

KIC 004940226

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})
004940226-01	OBS	No	270.057391	305.897806	3489.7	3.500	26.4	-1.0	1.08	6220	6.36	2.18
004940226-02	OBS	No	0.756963	132.375346	36.2	4.003	14.0	0.7	1.08	6220	0.72	5518.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004940226-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
004940226-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

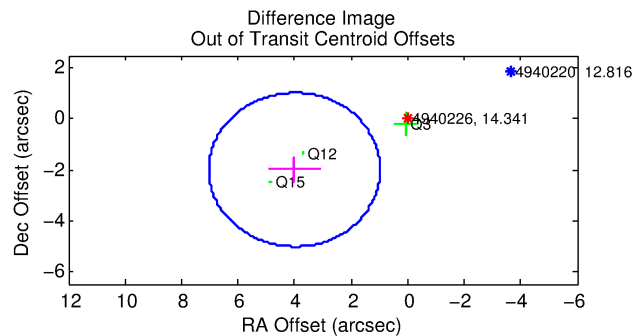
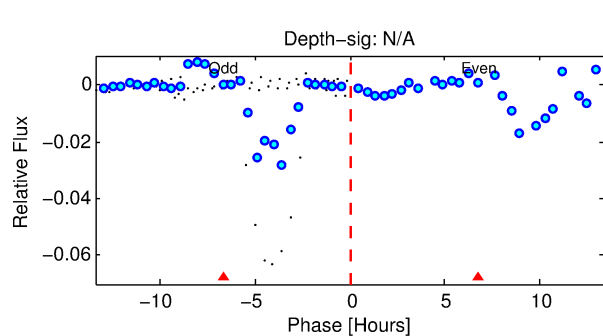
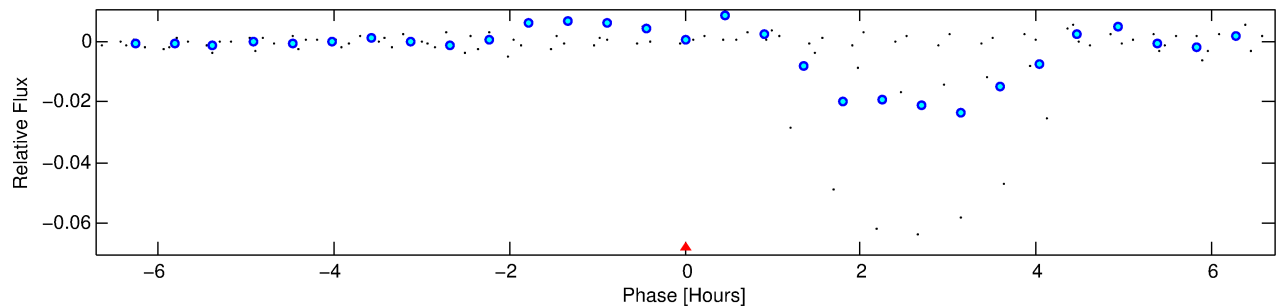
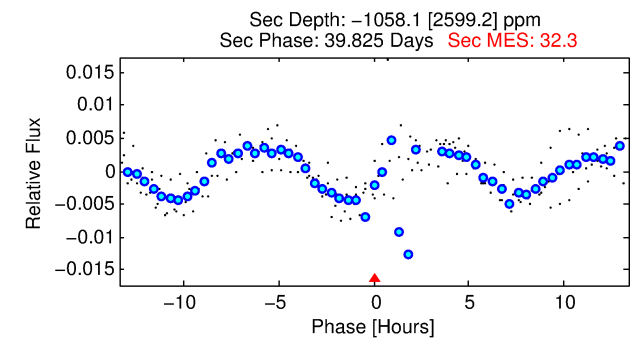
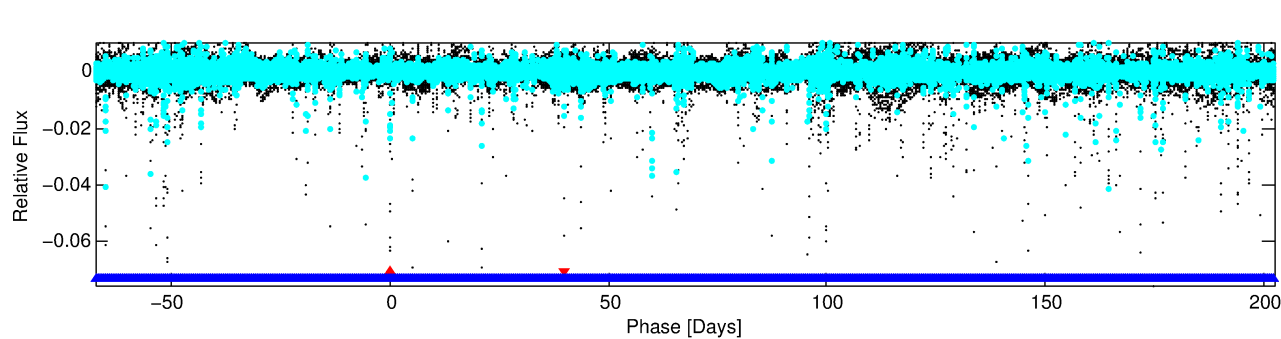
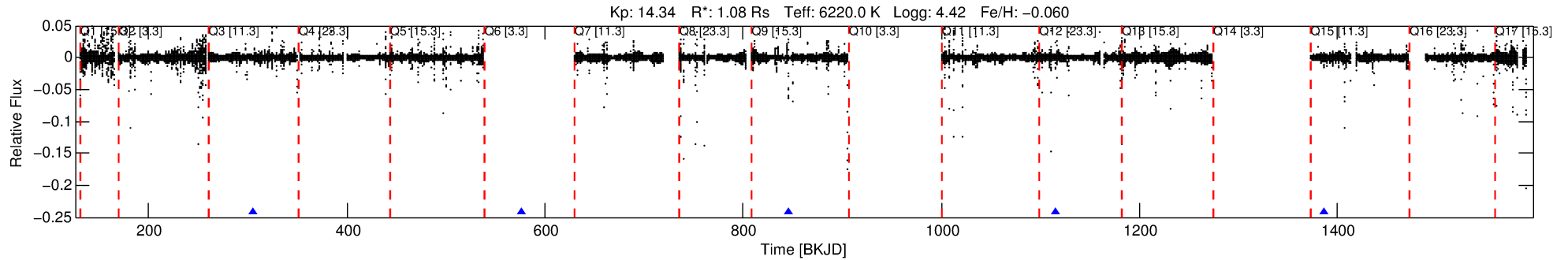
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004940226-01

No Significant Match Found

DV One-Page Summary

KIC: 4940226 Candidate: 1 of 2 Period: 270.057 d



TPS TCE Results:

Period = 270.05739 d
Epoch = 305.8978 BKJD

DV fit results are unavailable

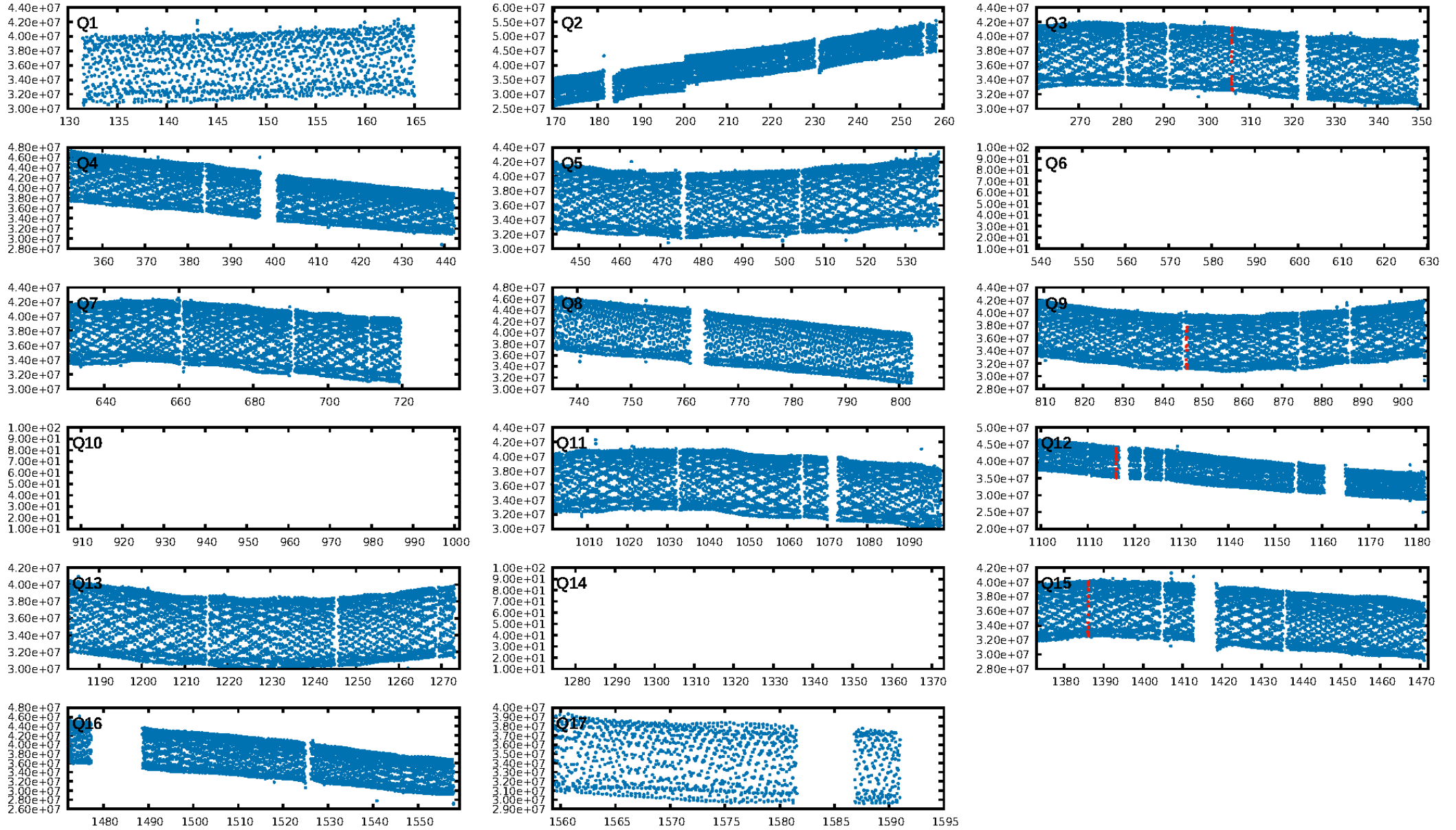
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1215.47 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.9779
Centroid-sig: 24.3%
Centroid-so: 3.194 arcsec [36.59 σ]
OotOffset-rm: 4.475 arcsec [4.43 σ]
KicOffset-rm: 0.466 arcsec [0.31 σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/3]

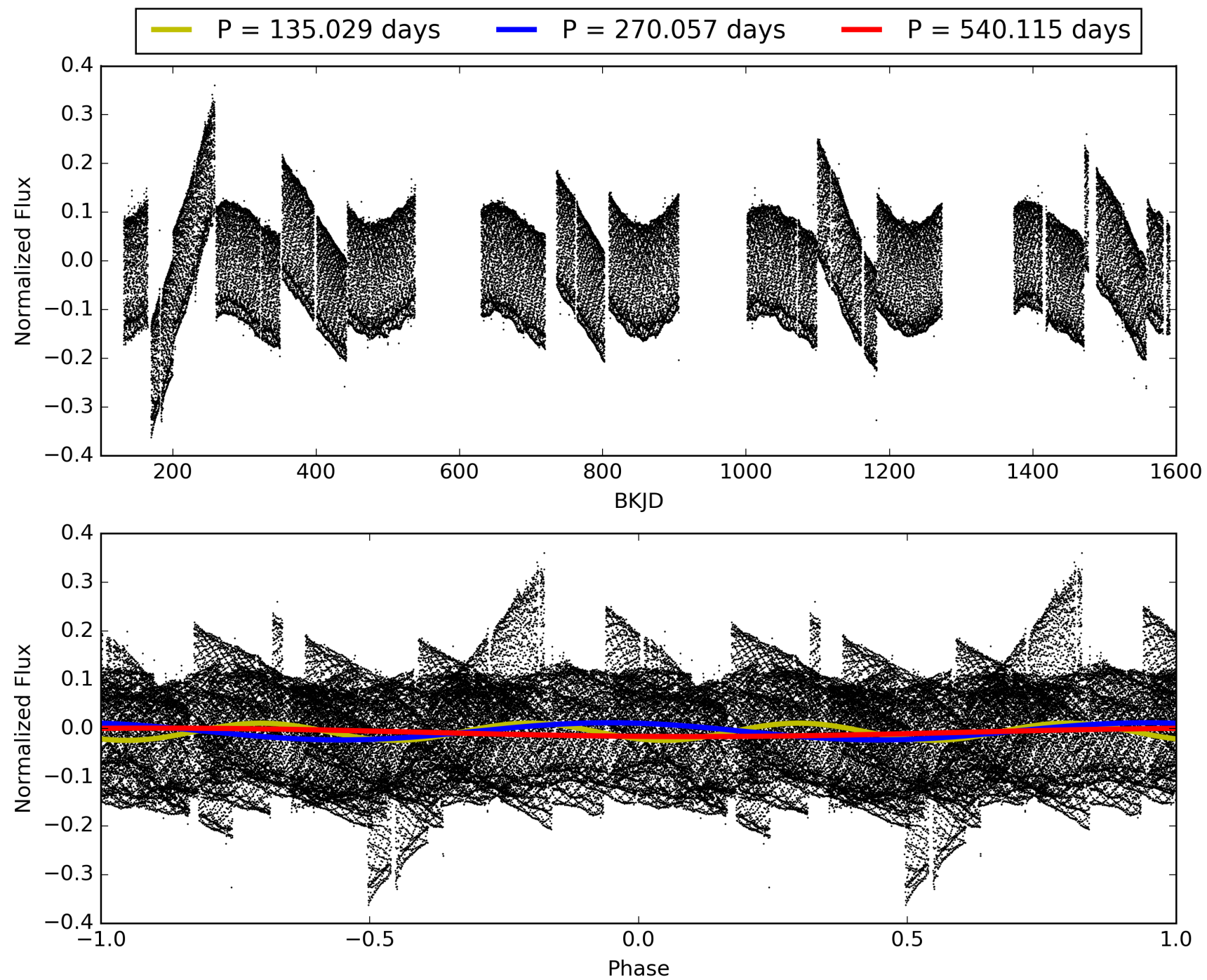
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:34:34 Z

