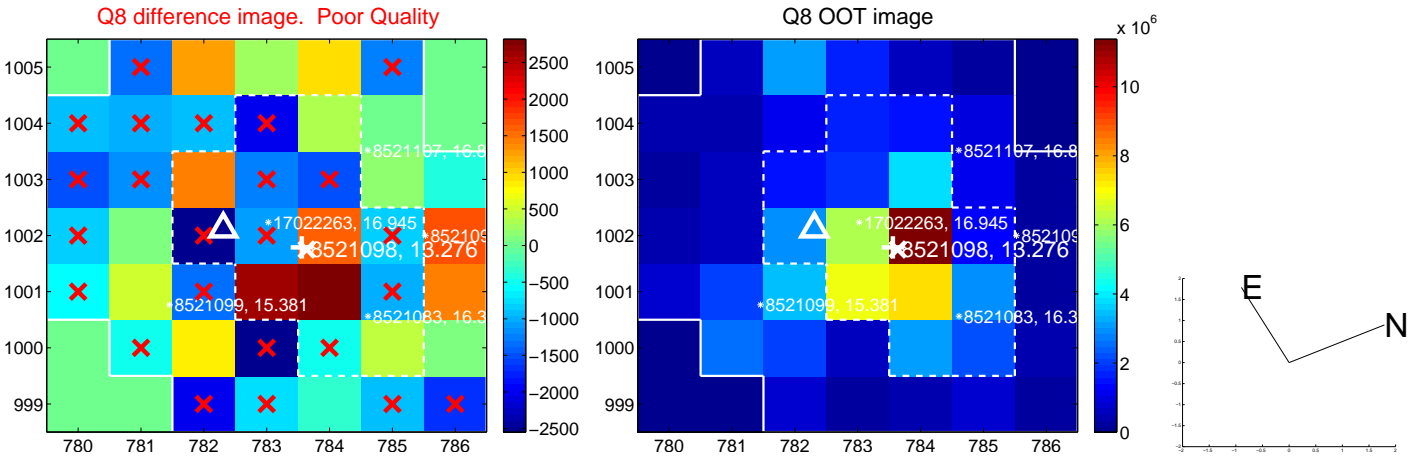
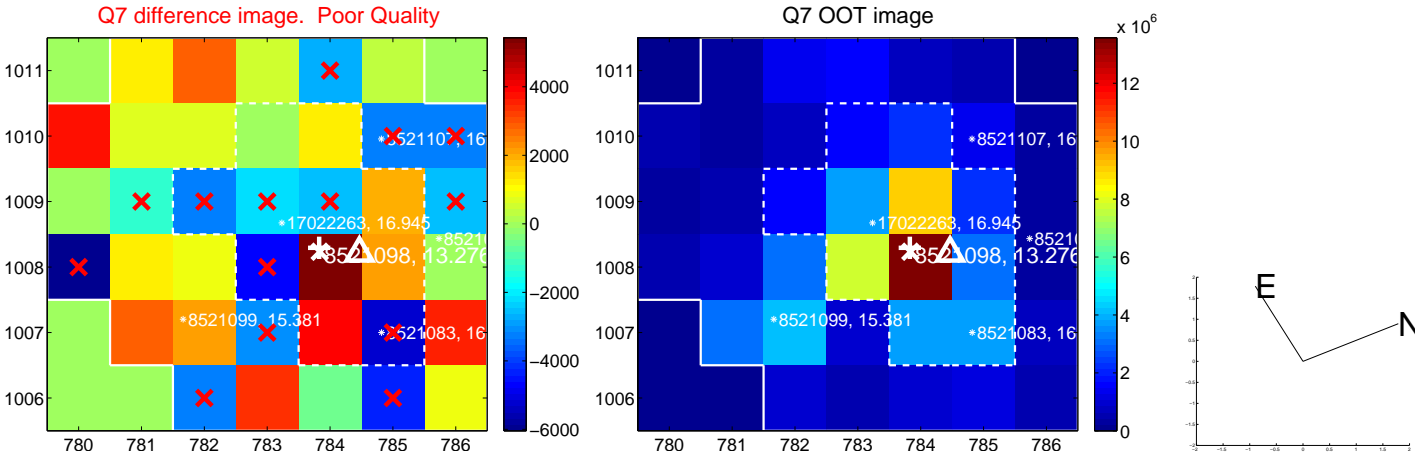
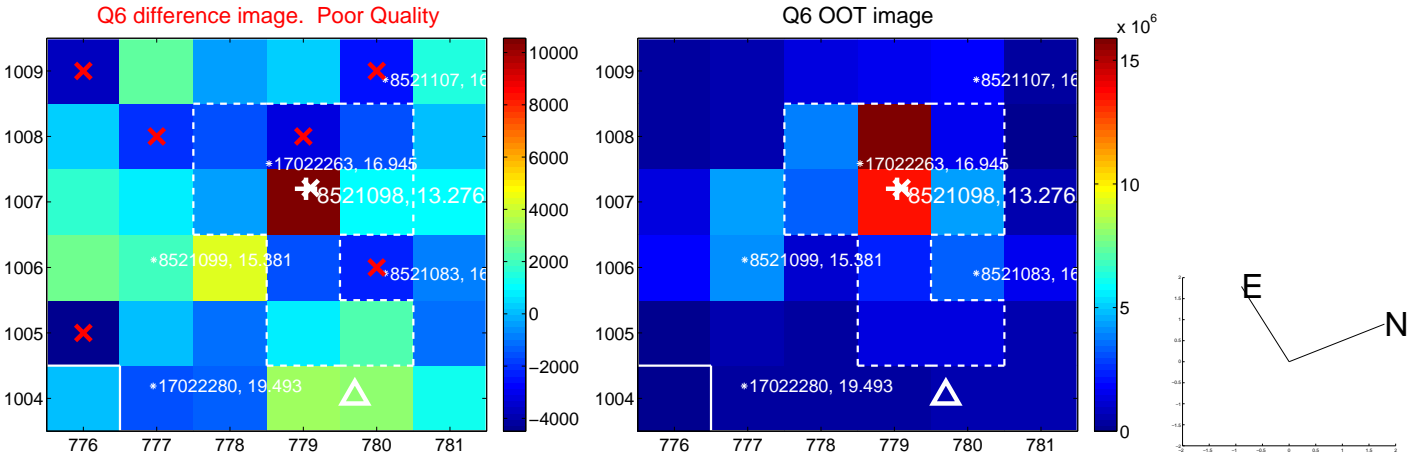
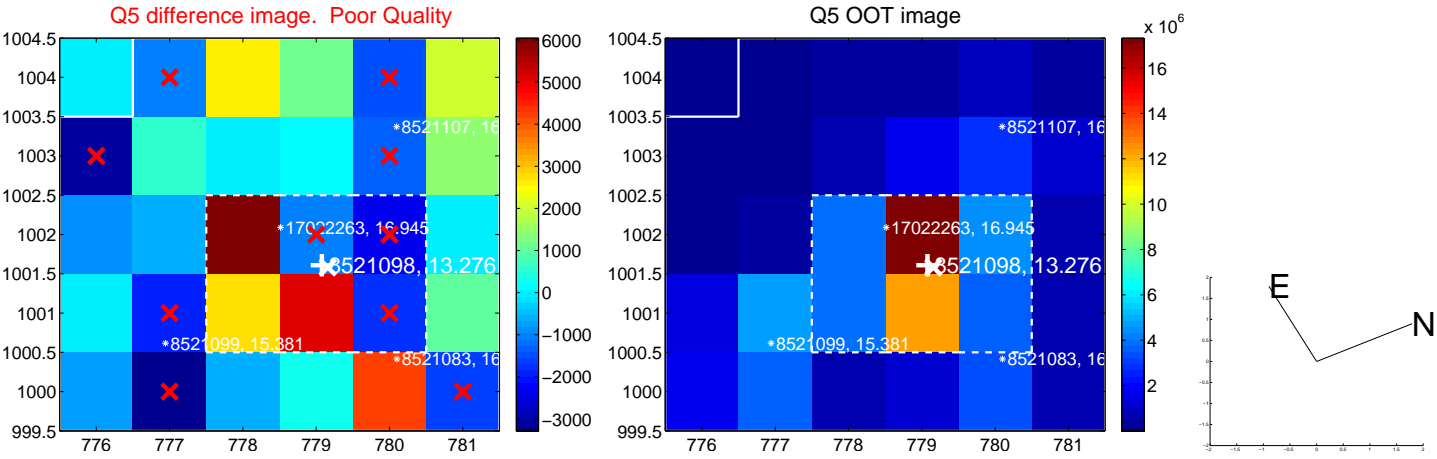


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

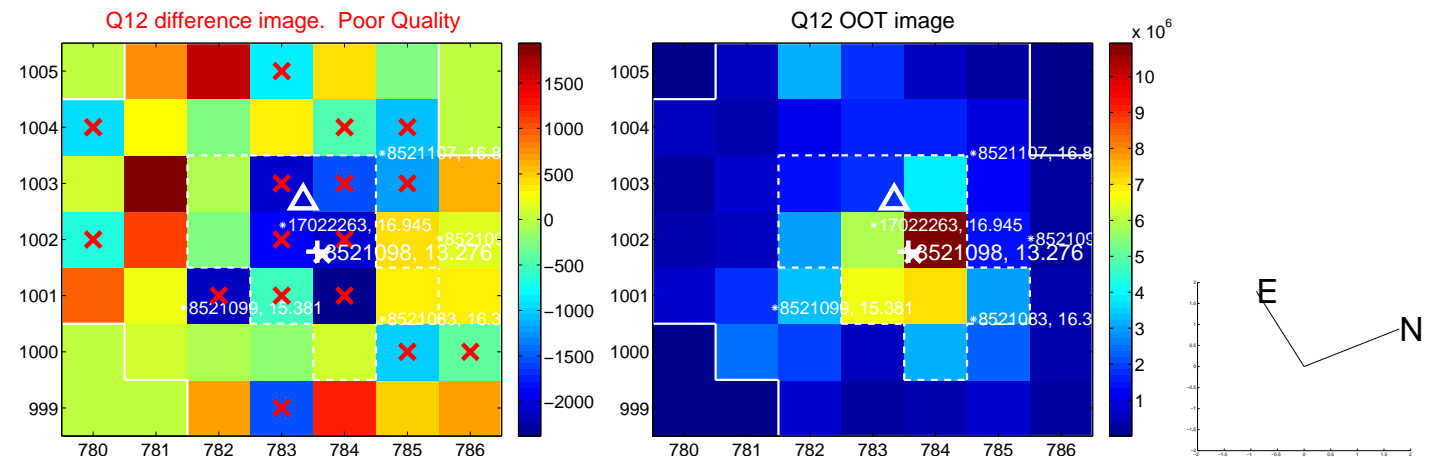
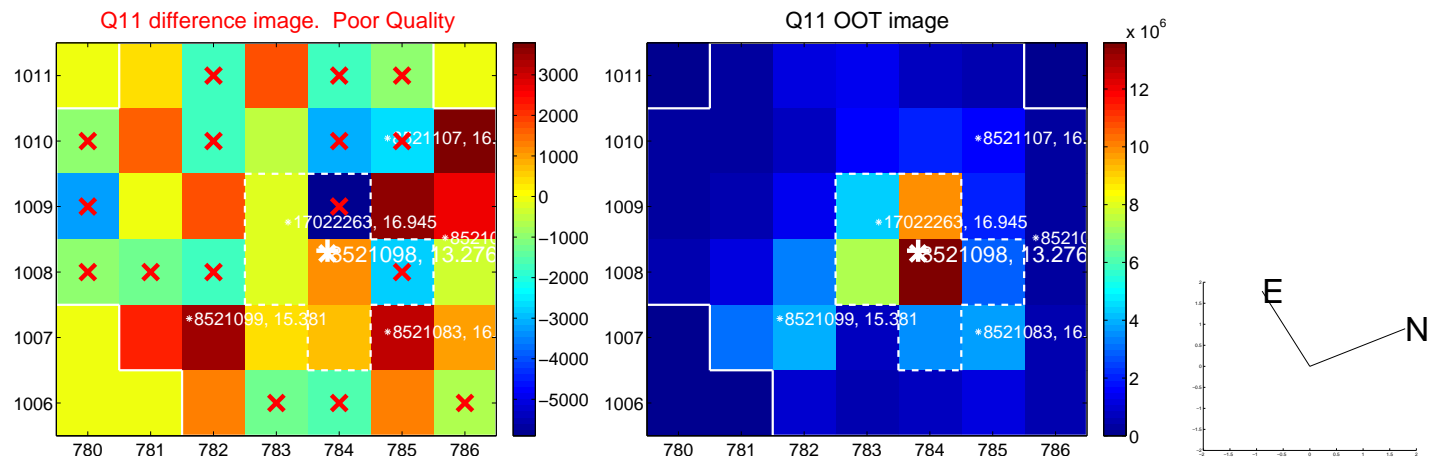
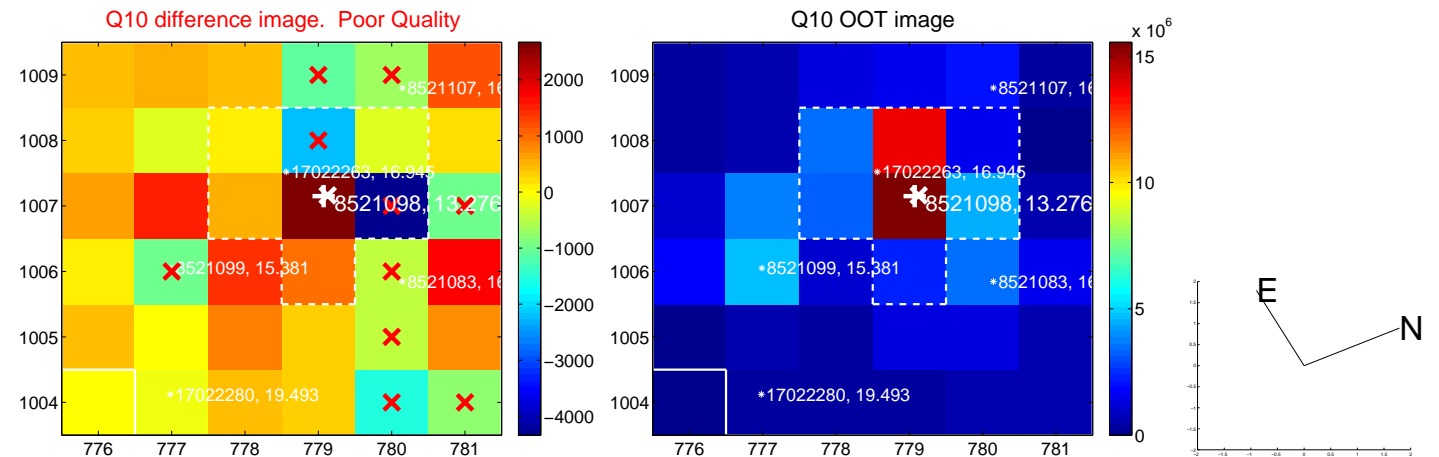
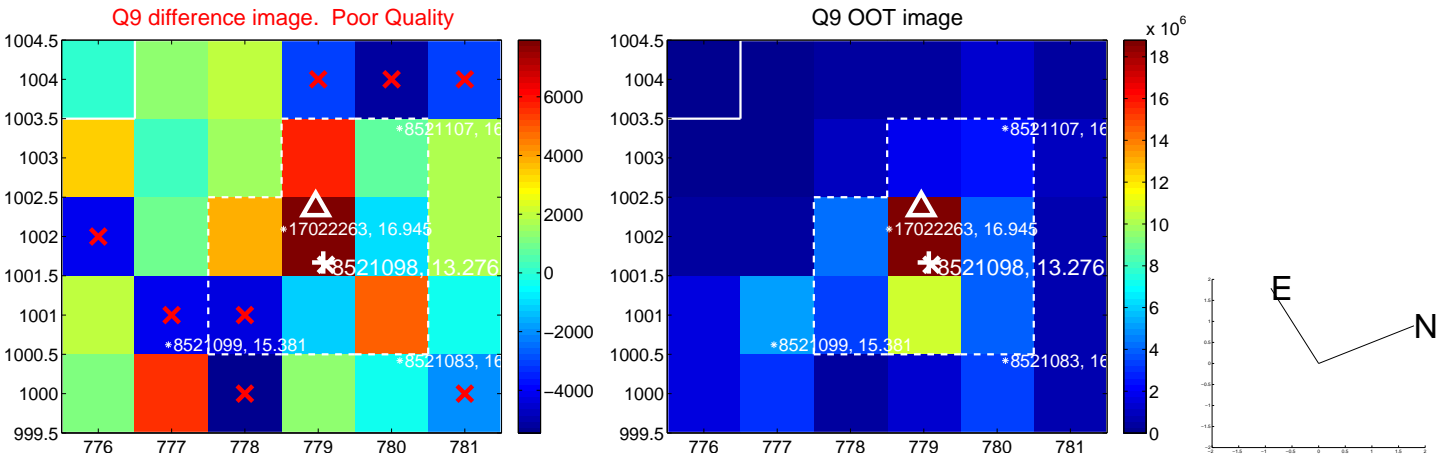
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



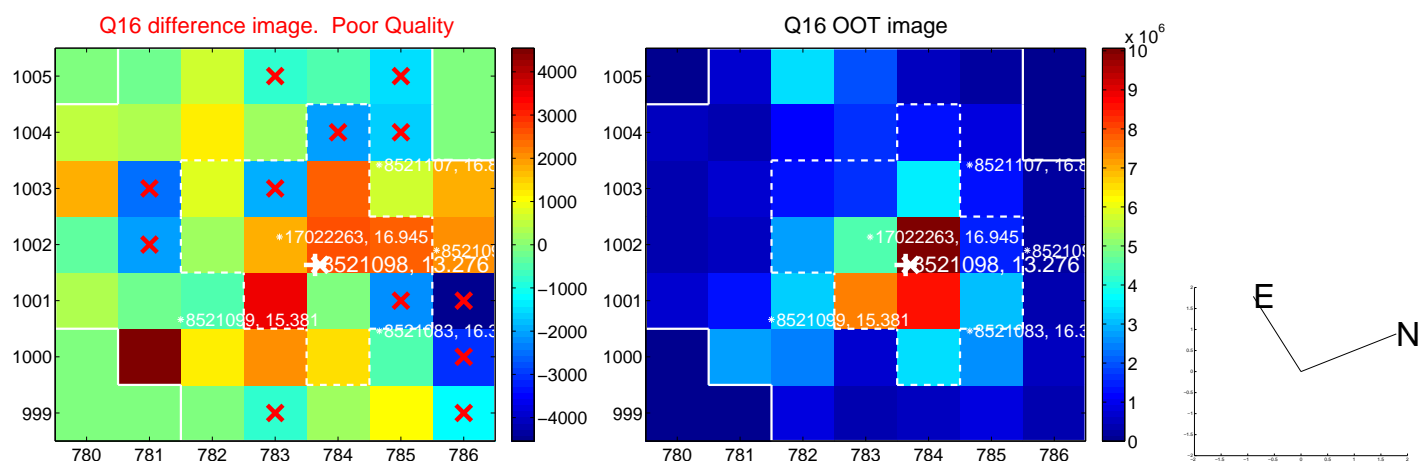
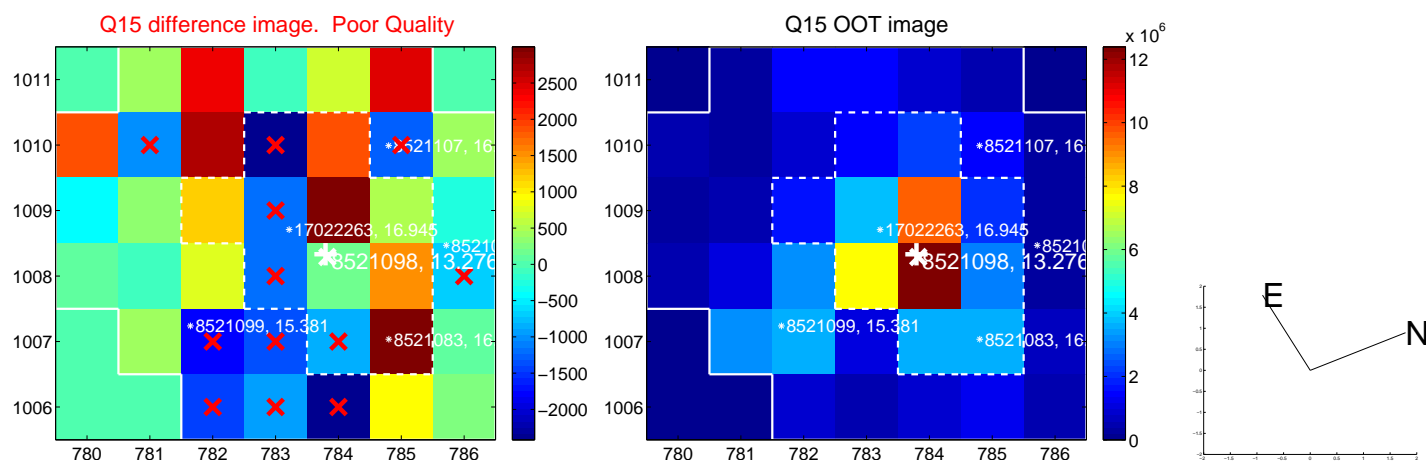
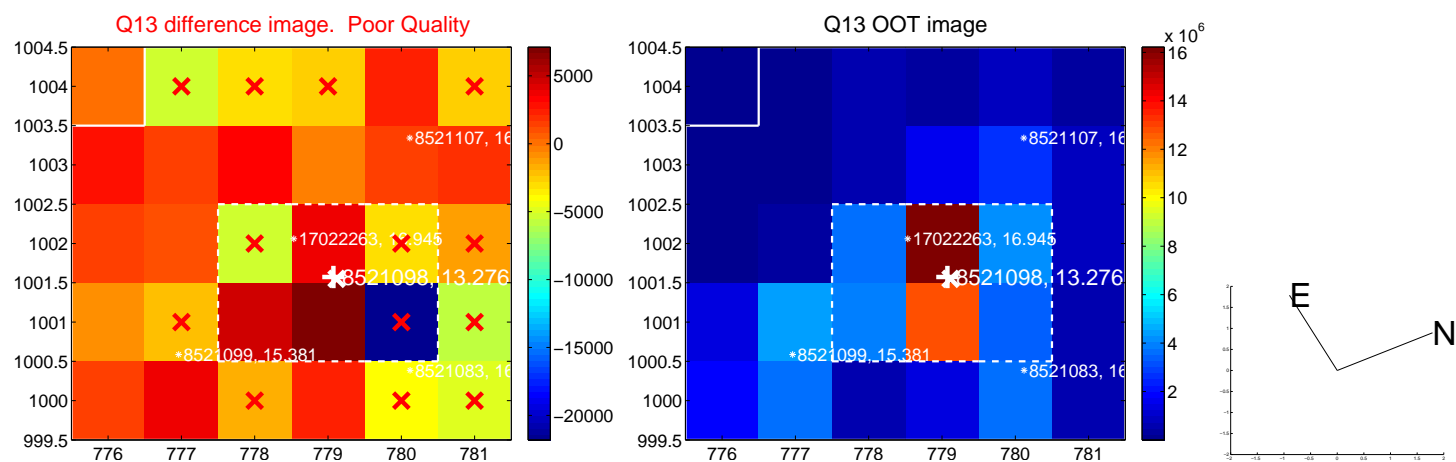
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



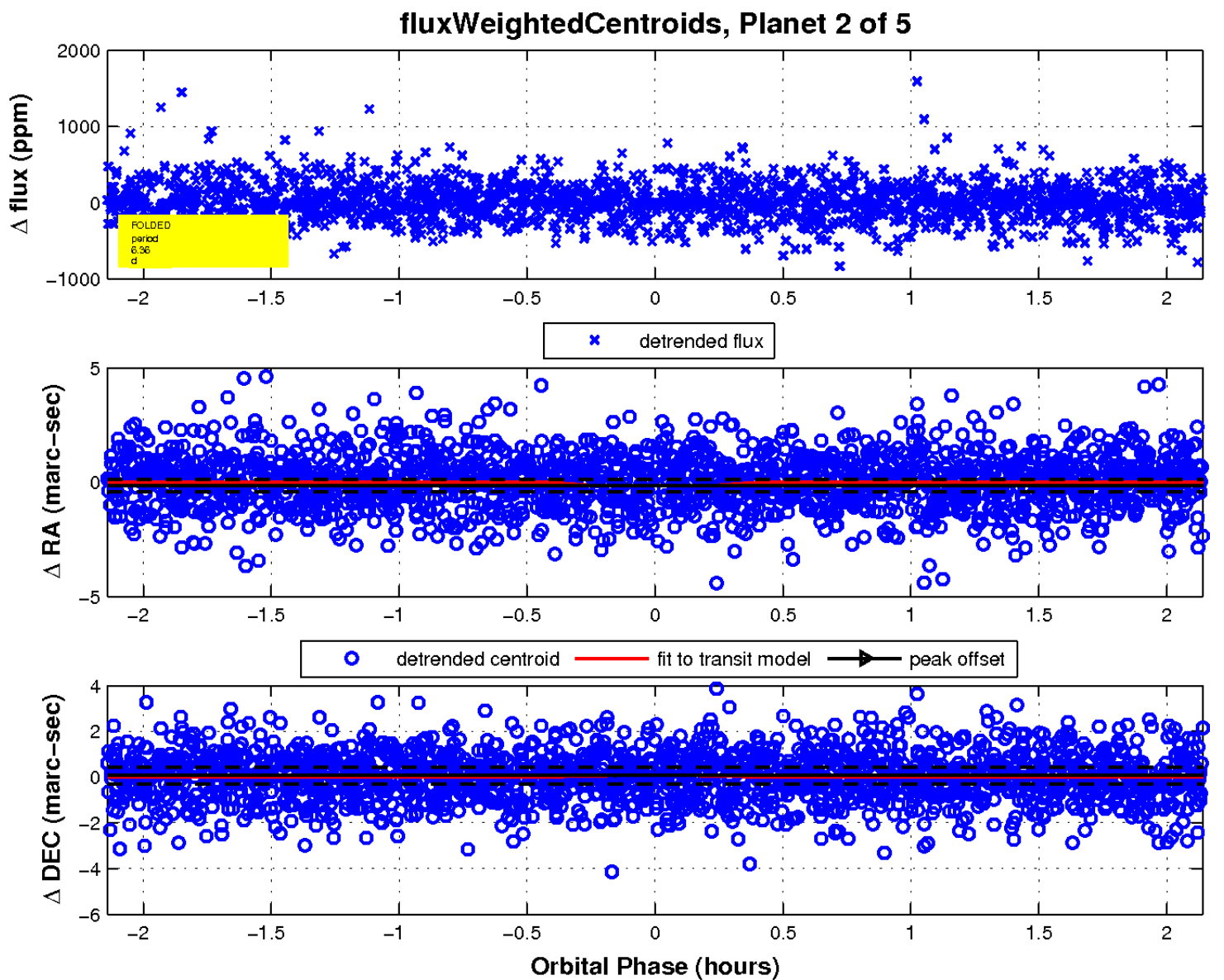
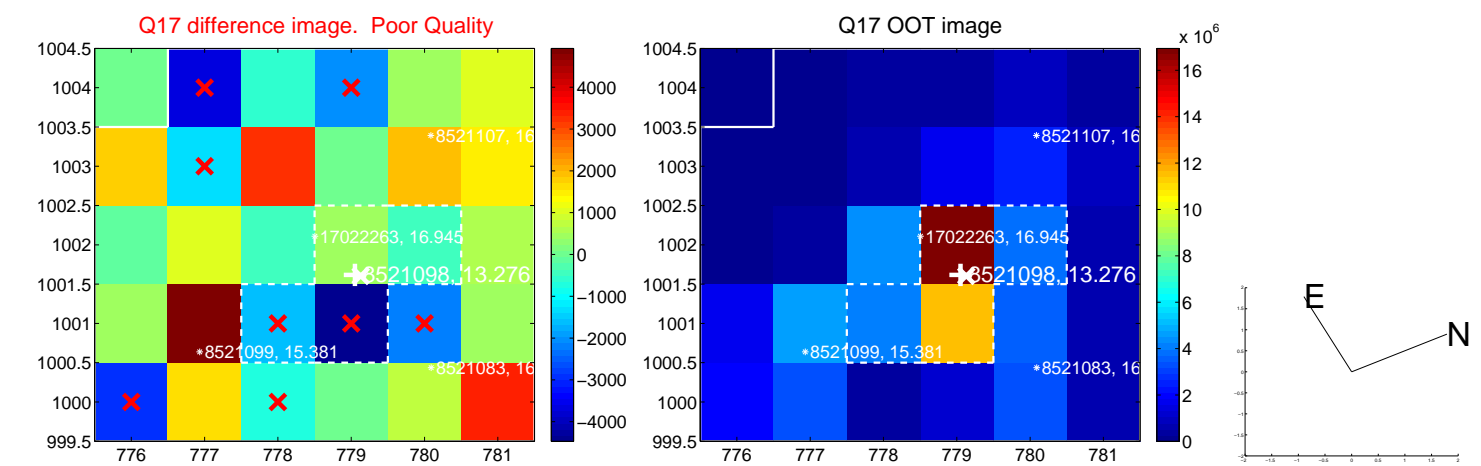
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

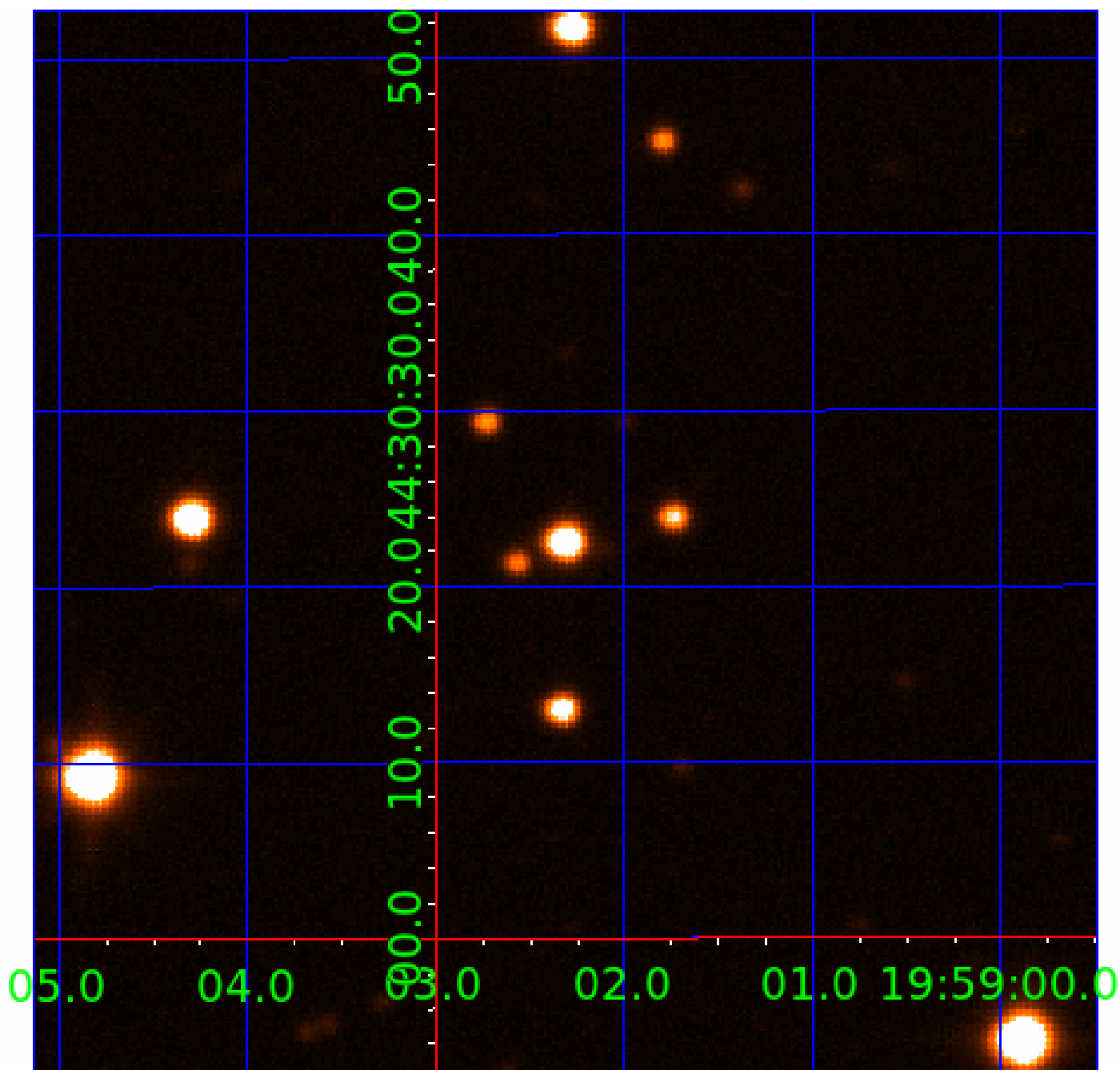


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008521098

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})
008521098-01	OBS	No	0.976156	132.087067	3.7	7.436	8.7	1.6	2.18	6329	0.43	14475.91
008521098-02	OBS	No	6.364757	136.006832	523.7	0.714	18.0	18.4	2.18	6329	5.10	1188.40
008521098-03	OBS	No	3.066458	133.670019	131.3	2.357	12.3	11.2	2.18	6329	2.61	3146.46
008521098-04	OBS	No	8.166398	133.276628	390.3	0.916	14.5	14.2	2.18	6329	4.49	852.38
008521098-05	OBS	No	4.276784	133.722769	346.8	0.979	14.1	17.1	2.18	6329	4.22	2019.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008521098-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
008521098-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN
008521098-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS

