

KIC 004077526

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})
004077526-01	OBS	1336.01	10.218673	136.862222	463.4	4.424	22.1	24.8	1.08	6100	2.82	169.34
004077526-02	OBS	1336.02	15.573605	132.442196	454.6	5.151	18.6	20.4	1.08	6100	2.88	96.56
004077526-03	OBS	1336.03	40.101702	132.706620	532.0	5.143	14.2	15.3	1.08	6100	2.82	27.36
004077526-04	OBS	1336.04	4.458173	134.394270	175.7	2.952	11.4	12.0	1.08	6100	1.69	511.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004077526-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

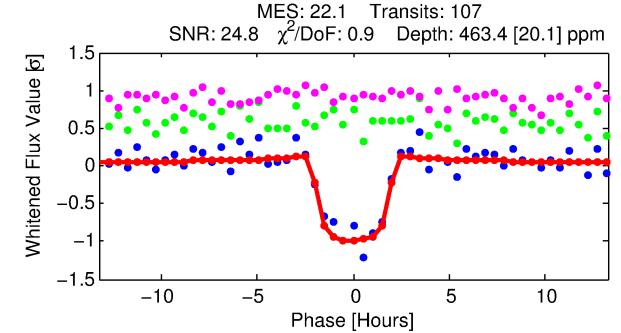
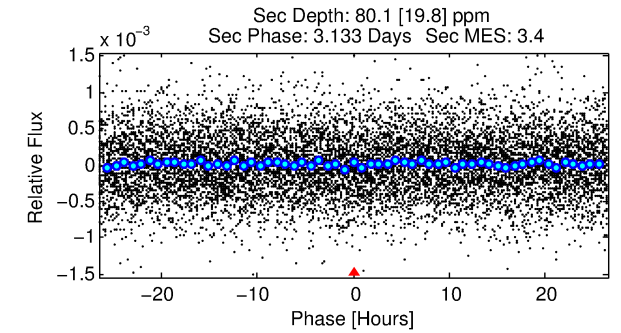
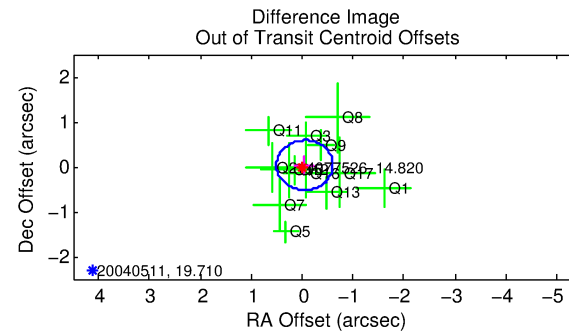
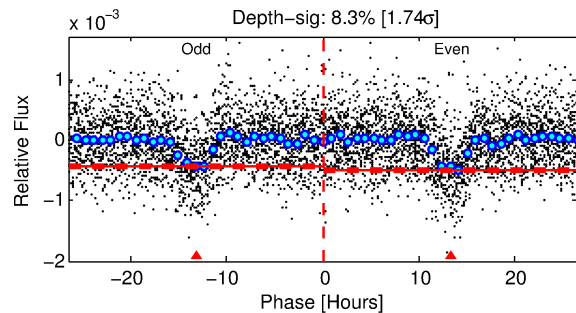
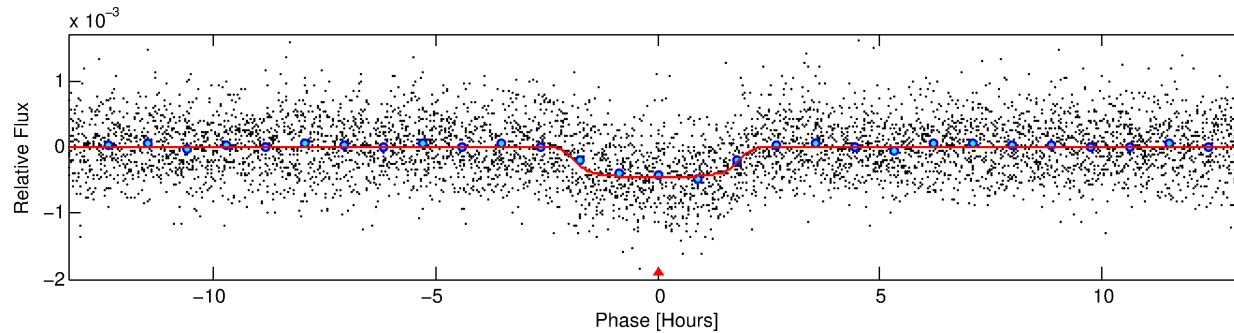
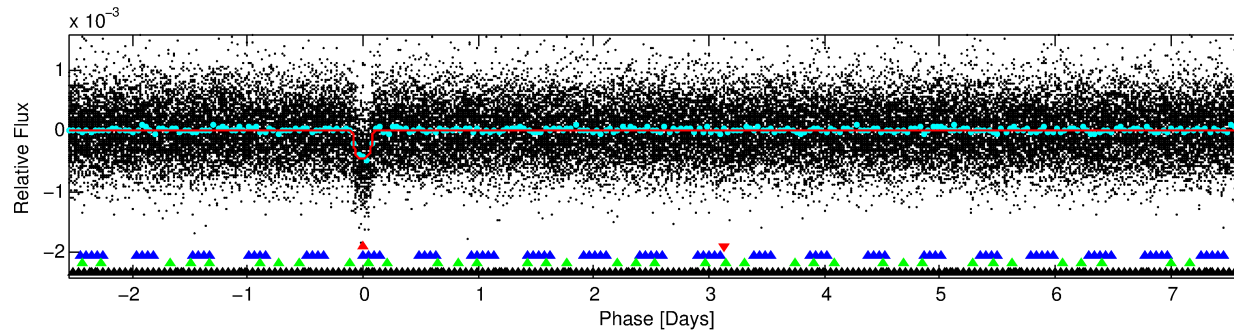
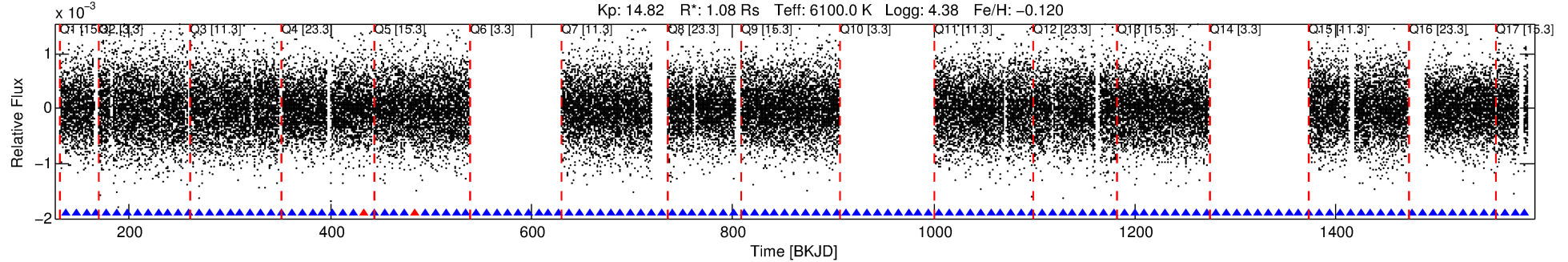
Ephemeris Match Information For 004077526-01

No Significant Match Found

DV One-Page Summary

KIC: 4077526 Candidate: 1 of 4 Period: 10.219 d
KOI: K01336.01 Name: Kepler-58b Corr: 0.987