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

TCE 004940226-01, PDC Light Curves

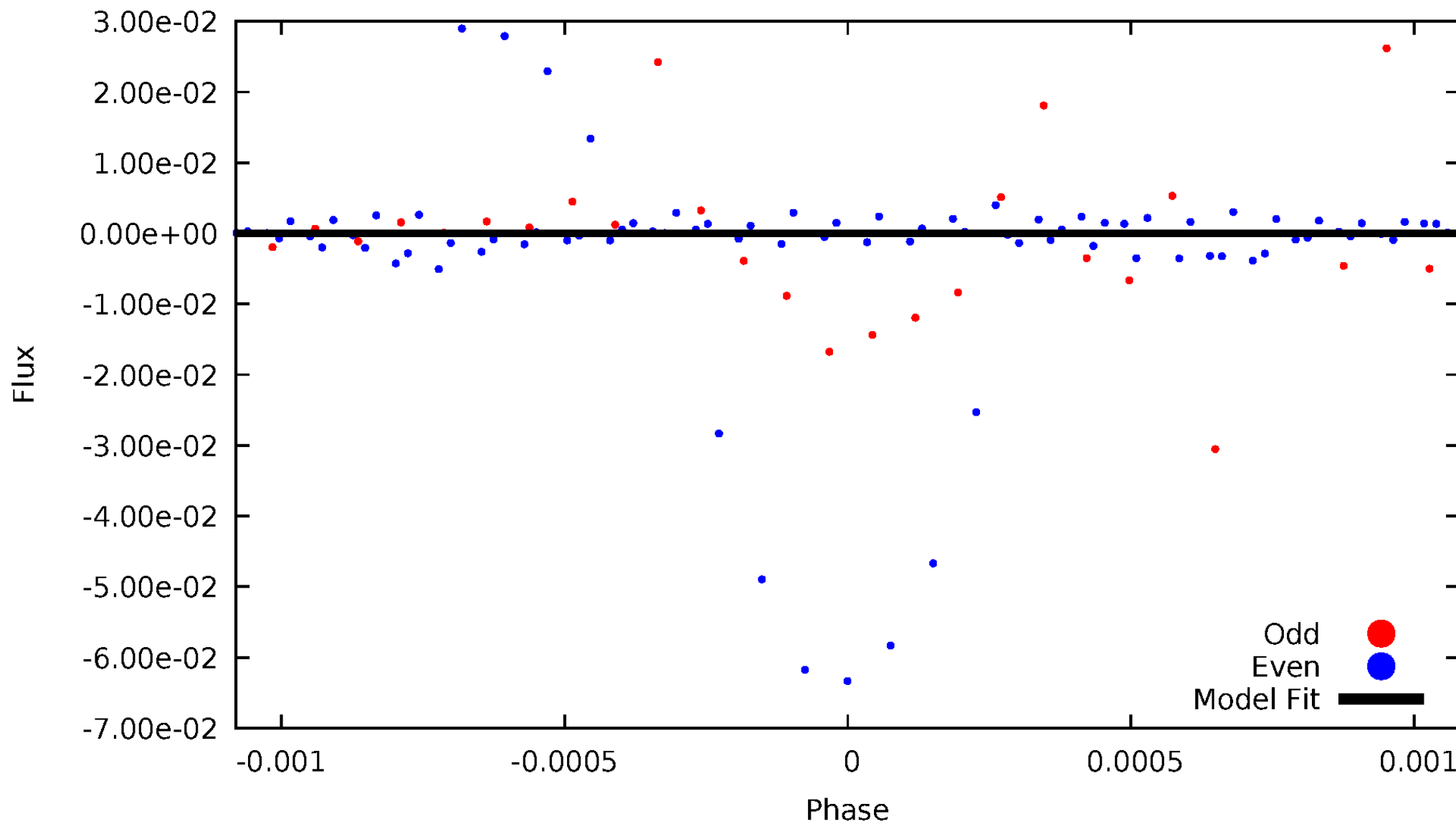


TCE 004940226-01



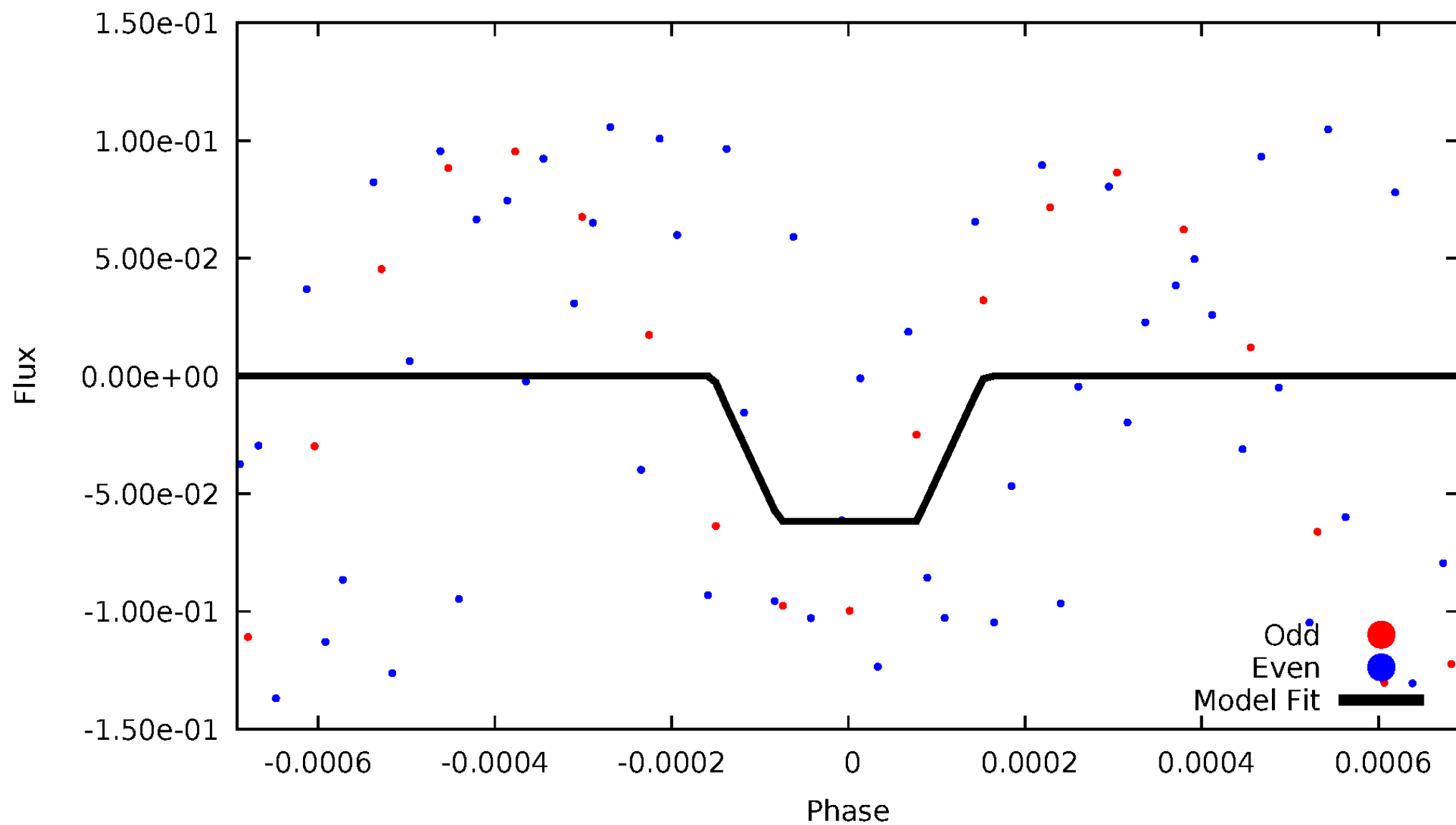
DV Odd/Even

TCE 004940226-01



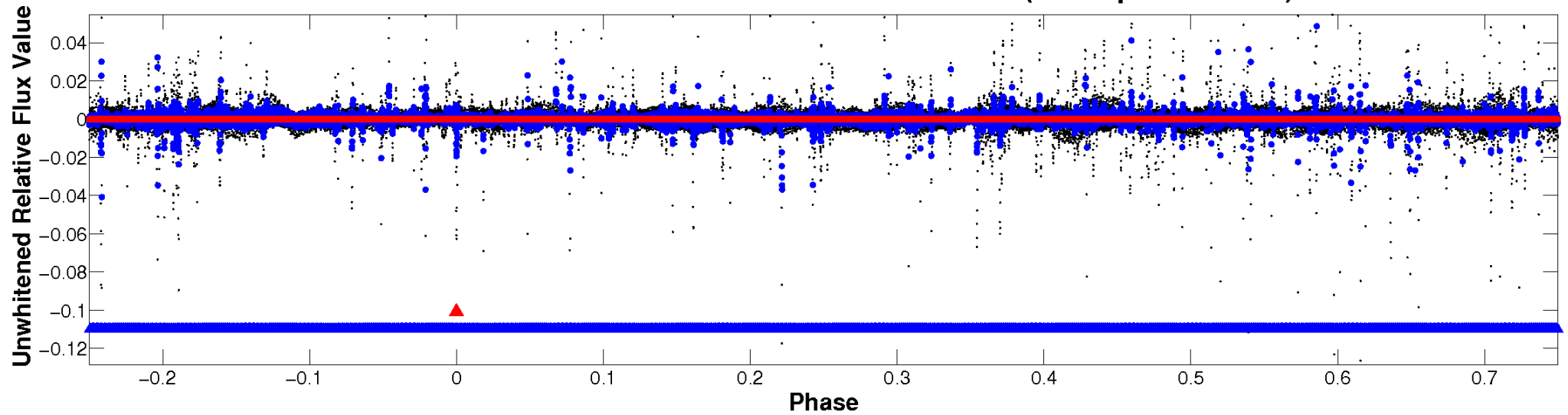
ALT Odd/Even

TCE 004940226-01



Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

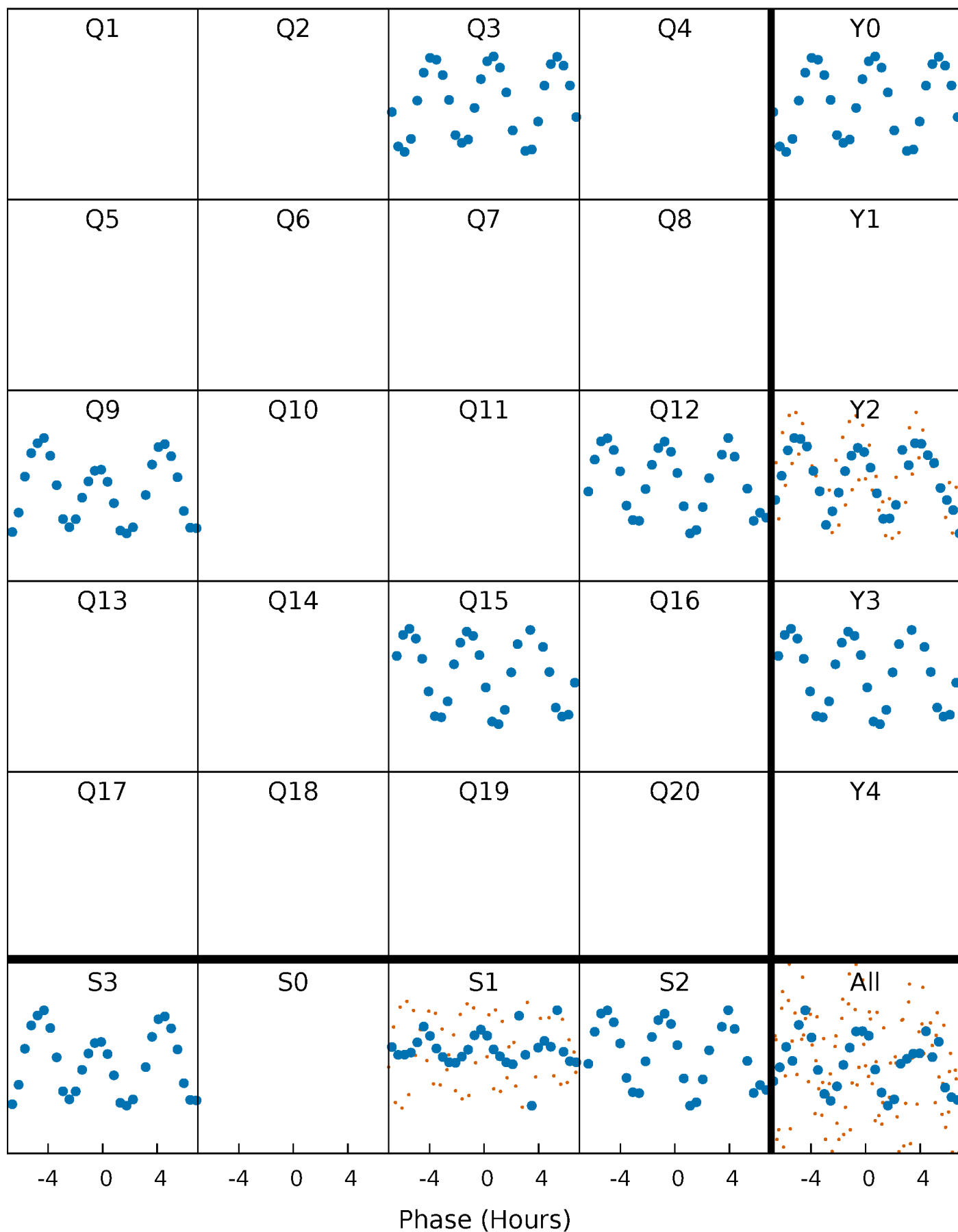


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



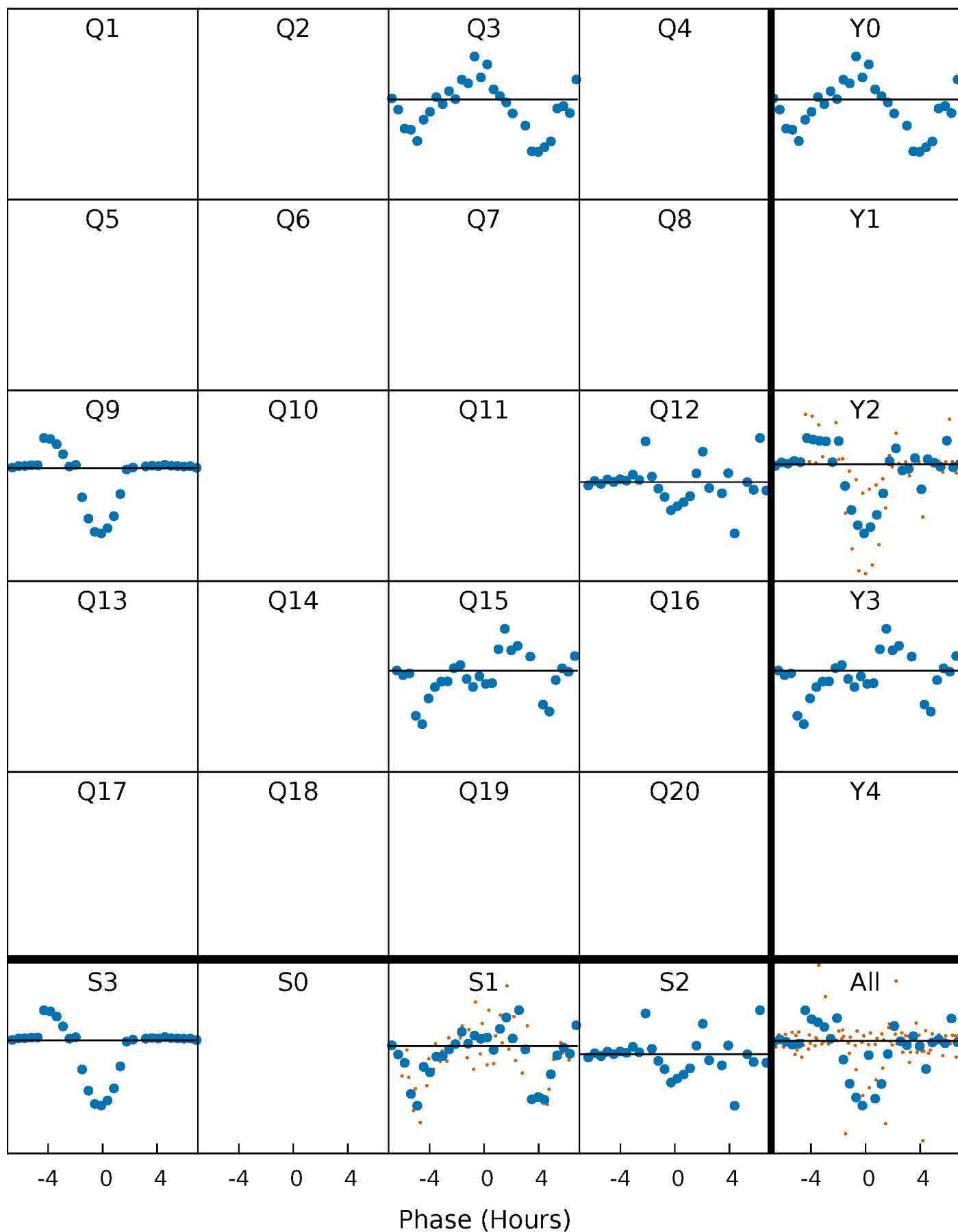
PDC Quarter-Phased Transit Curves

TCE 004940226-01 P=270.057391 Days $T_0=305.897806$ (BKJD)



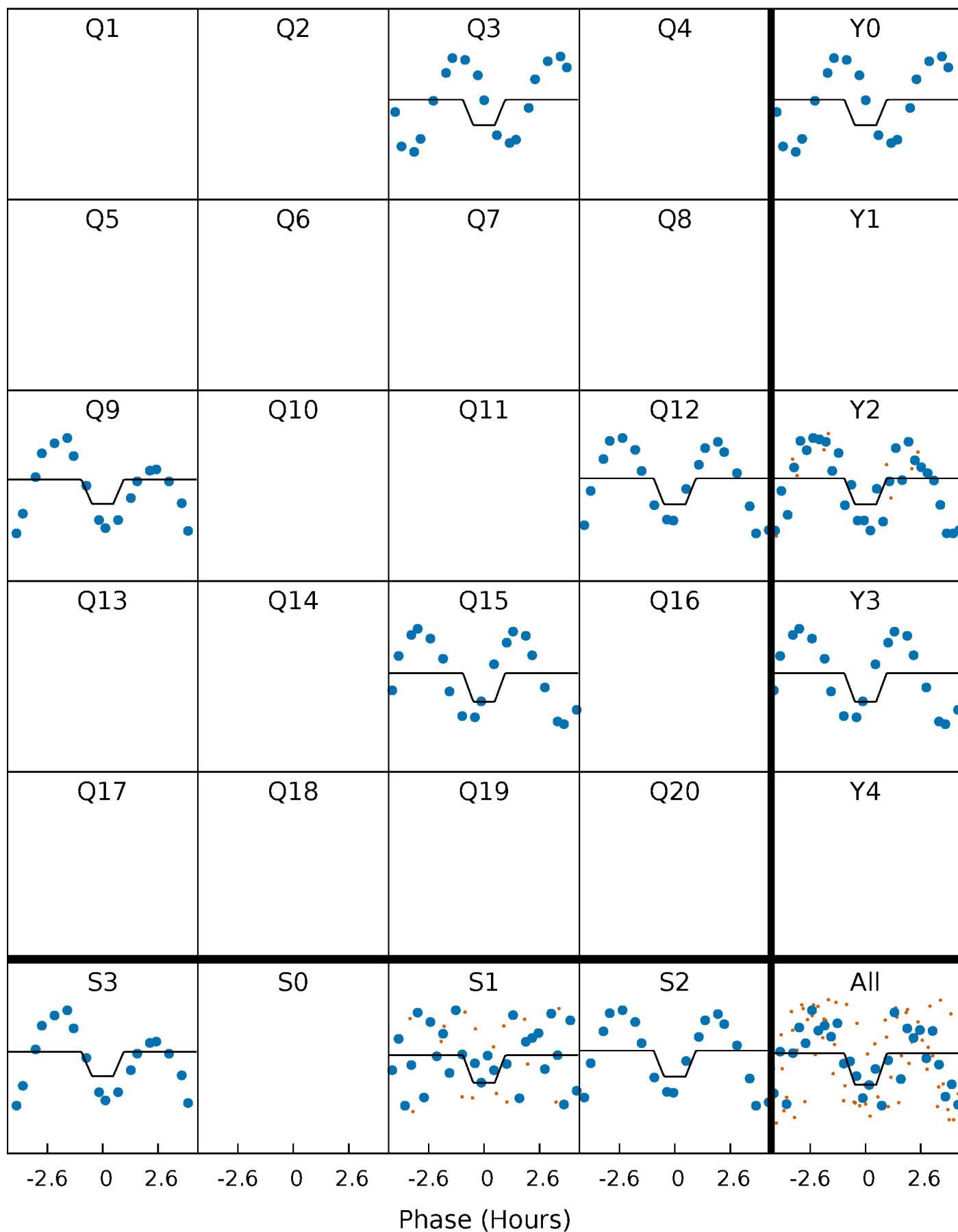
DV Quarter-Phased Transit Curves

TCE 004940226-01 P=270.057391 Days $T_0=305.897806$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

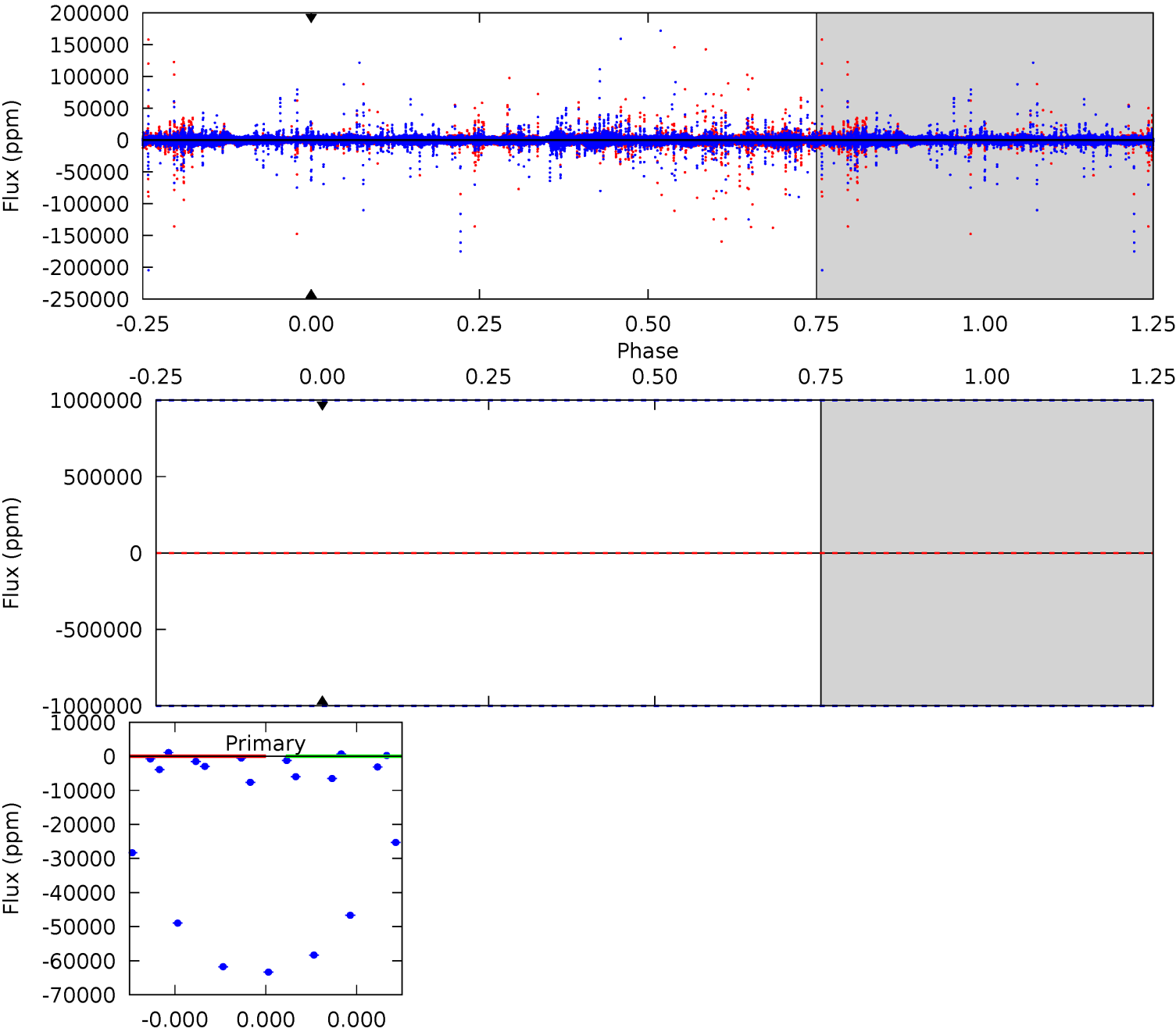
TCE 004940226-01 P=270.057391 Days $T_0=305.786569$ (BKJD)