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

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

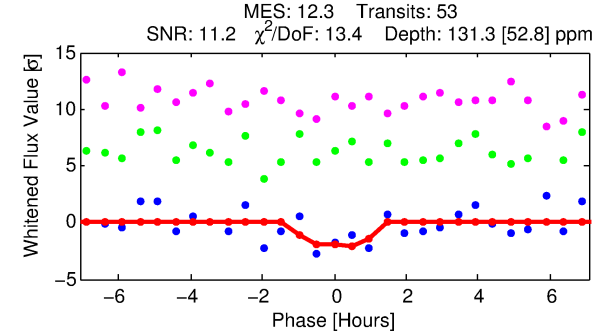
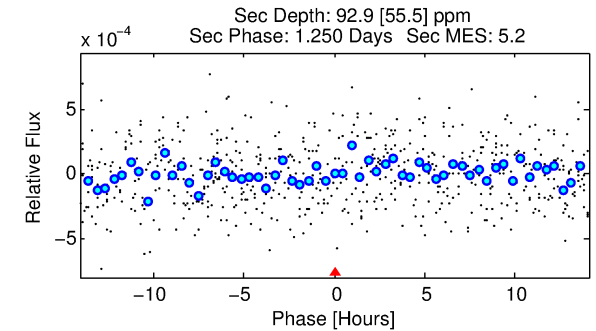
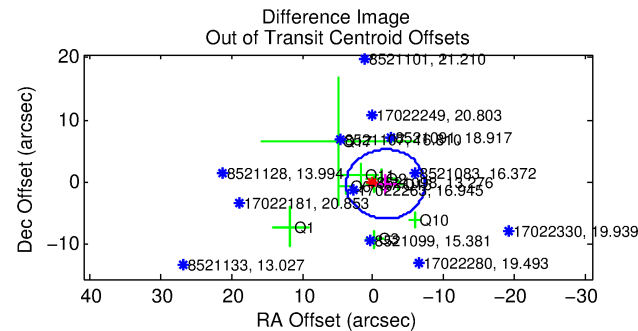
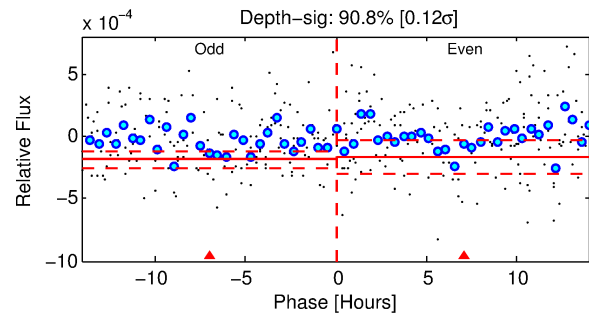
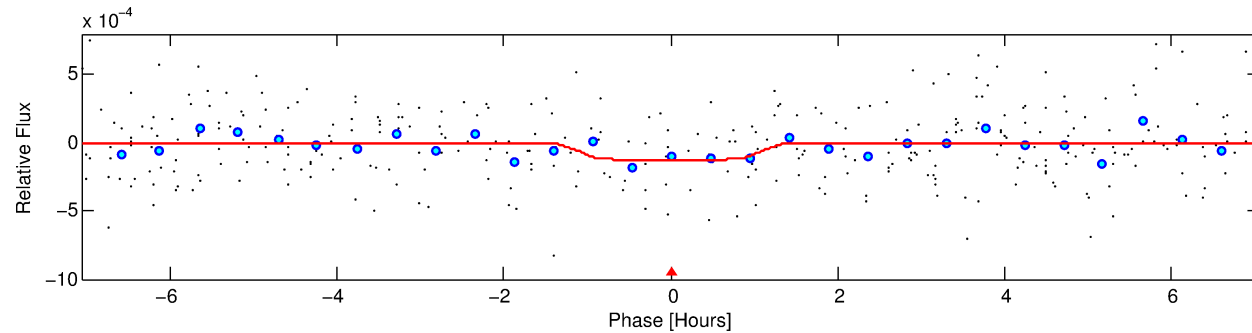
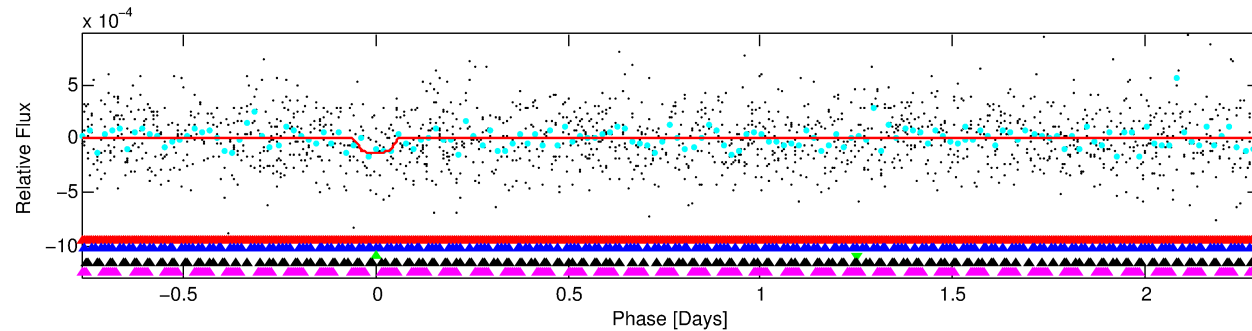
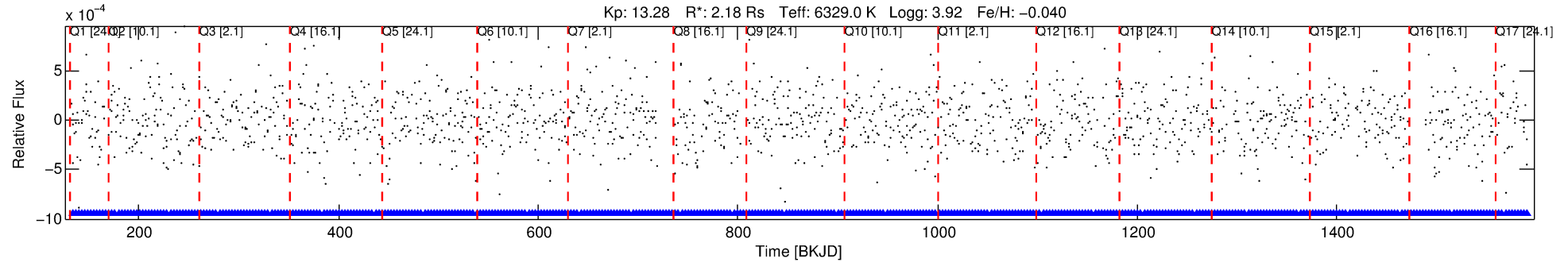
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521098-03

No Significant Match Found

DV One-Page Summary

KIC: 8521098 Candidate: 3 of 5 Period: 3.066 d



DV Fit Results:

Period = 3.06646 [0.00006] d
Epoch = 133.6700 [0.0127] BKJD
Rp/R* = 0.0110 [0.0172]
a/R* = 8.21 [64.19]
b = 0.59 [8.99]
Seff = 3146.46 [2173.12]
Teq = 1910 [330] K
Rp = 2.61 [4.25] Re
a = 0.0466 [0.0197] AU
Ag = 16.27 [53.09] [0.29 σ]
Teffp = 5930 [4737] K [0.85 σ]

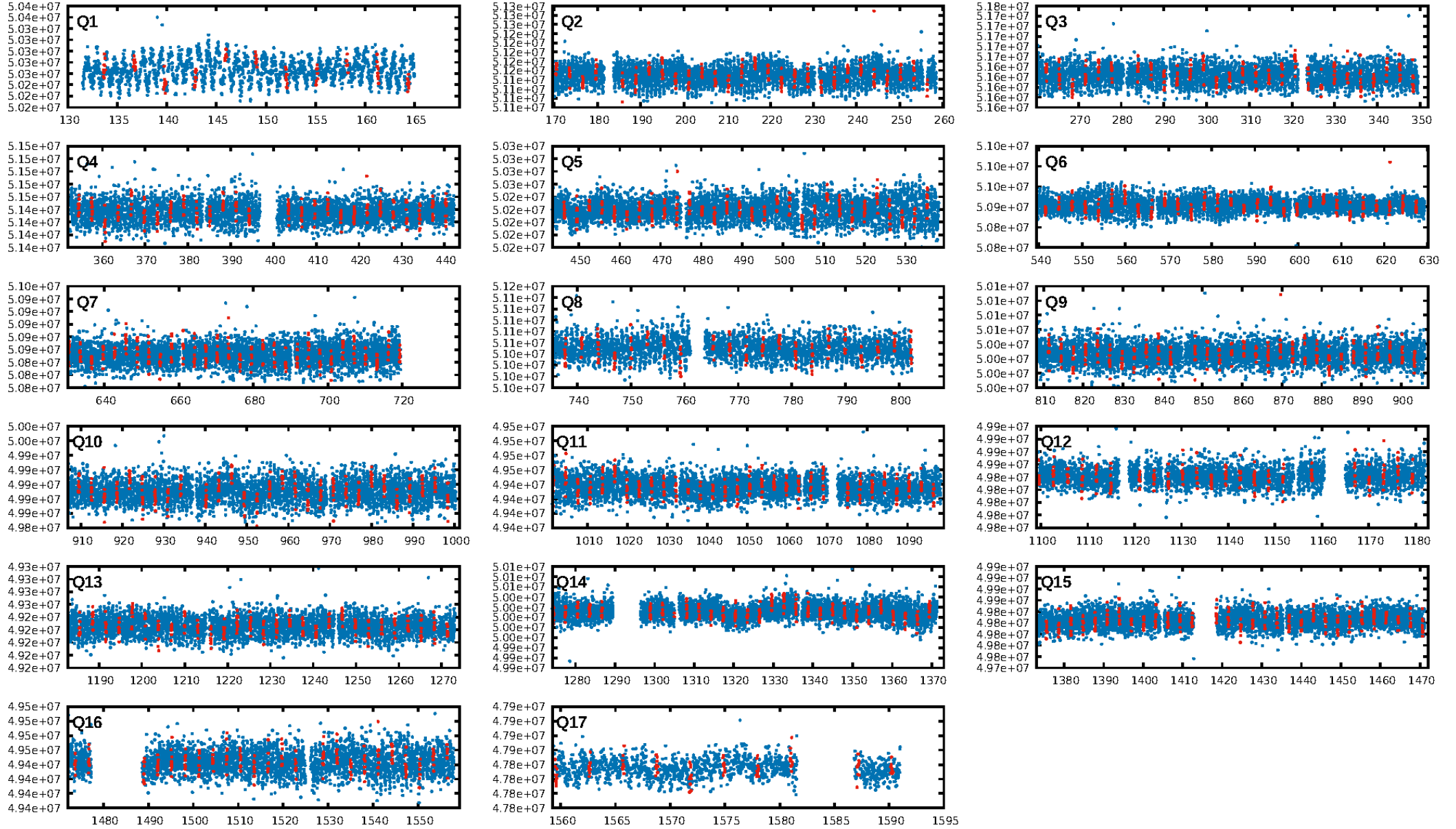
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.43 σ]
LongPeriod-sig: 100.0% [11.38 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.68e-23
RollingBand-fgt: 1.00 [51/51]
GhostDiagnostic-chr: -1.156
Centroid-sig: 79.2%
Centroid-so: 1.109 arcsec [1.93 σ]
OotOffset-rm: 1.802 arcsec [0.97 σ]
OotOffset-st: 3/3/1/2 [9]
KicOffset-rm: 2.322 arcsec [1.52 σ]
KicOffset-st: 3/3/1/2 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.82 [14/17]

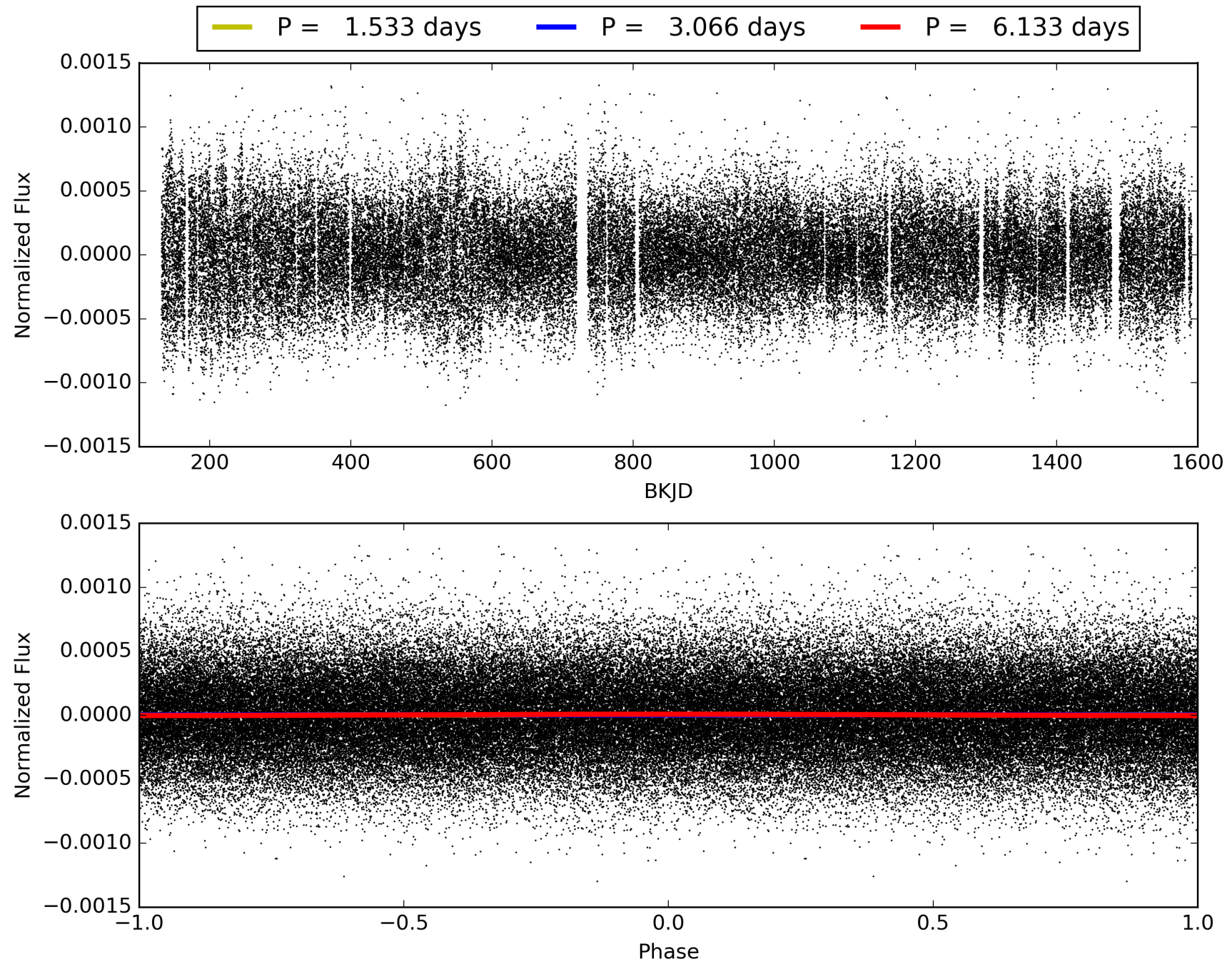
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:12:54 Z

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

TCE 008521098-03, PDC Light Curves

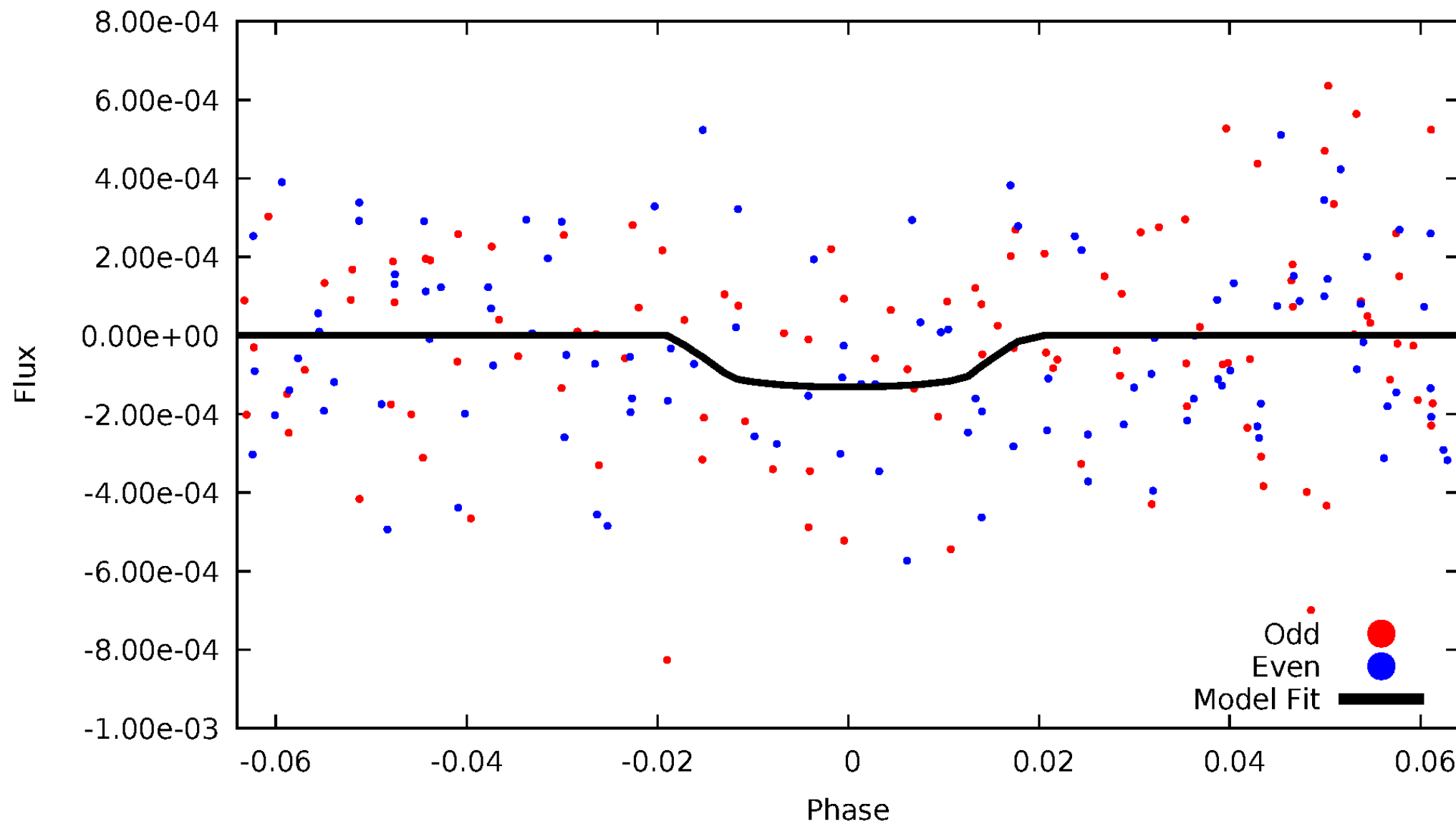


TCE 008521098-03



DV Odd/Even

TCE 008521098-03

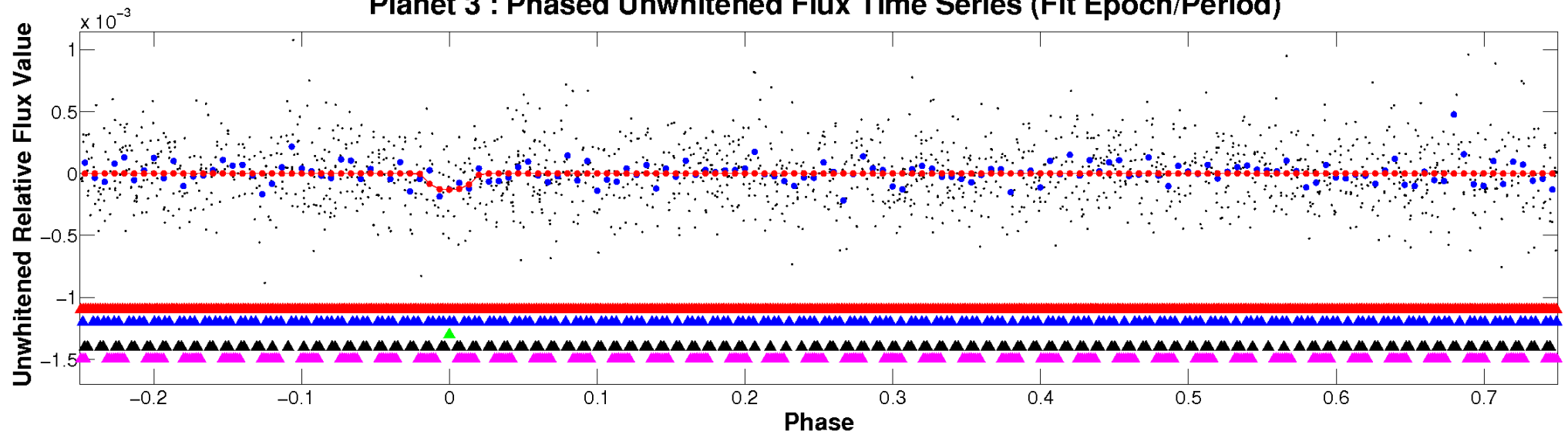


ALT Odd/Even

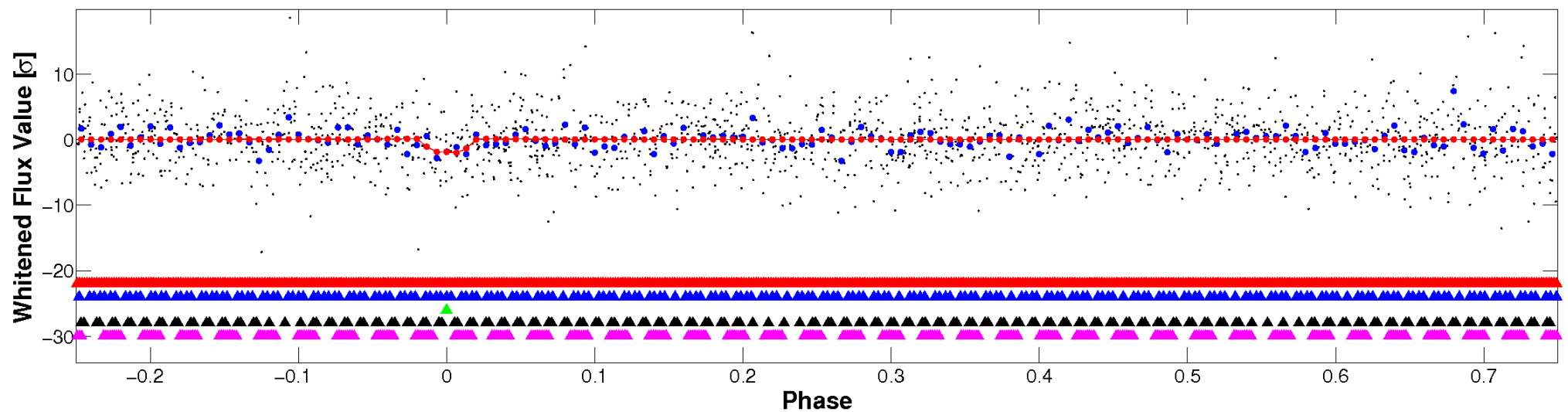
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

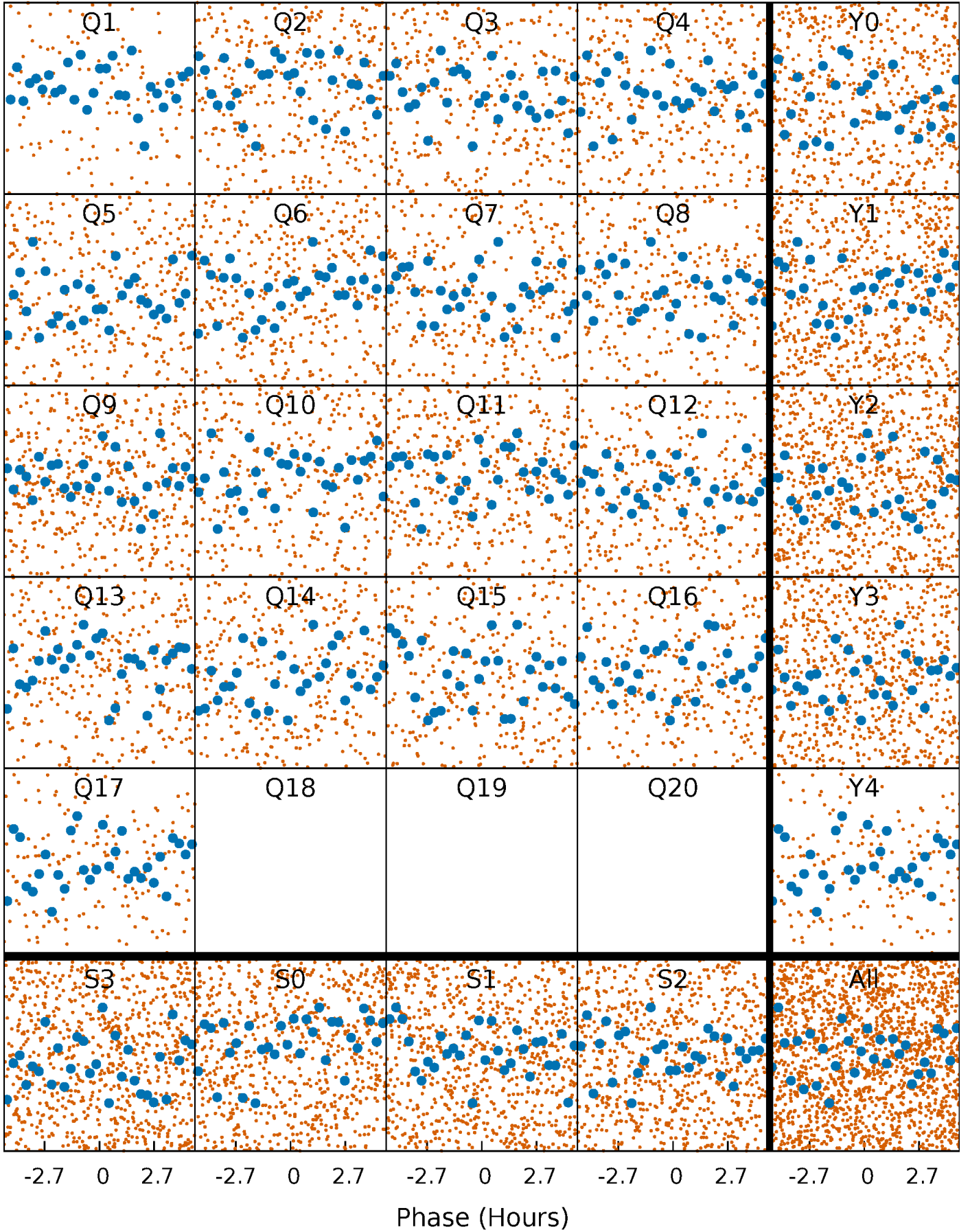


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



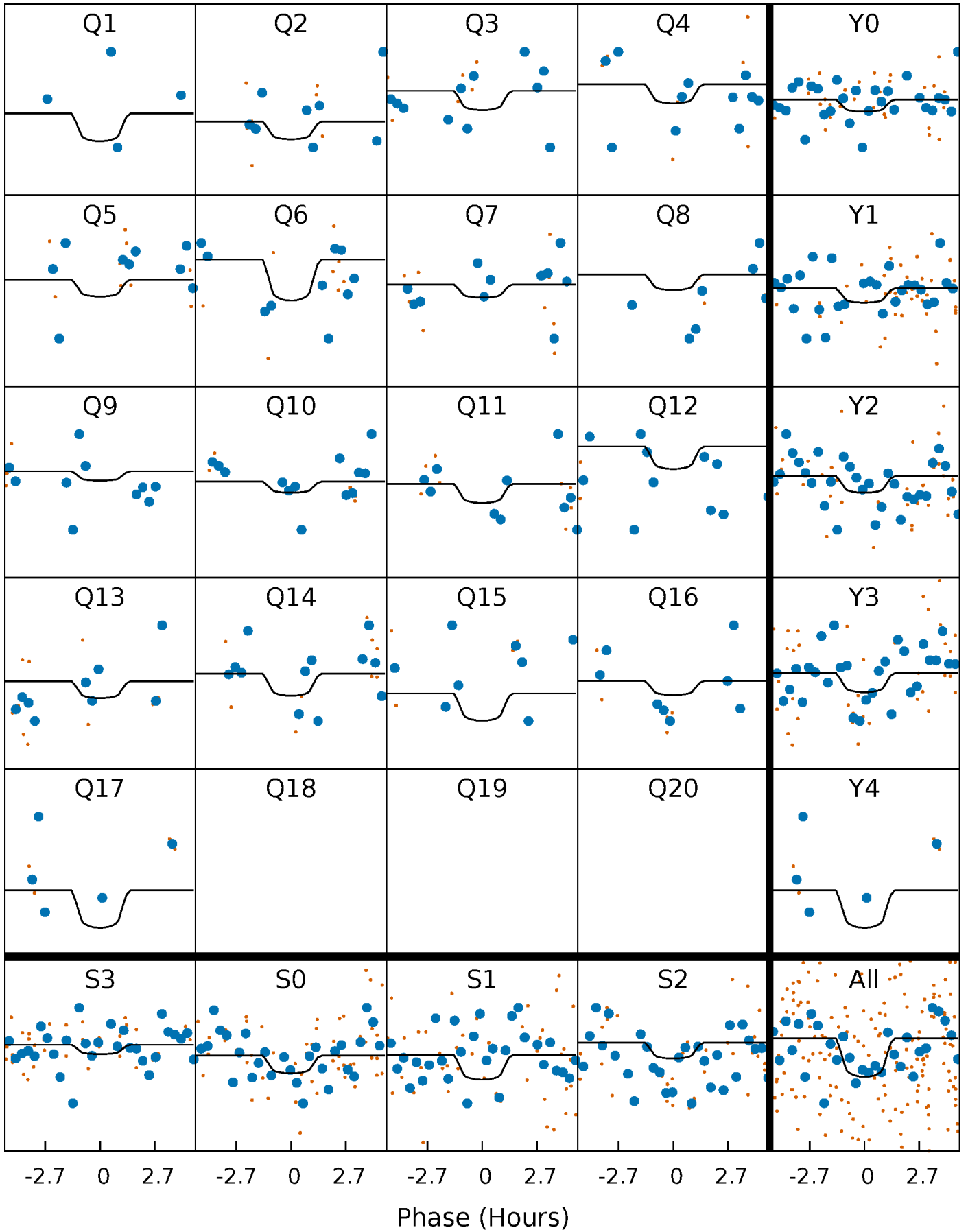
PDC Quarter-Phased Transit Curves

TCE 008521098-03 P= 3.066458 Days $T_0=133.670019$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008521098-03 P= 3.066458 Days $T_0=133.670019$ (BKJD)