Kp: 14.82 R*: 1.08 Rs Teff: 6100.0 K Logg: 4.38 Fe/H: -0.120



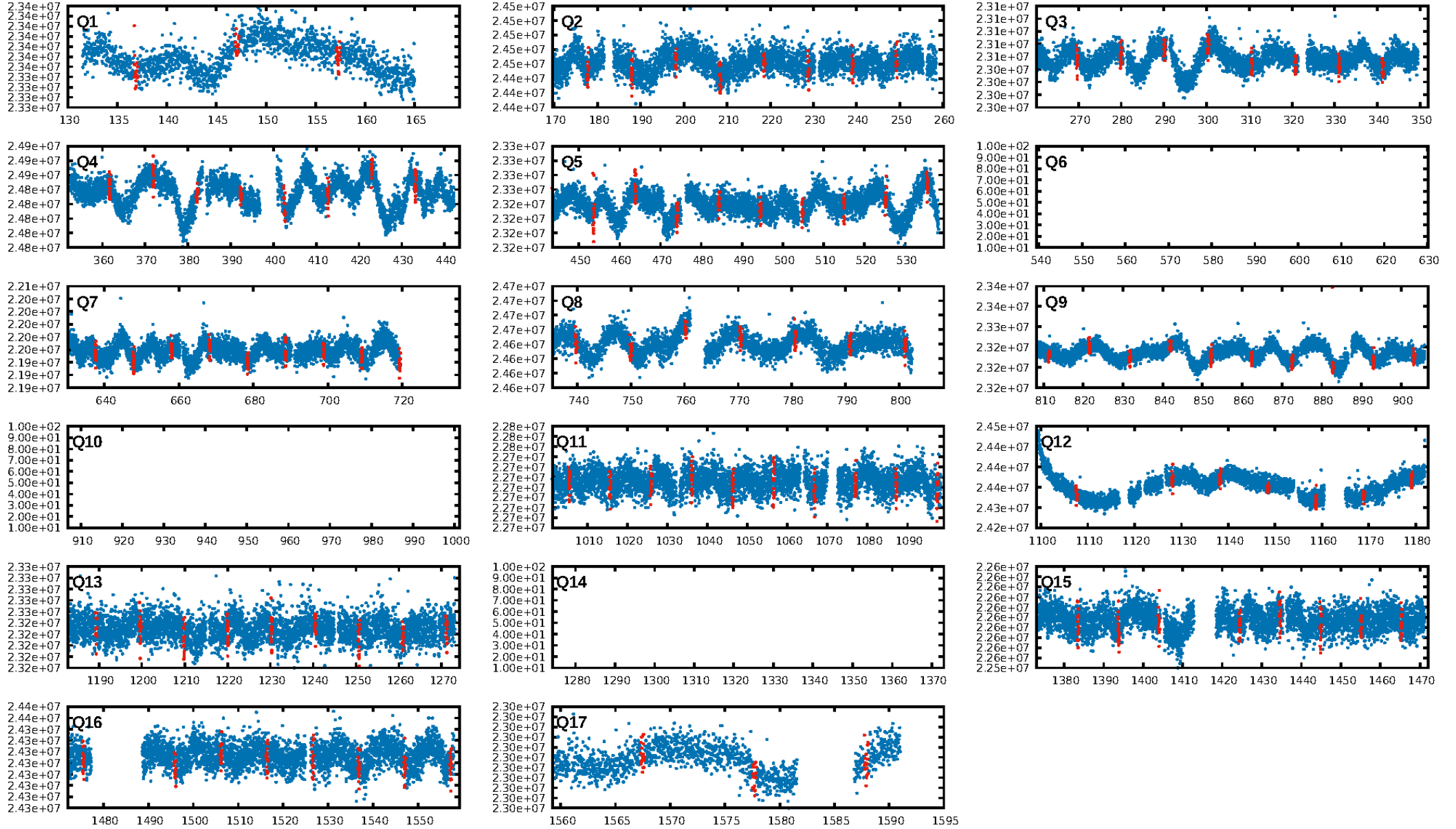
DV Fit Results:

Period = 10.21867 [0.00004] d
Epoch = 136.8622 [0.0034] BKJD
Rp/R* = 0.0239 [0.0013]
a/R* = 7.73 [1.94]
b = 0.93 [0.04]
Seff = 169.35 [66.82]
Teq = 920 [91] K
Rp = 2.82 [0.93] Re
a = 0.0927 [0.0243] AU
Ag = 47.48 [21.73] [2.14σ]
Teffp = 3733 [285] K [9.41σ]