DV Model-Shift Uniqueness Test

004940226-01, P = 270.057391 Days, E = 35.840415 Days

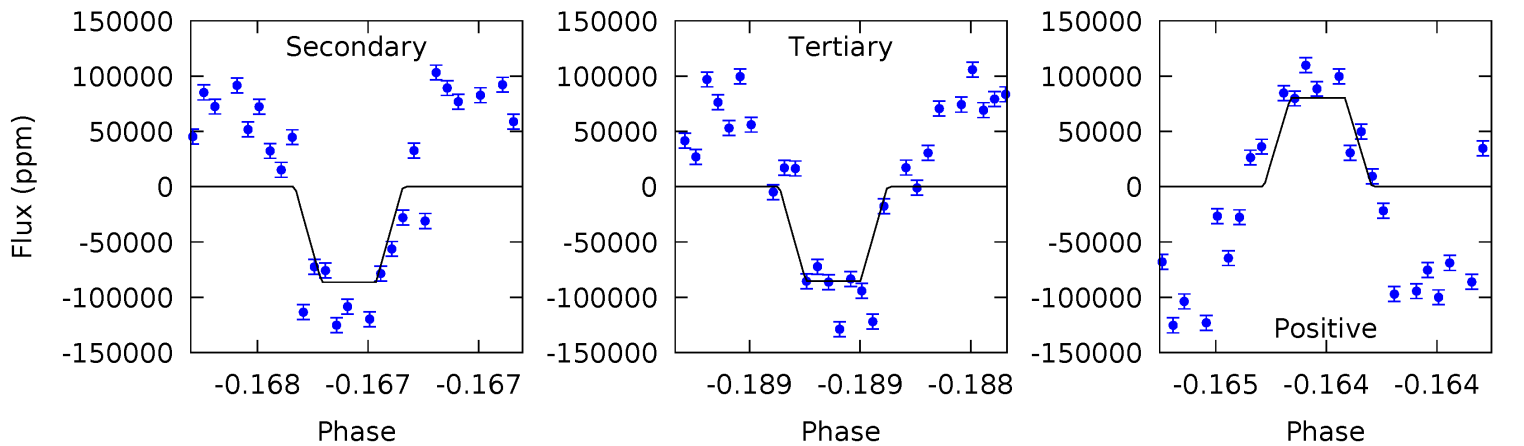
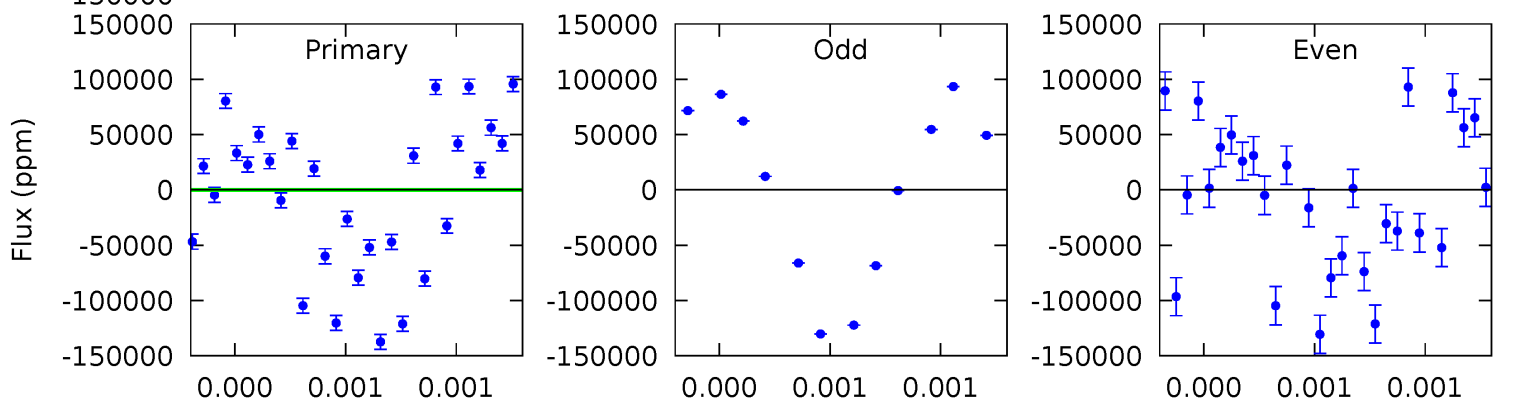
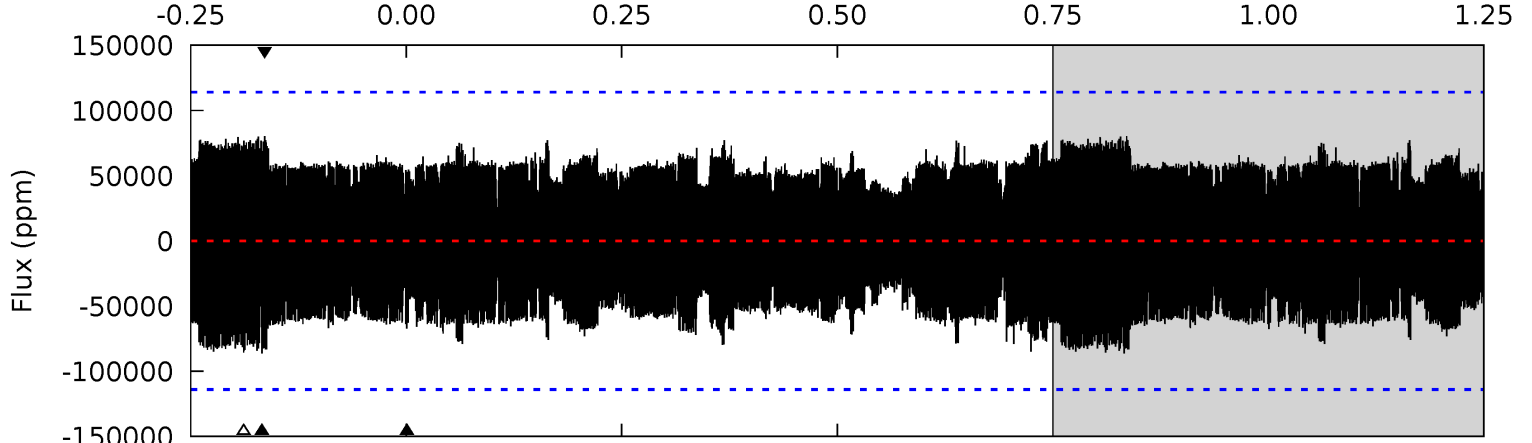
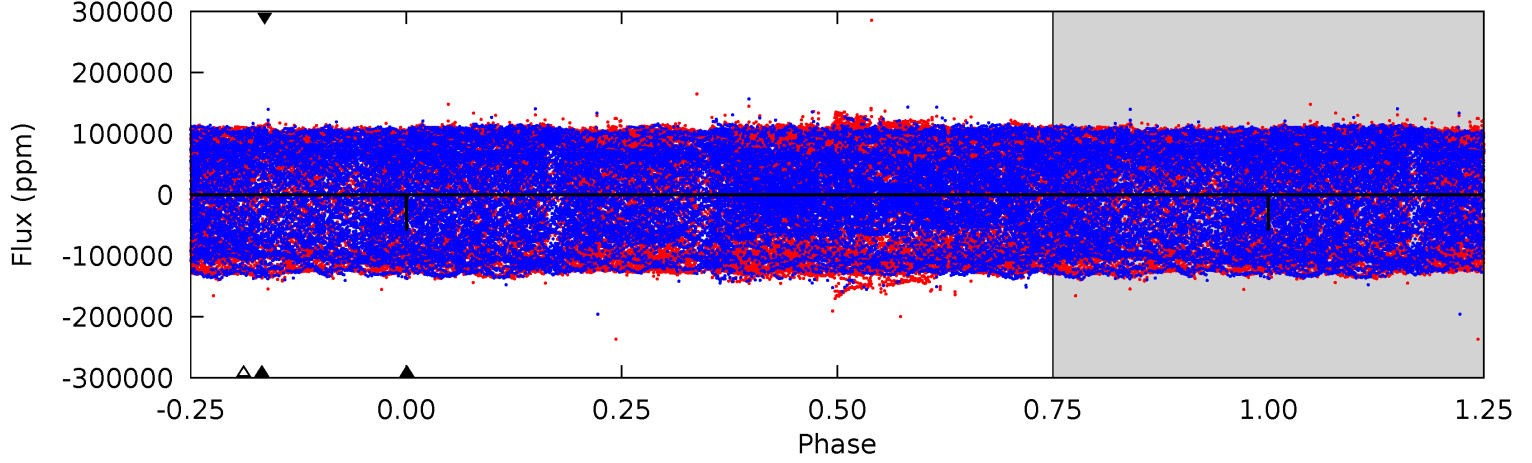
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004940226-01, P = 270.057391 Days, E = 35.729178 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.81	4.28	4.24	3.98	5.65	3.60	1.89	-1.43	-1.17	0.04	0.30	0.53	0.98	0.48	0.09



Stellar Parameters For KIC 004940226

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6220^{+185}_{-222}	$4.415^{+0.072}_{-0.217}$	$-0.060^{+0.250}_{-0.300}$	$1.076^{+0.358}_{-0.128}$	$1.095^{+0.168}_{-0.137}$	$1.237^{+0.379}_{-0.686}$
	+3%/-4%	+2%/-5%	+417%/-500%	+33%/-12%	+15%/-13%	+31%/-55%
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 004940226-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$11.23^{+11.10}_{-7.81}$	440^{+35}_{-24}	-4505^{+24254}_{-14533}	$-6178.409^{+569658.913}_{-513114.285}$
Alt.	-86245 ± 20174	$31.22^{+13.39}_{-13.46}$	442^{+32}_{-23}	6906^{+2949}_{-1242}	38030^{+78429}_{-21013}

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

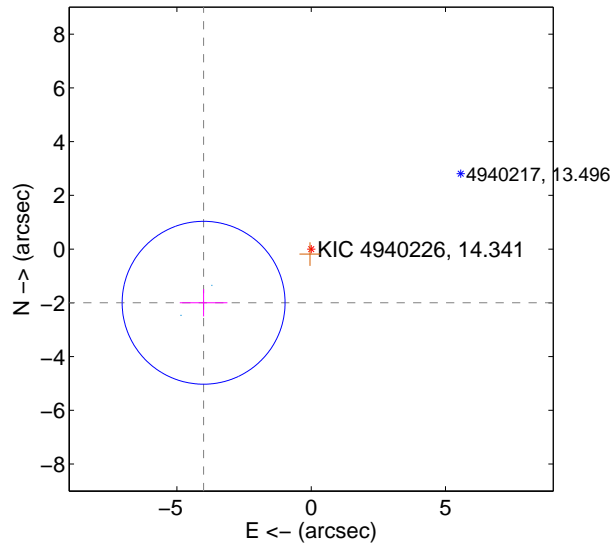
Supplemental centroid analysis for 004940226-01. Kepler magnitude: 14.34. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

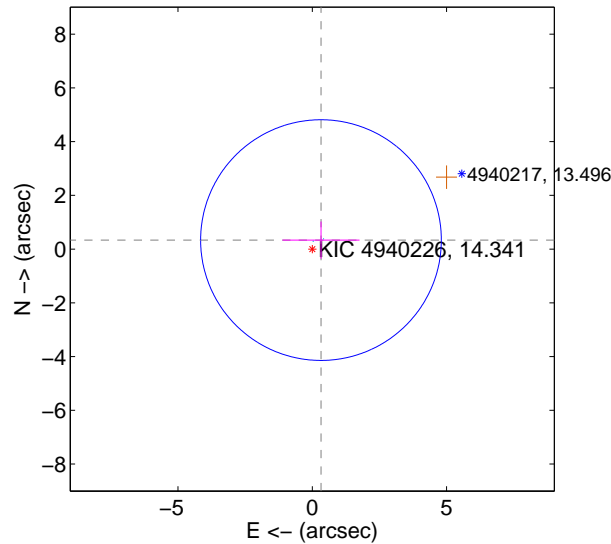
The OOT PRF centroid is offset from the target star catalog position by about 5.61 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.475 ± 1.011	4.43	4.005 ± 0.886	-1.998 ± 0.507
PRF-fit source offset from KIC position	0.466 ± 1.493	0.31	-0.324 ± 1.435	0.335 ± 0.692
photometric centroid source offset	3.19 ± 0.09	36.59	-2.91 ± 0.09	1.32 ± 0.04

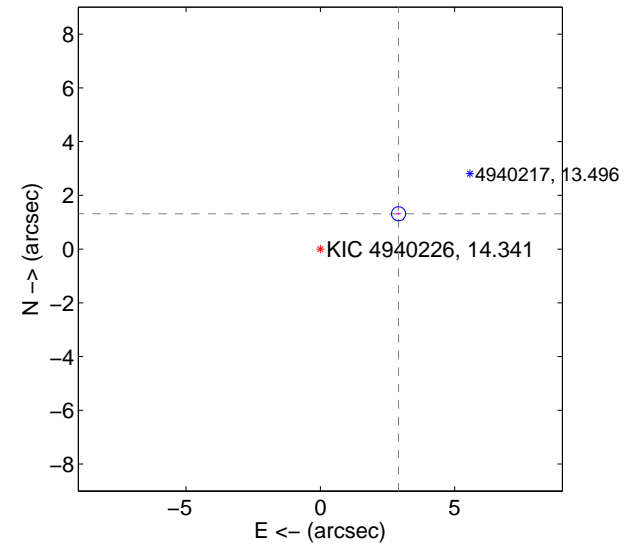
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



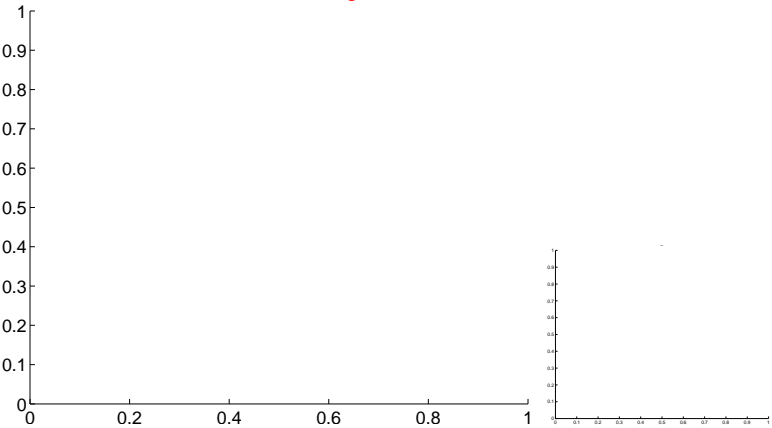
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