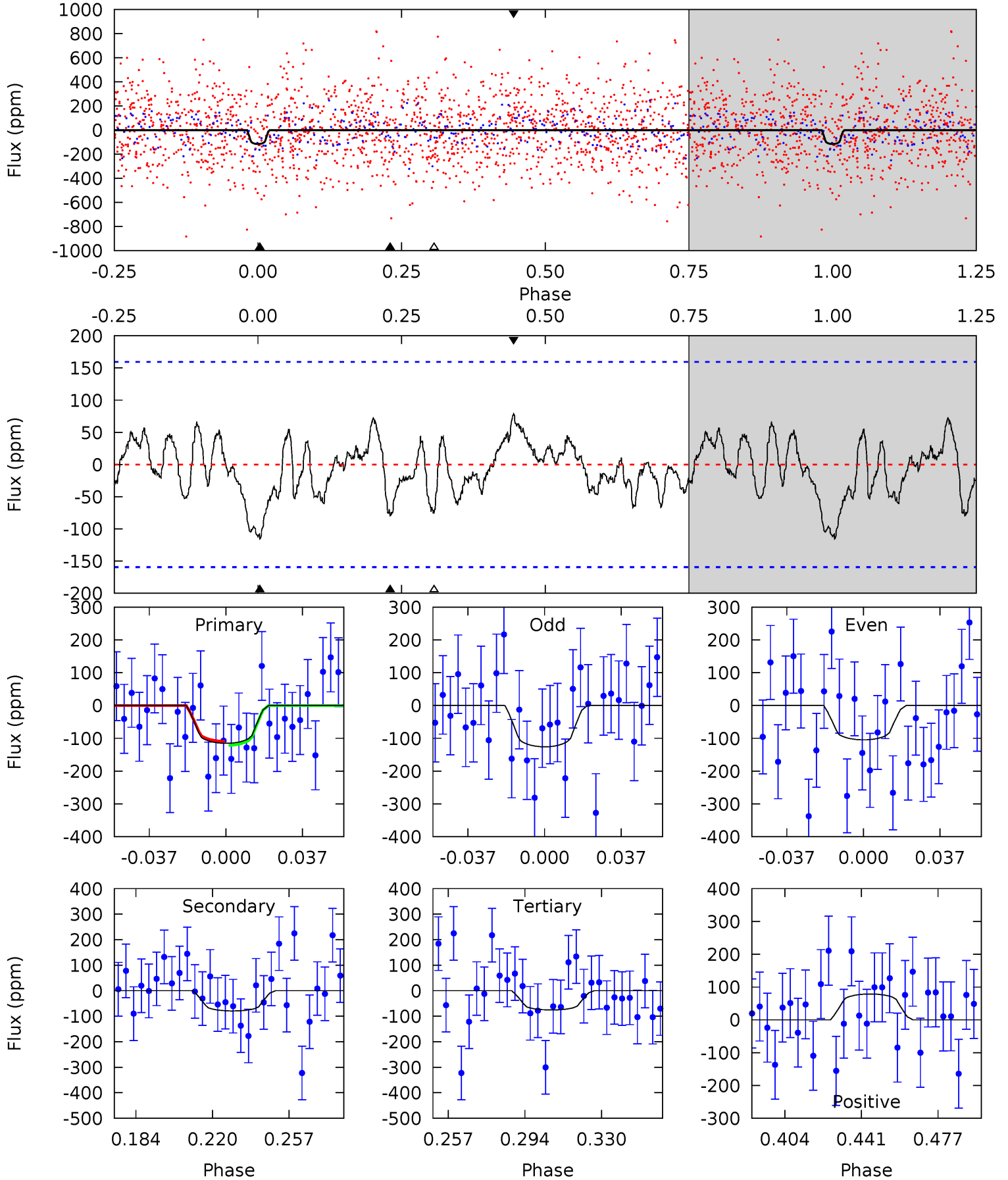


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008521098-03, P = 3.066458 Days, E = 130.603561 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.45	2.38	2.26	2.36	4.77	2.09	0.97	1.19	1.10	0.11	0.02	0.32	1.22	0.41	0.19



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 008521098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6329^{+202}_{-224}	$3.918^{+0.397}_{-0.132}$	$-0.040^{+0.250}_{-0.300}$	$2.181^{+0.515}_{-0.957}$	$1.437^{+0.192}_{-0.356}$	$0.195^{+0.681}_{-0.076}$
	+3%/-4%	+10%/-3%	+625%/-750%	+24%/-44%	+13%/-25%	+349%/-39%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008521098-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-79 ± 33	$3.72^{+3.06}_{-2.48}$	2609^{+196}_{-265}	4591^{+3471}_{-1018}	$6.396^{+50.668}_{-4.729}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

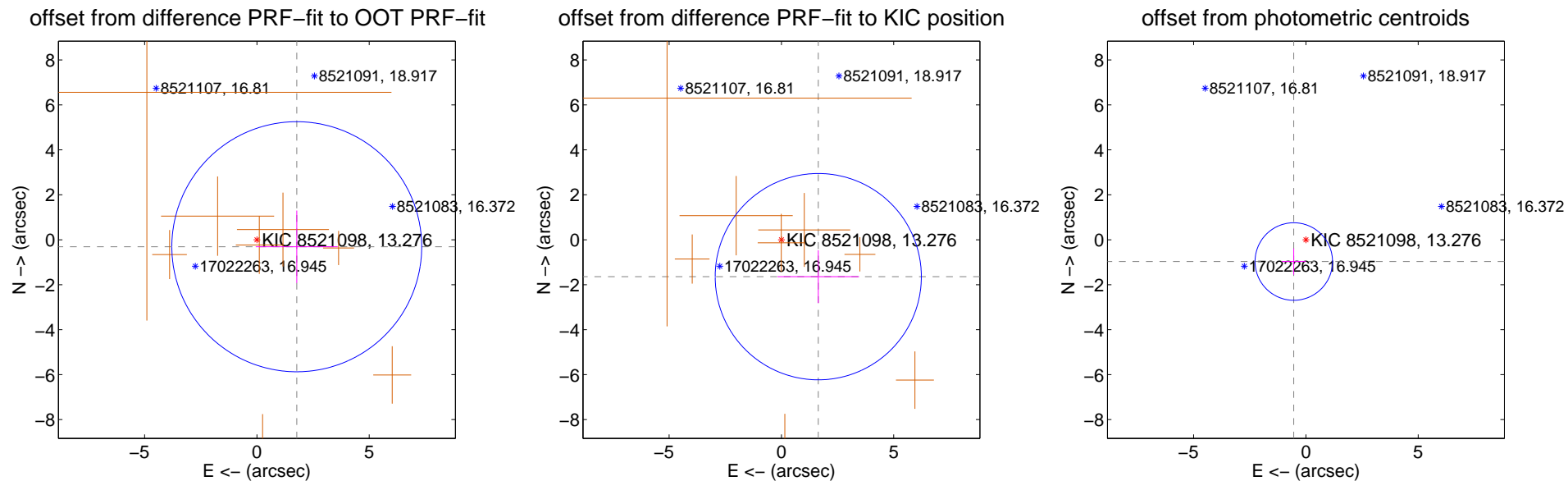
DV Centroid Data

Supplemental centroid analysis for 008521098-03. Kepler magnitude: 13.28. Transit SNR 11.21

There are 0 quarters with good PRF difference image offsets

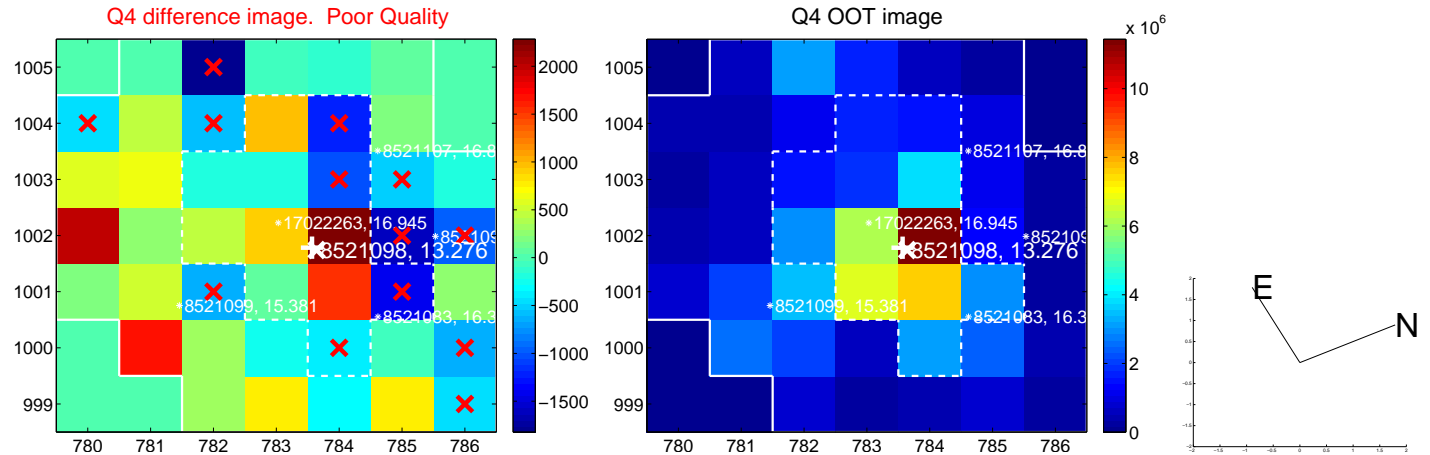
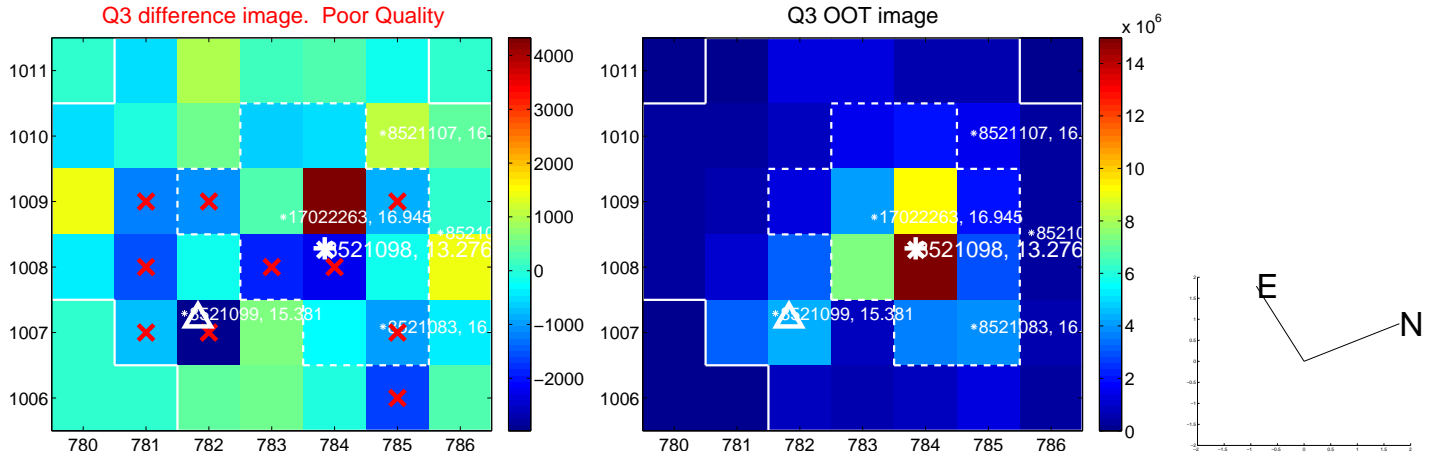
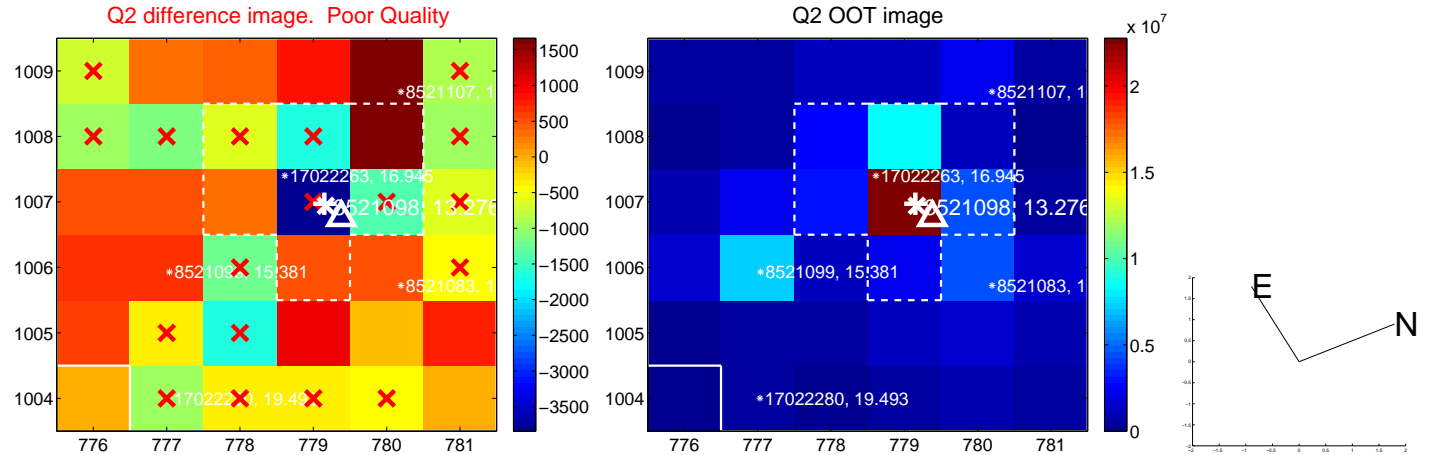
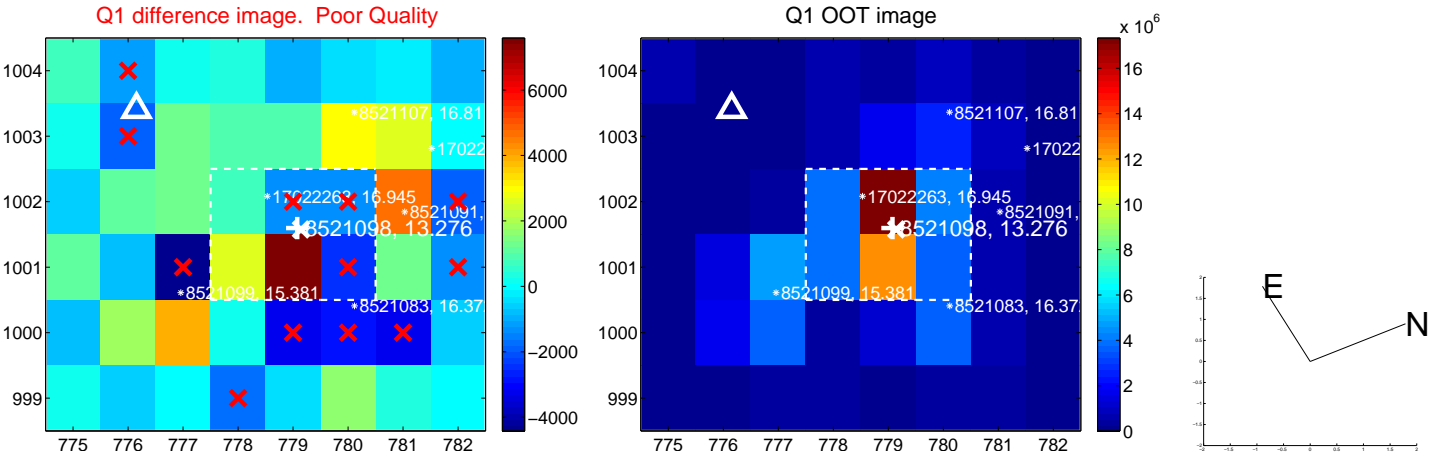
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.802 ± 1.854	0.97	-1.775 ± 1.826	-0.311 ± 1.610
PRF-fit source offset from KIC position	2.322 ± 1.530	1.52	-1.641 ± 1.817	-1.642 ± 1.176
photometric centroid source offset	1.11 ± 0.57	1.93	0.54 ± 0.54	-0.97 ± 0.59

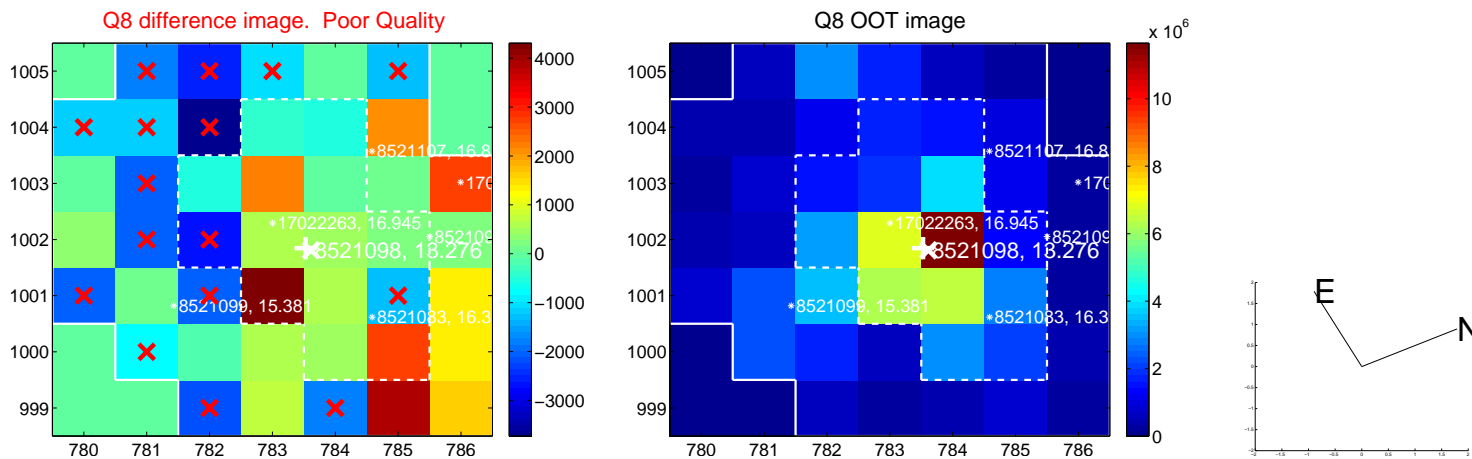
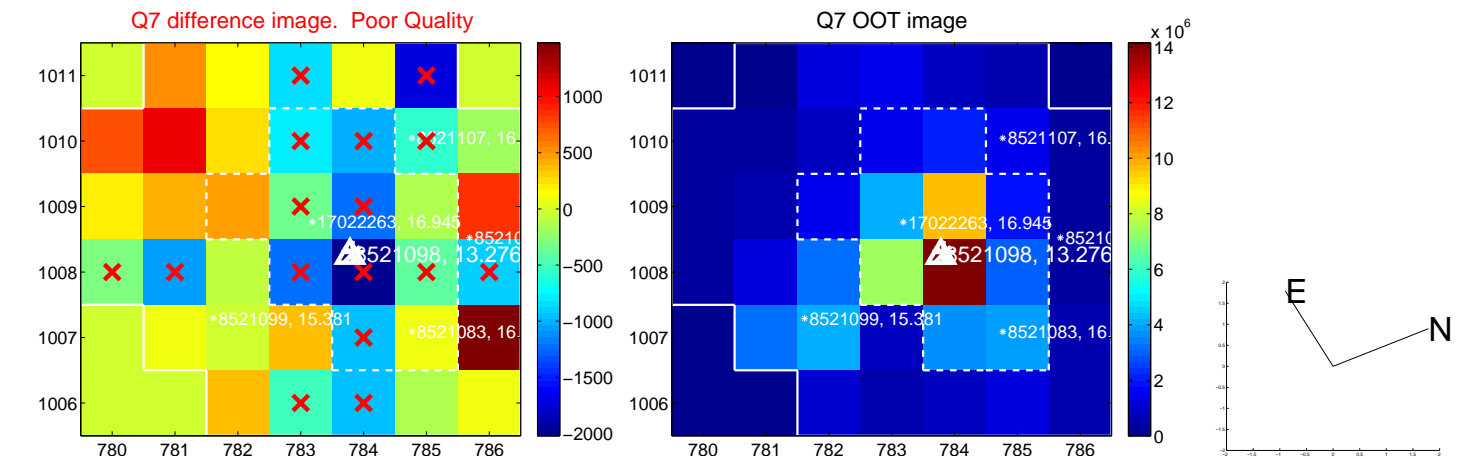
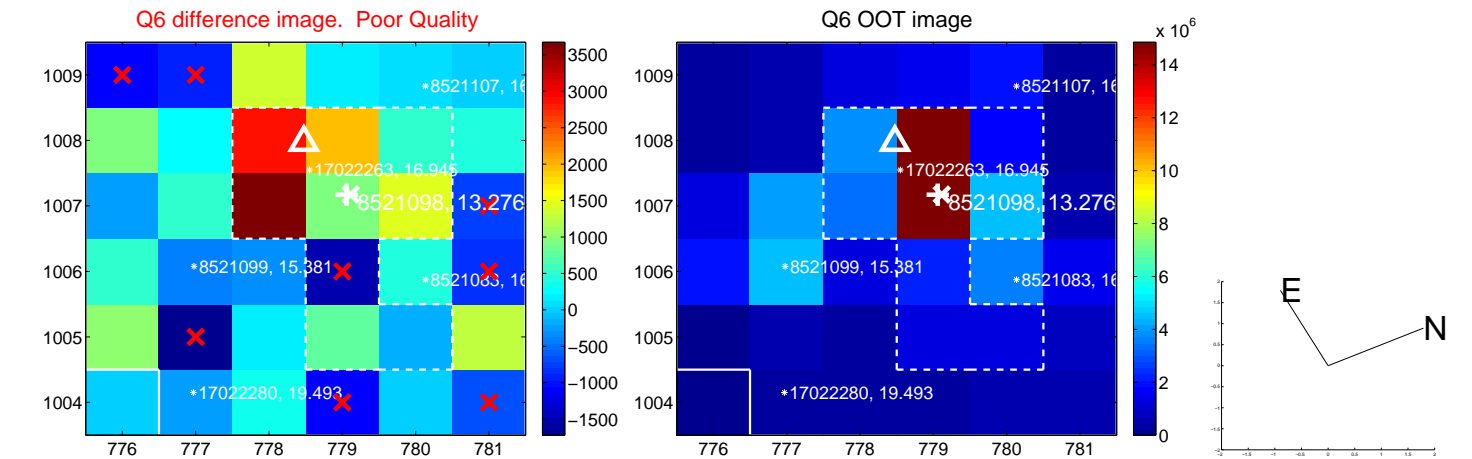
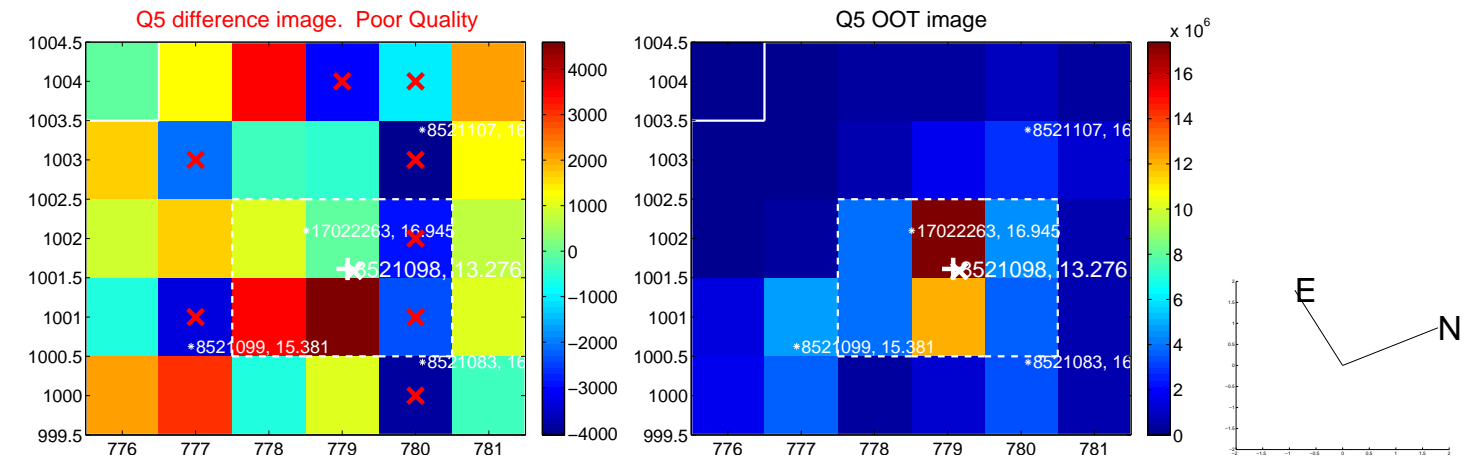


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

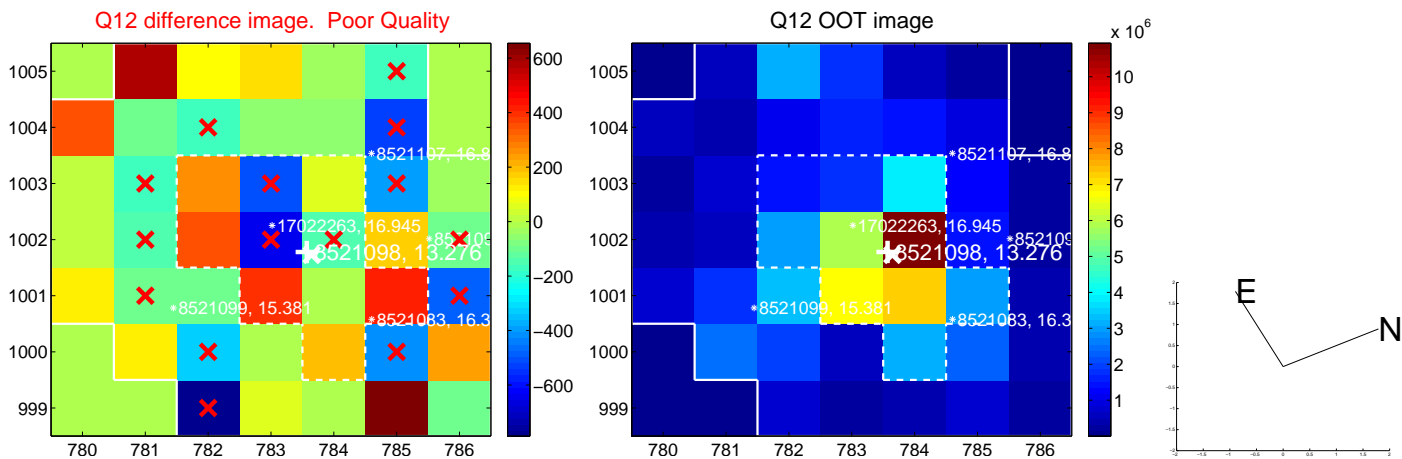
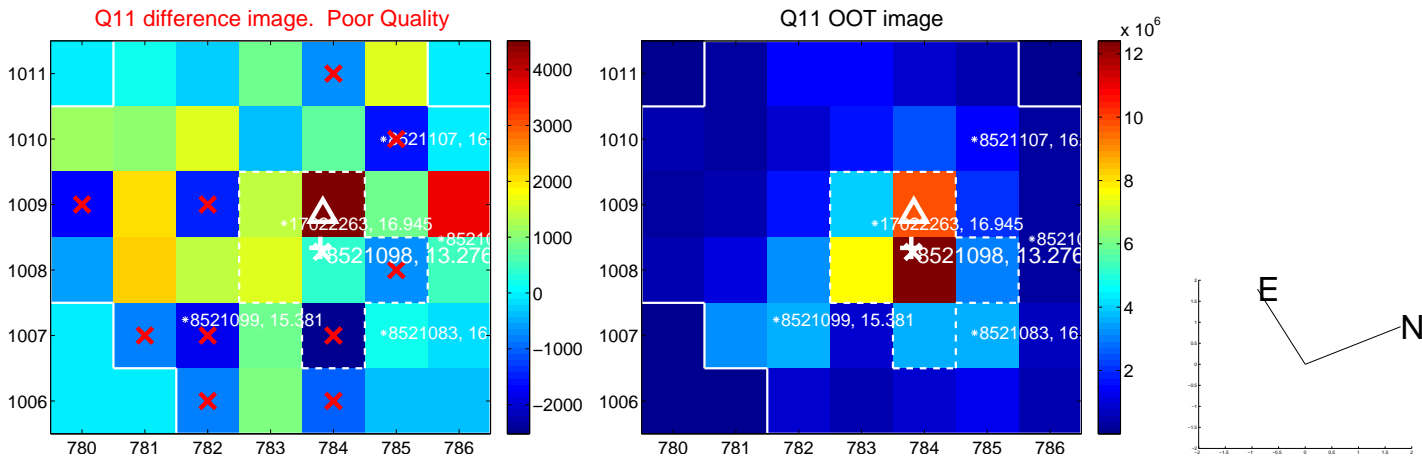
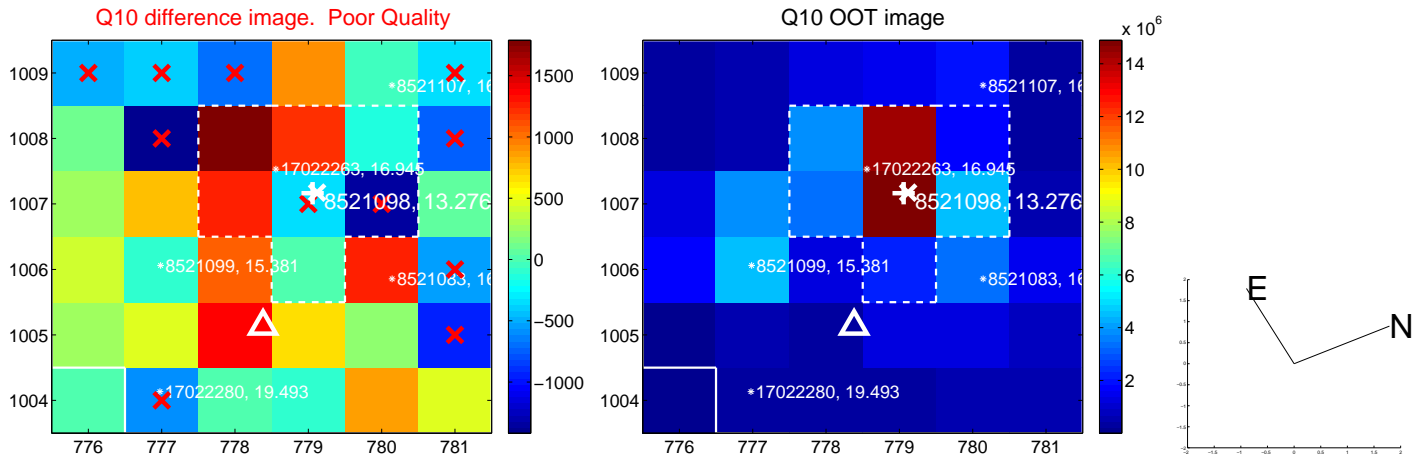
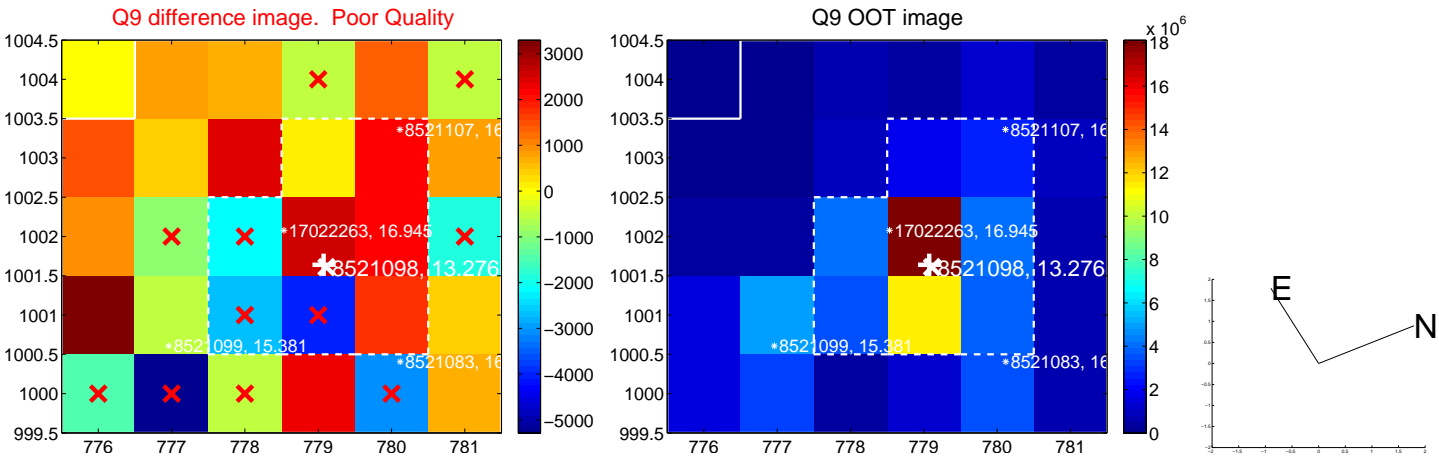
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