Q1 no difference image



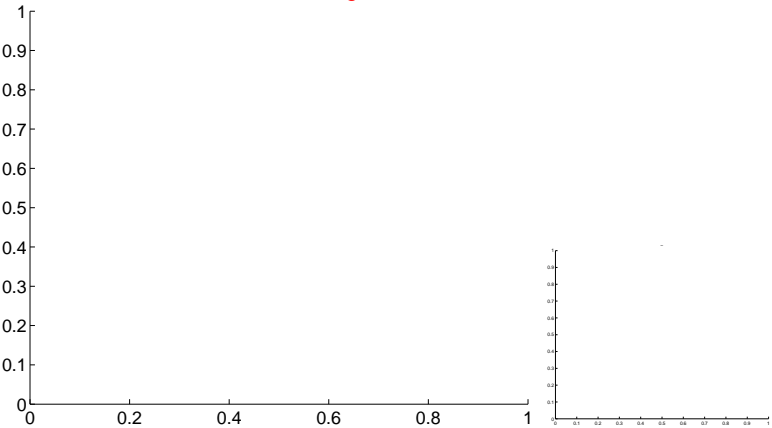
Q1 no OOT image



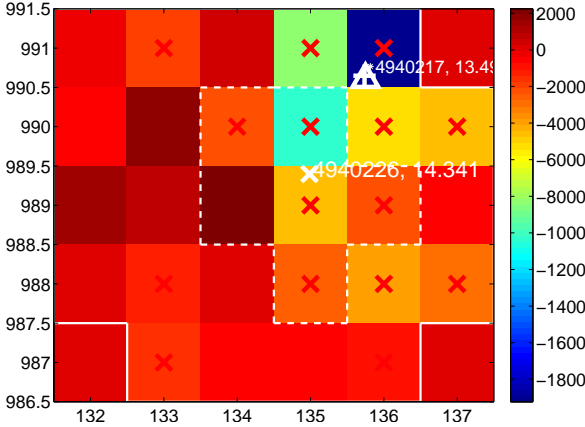
Q2 no difference image



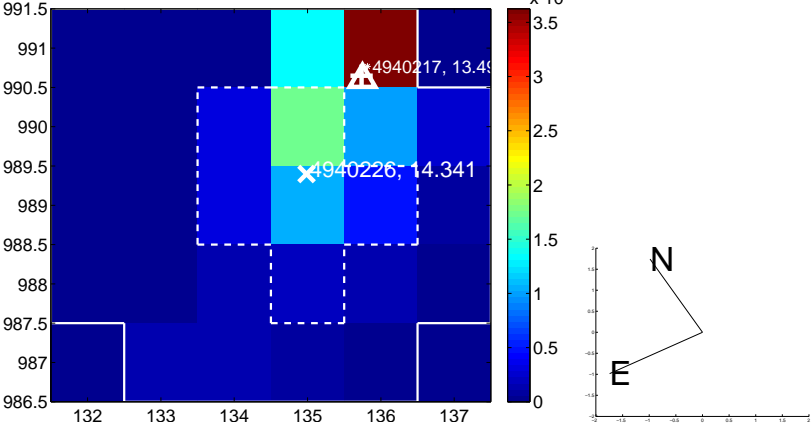
Q2 no OOT image



Q3 difference image. Poor Quality



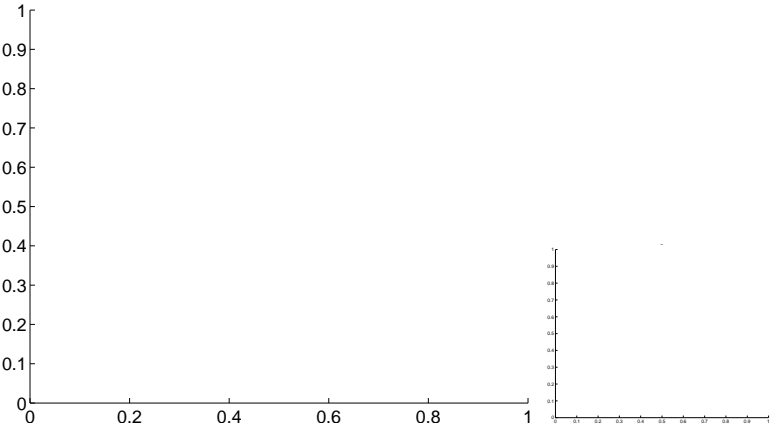
Q3 OOT image



Q4 no difference image



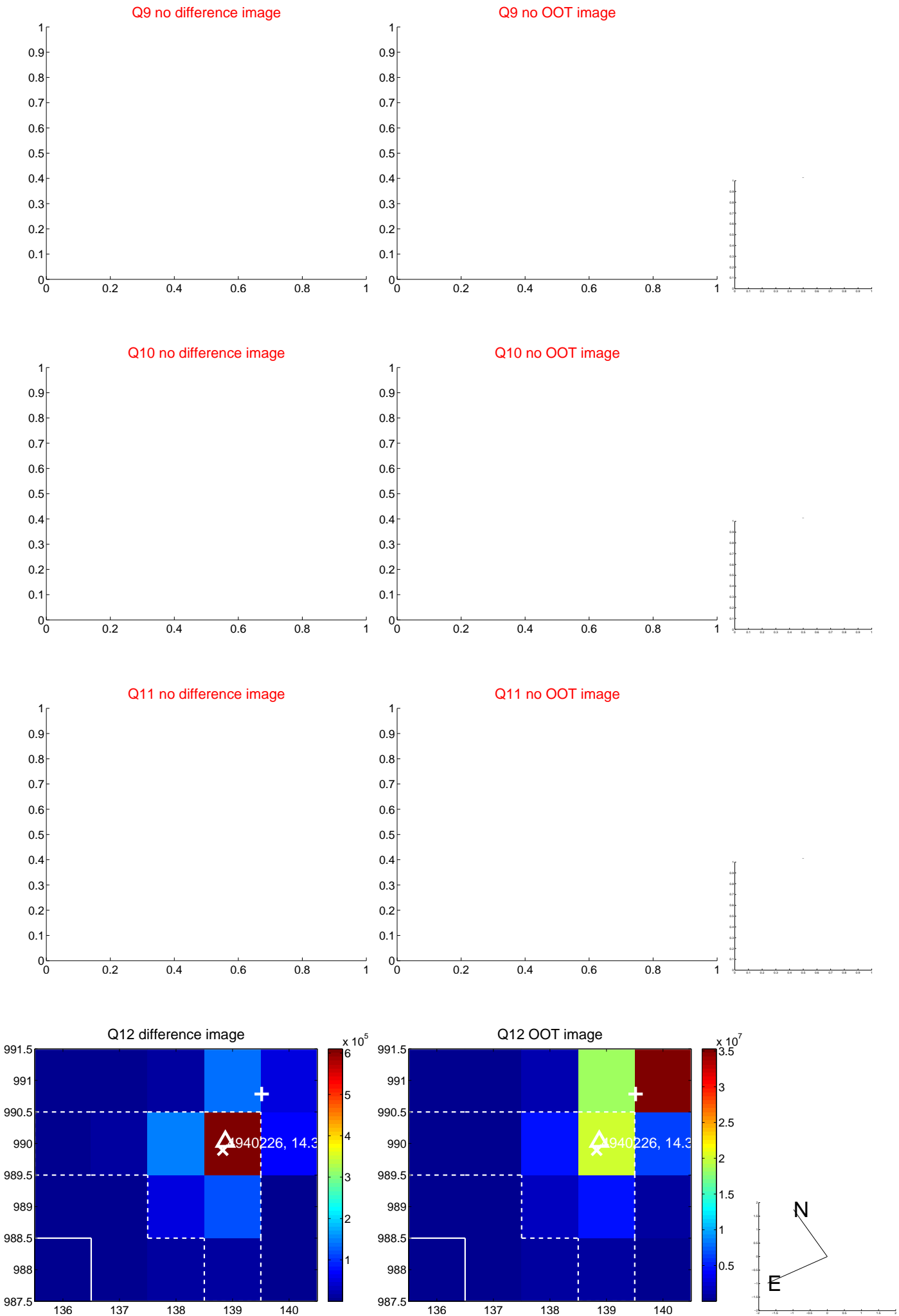
Q4 no OOT image



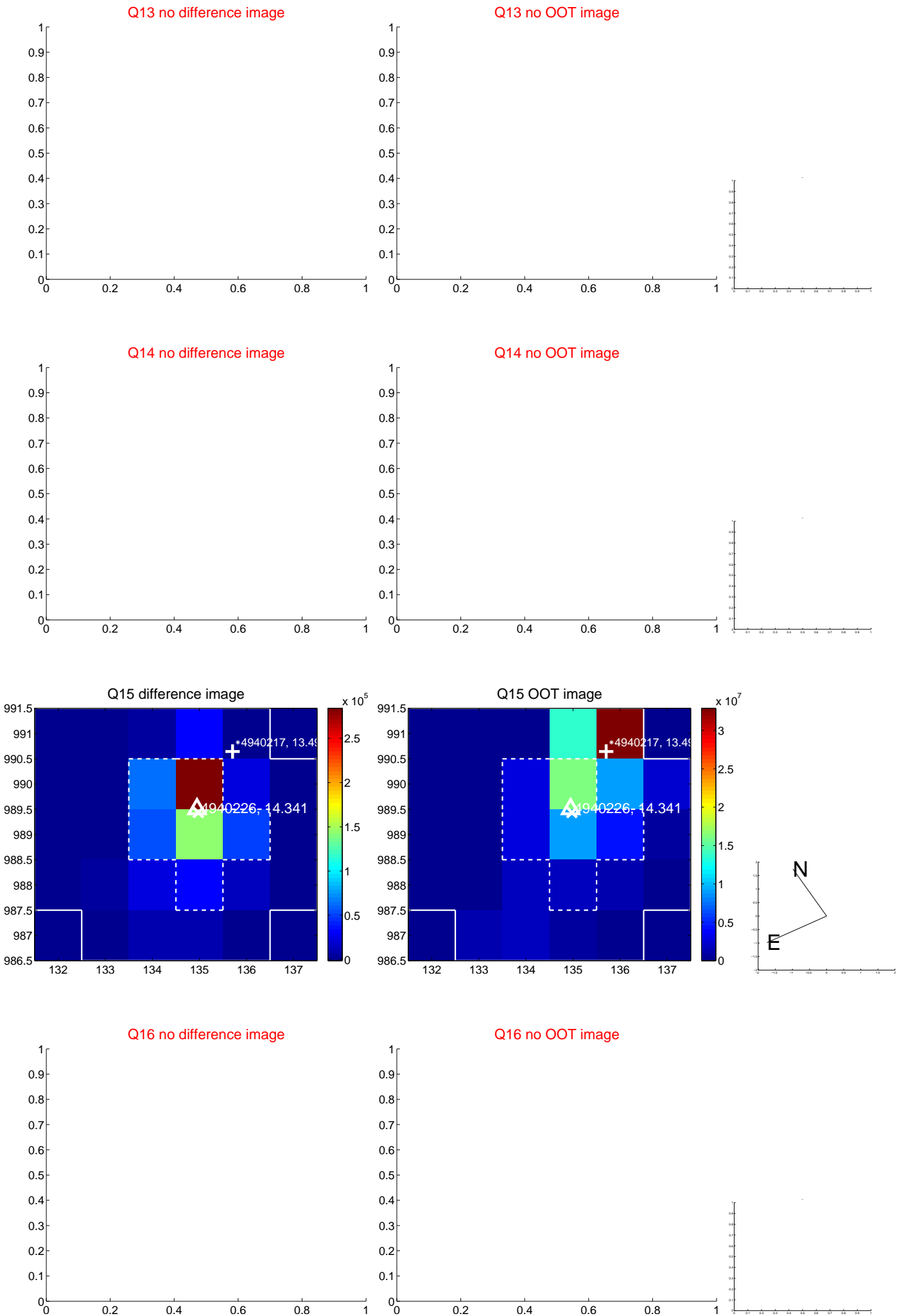
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



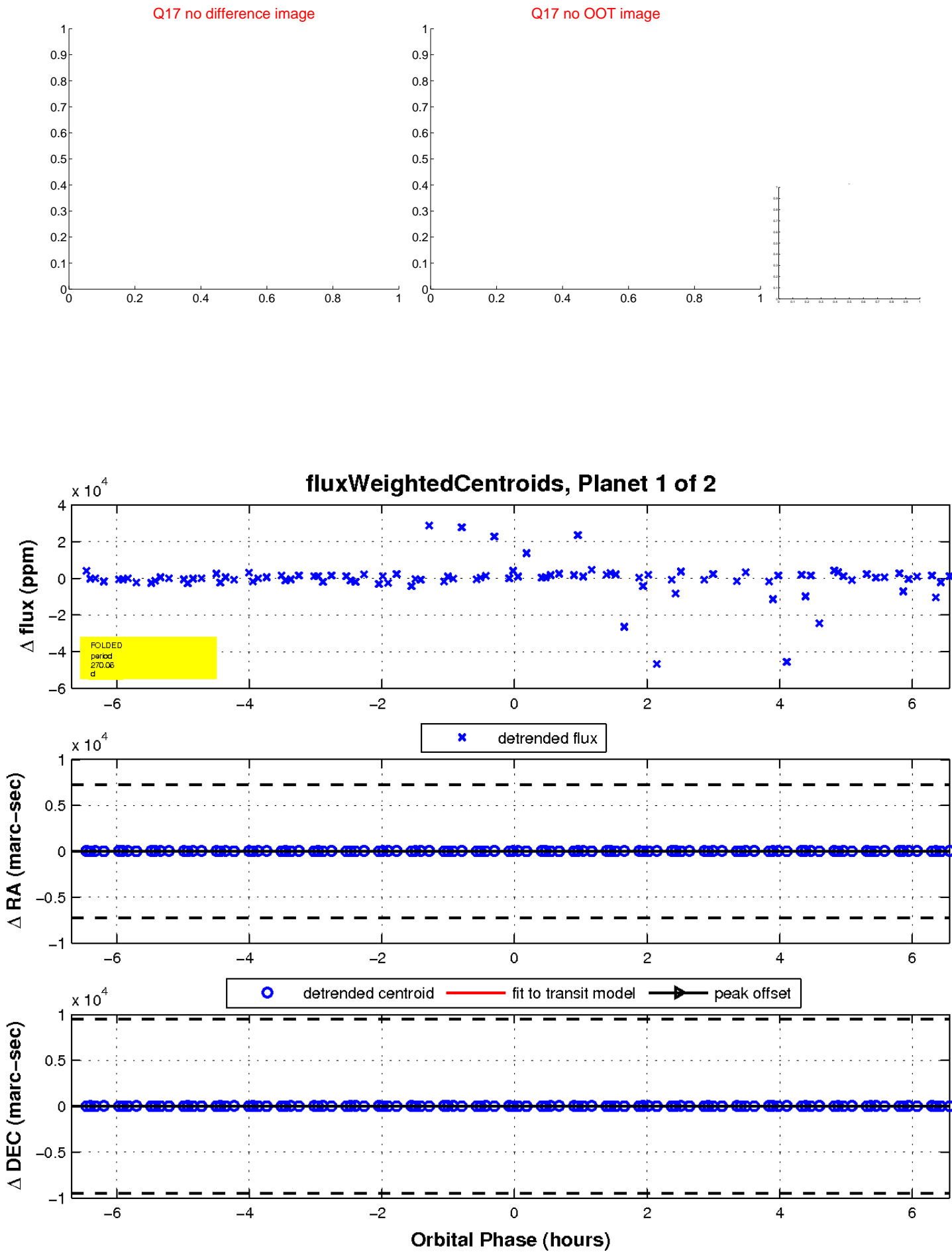
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

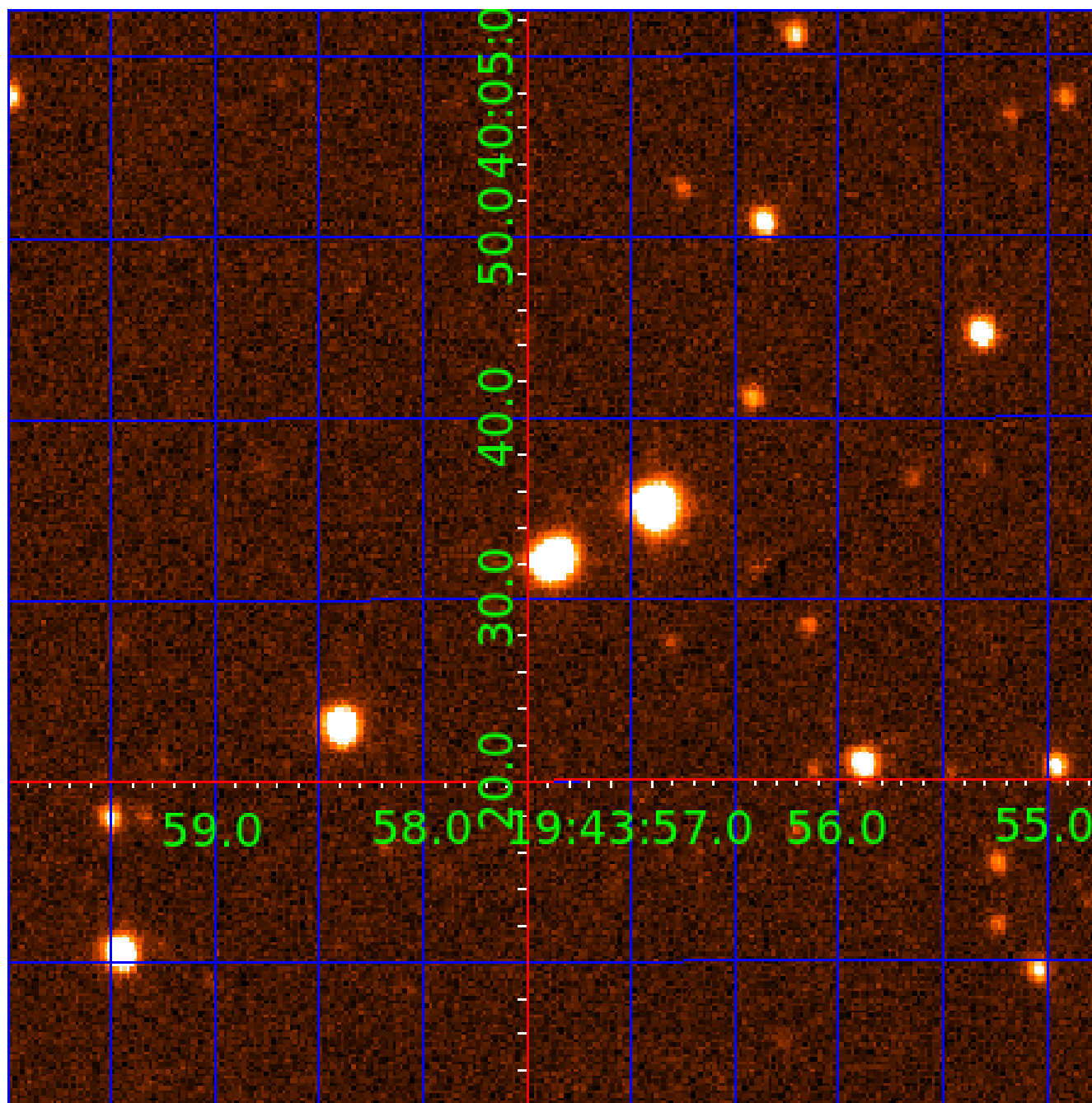


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004940226

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})
004940226-01	OBS	No	270.057391	305.897806	3489.7	3.500	26.4	-1.0	1.08	6220	6.36	2.18
004940226-02	OBS	No	0.756963	132.375346	36.2	4.003	14.0	0.7	1.08	6220	0.72	5518.63

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004940226-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
004940226-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

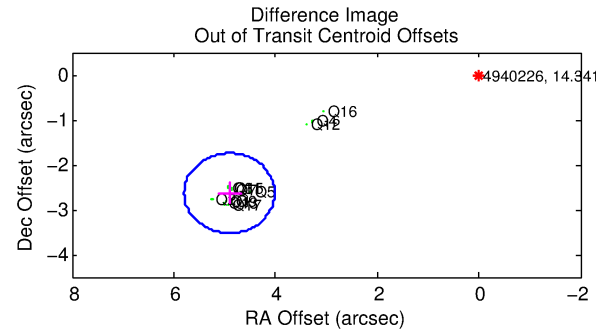
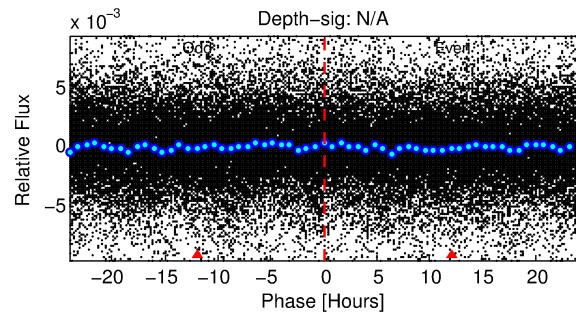
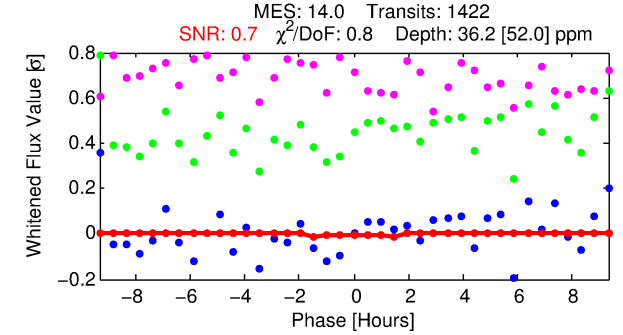
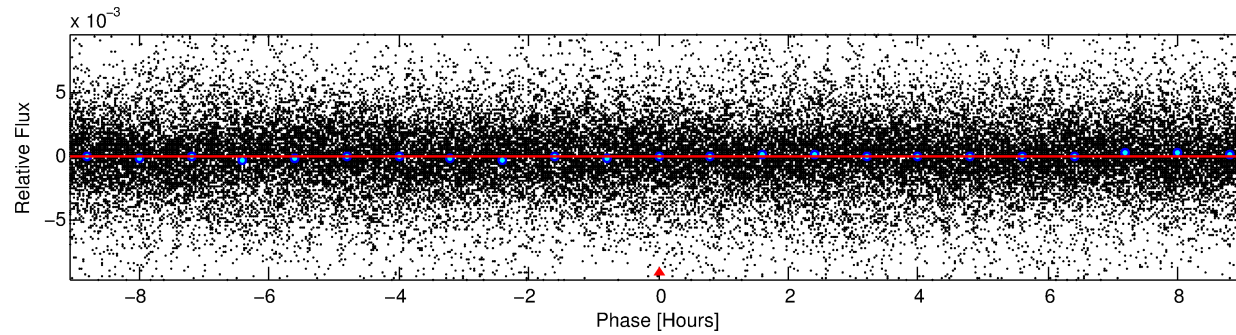
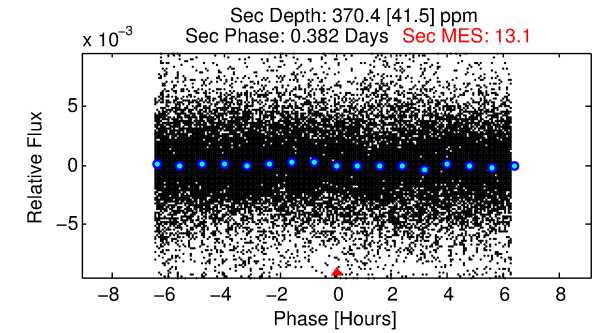
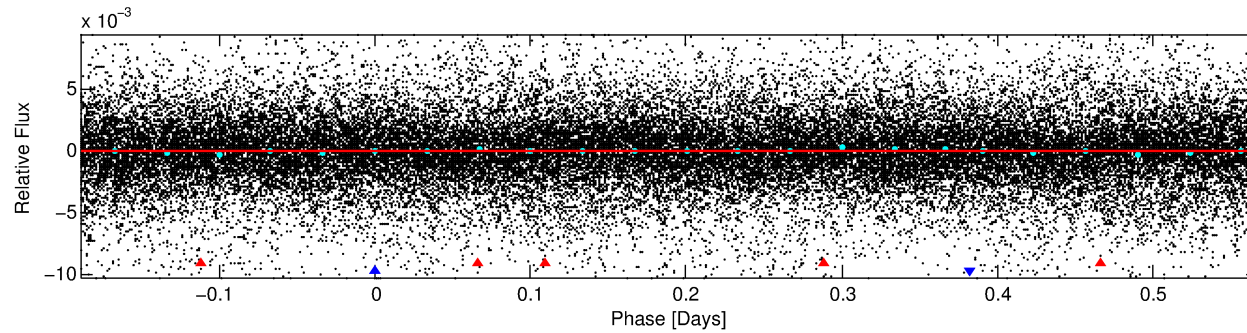
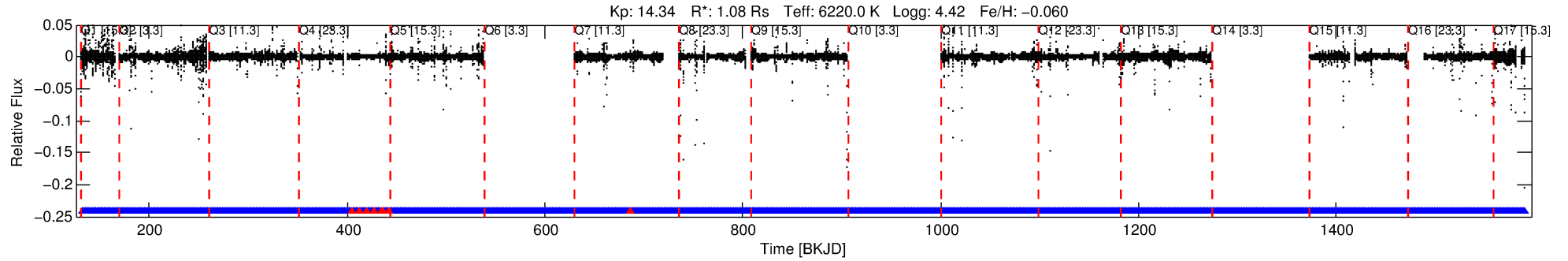
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004940226-02

No Significant Match Found

DV One-Page Summary

KIC: 4940226 Candidate: 2 of 2 Period: 0.757 d



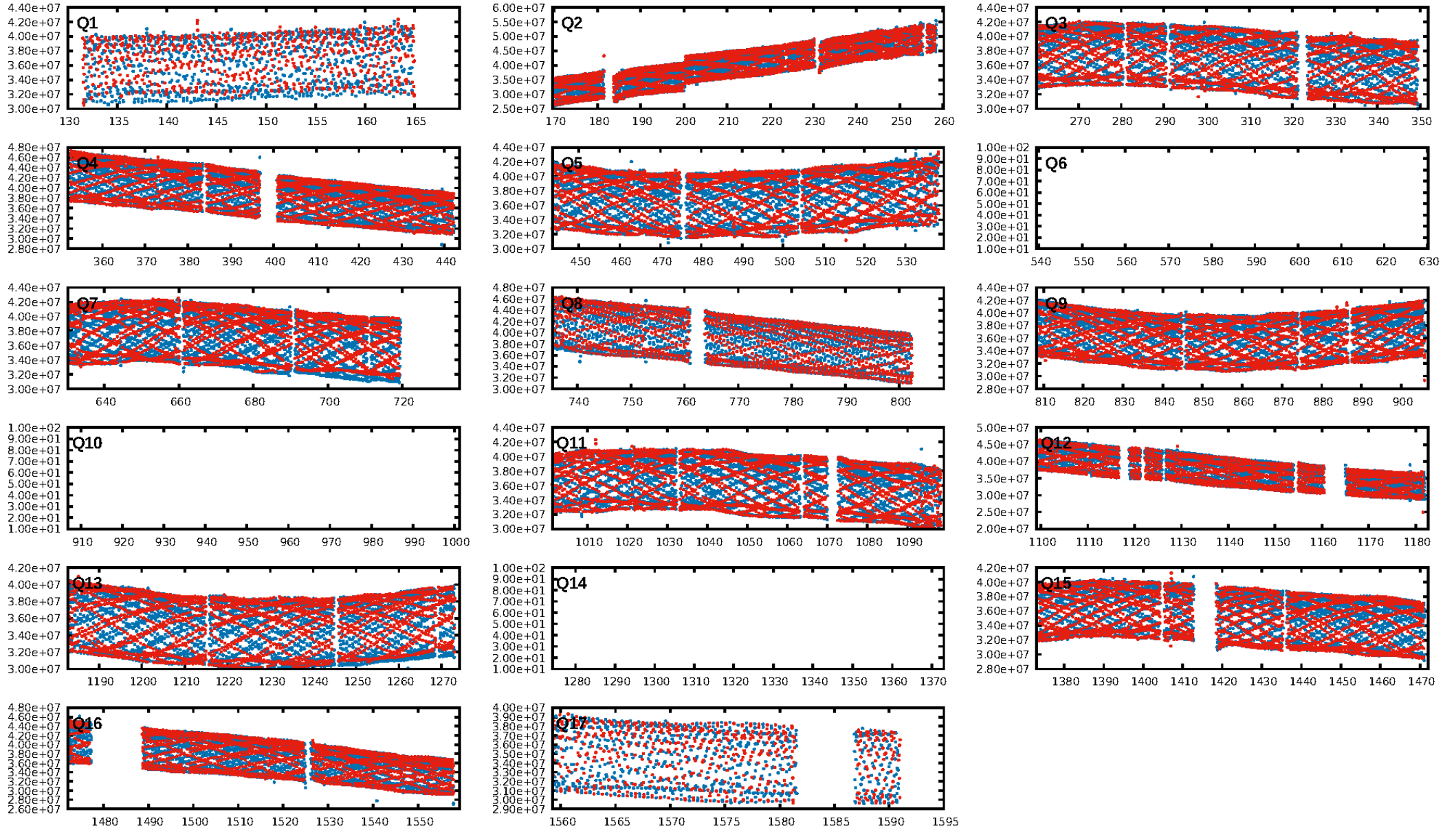
DV Fit Results:

Period = 0.75696 [0.00013] d
Epoch = 132.3753 [0.0235] BKJD
Rp/R* = 0.0062 [0.0198]
a/R* = 1.22 [6.72]
b = 0.83 [6.49]
Seff = 5518.63 [2344.88]
Teff = 2198 [233] K
Rp = 0.73 [2.34] Re
a = 0.0168 [0.0047] AU
Ag = 108.96 [701.22] [0.15] σ
Teffp = 10979 [17633] K [0.50] σ

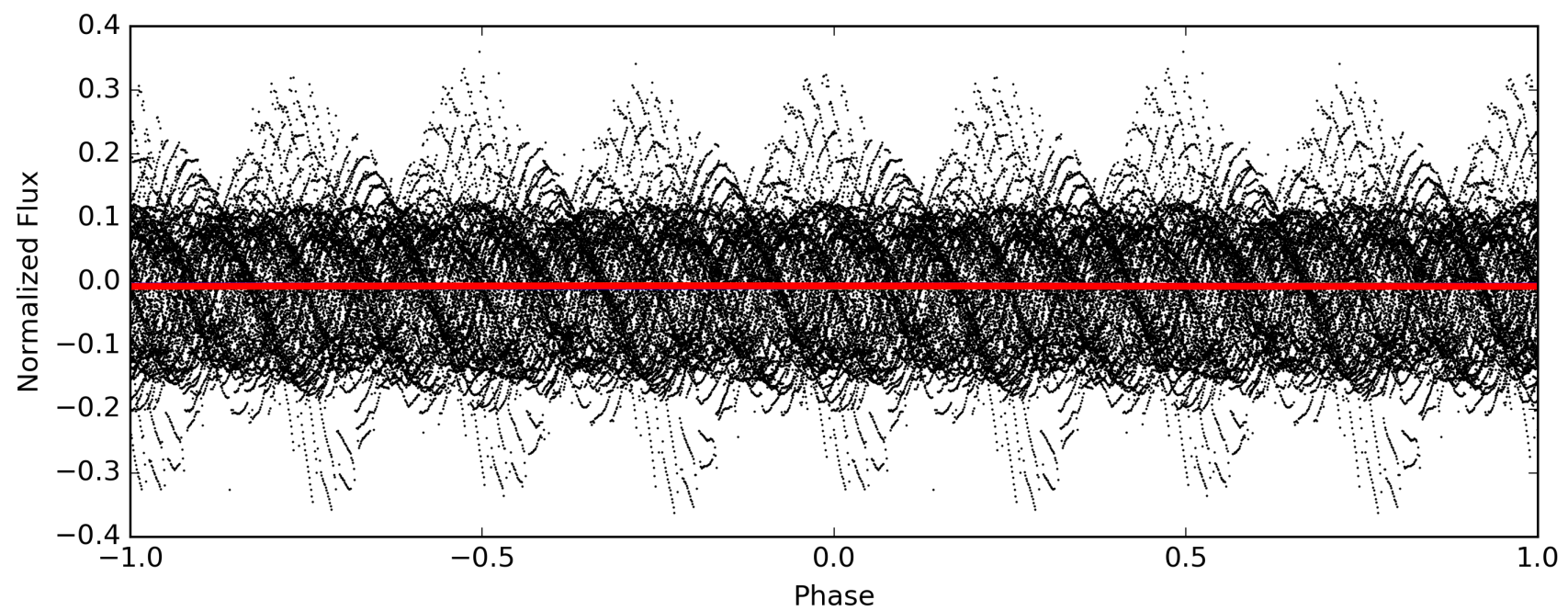
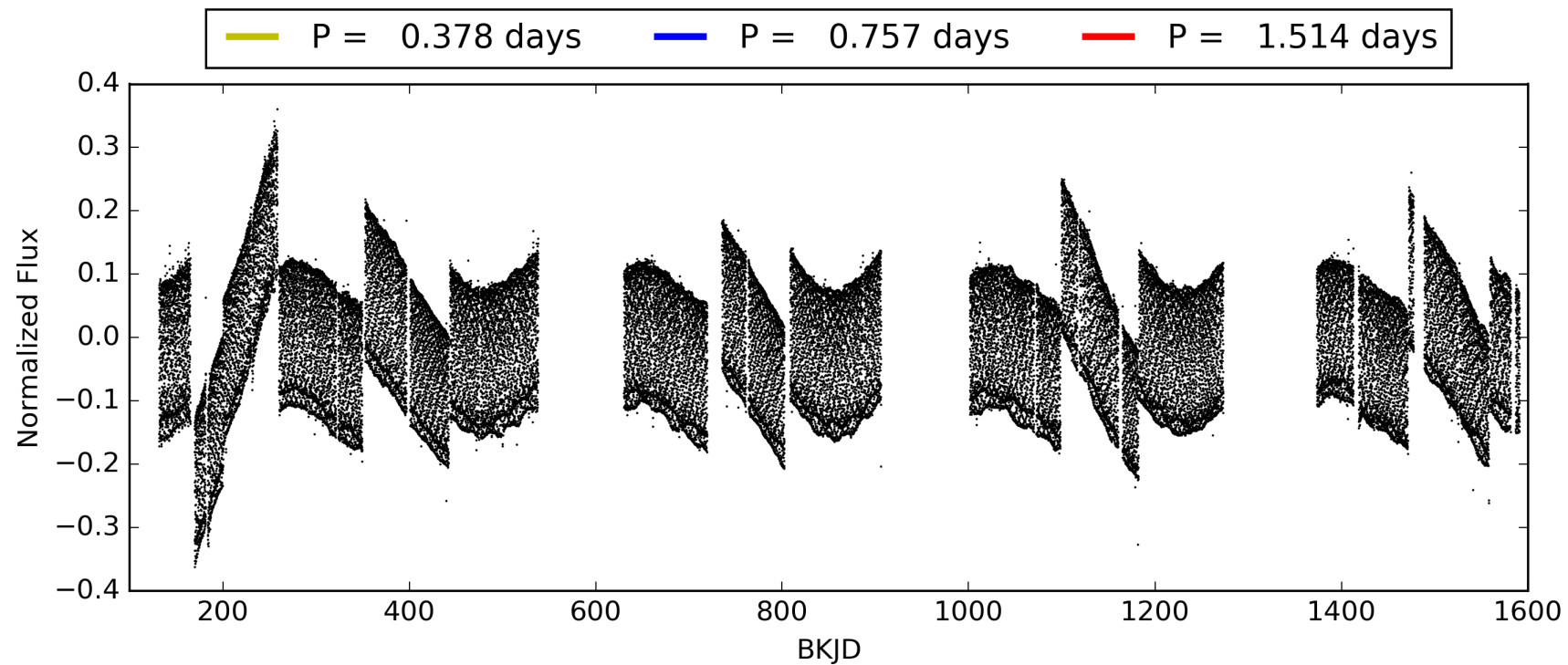
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1215.47] σ
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1332/1341]
GhostDiagnostic-chr: -0.3095
Centroid-sig: 16.4%
Centroid-so: 3.843 arcsec [1.32] σ
OotOffset-rm: 5.569 arcsec [18.79] σ
KicOffset-rm: 0.284 arcsec [3.24] σ
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004940226-02, PDC Light Curves