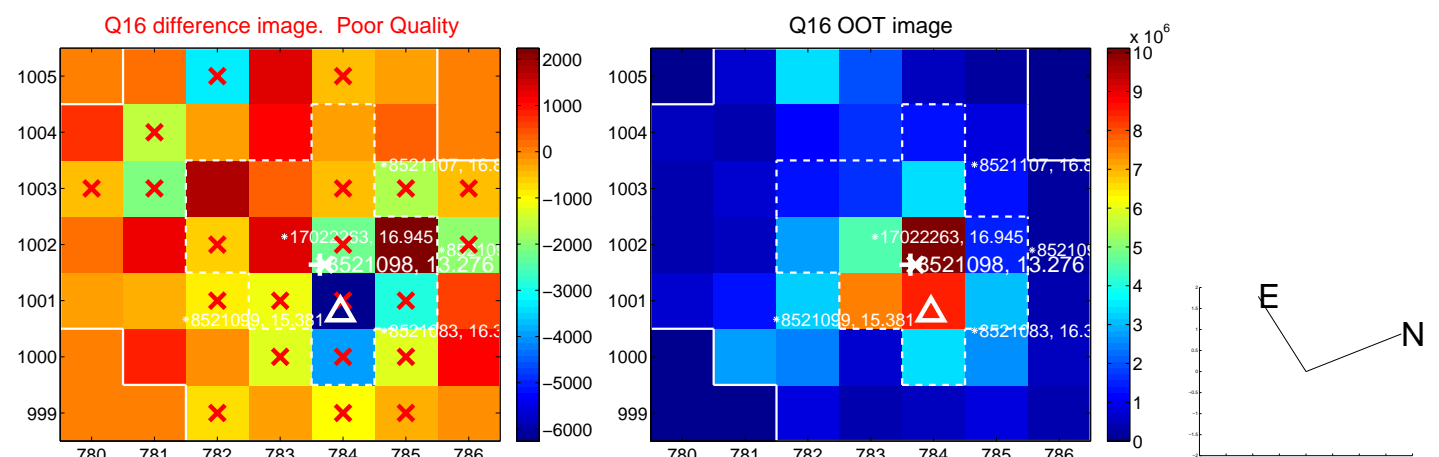
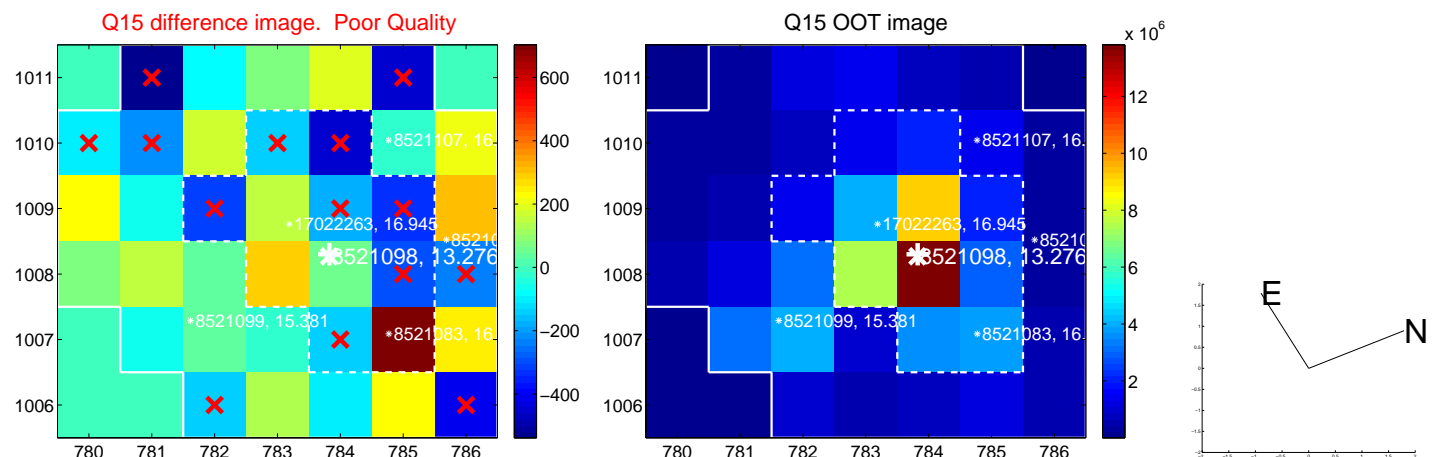
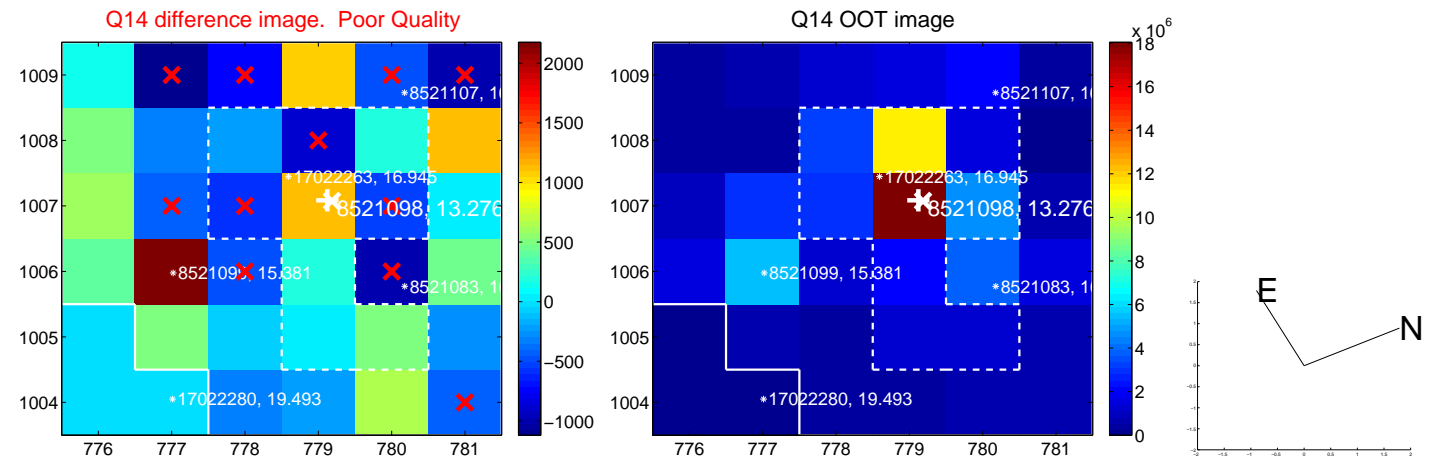
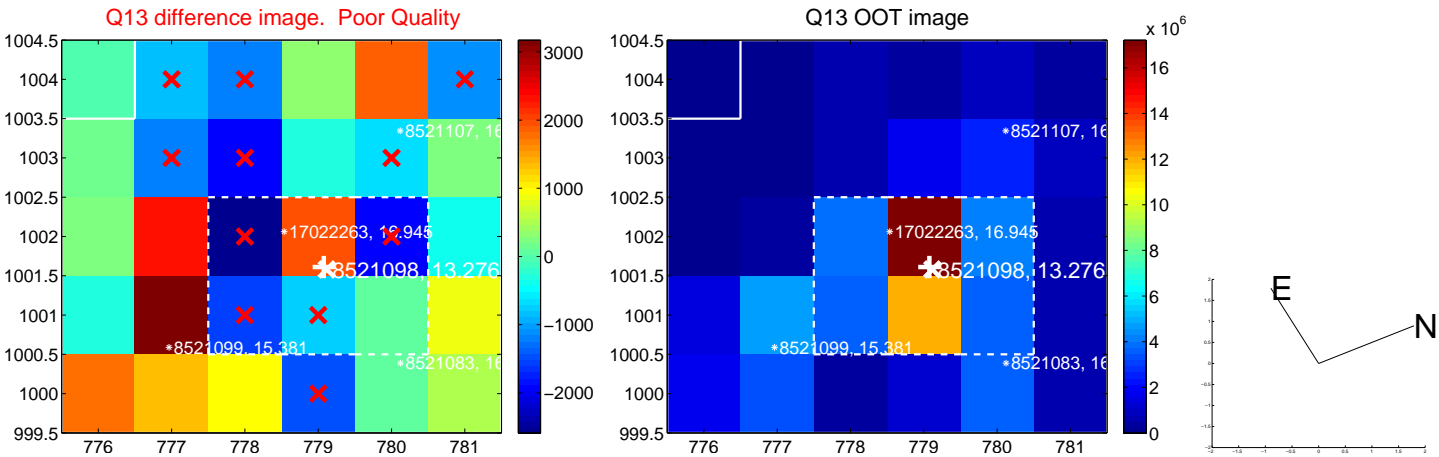
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



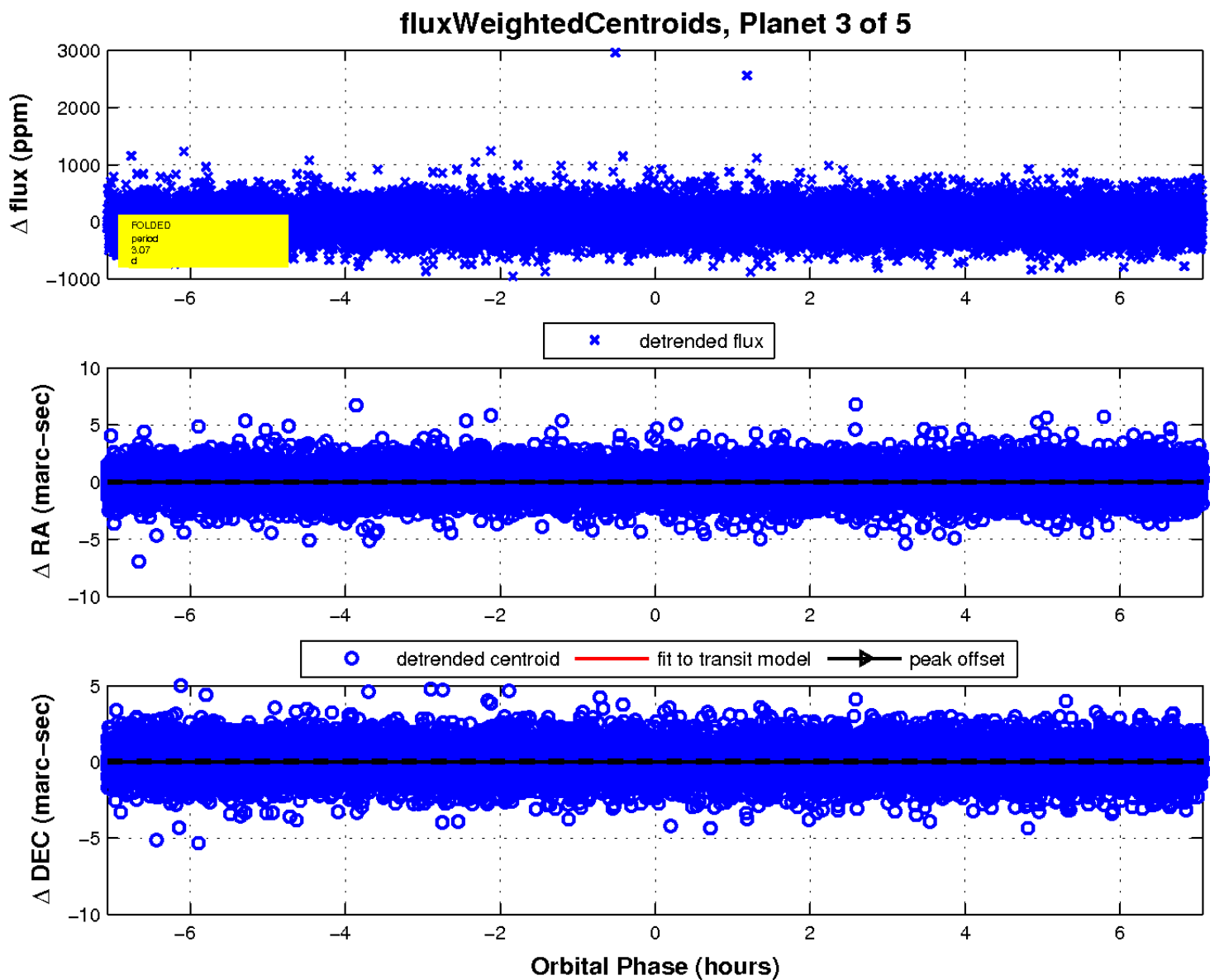
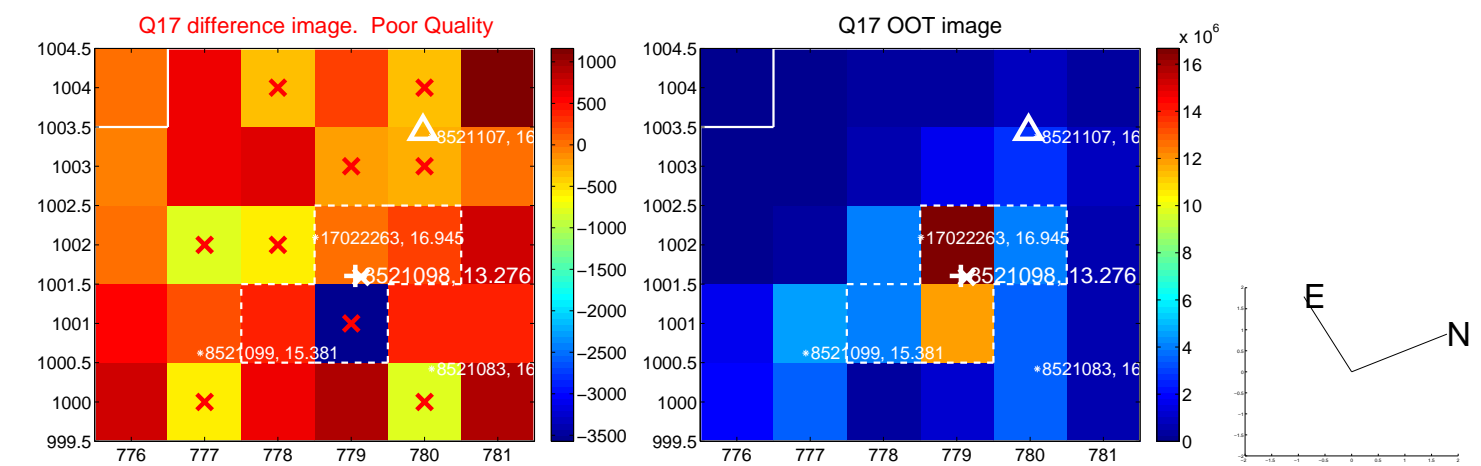
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

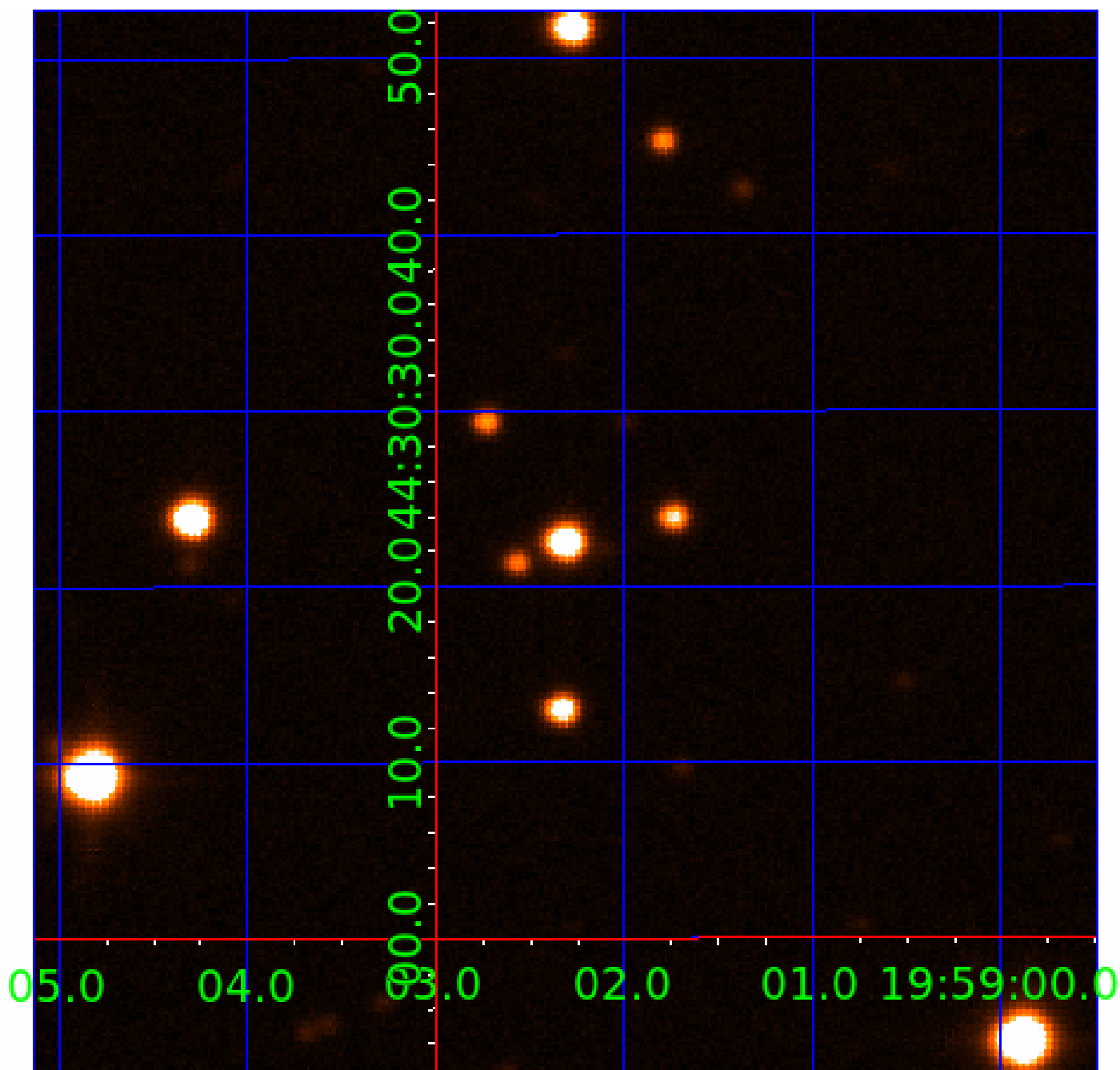


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008521098

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})
008521098-01	OBS	No	0.976156	132.087067	3.7	7.436	8.7	1.6	2.18	6329	0.43	14475.91
008521098-02	OBS	No	6.364757	136.006832	523.7	0.714	18.0	18.4	2.18	6329	5.10	1188.40
008521098-03	OBS	No	3.066458	133.670019	131.3	2.357	12.3	11.2	2.18	6329	2.61	3146.46
008521098-04	OBS	No	8.166398	133.276628	390.3	0.916	14.5	14.2	2.18	6329	4.49	852.38
008521098-05	OBS	No	4.276784	133.722769	346.8	0.979	14.1	17.1	2.18	6329	4.22	2019.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008521098-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
008521098-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN
008521098-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS

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

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

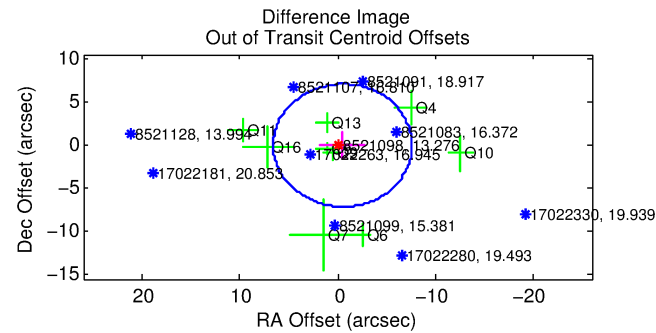
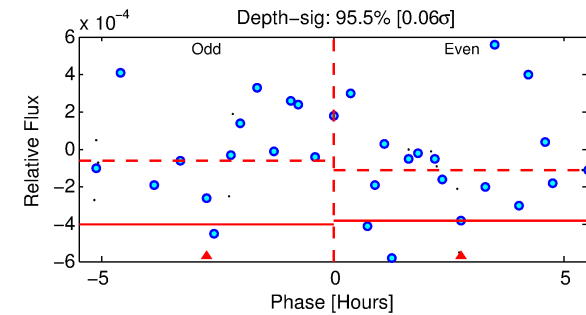
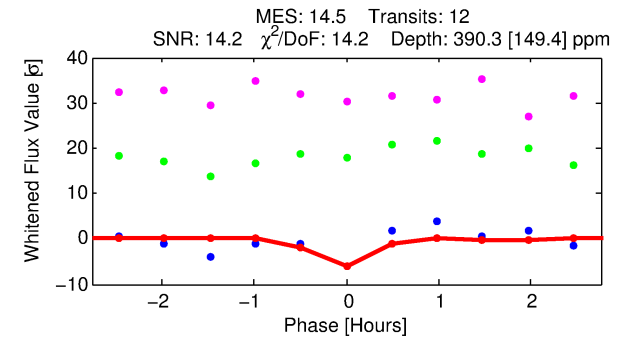
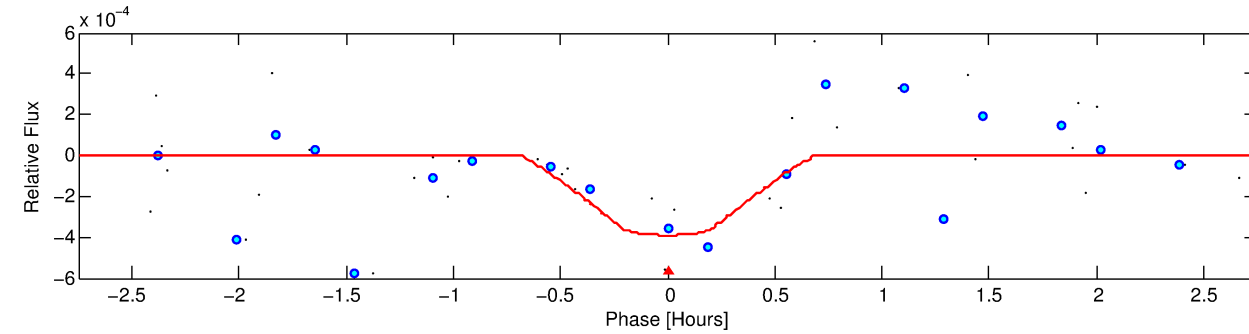
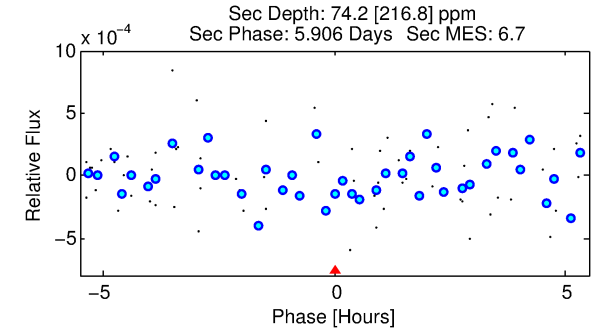
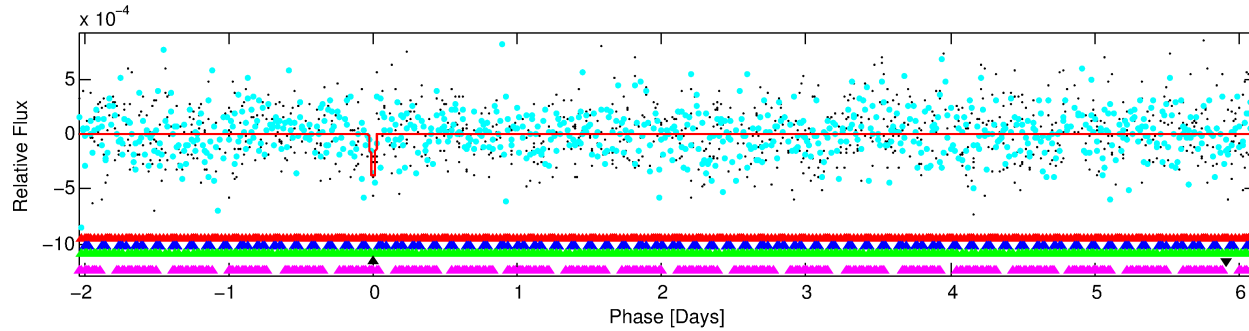
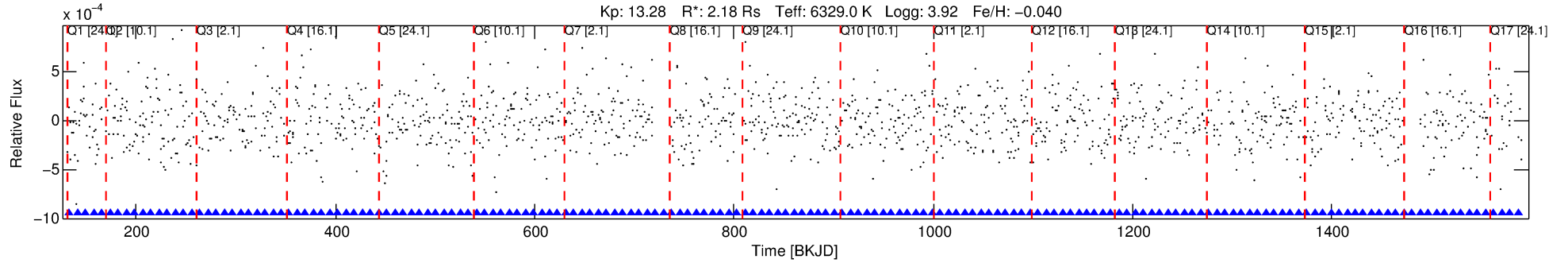
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521098-04

No Significant Match Found

DV One-Page Summary

KIC: 8521098 Candidate: 4 of 5 Period: 8.166 d



DV Fit Results:

Period = 8.16640 [0.00017] d
Epoch = 133.2766 [0.0117] BKJD
Rp/R* = 0.0188 [0.2318]
a/R* = 60.46 [3717.17]
b = 0.50 [94.18]
Seff = 852.38 [588.70]
Teq = 1378 [238] K
Rp = 4.49 [55.21] Re
a = 0.0896 [0.0378] AU
Ag = 16.28 [403.48] [0.04 σ]
Teffp = 4279 [26501] K [0.1 σ]

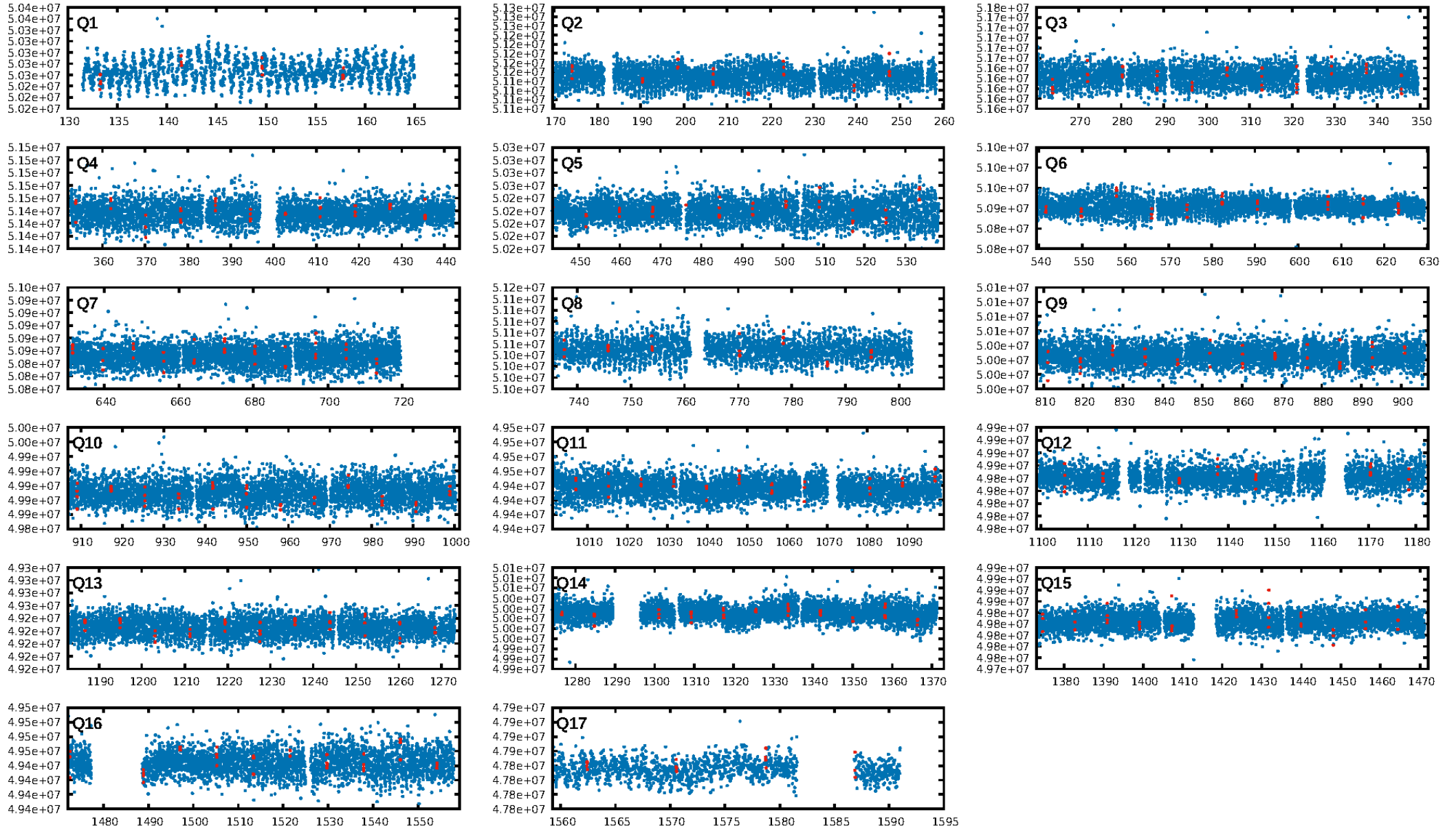
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.23 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.8%
Bootstrap-pfa: 4.86e-19
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.5068
Centroid-sig: 86.8%
Centroid-so: 0.771 arcsec [1.47 σ]
OotOffset-rm: 0.504 arcsec [0.21 σ]
OotOffset-st: 2/2/2/3 [9]
KicOffset-rm: 0.516 arcsec [0.26 σ]
KicOffset-st: 2/2/2/3 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.82 [14/17]

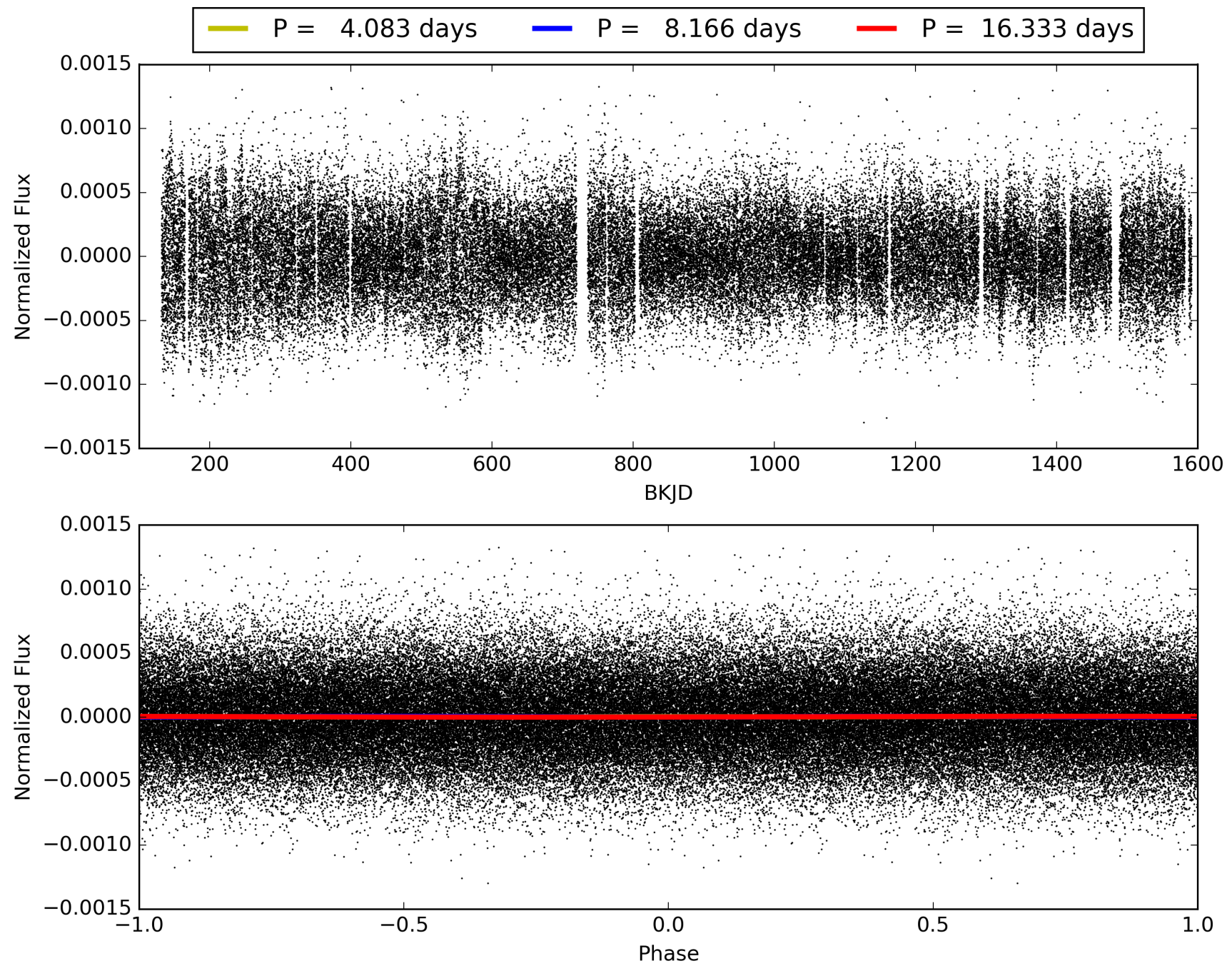
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:12:57 Z

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

TCE 008521098-04, PDC Light Curves

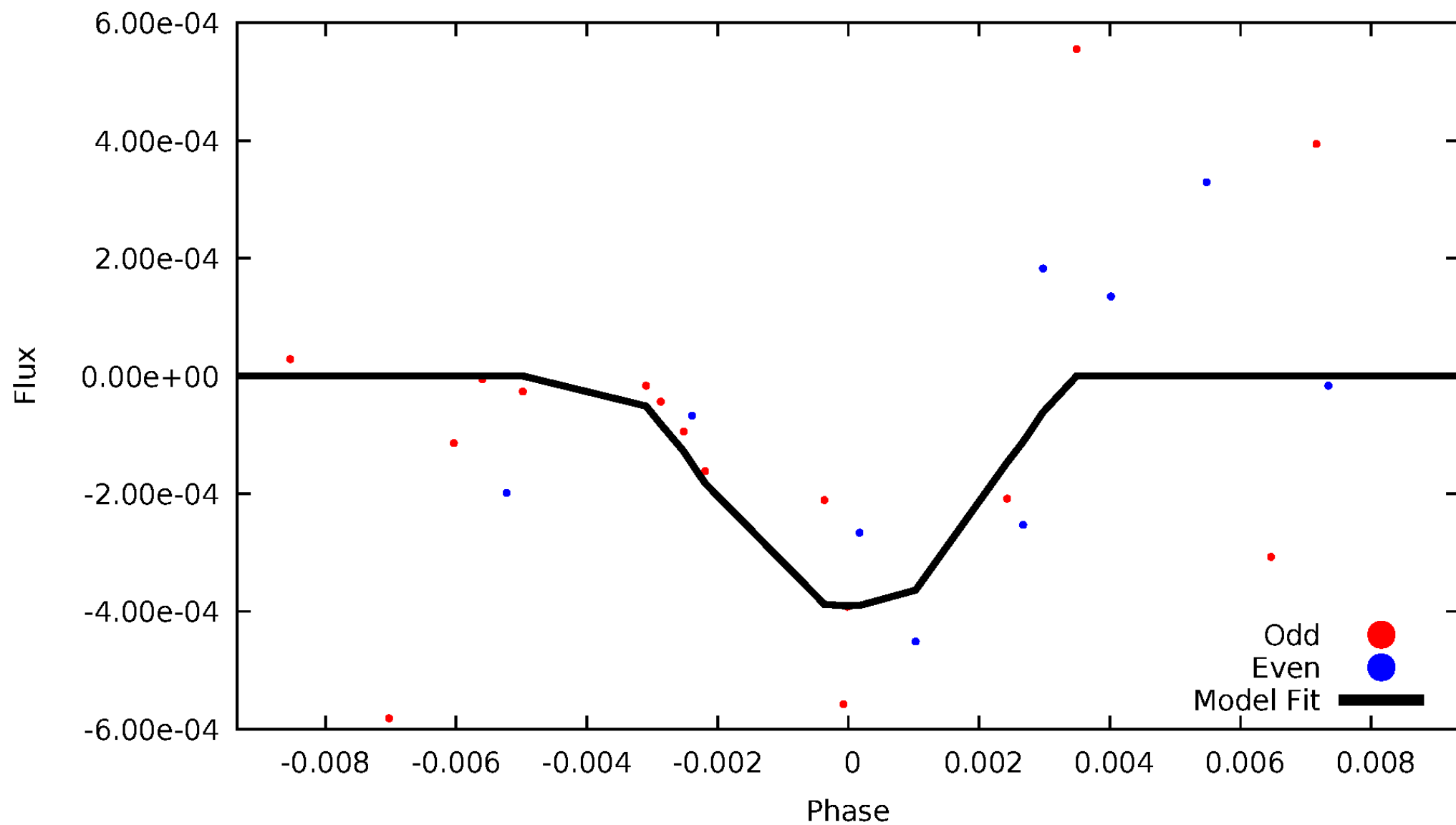


TCE 008521098-04



DV Odd/Even

TCE 008521098-04

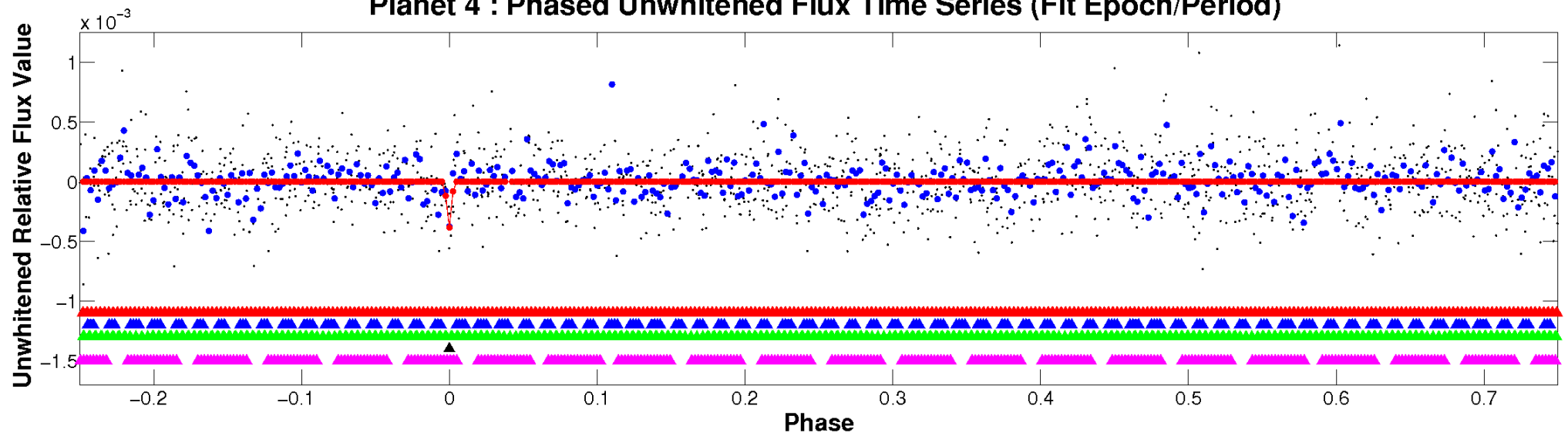


ALT Odd/Even

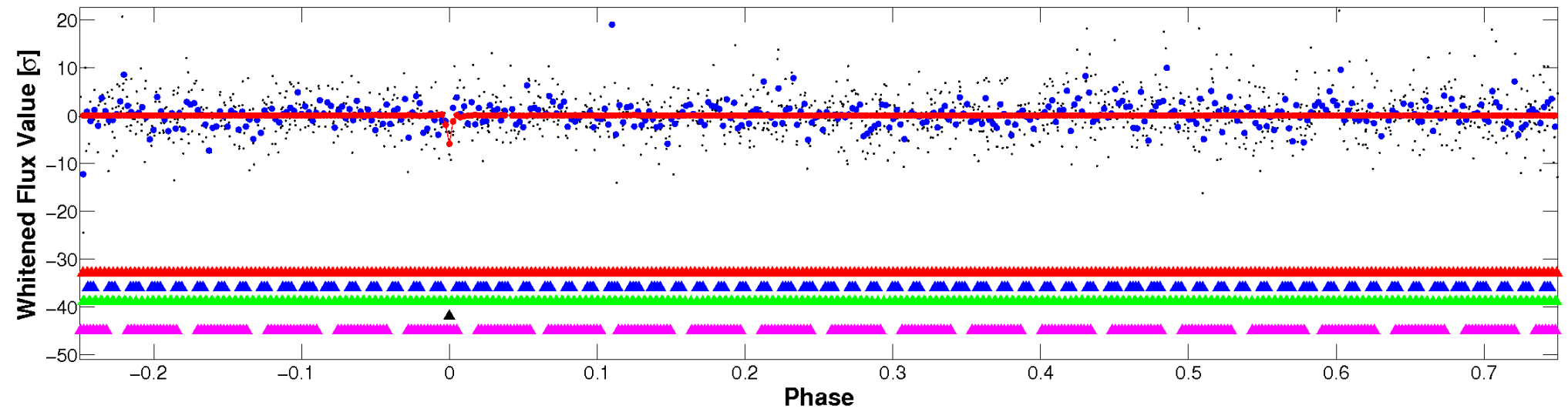
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

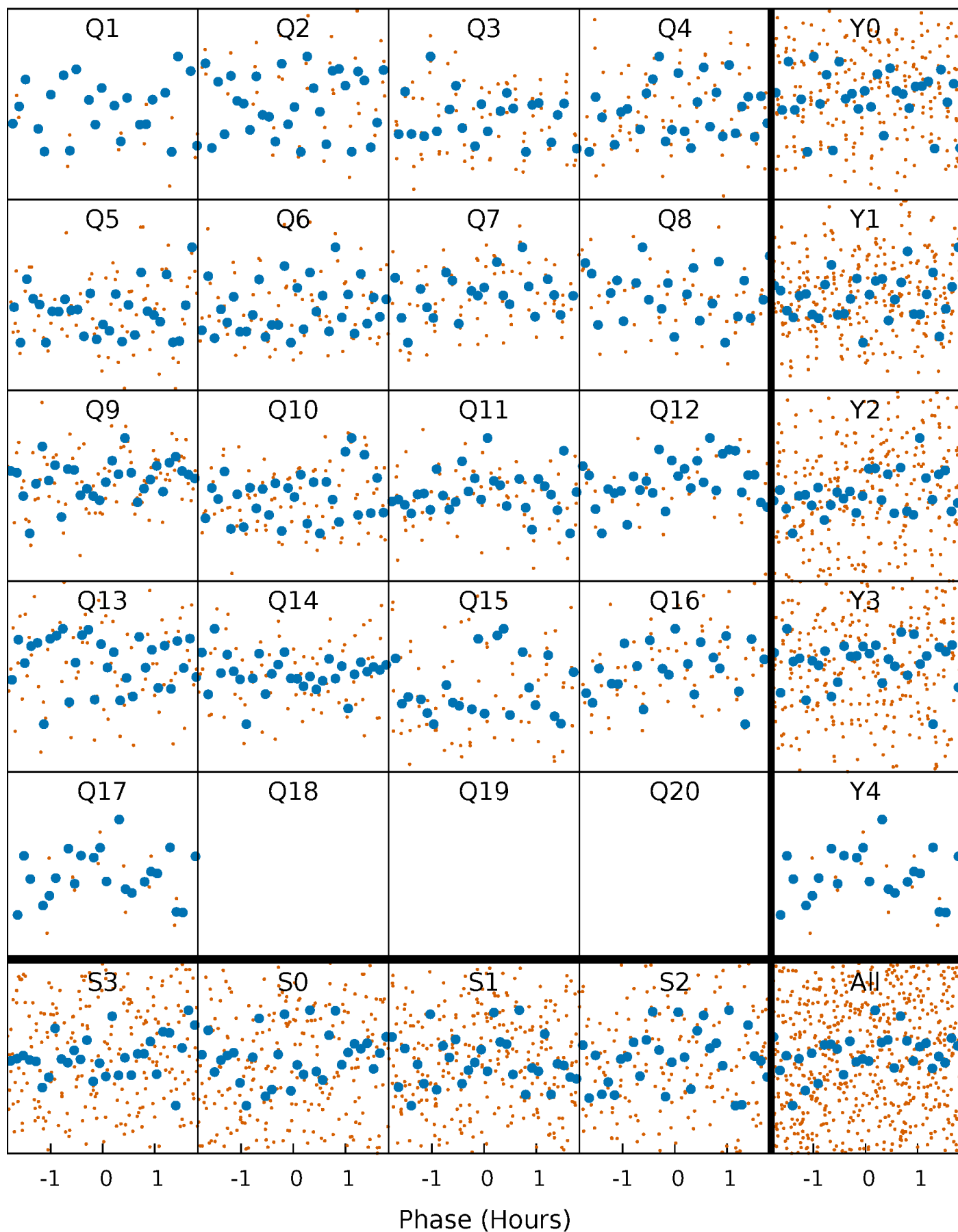


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



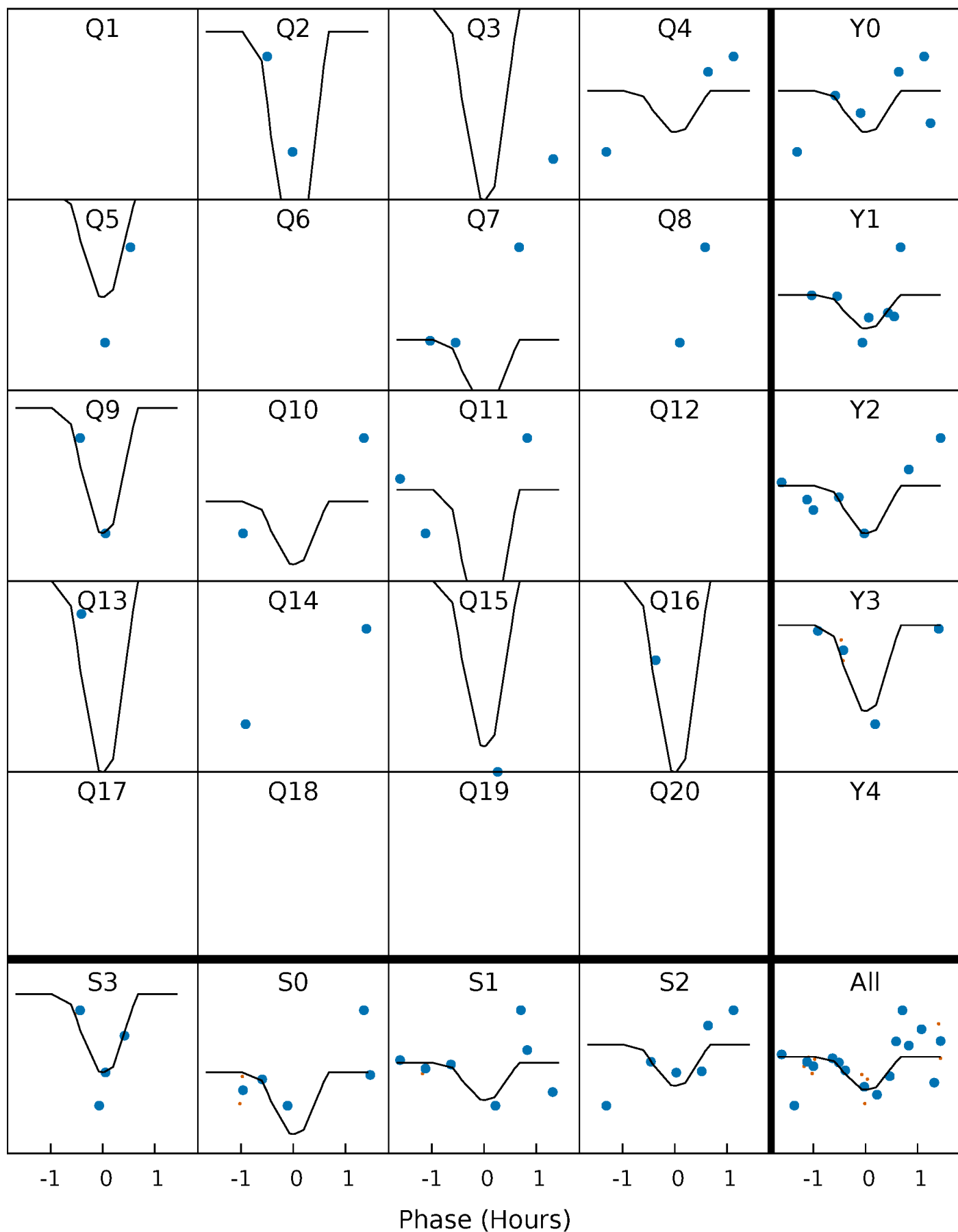
PDC Quarter-Phased Transit Curves

TCE 008521098-04 P= 8.166398 Days $T_0=133.276628$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008521098-04 P= 8.166398 Days $T_0=133.276628$ (BKJD)

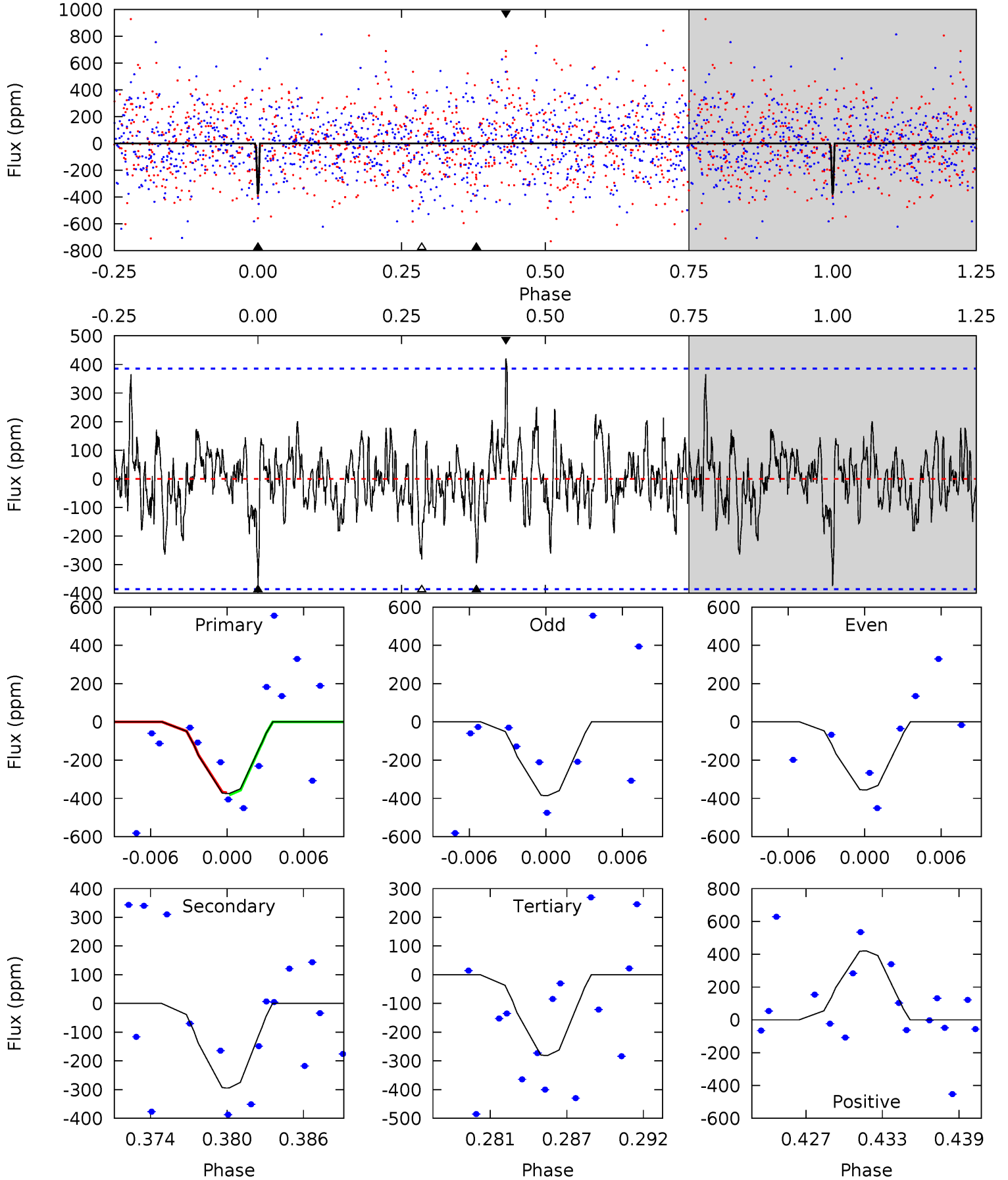


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008521098-04, P = 8.166398 Days, E = 125.110230 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.98	3.92	3.74	5.59	5.13	2.76	1.25	1.24	-0.61	0.18	-1.67	0.19	1.05	0.53	0.08



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 008521098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6329^{+202}_{-224}	$3.918^{+0.397}_{-0.132}$	$-0.040^{+0.250}_{-0.300}$	$2.181^{+0.515}_{-0.957}$	$1.437^{+0.192}_{-0.356}$	$0.195^{+0.681}_{-0.076}$
	+3%/-4%	+10%/-3%	+625%/-750%	+24%/-44%	+13%/-25%	+349%/-39%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008521098-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-295 ± 75	$34.34^{+44.33}_{-23.10}$	1882^{+142}_{-218}	2662^{+1125}_{-4820}	$1.070^{+8.538}_{-0.875}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

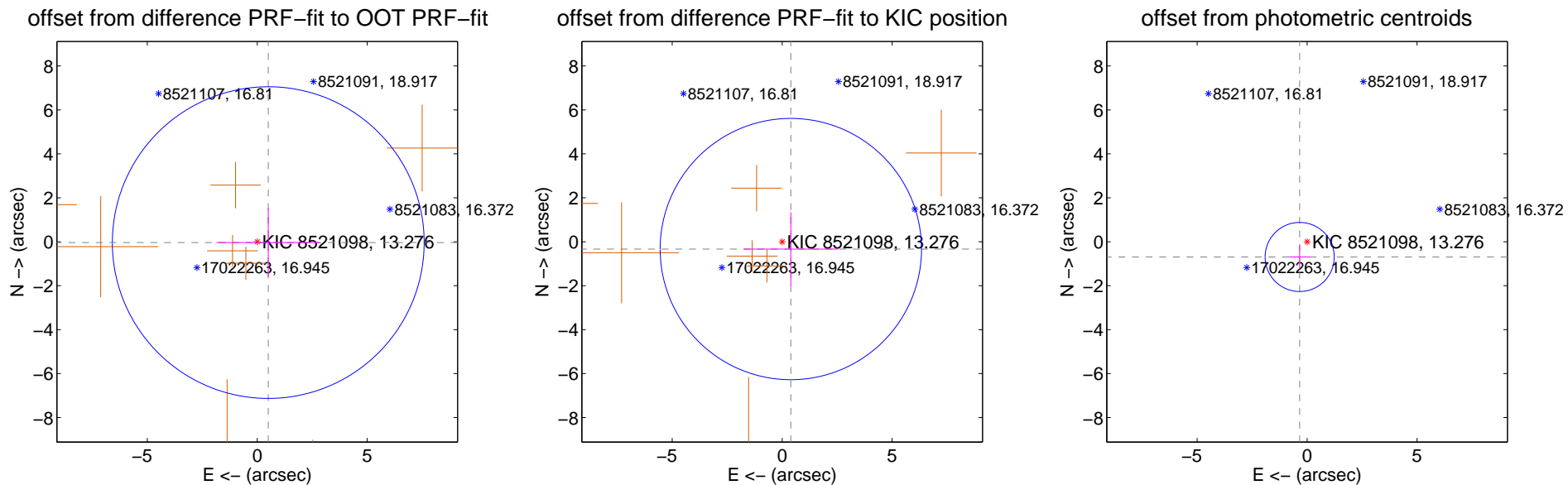
DV Centroid Data

Supplemental centroid analysis for 008521098-04. Kepler magnitude: 13.28. Transit SNR 14.20