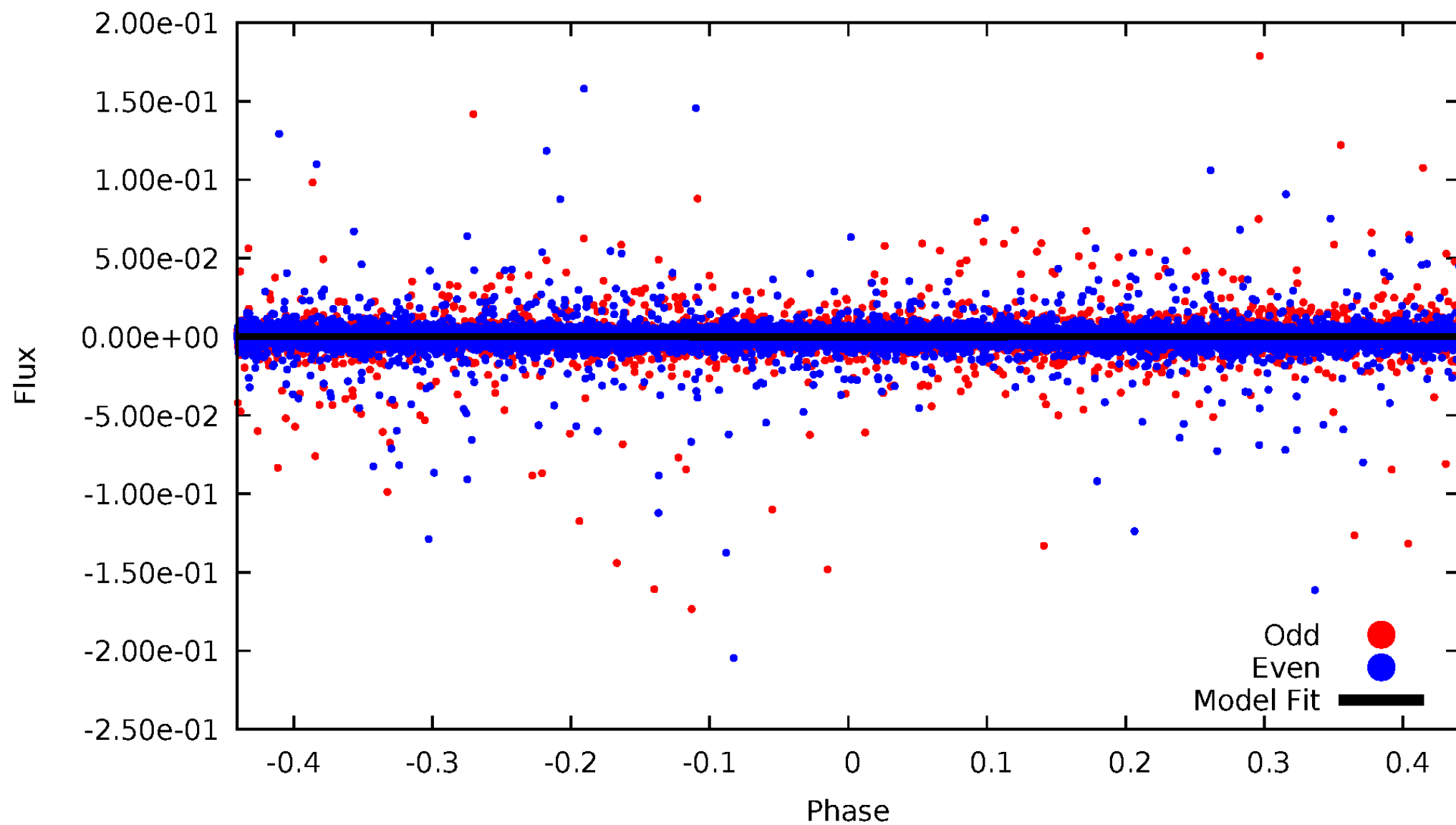


TCE 004940226-02



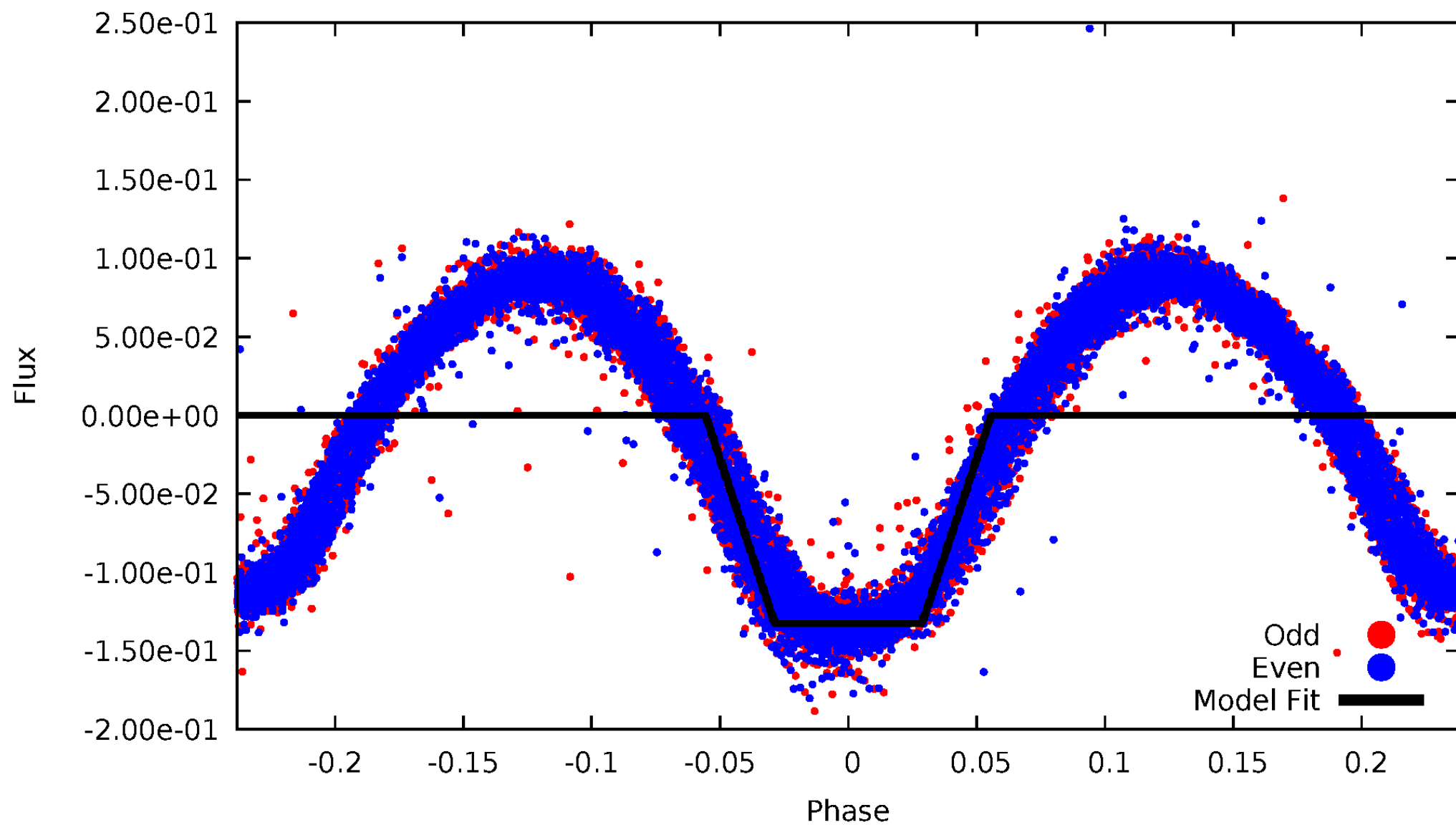
DV Odd/Even

TCE 004940226-02



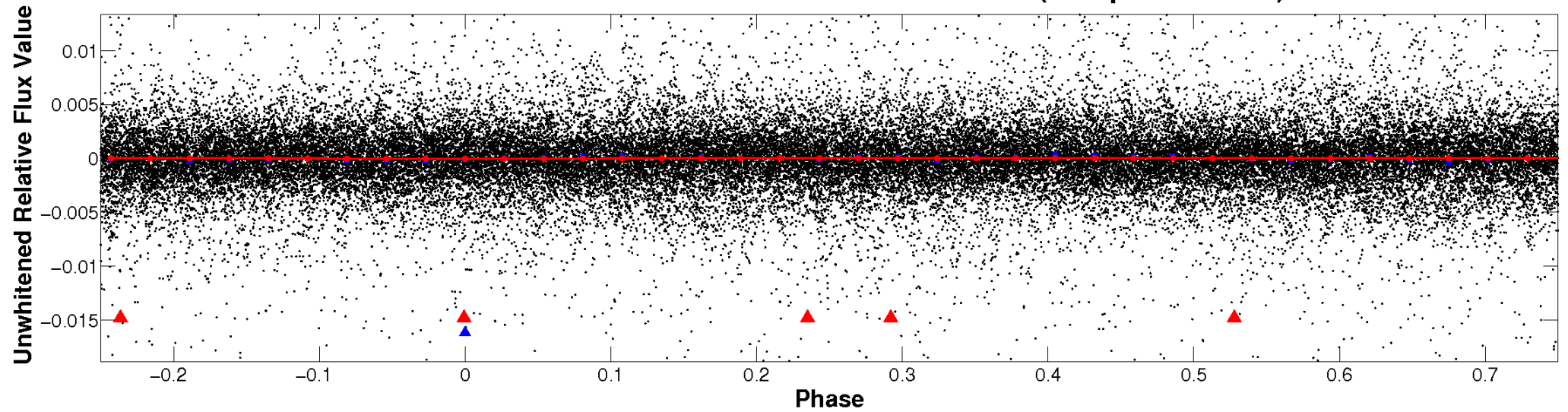
ALT Odd/Even

TCE 004940226-02

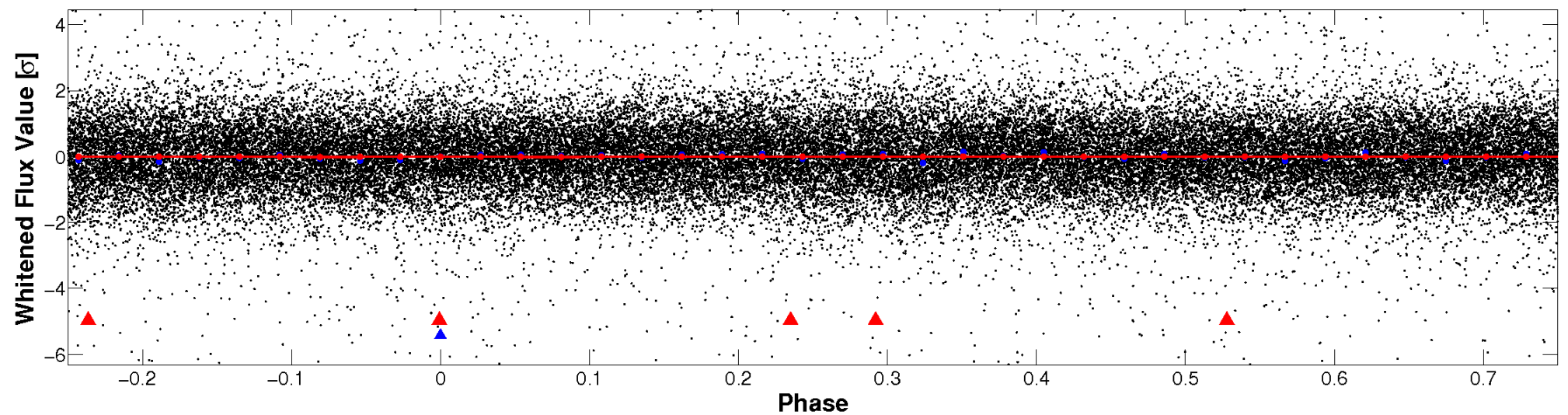


Non-Whitened Vs. Whitened Light Curve

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

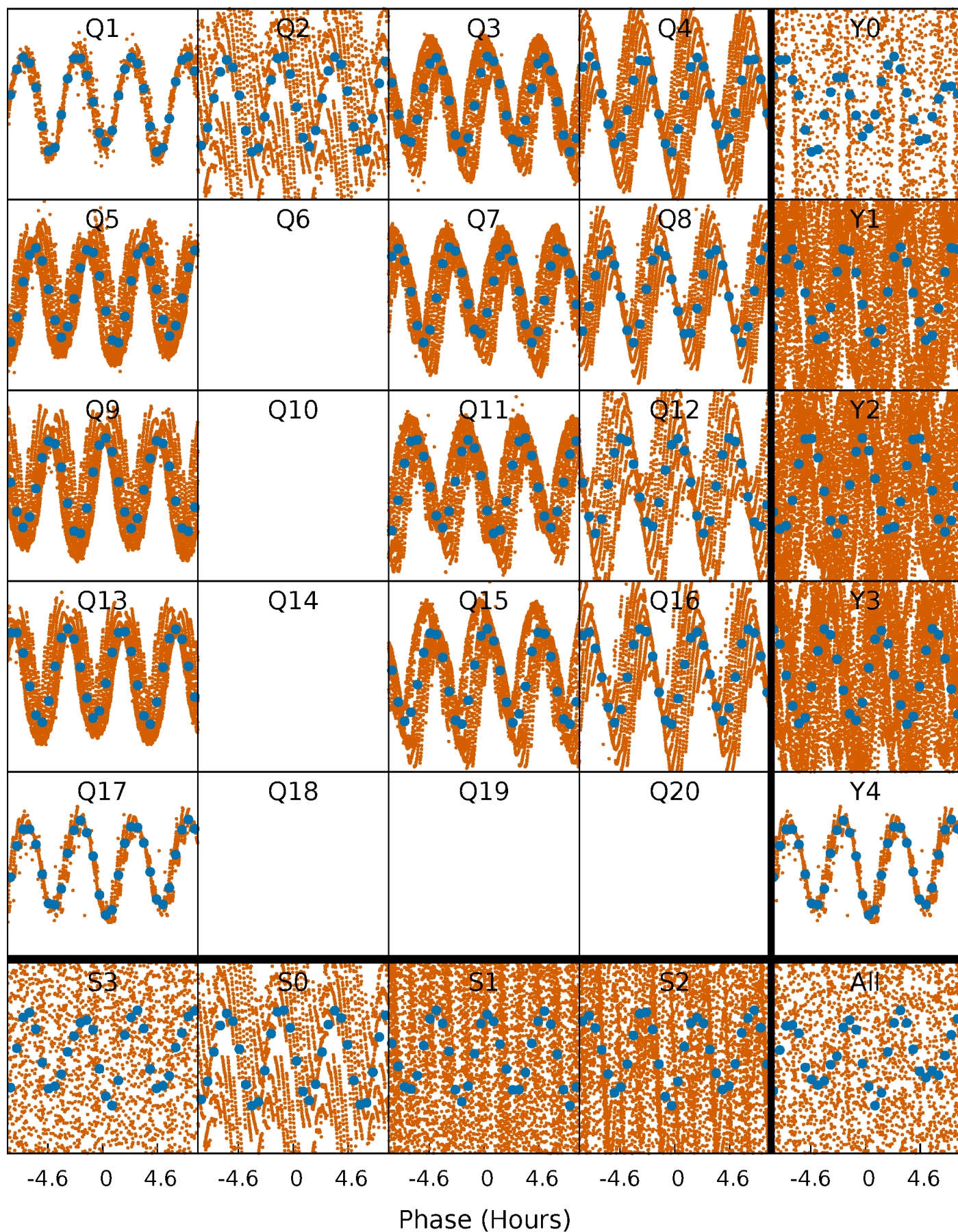


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



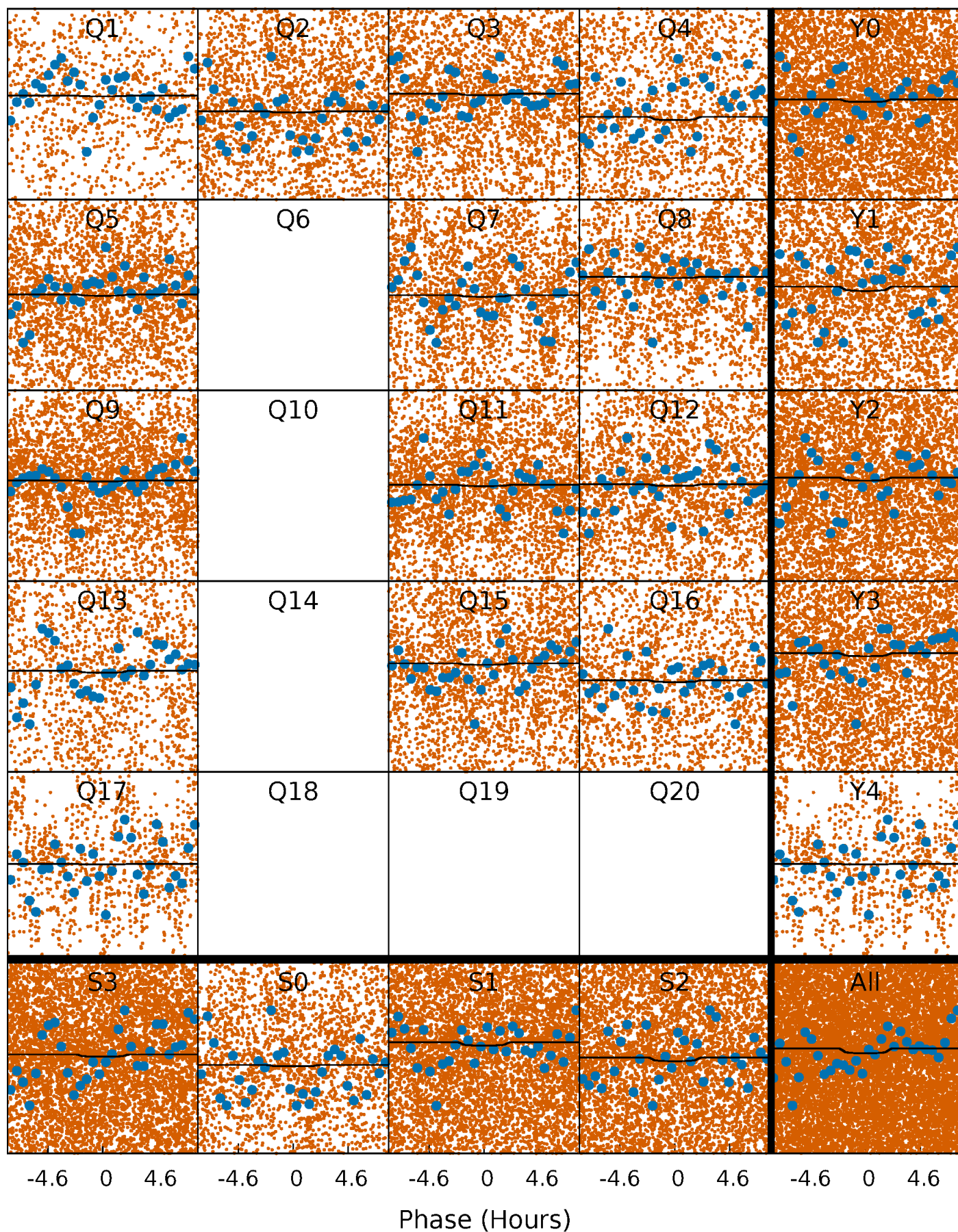
PDC Quarter-Phased Transit Curves

TCE 004940226-02 P= 0.756963 Days $T_0=132.375346$ (BKJD)



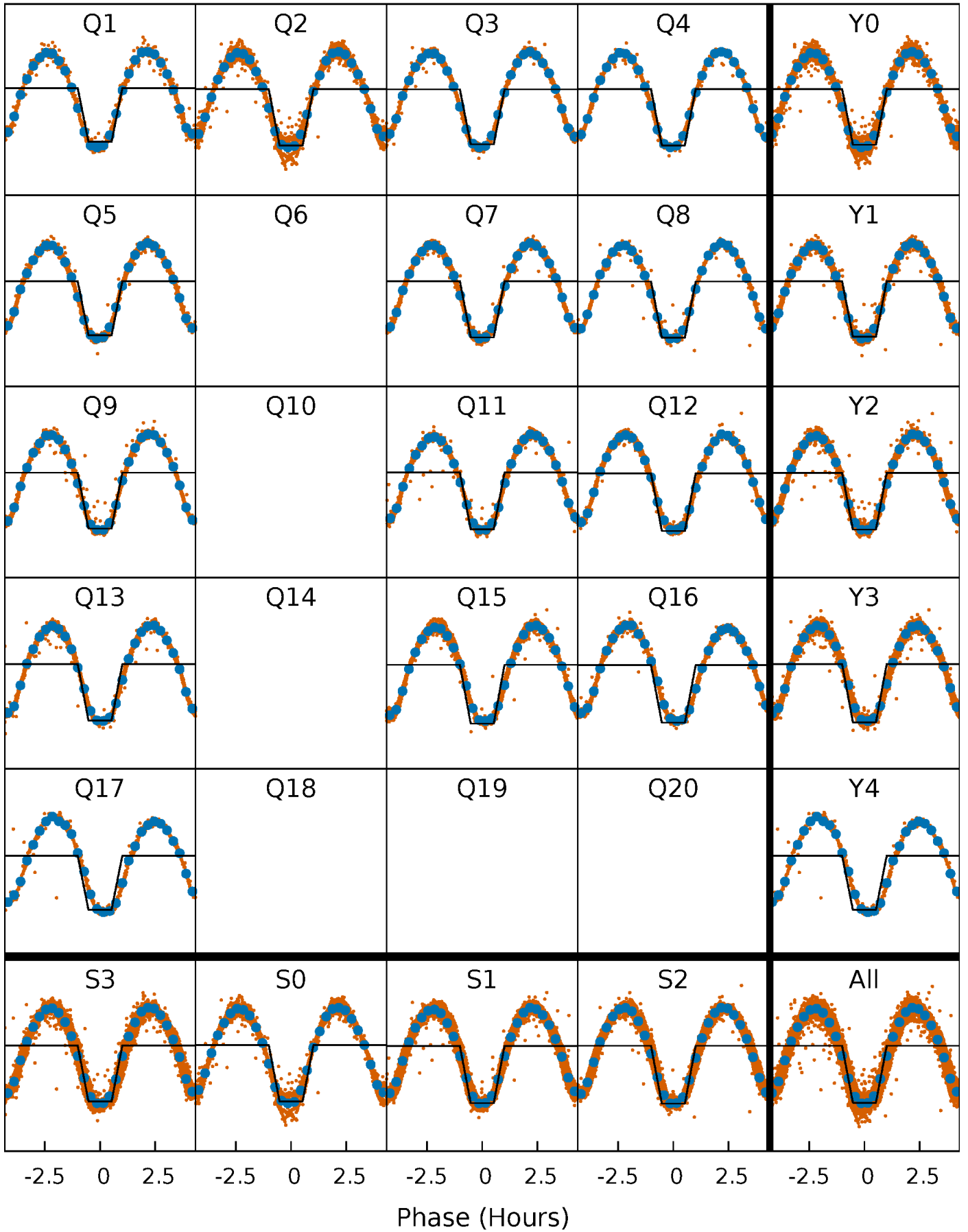
DV Quarter-Phased Transit Curves

TCE 004940226-02 P= 0.756963 Days $T_0=132.375346$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