There are 0 quarters with good PRF difference image offsets

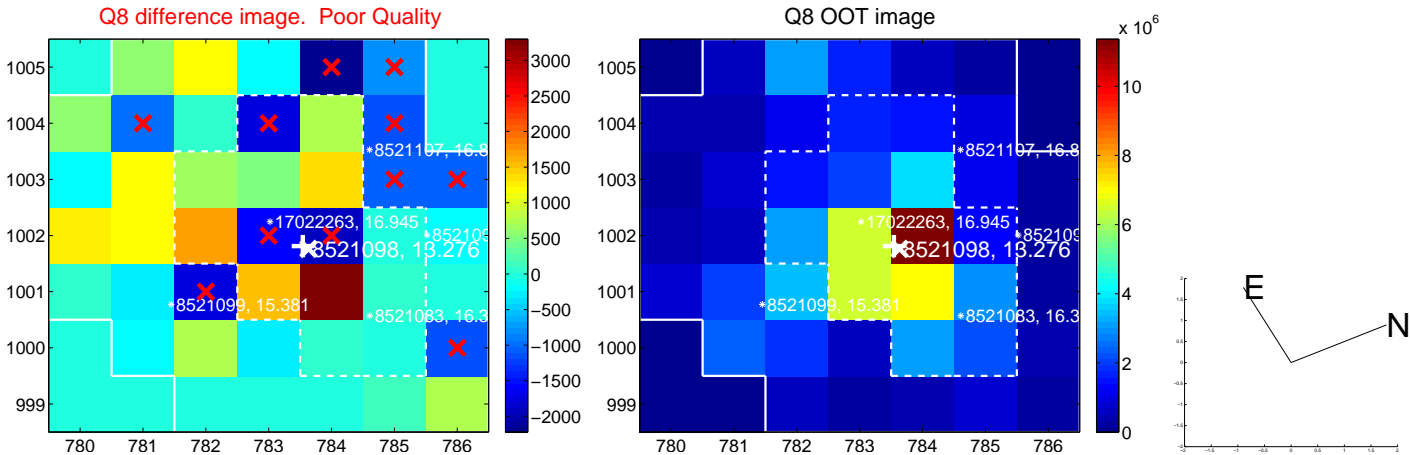
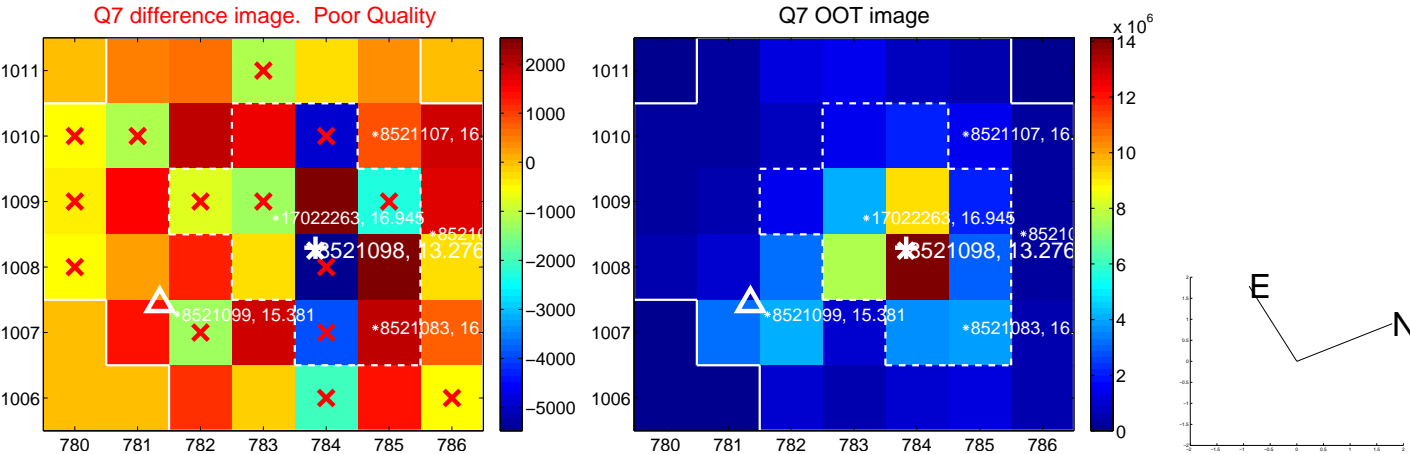
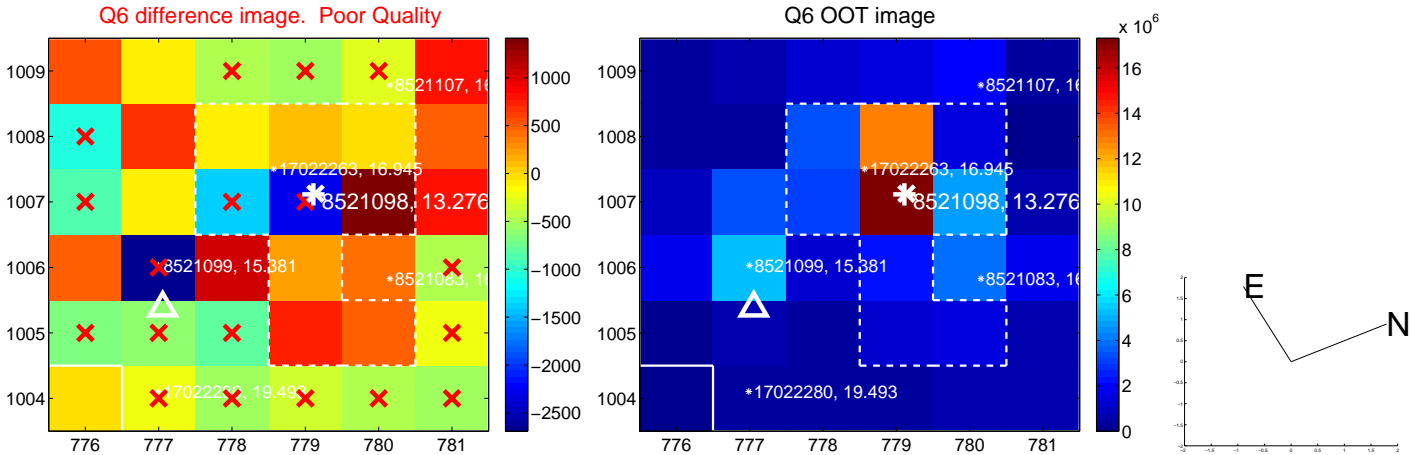
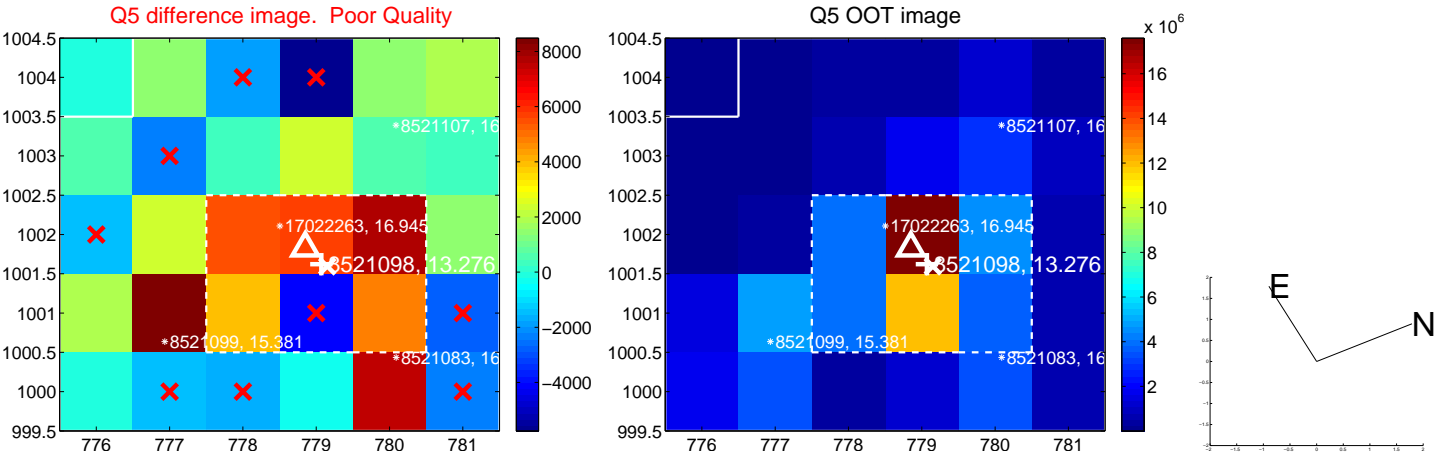
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.504 ± 2.364	0.21	-0.502 ± 2.354	-0.038 ± 1.558
PRF-fit source offset from KIC position	0.516 ± 1.982	0.26	-0.395 ± 2.149	-0.332 ± 1.675
photometric centroid source offset	0.77 ± 0.52	1.47	0.34 ± 0.48	-0.69 ± 0.53

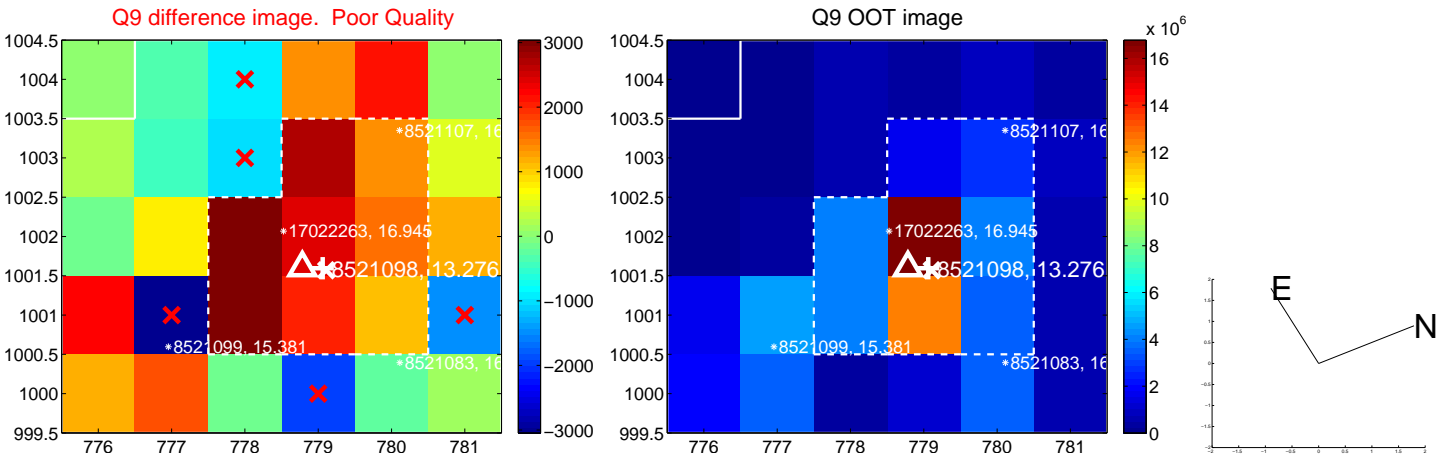


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

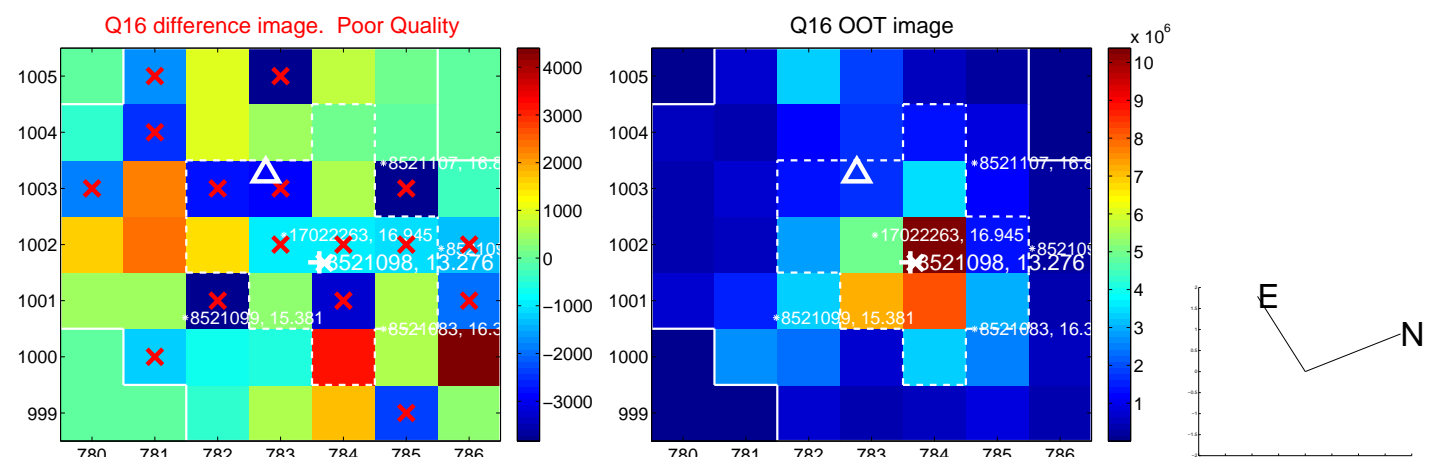
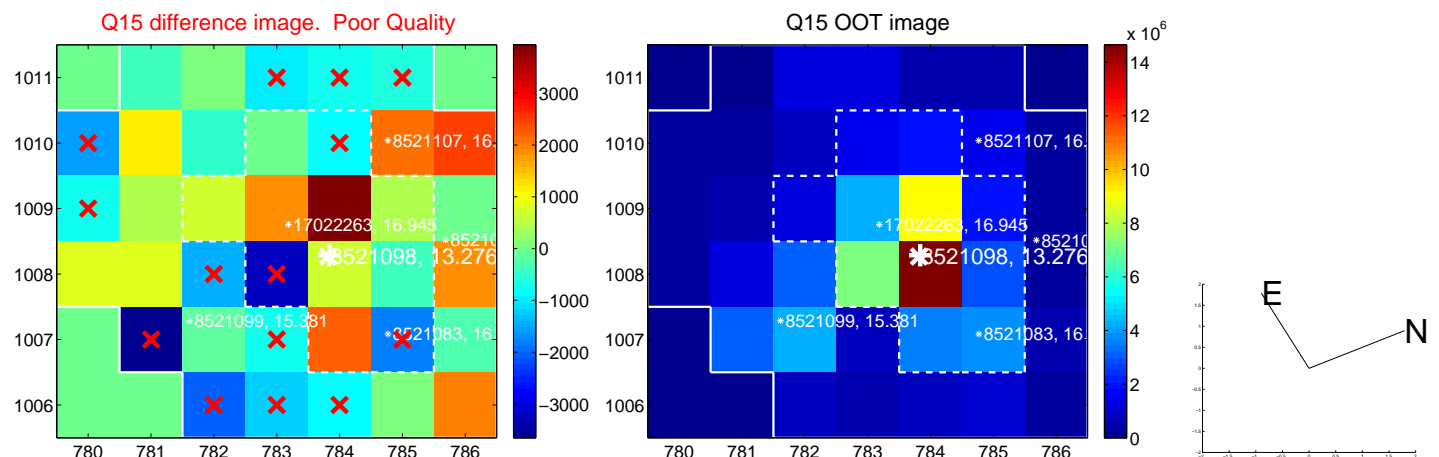
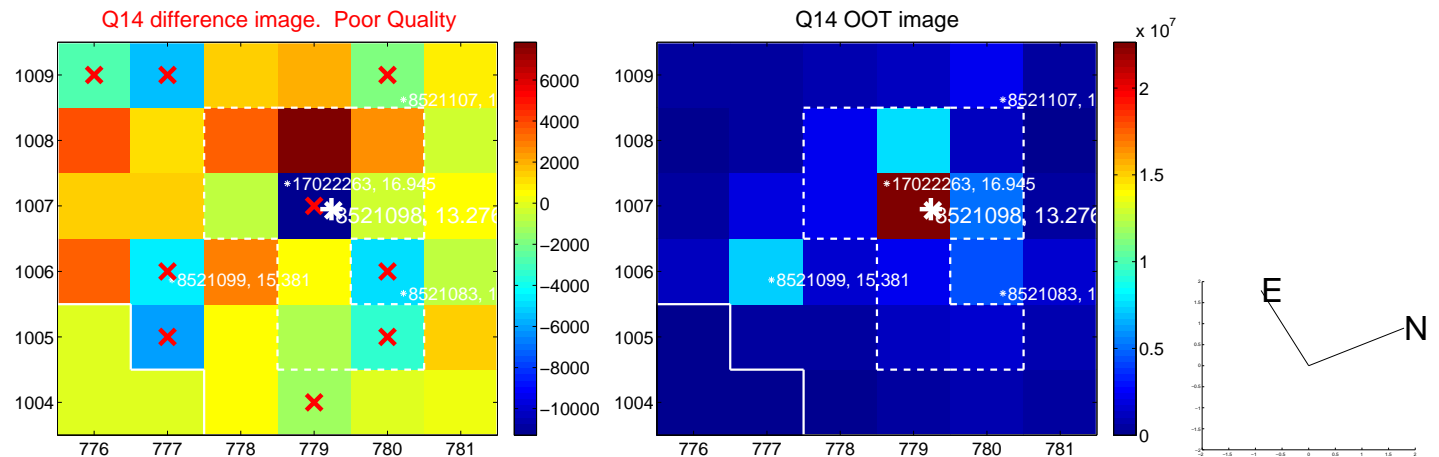
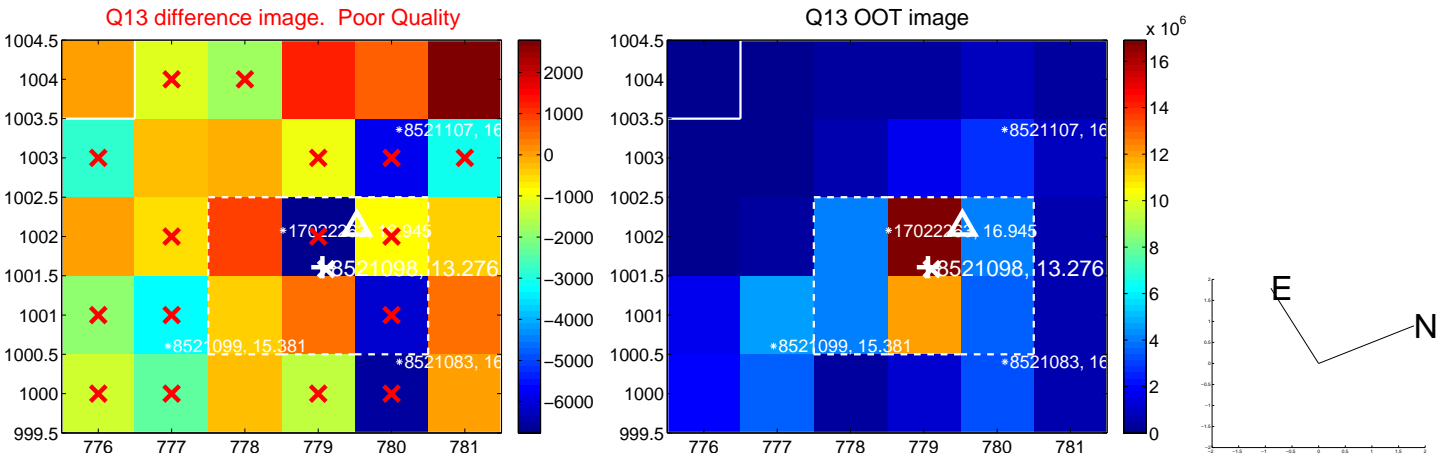
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



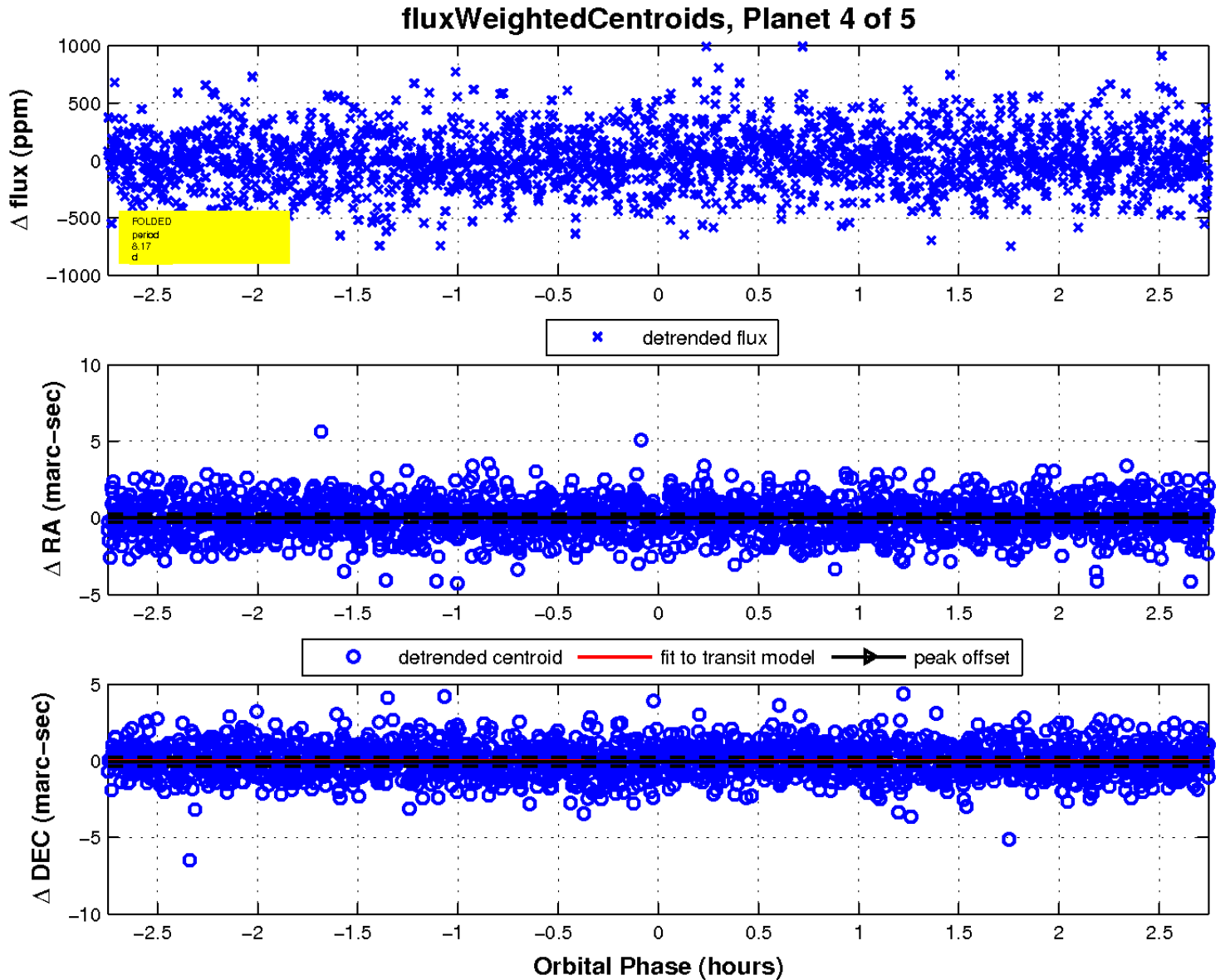
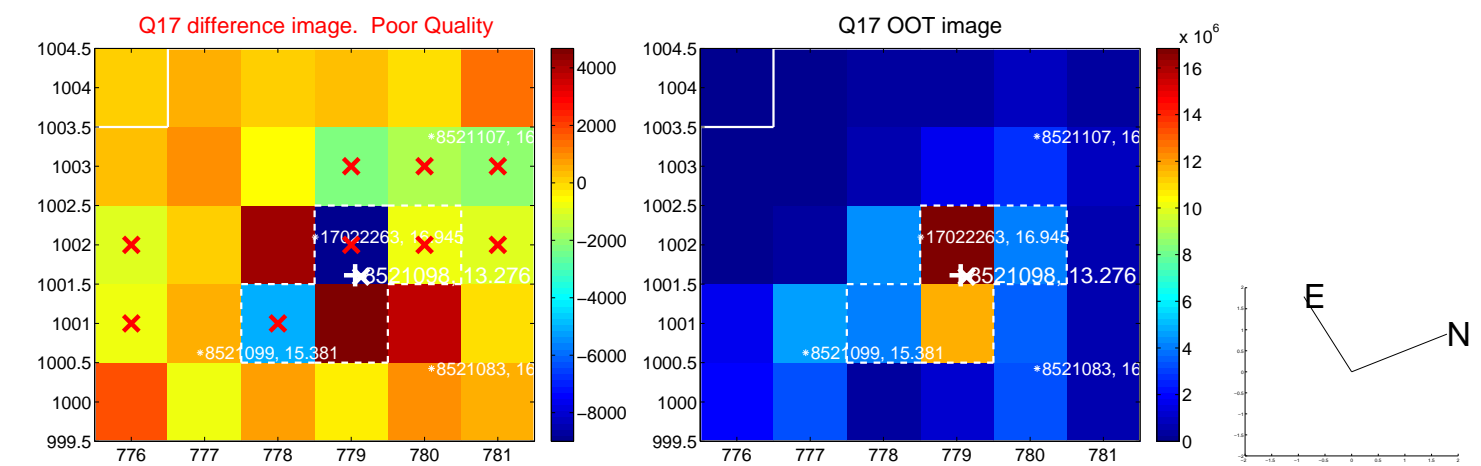
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

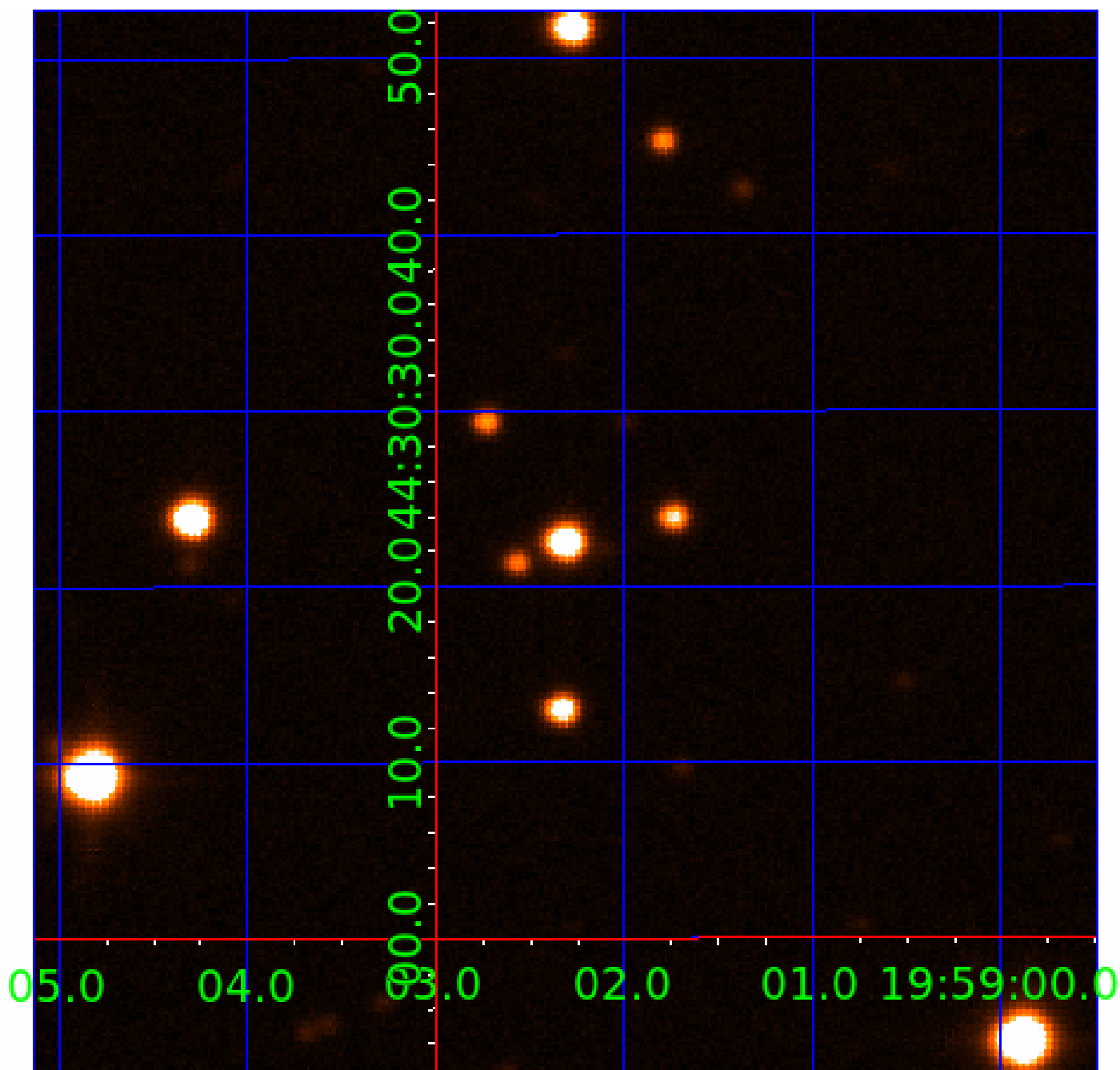


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008521098

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})
008521098-01	OBS	No	0.976156	132.087067	3.7	7.436	8.7	1.6	2.18	6329	0.43	14475.91
008521098-02	OBS	No	6.364757	136.006832	523.7	0.714	18.0	18.4	2.18	6329	5.10	1188.40
008521098-03	OBS	No	3.066458	133.670019	131.3	2.357	12.3	11.2	2.18	6329	2.61	3146.46
008521098-04	OBS	No	8.166398	133.276628	390.3	0.916	14.5	14.2	2.18	6329	4.49	852.38
008521098-05	OBS	No	4.276784	133.722769	346.8	0.979	14.1	17.1	2.18	6329	4.22	2019.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008521098-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_FEW_DIFFS
008521098-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_UNCERTAIN
008521098-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
008521098-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_MEAS

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

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

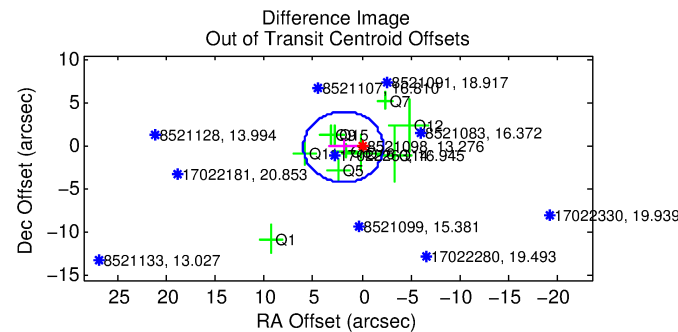
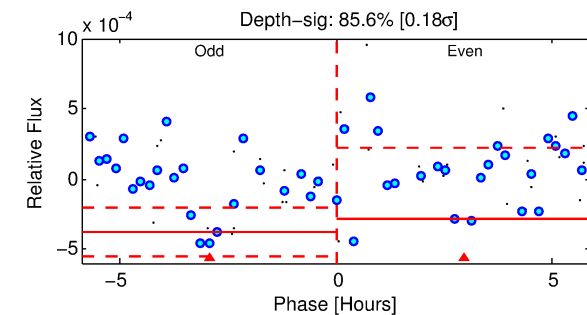
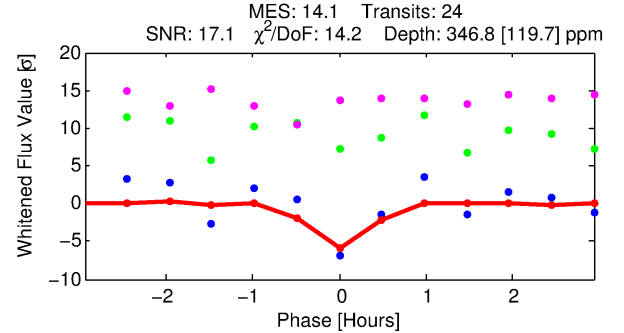
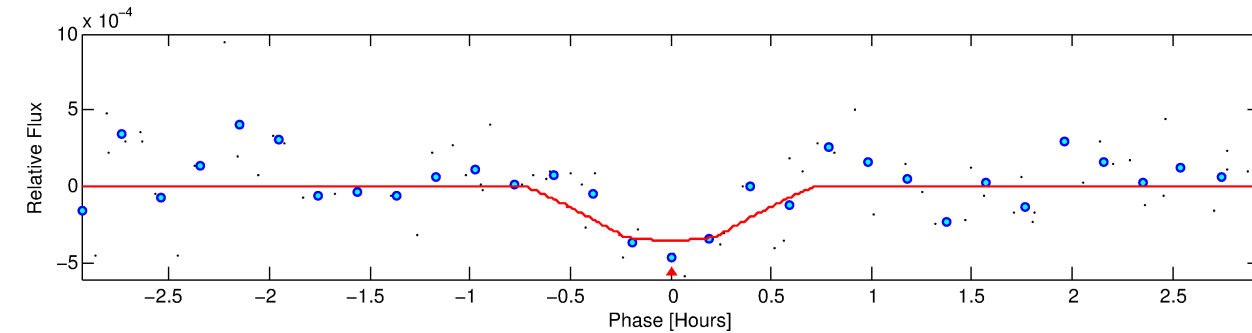
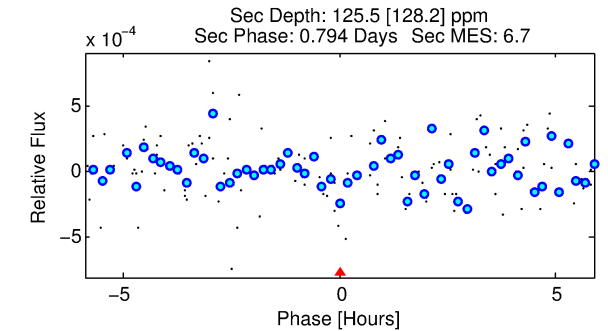
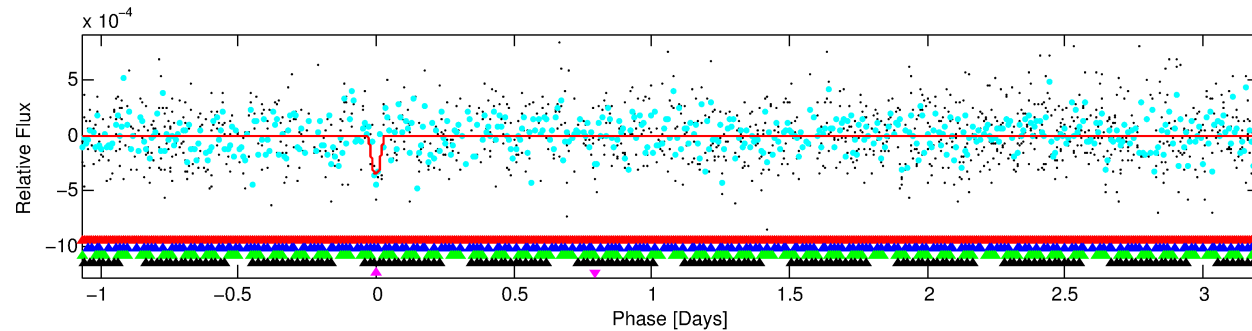
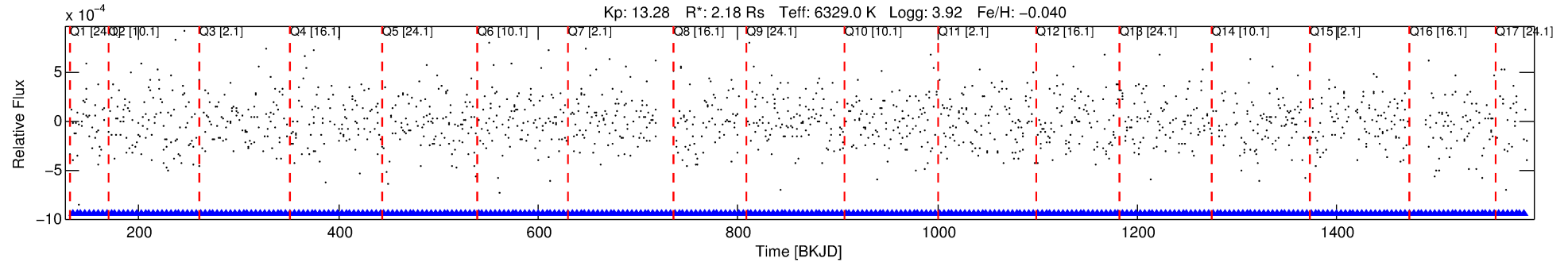
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008521098-05