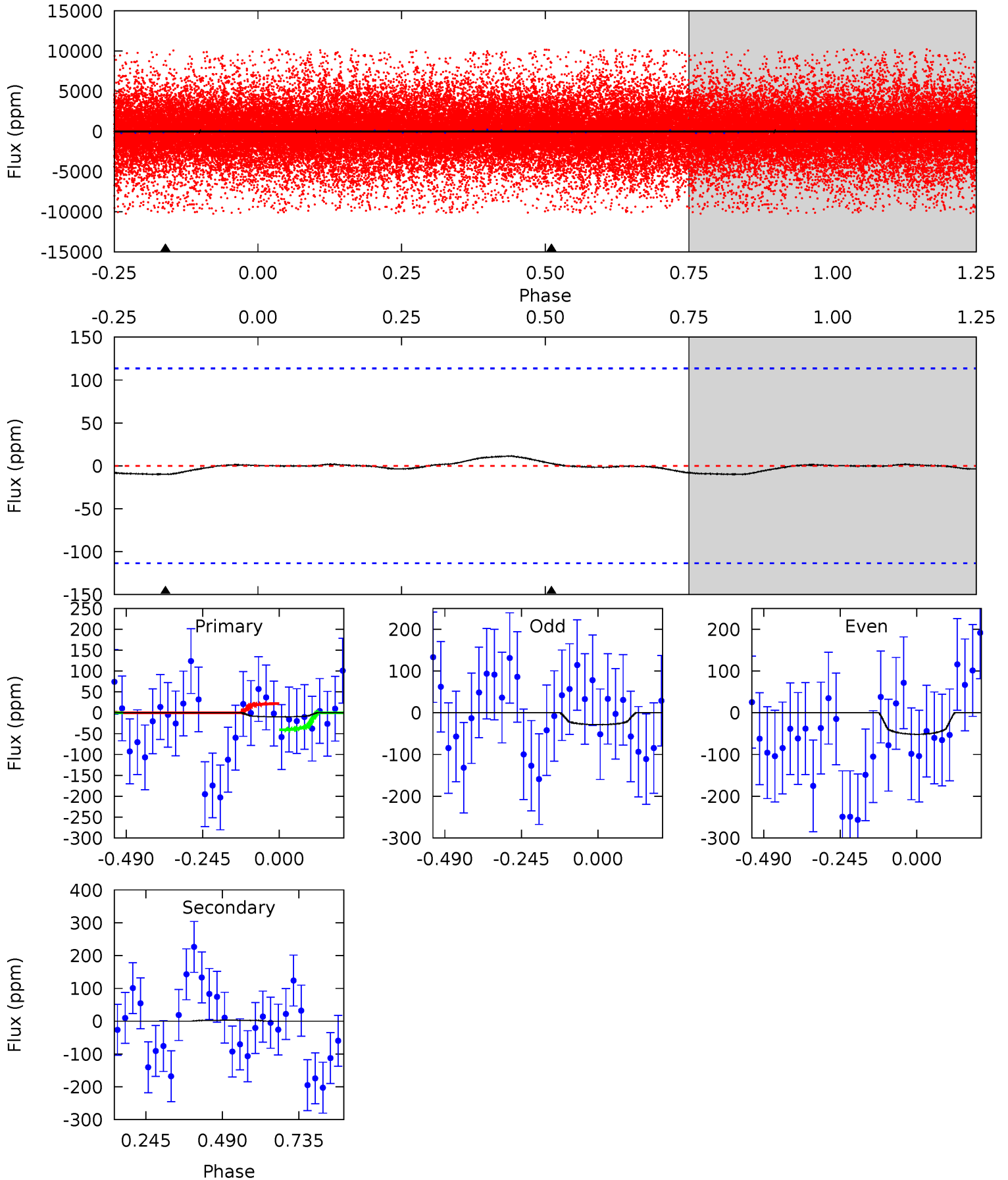
TCE 004940226-02 P= 0.757463 Days $T_0=132.188449$ (BKJD)



DV Model-Shift Uniqueness Test

004940226-02, P = 0.756963 Days, E = 130.861420 Days

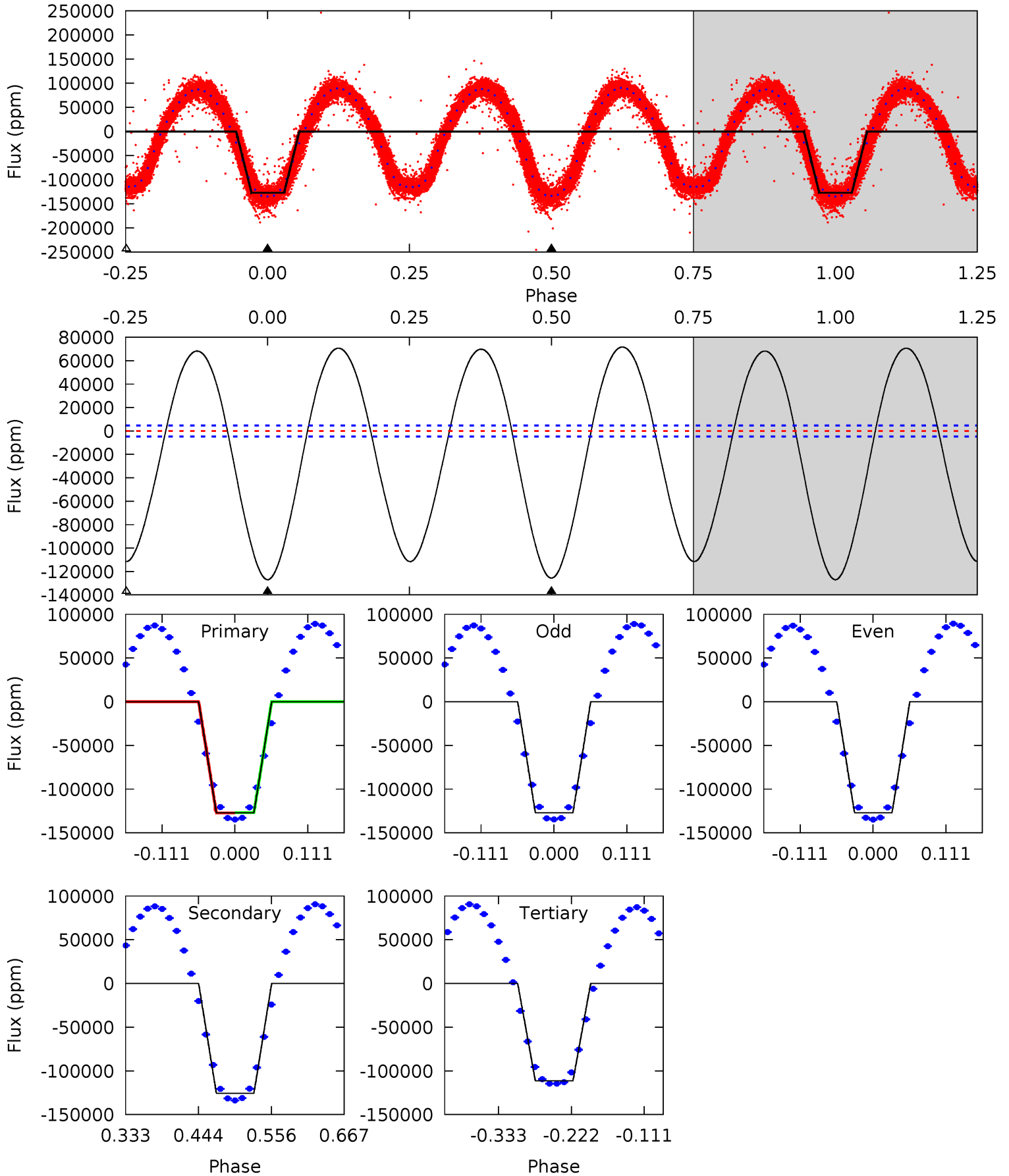
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.38	-0.11	0	0	4.37	1.16	0.07	0.38	0.38	-0.11	-0.11	0.46	-2.10	0.54	0.39



Alt Model-Shift Uniqueness Test

004940226-02, P = 0.757463 Days, E = 131.430986 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
123.5	122.1	108.3	0	4.54	1.59	64.1	15.1	123.5	13.7	122.1	0.12	1.00	0.36	0.14



Stellar Parameters For KIC 004940226

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6220^{+185}_{-222}	$4.415^{+0.072}_{-0.217}$	$-0.060^{+0.250}_{-0.300}$	$1.076^{+0.358}_{-0.128}$	$1.095^{+0.168}_{-0.137}$	$1.237^{+0.379}_{-0.686}$
	+3%/-4%	+2%/-5%	+417%/-500%	+33%/-12%	+15%/-13%	+31%/-55%
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 004940226-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	3 ± 26	$1.99^{+1.96}_{-1.35}$	3129^{+237}_{-175}	-3303^{+7197}_{-1292}	$-0.082^{+1.499}_{-2.206}$
Alt.	-125648 ± 1029	$43.94^{+8.24}_{-4.66}$	3122^{+249}_{-162}	6284^{+311}_{-260}	11^{+3}_{-3}

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 $A_{obs} \gg 1.0$

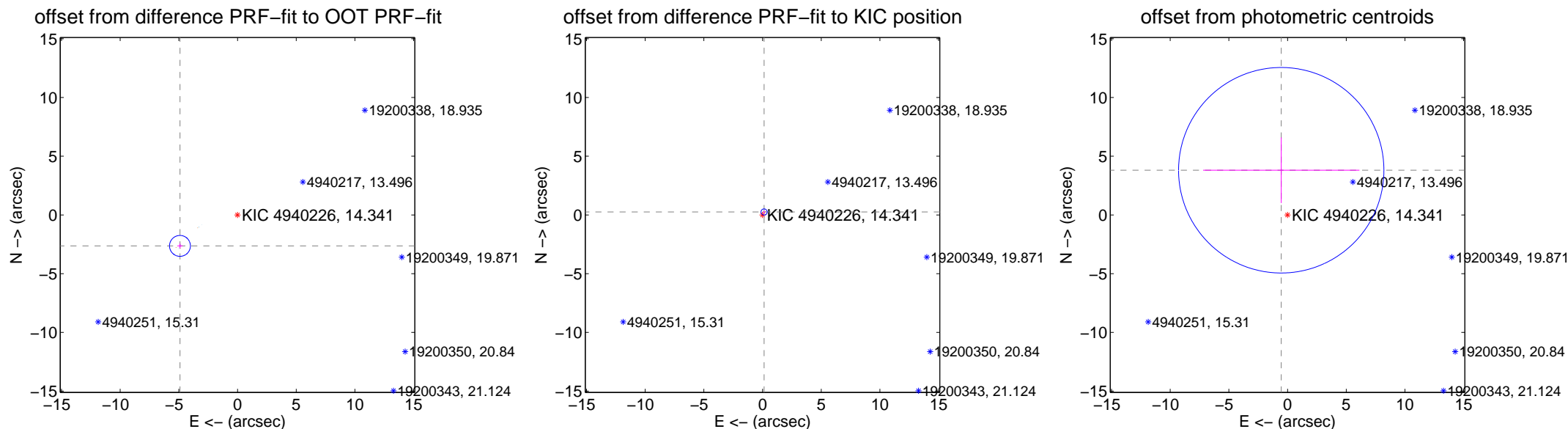
DV Centroid Data

Supplemental centroid analysis for 004940226-02. Kepler magnitude: 14.34. Transit SNR 0.75

There are 8 quarters with good PRF difference image offsets

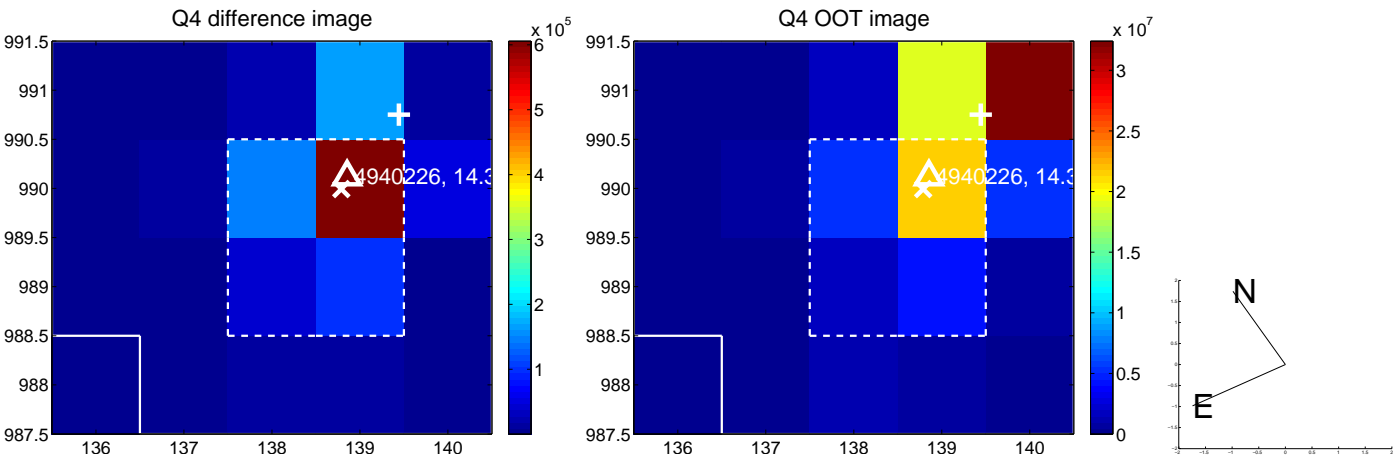
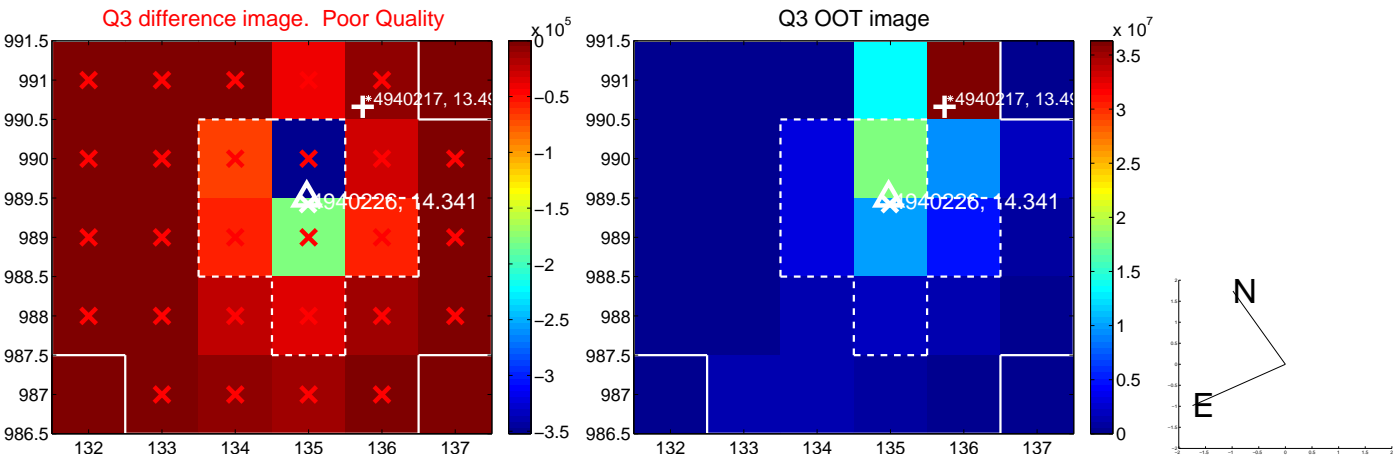
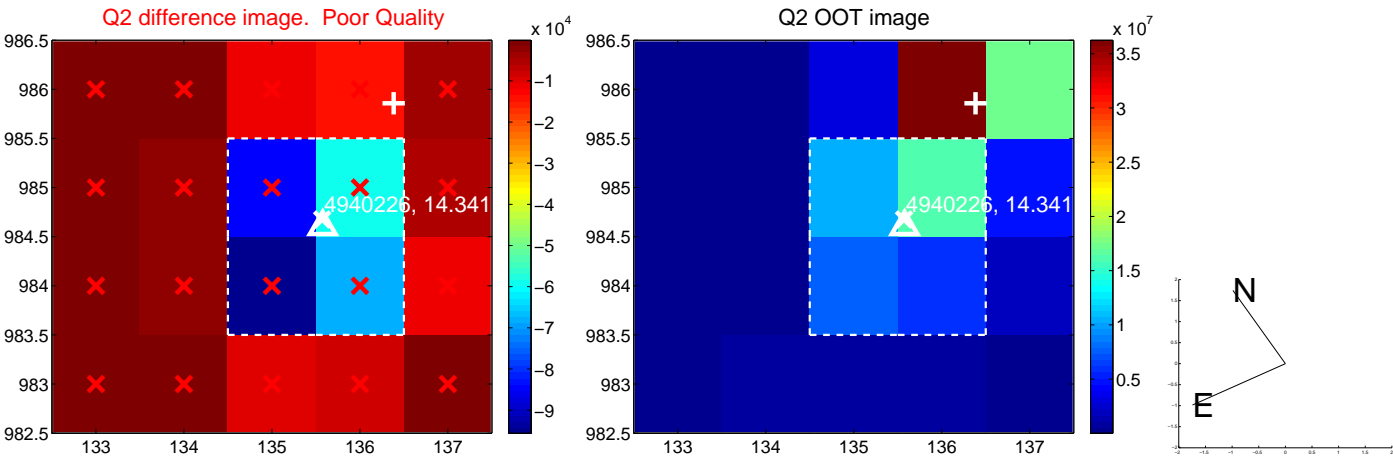
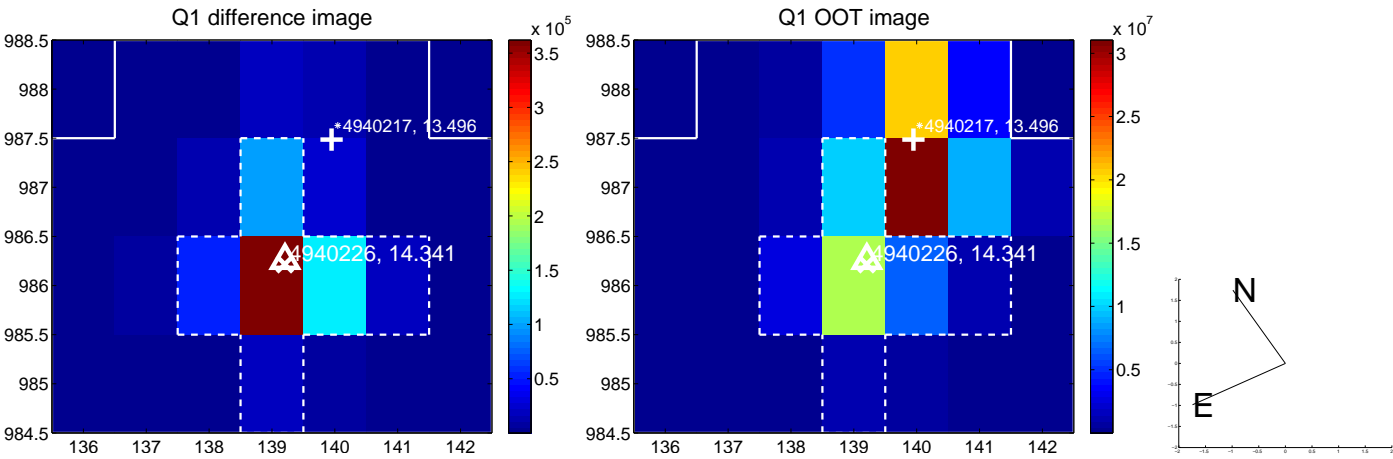
The OOT PRF centroid is offset from the target star catalog position by about 5.95 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.569 ± 0.296	18.79	4.906 ± 0.226	-2.635 ± 0.222
PRF-fit source offset from KIC position	0.284 ± 0.088	3.24	-0.132 ± 0.079	0.252 ± 0.084
photometric centroid source offset	3.84 ± 2.92	1.32	0.54 ± 6.66	3.81 ± 2.79