No Significant Match Found

DV One-Page Summary

KIC: 8521098 Candidate: 5 of 5 Period: 4.277 d



DV Fit Results:

Period = 4.27678 [0.00005] d
Epoch = 133.7228 [0.0073] BKJD
Rp/R* = 0.0177 [0.0487]
a/R* = 29.58 [419.09]
b = 0.50 [21.18]
Seff = 2019.21 [1394.58]
Teq = 1709 [295] K
Rp = 4.22 [11.73] Re
a = 0.0582 [0.0246] AU
Ag = 13.11 [73.70] [0.16 σ]
Teffp = 5029 [7020] K [0.47 σ]

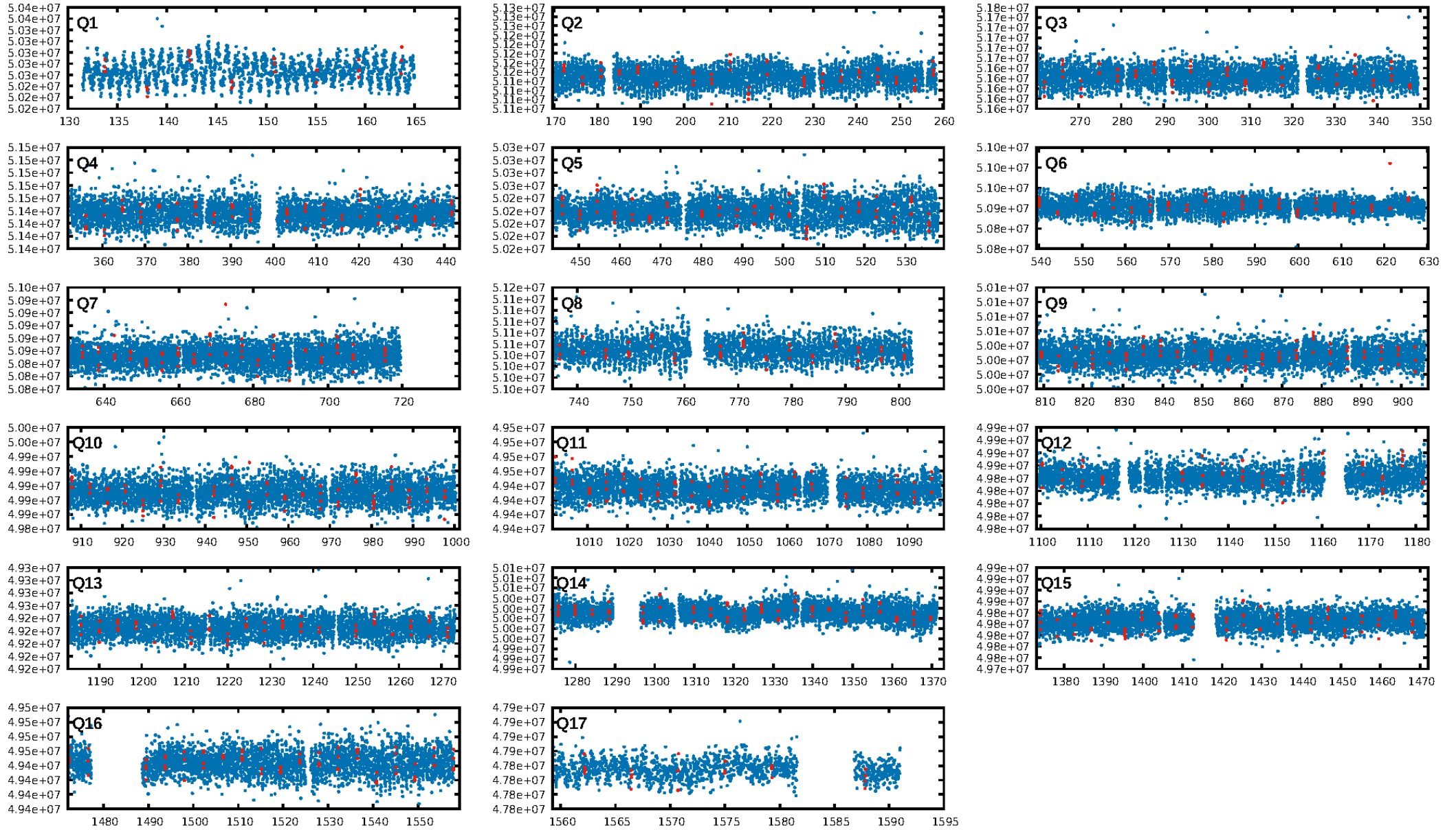
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.38 σ]
LongPeriod-sig: 100.0% [41.35 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 1.86e-21
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 0.541
Centroid-sig: 47.9%
Centroid-so: 1.168 arcsec [2.87 σ]
OotOffset-rm: 1.922 arcsec [1.41 σ]
OotOffset-st: 2/3/2/3 [10]
KicOffset-rm: 2.079 arcsec [1.43 σ]
KicOffset-st: 2/3/2/3 [10]
DiffImageQuality-fgm: 0.00 [0/10]
DiffImageOverlap-fno: 0.88 [15/17]

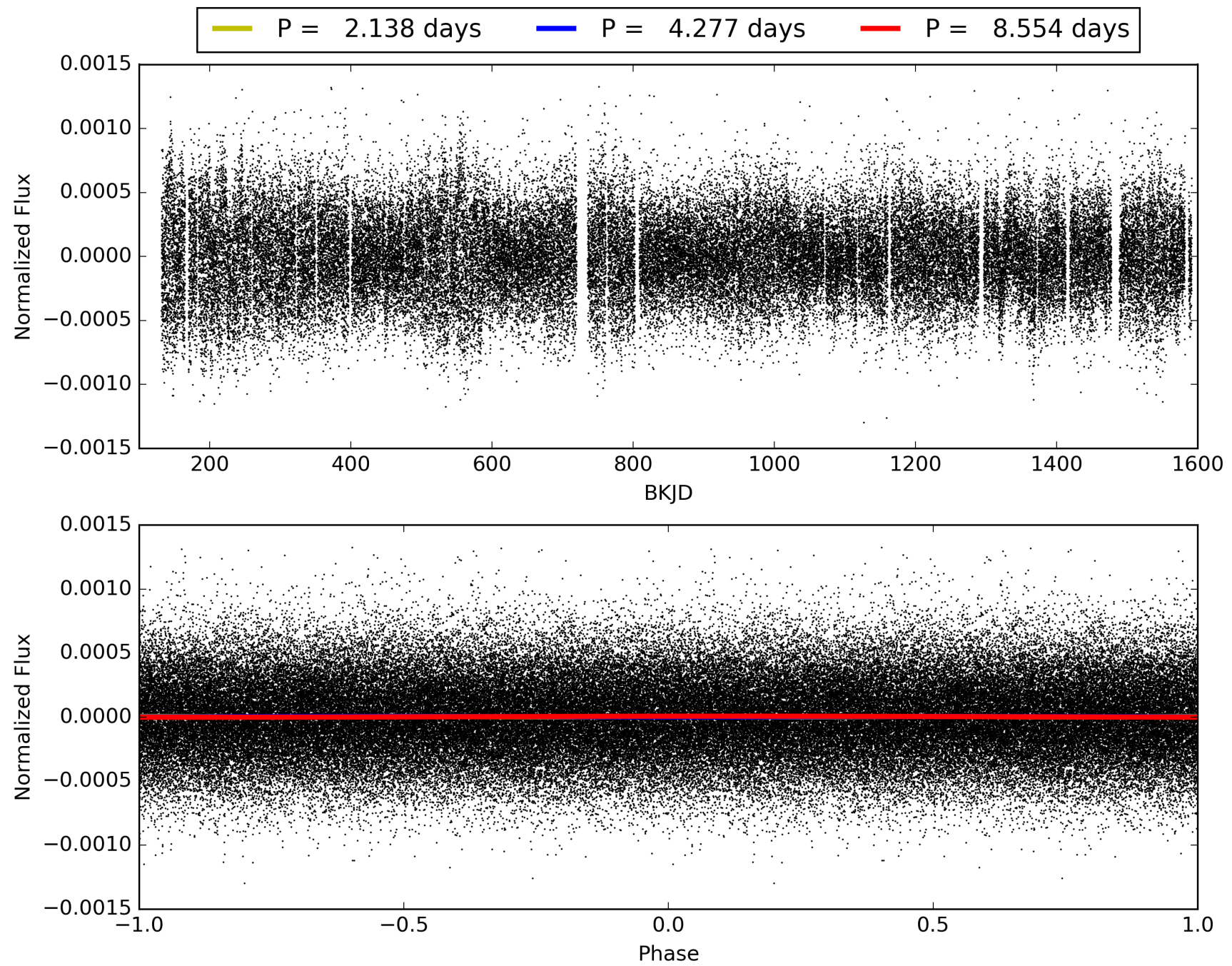
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:13:00 Z

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

TCE 008521098-05, PDC Light Curves

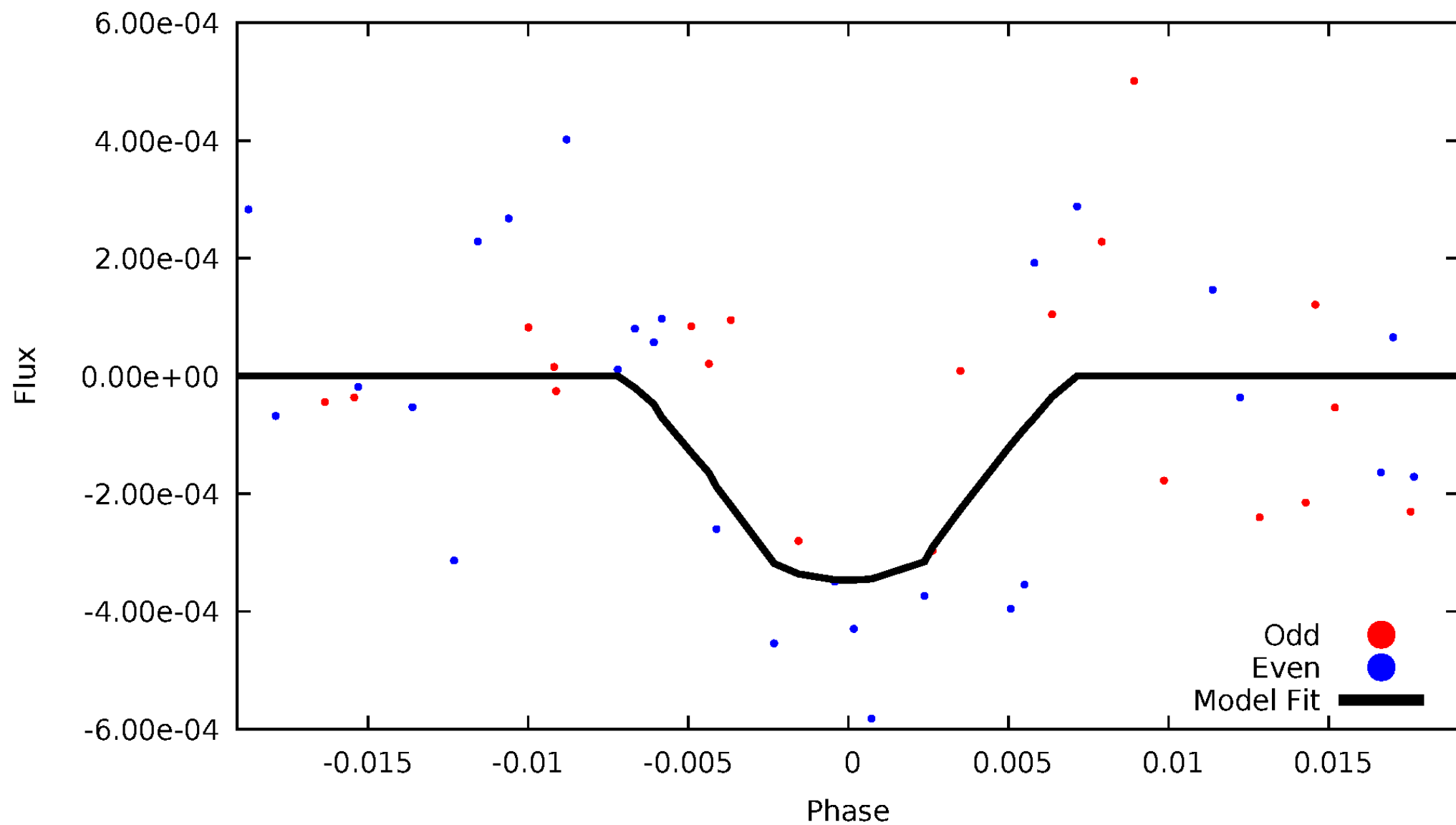


TCE 008521098-05



DV Odd/Even

TCE 008521098-05

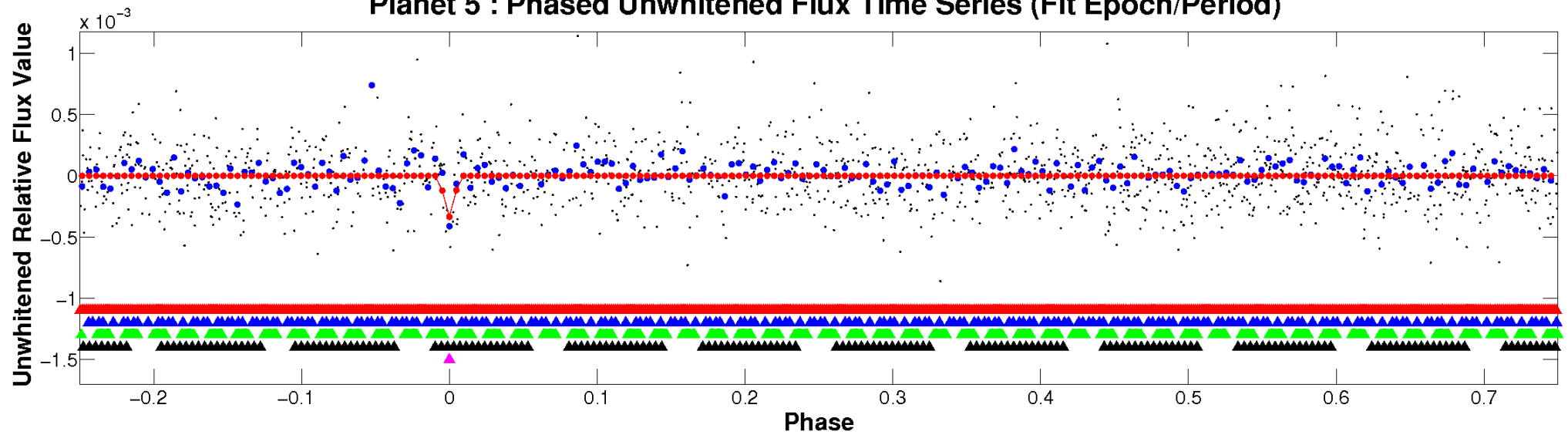


ALT Odd/Even

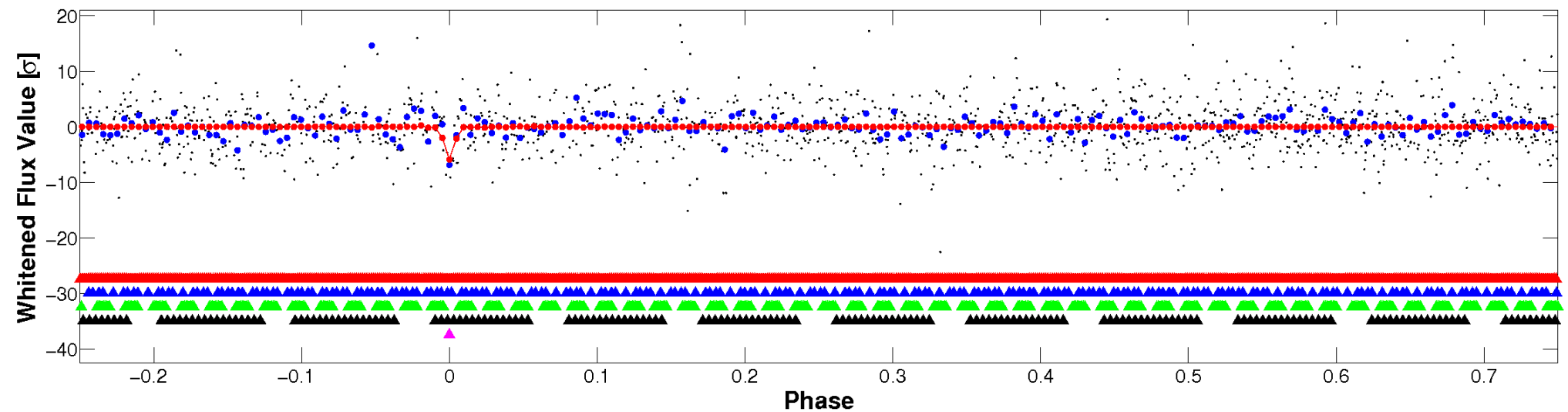
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

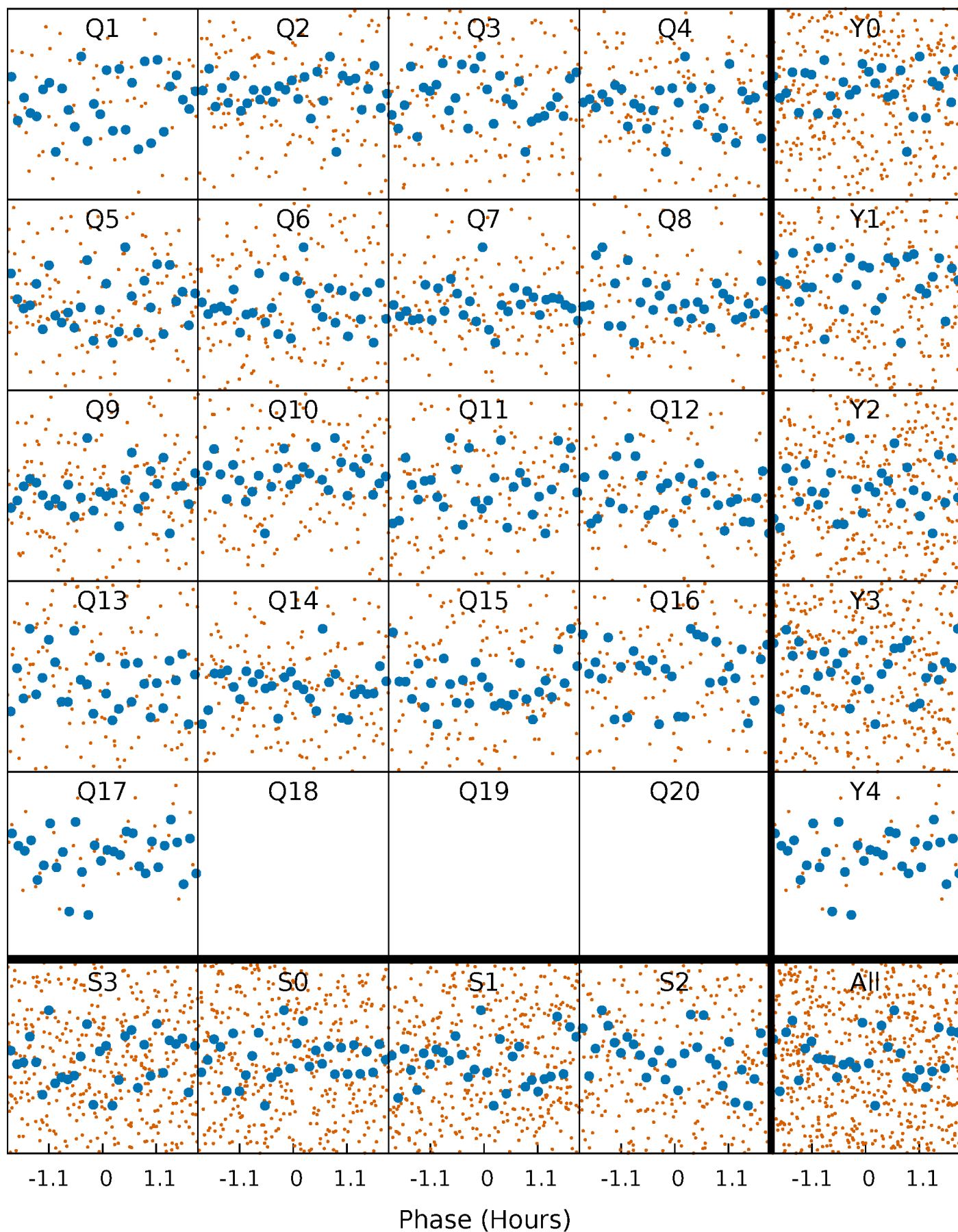


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



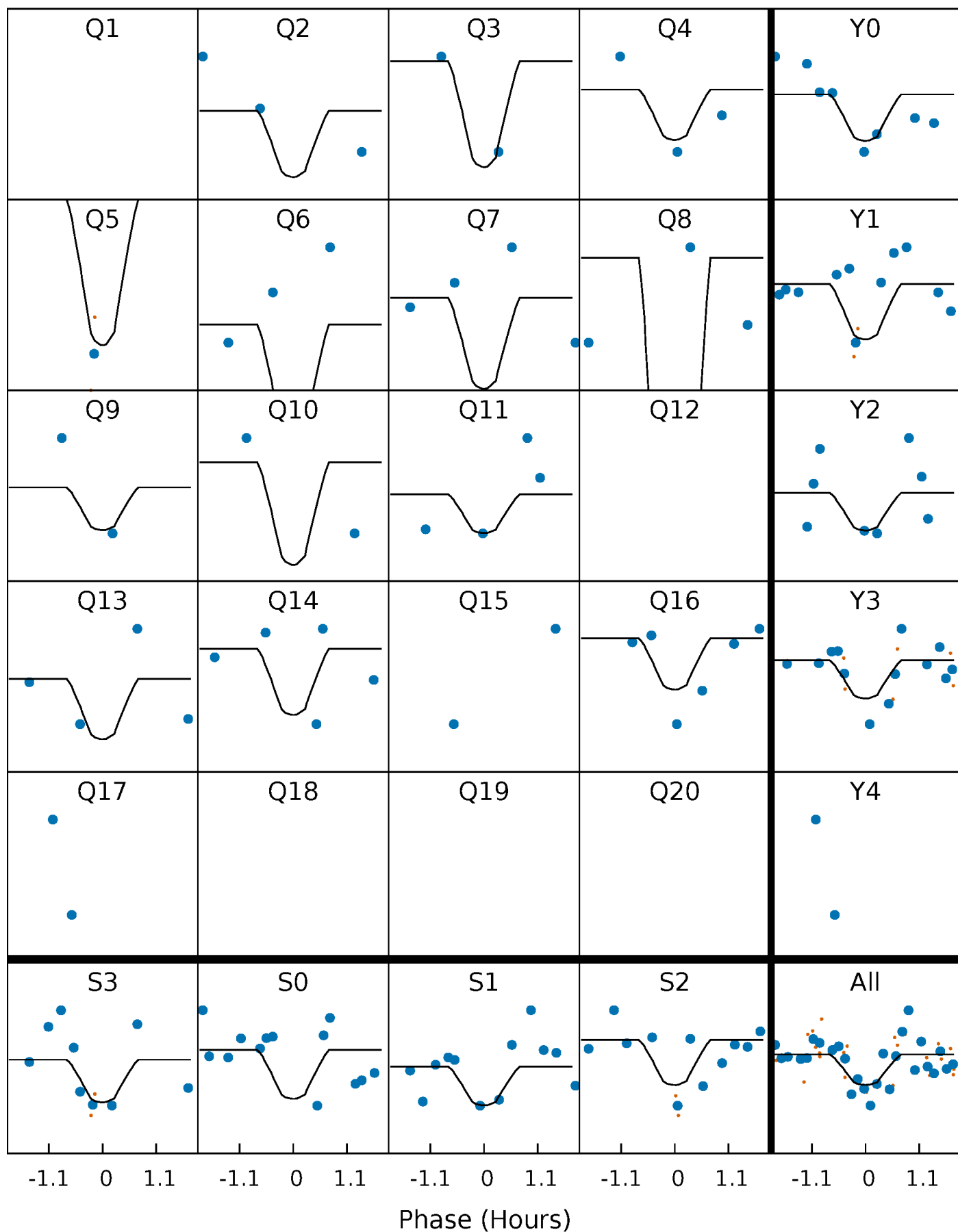
PDC Quarter-Phased Transit Curves

TCE 008521098-05 P= 4.276784 Days $T_0=133.722769$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 008521098-05 P= 4.276784 Days $T_0=133.722769$ (BKJD)

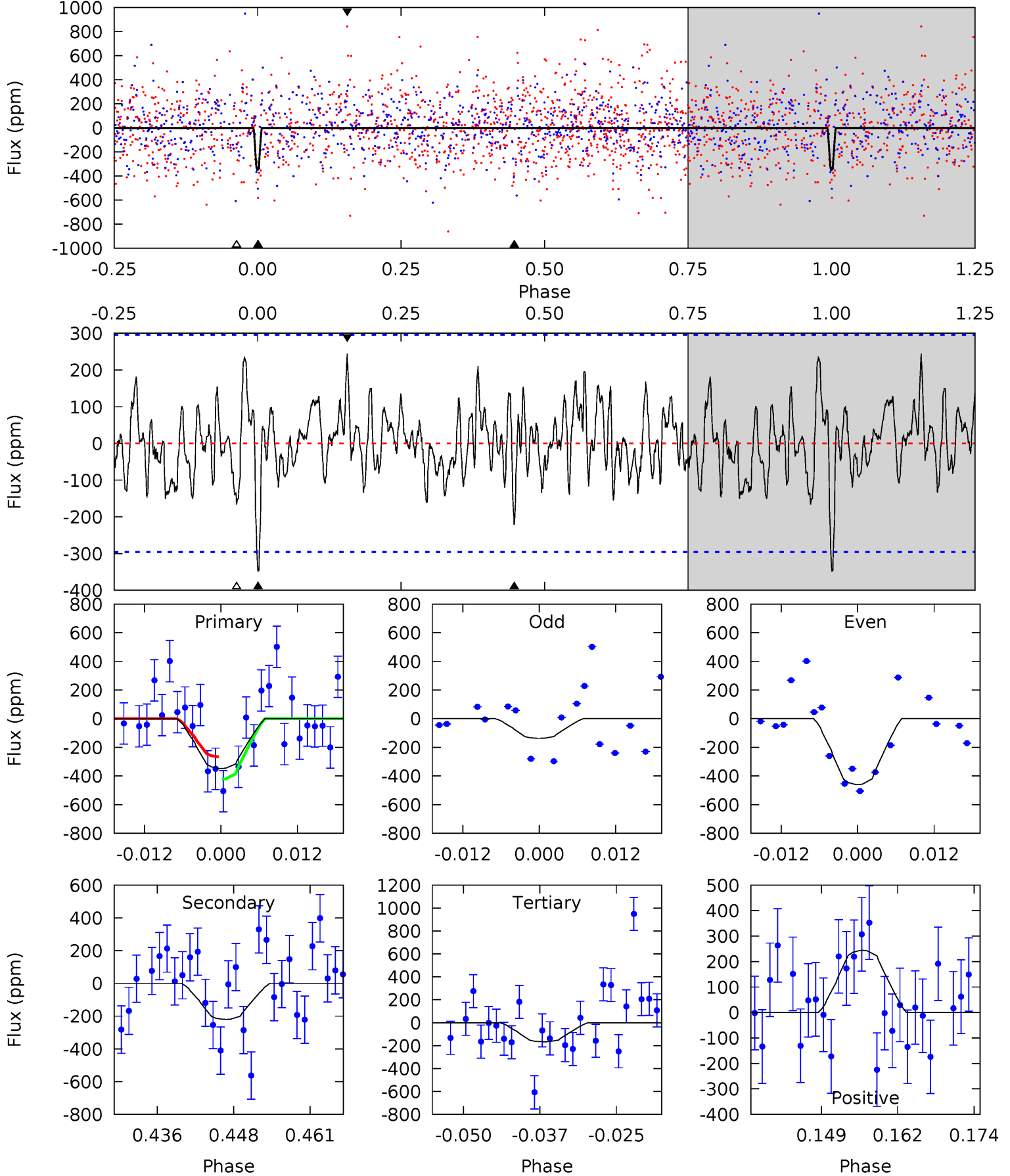


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

008521098-05, P = 4.276784 Days, E = 129.445985 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.85	3.70	2.80	4.11	4.98	2.50	1.31	3.05	1.75	0.90	-0.40	2.67	1.00	0.41	1.34



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 008521098

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6329^{+202}_{-224}	$3.918^{+0.397}_{-0.132}$	$-0.040^{+0.250}_{-0.300}$	$2.181^{+0.515}_{-0.957}$	$1.437^{+0.192}_{-0.356}$	$0.195^{+0.681}_{-0.076}$
	+3%/-4%	+10%/-3%	+625%/-750%	+24%/-44%	+13%/-25%	+349%/-39%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 008521098-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-220 ± 59	$8.70^{+9.23}_{-5.79}$	2344^{+178}_{-232}	4059^{+2608}_{-941}	$5.111^{+42.517}_{-3.944}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

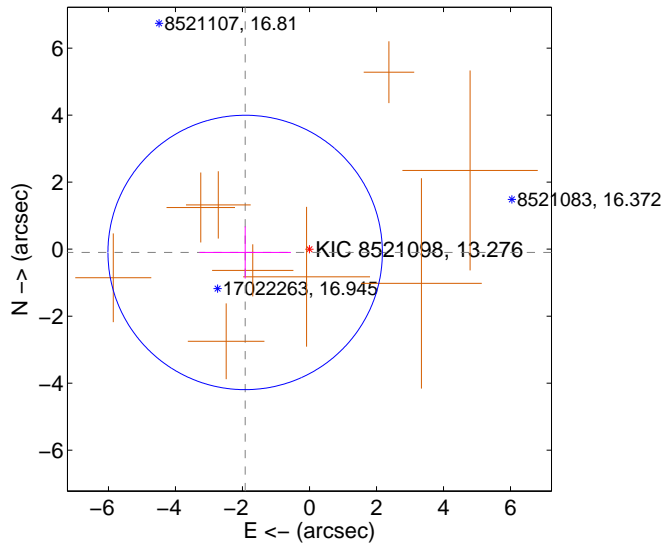
Supplemental centroid analysis for 008521098-05. Kepler magnitude: 13.28. Transit SNR 17.12