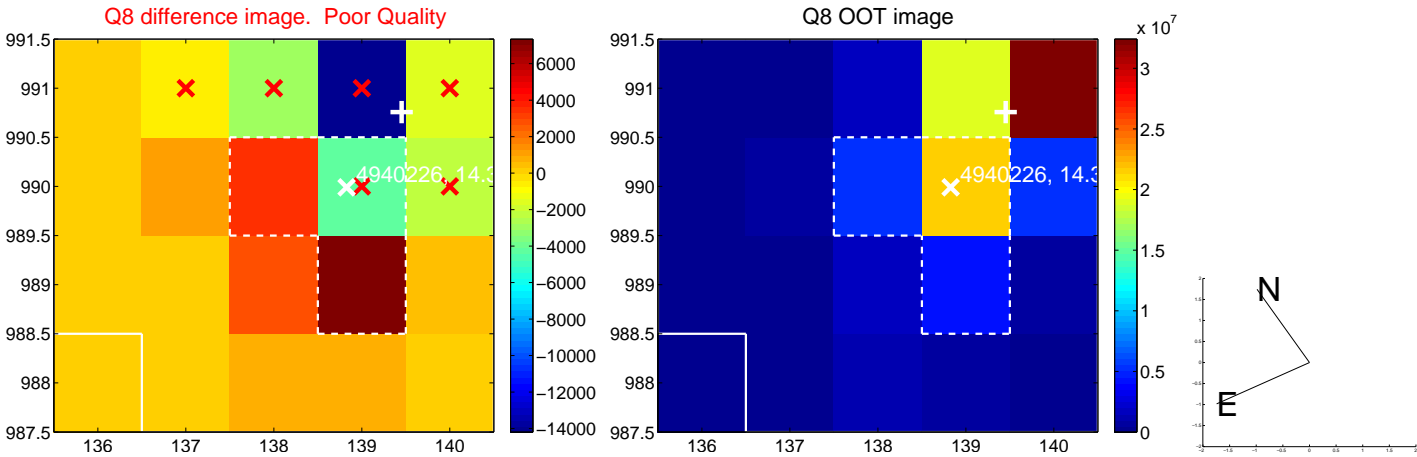
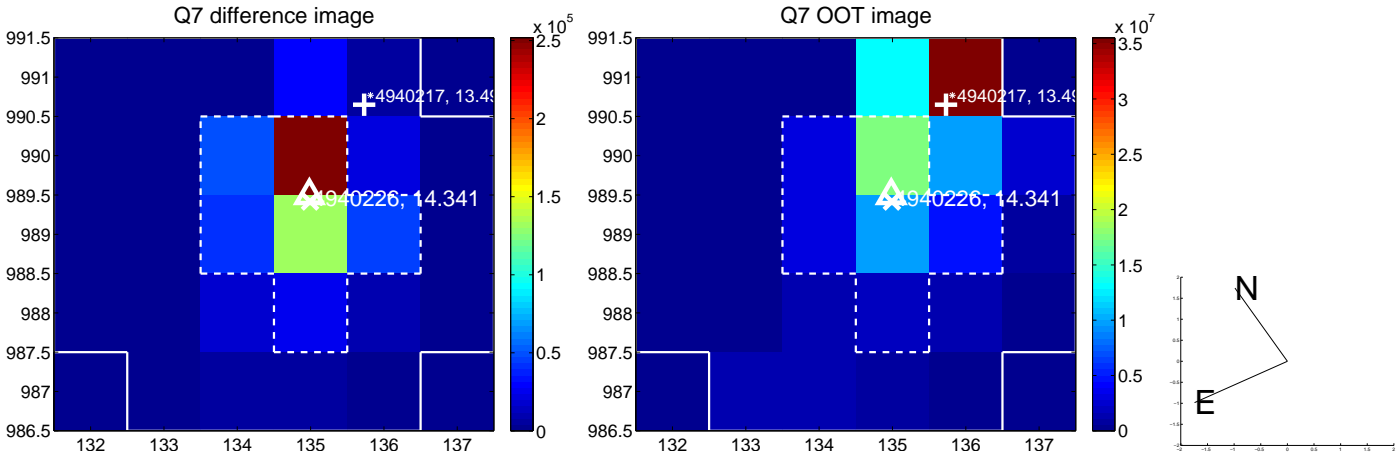
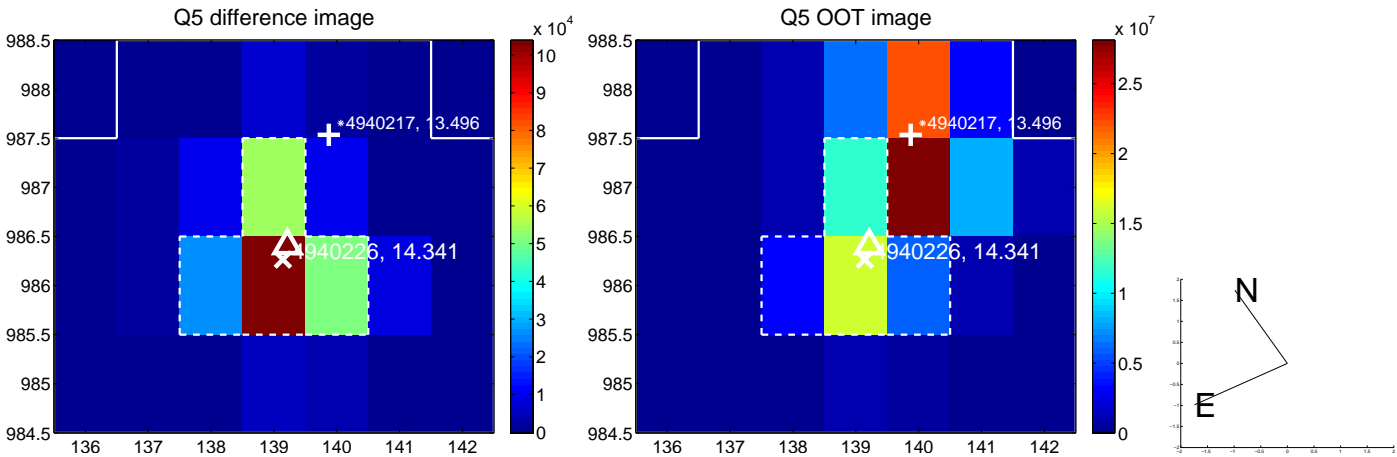


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

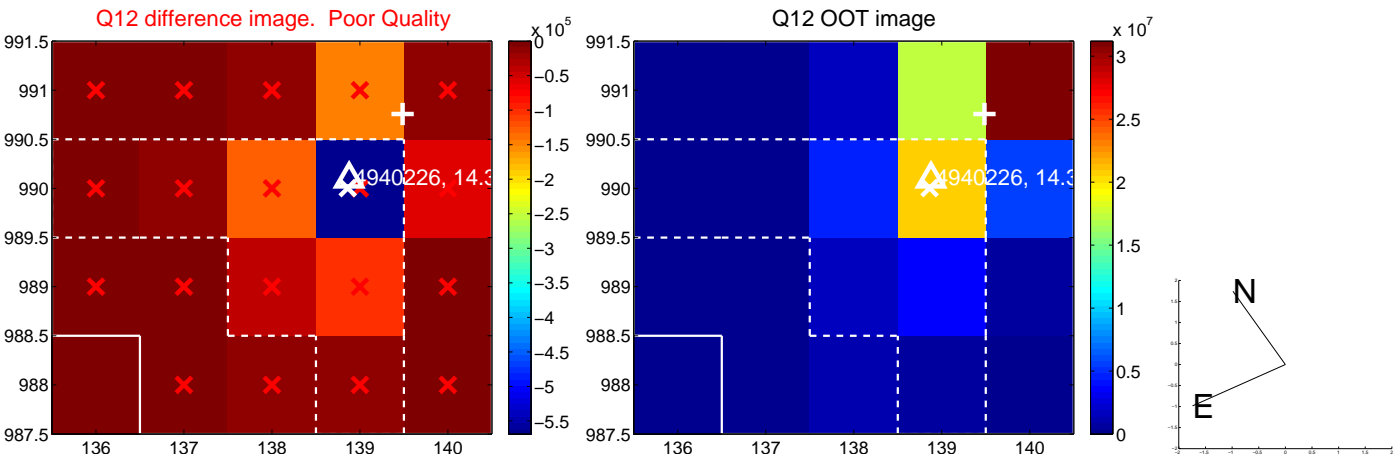
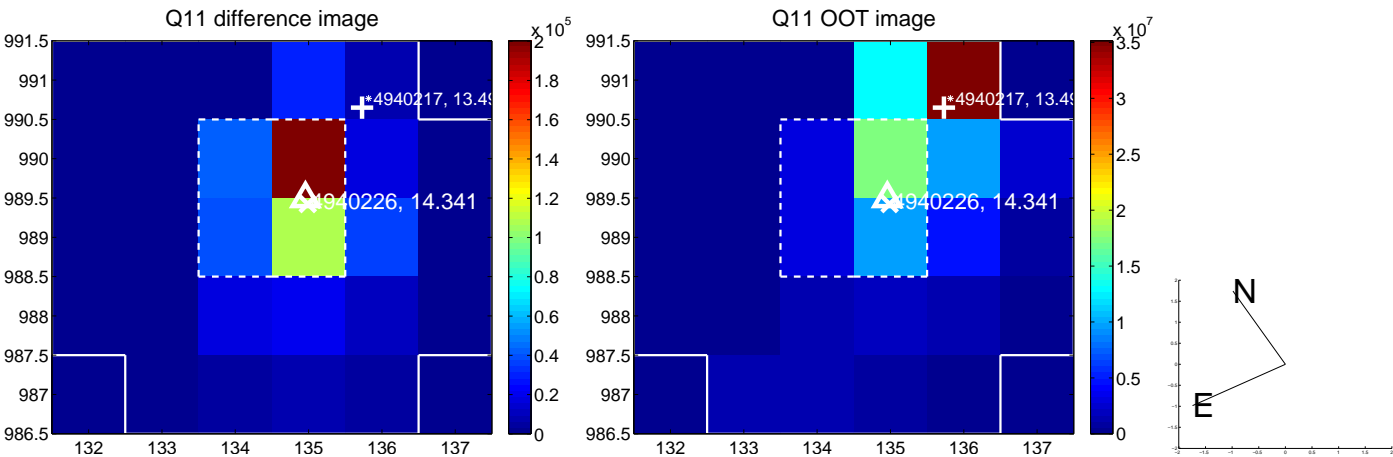
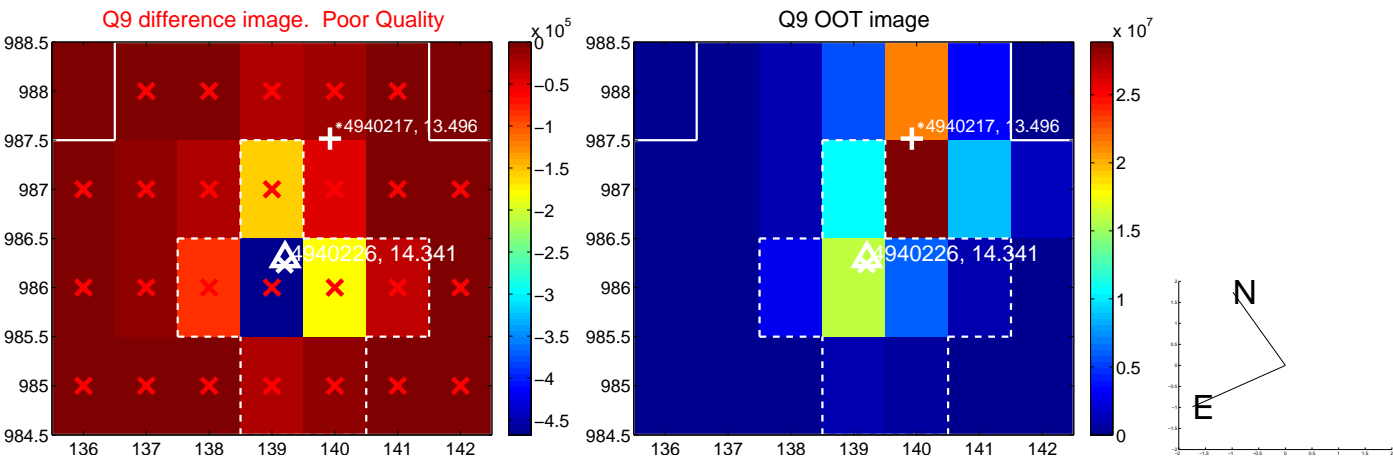
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



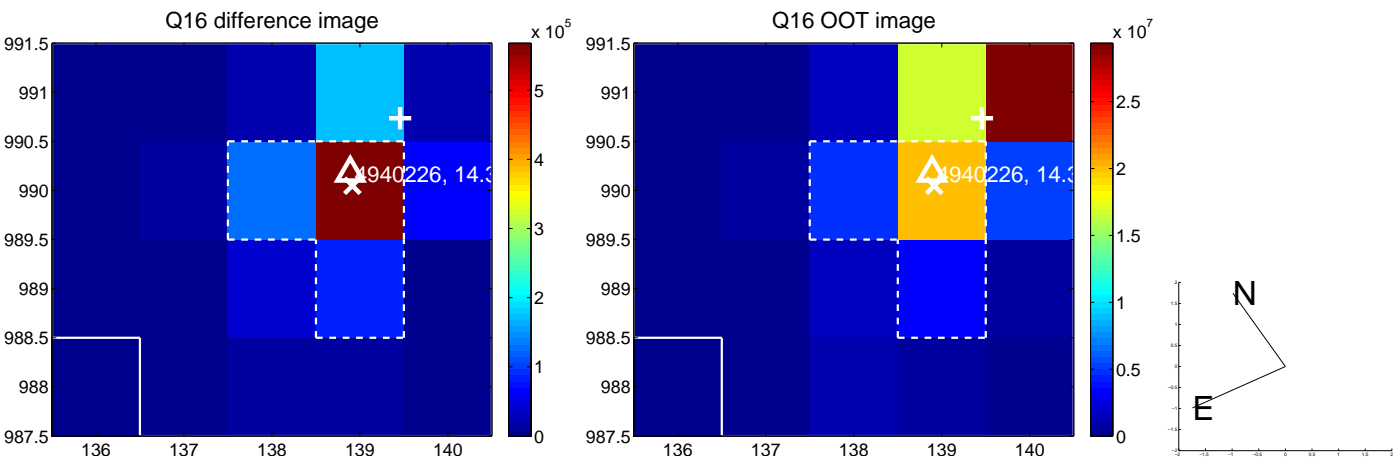
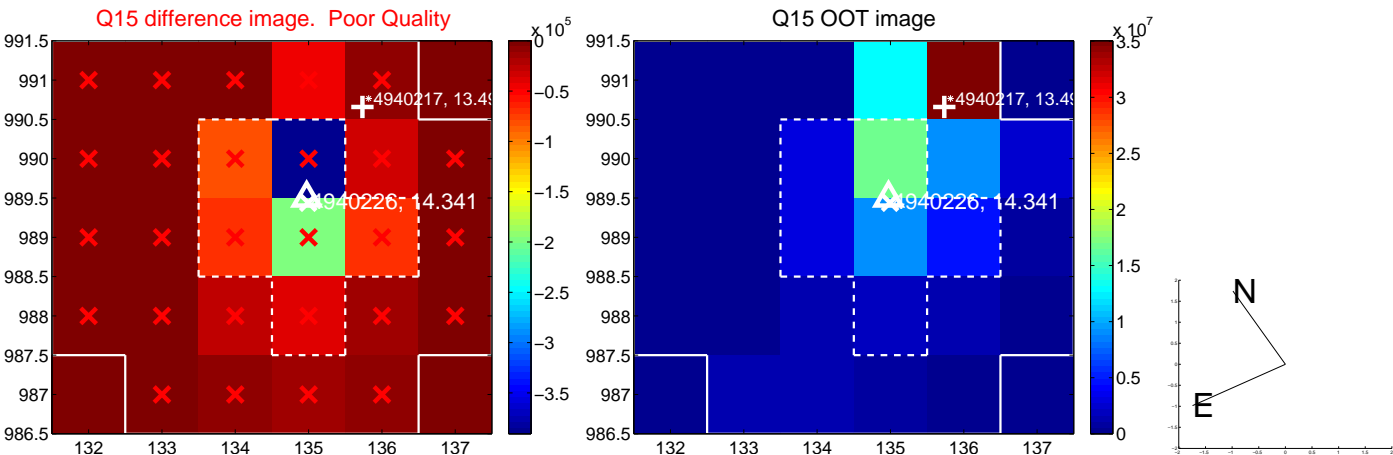
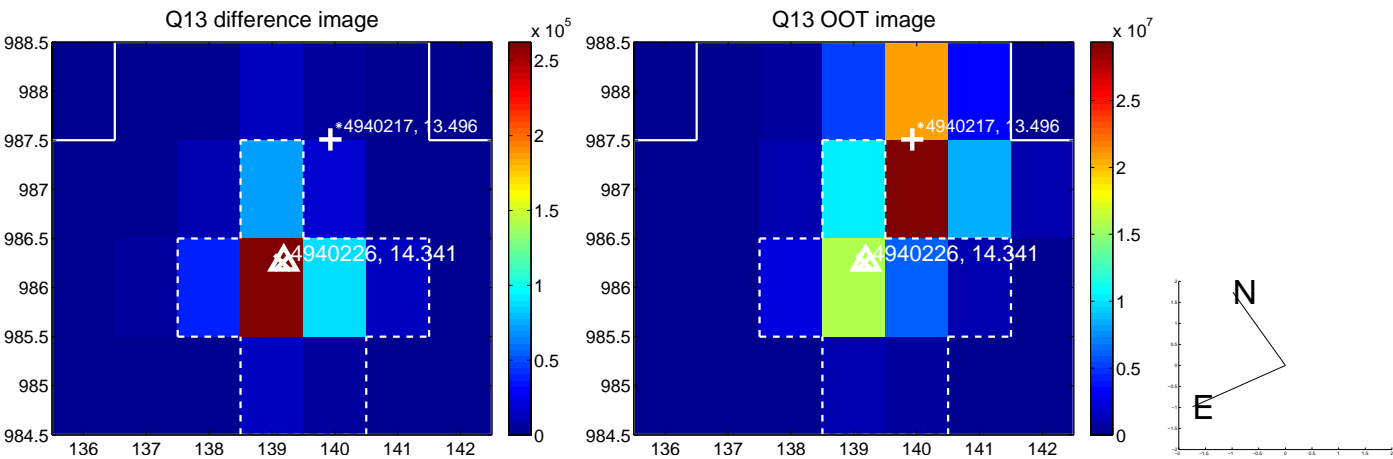
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UKIRT Image

Declination