There are 0 quarters with good PRF difference image offsets

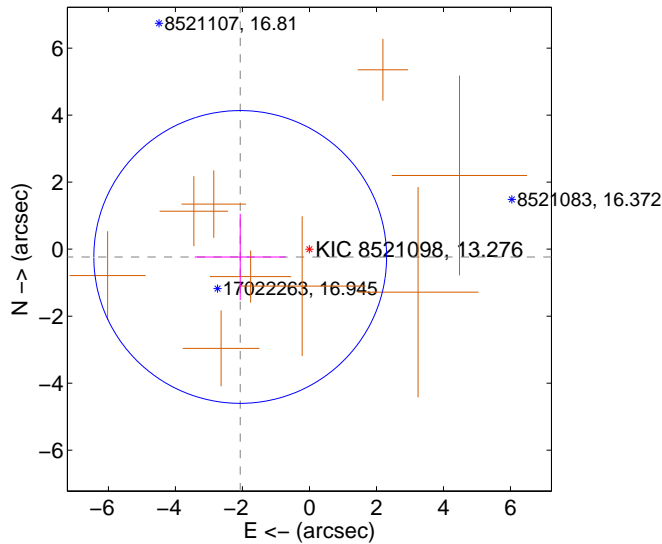
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.922 ± 1.365	1.41	1.920 ± 1.366	-0.098 ± 0.778
PRF-fit source offset from KIC position	2.079 ± 1.456	1.43	2.066 ± 1.356	-0.233 ± 1.286
photometric centroid source offset	1.17 ± 0.41	2.87	0.60 ± 0.38	-1.00 ± 0.42

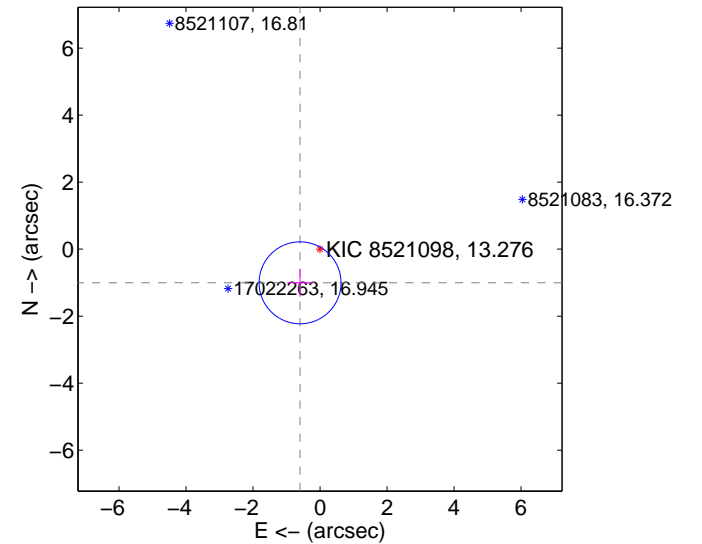
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

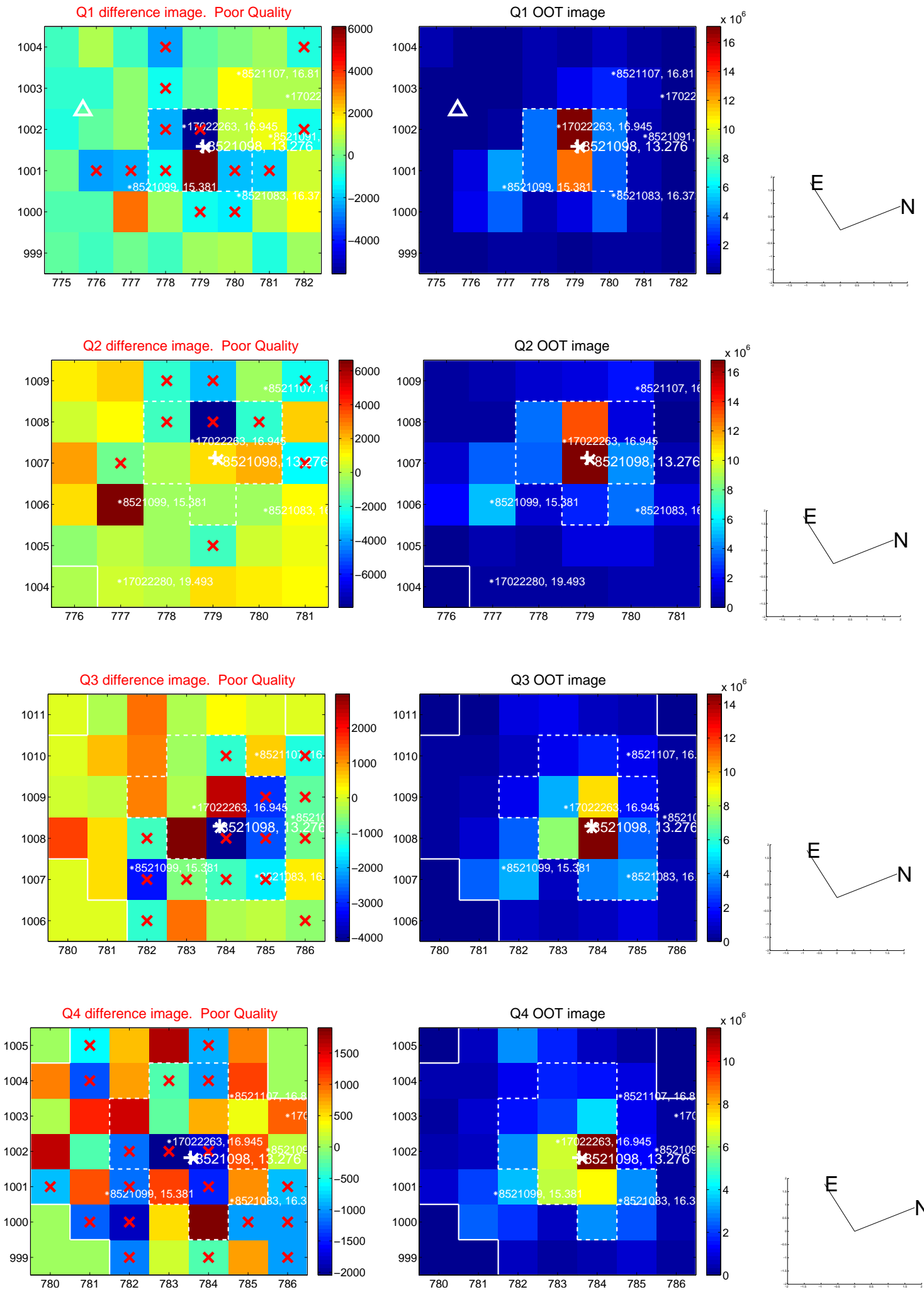


offset from photometric centroids

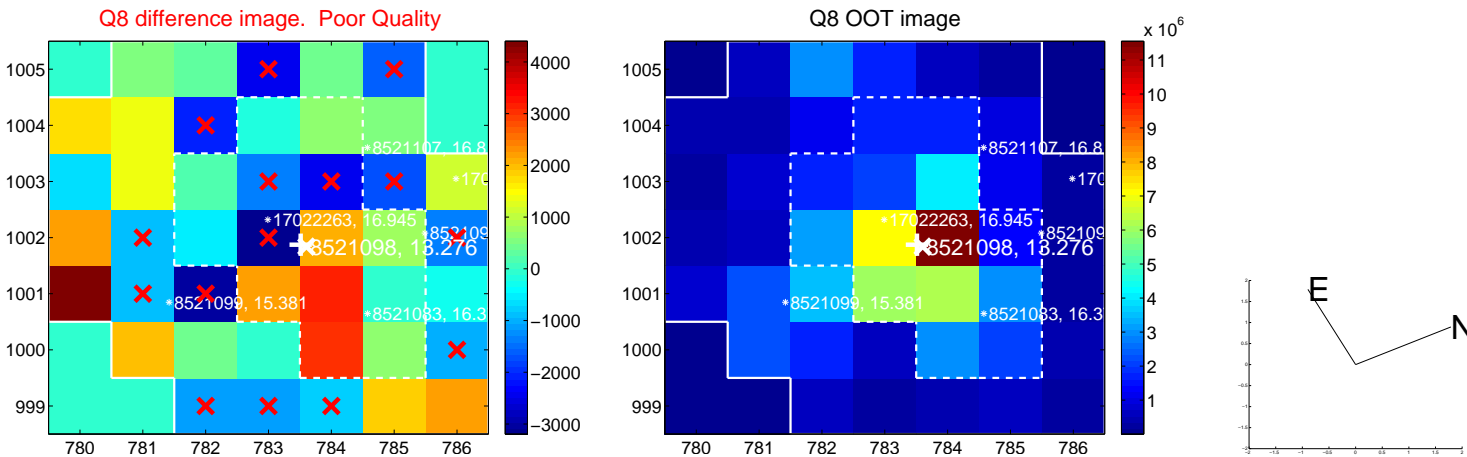
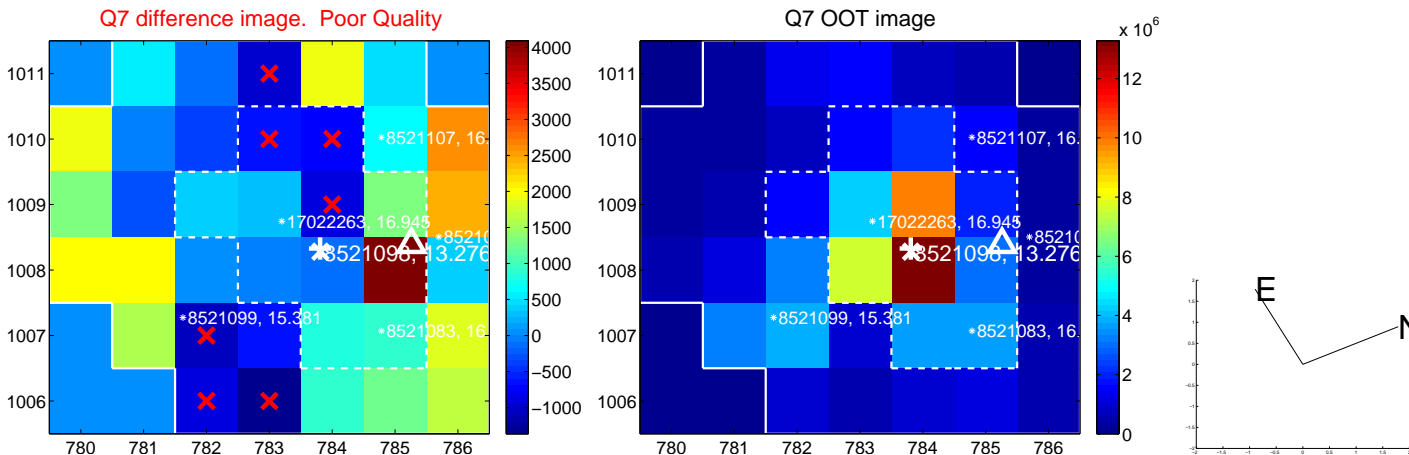
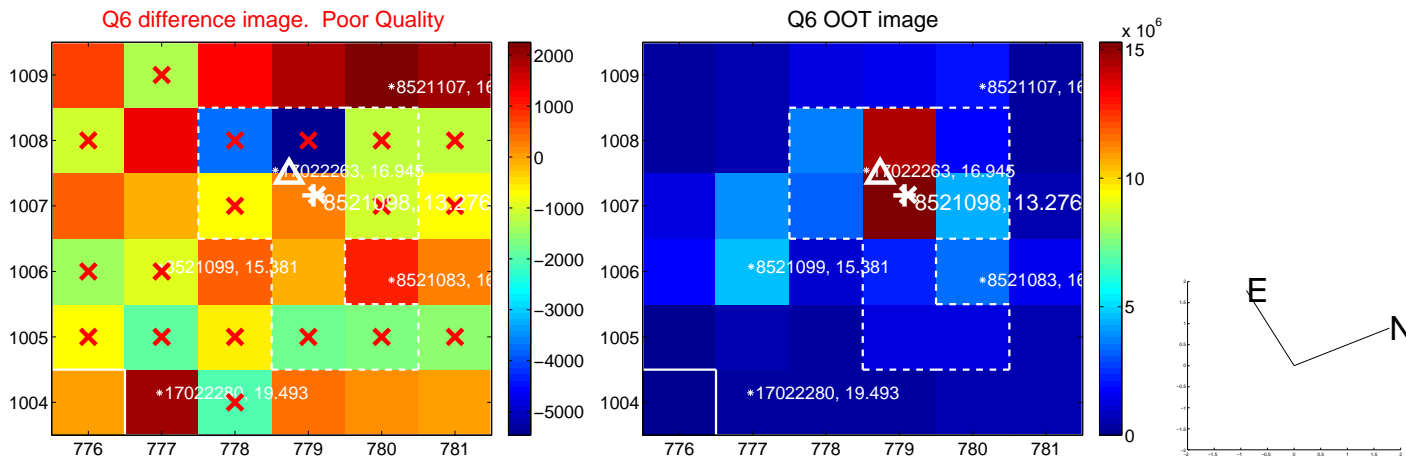
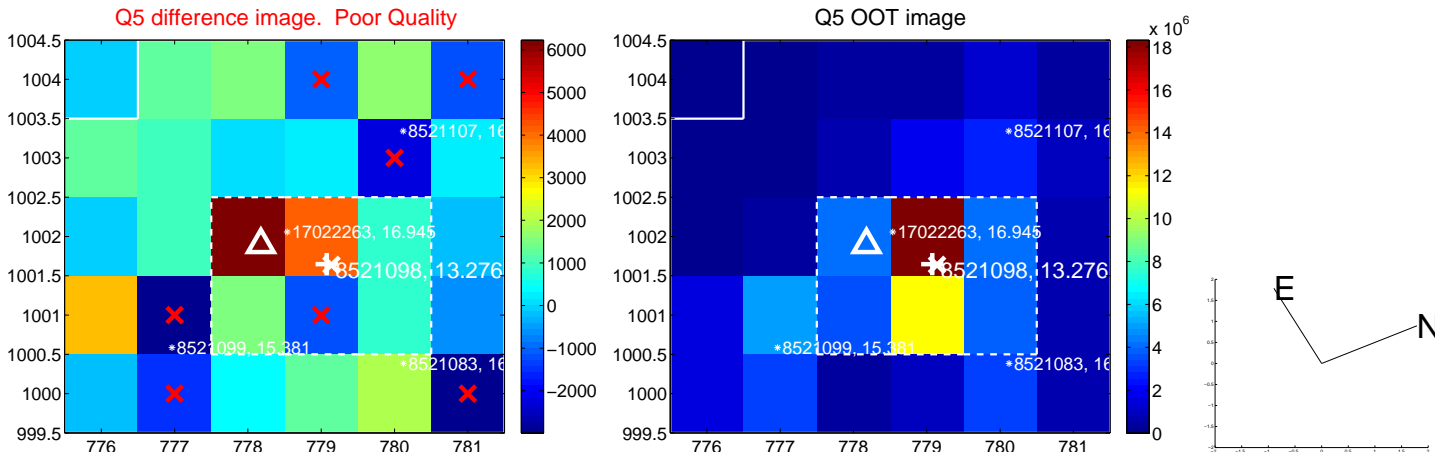


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

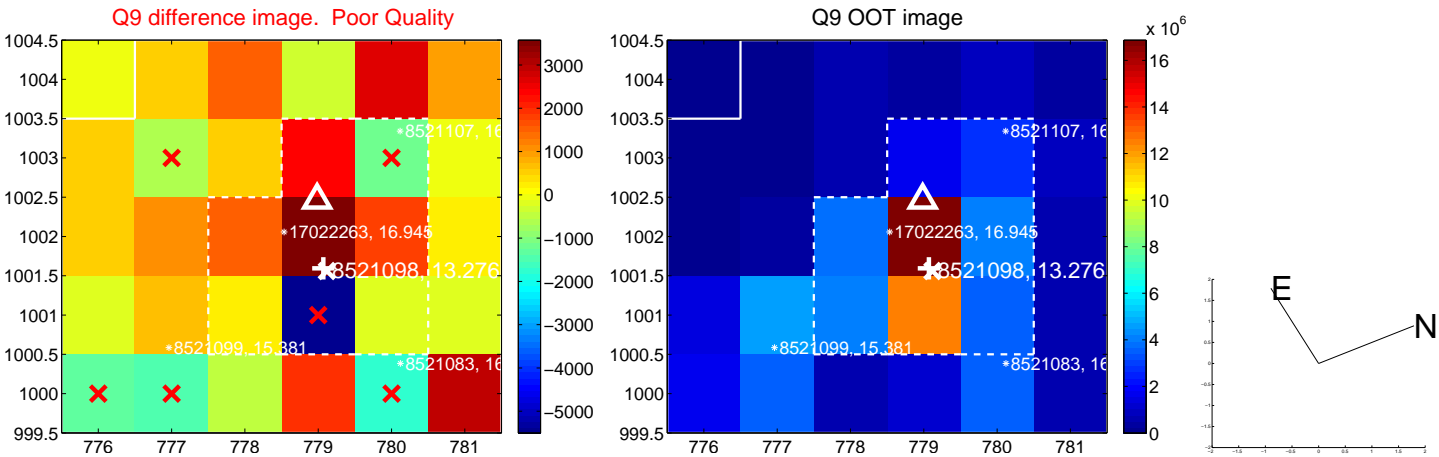
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



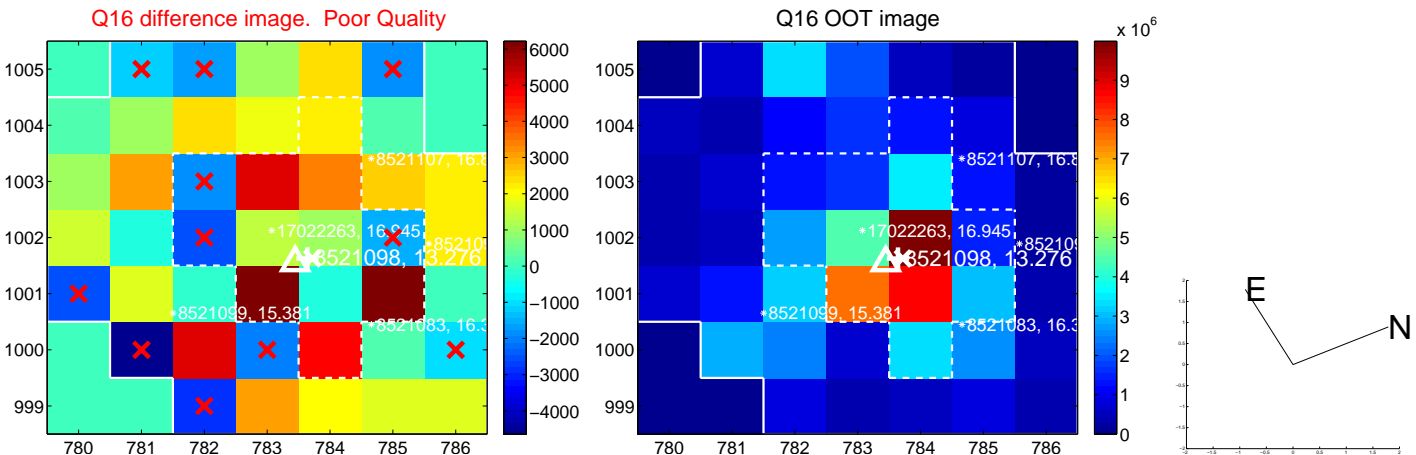
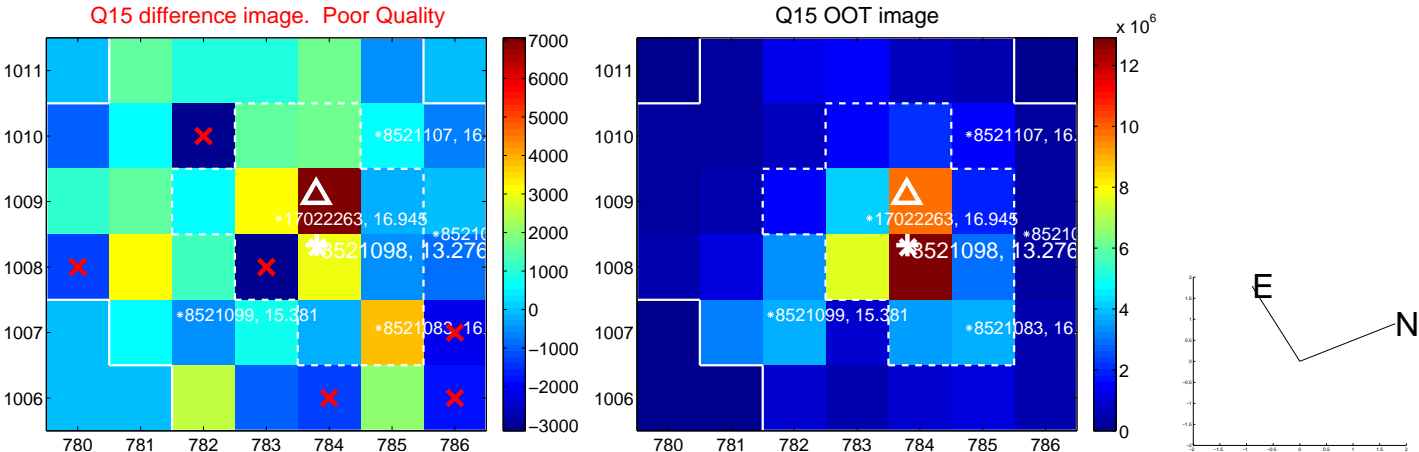
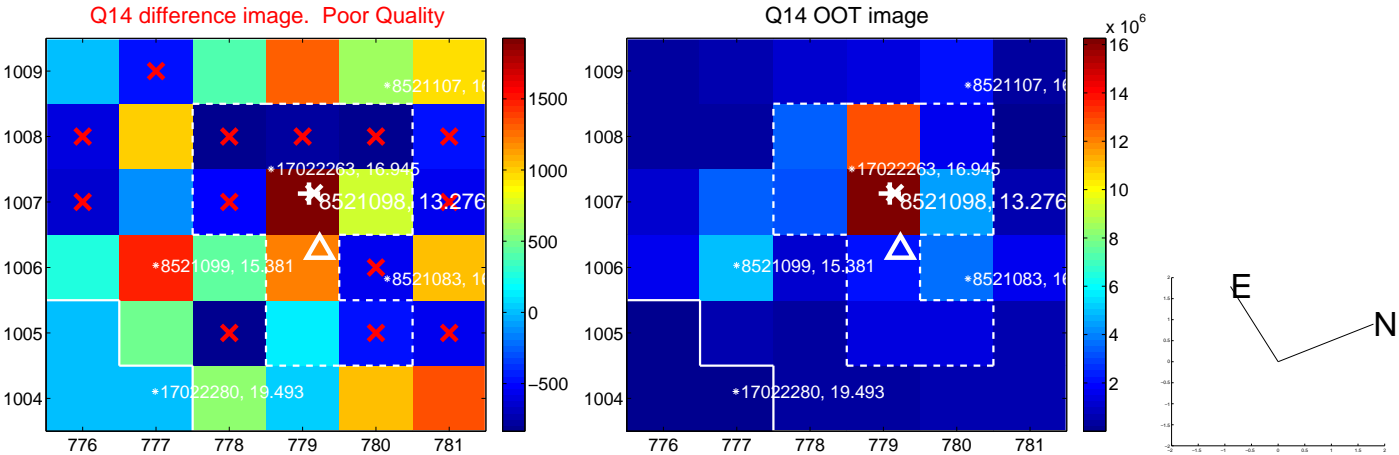
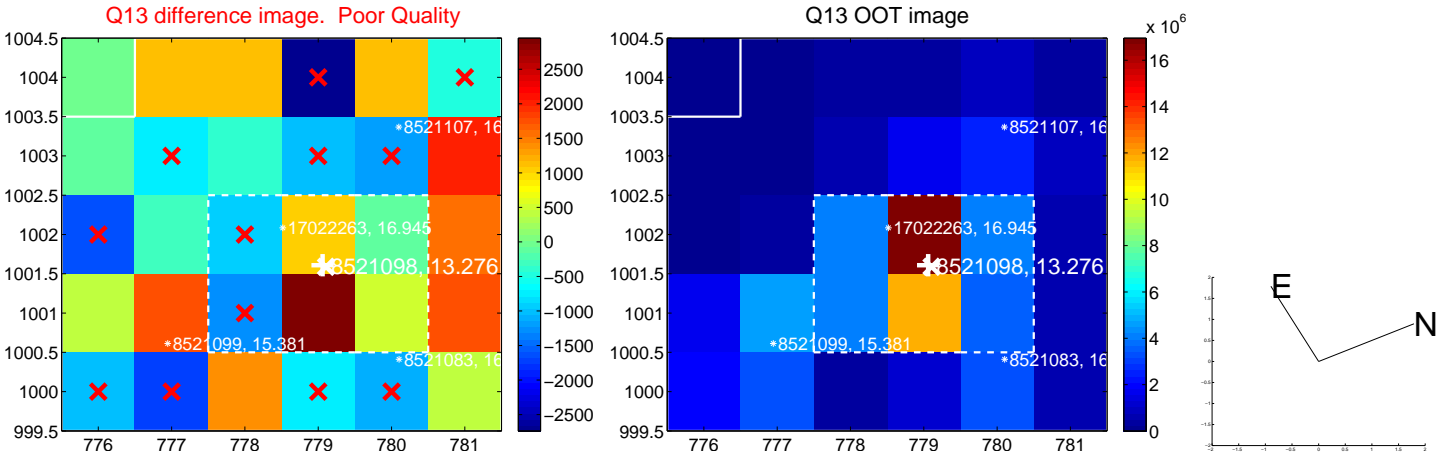
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



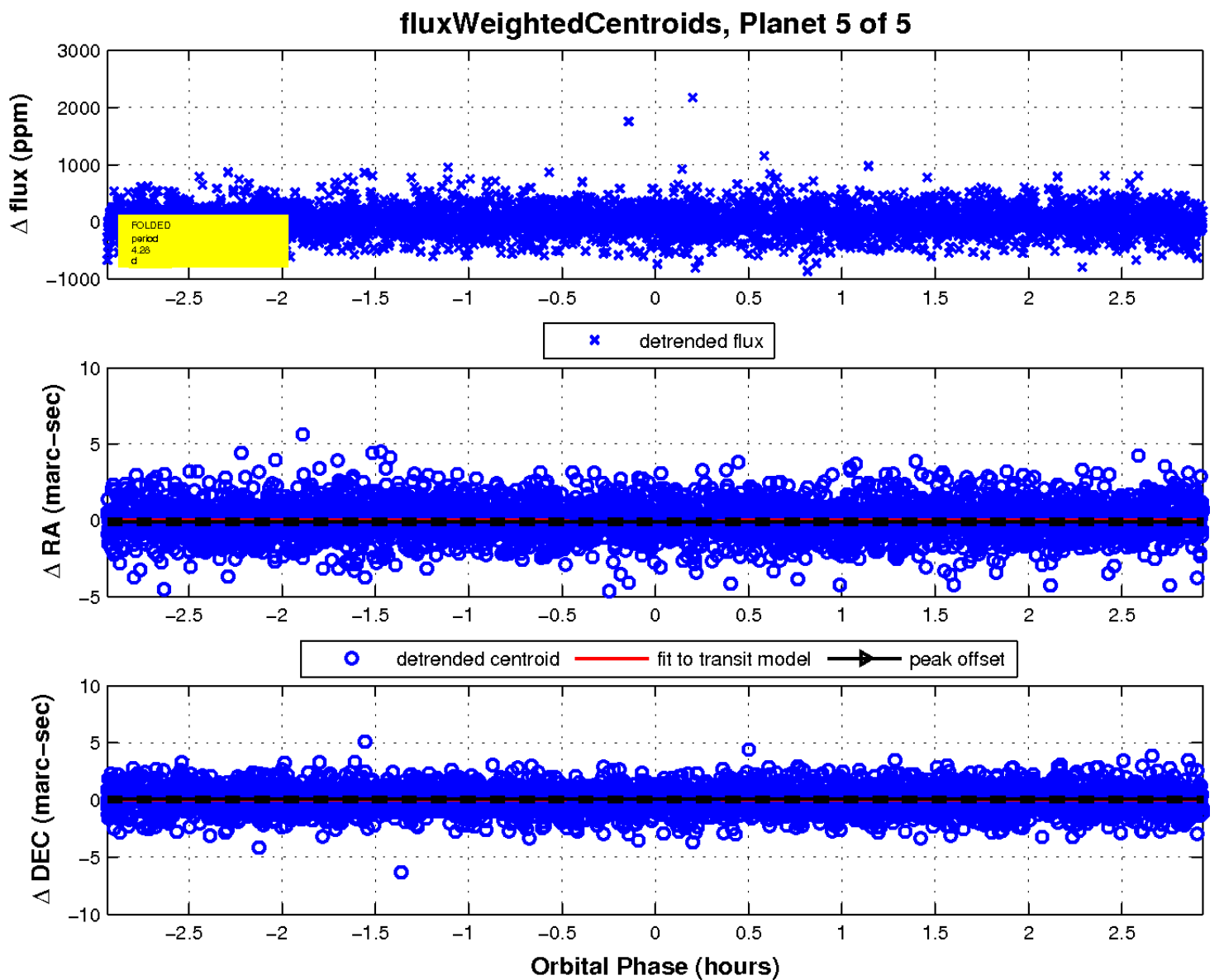
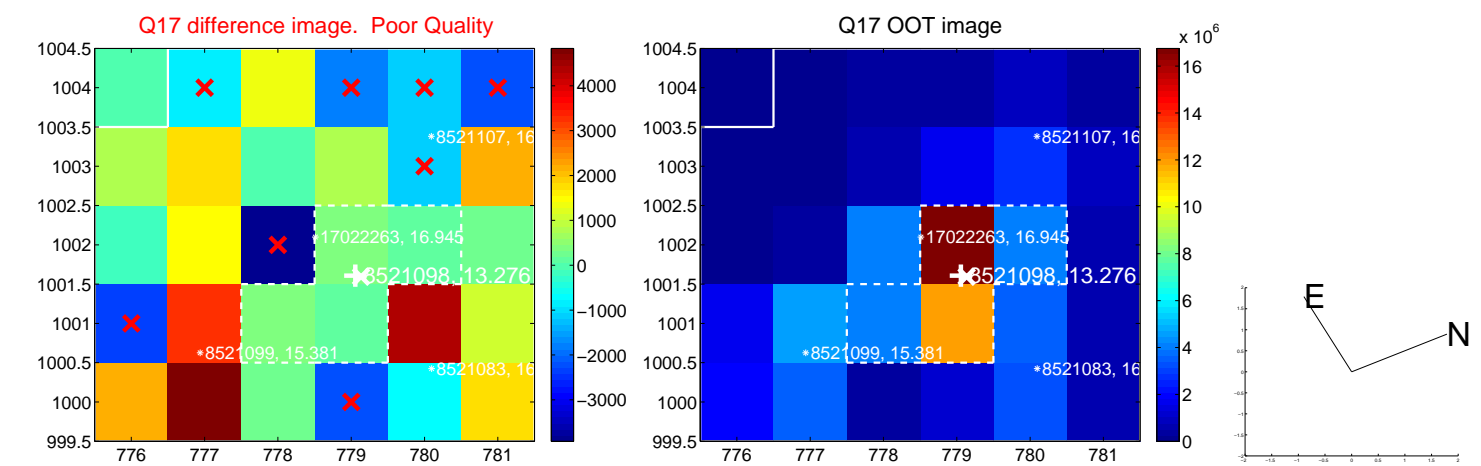
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