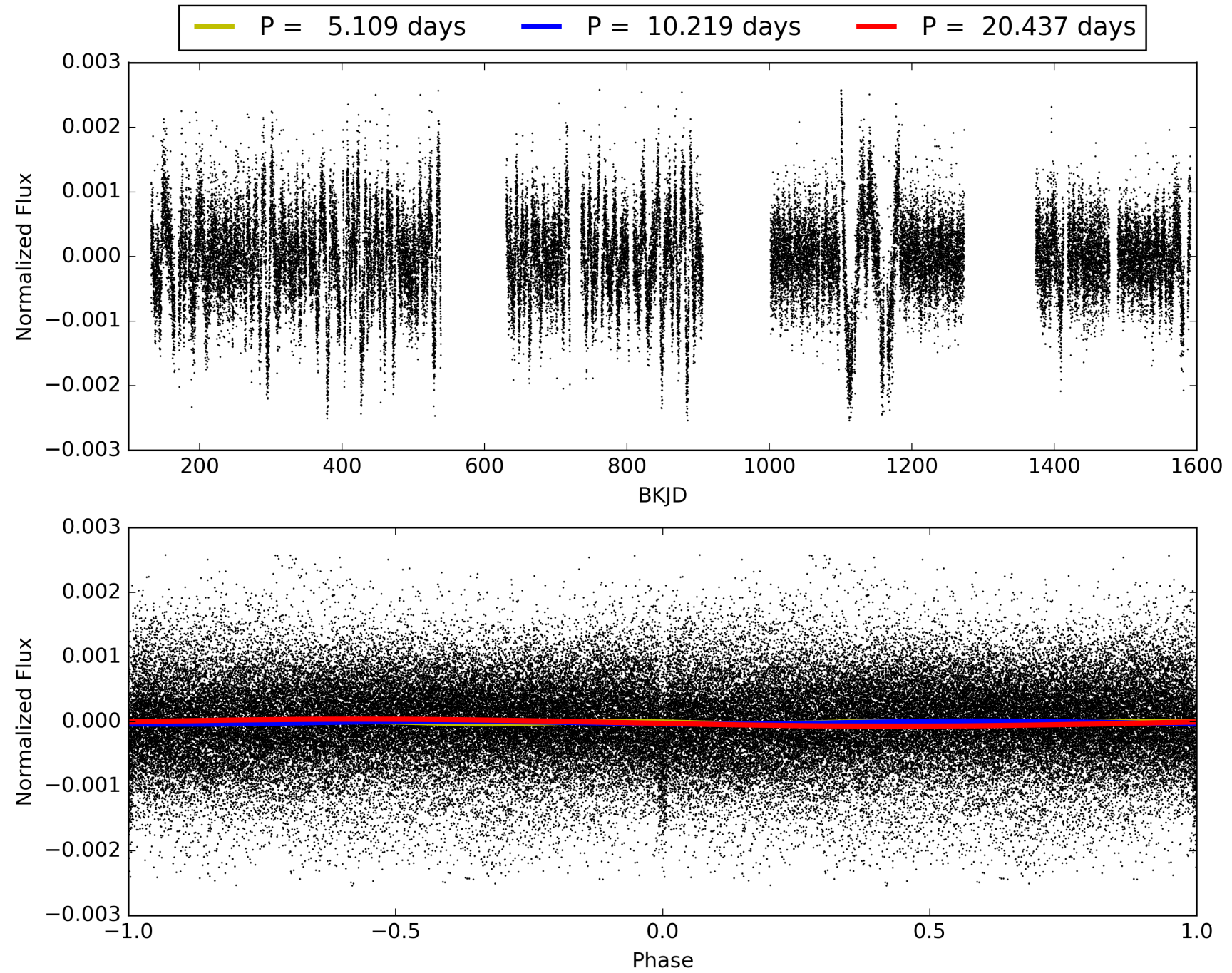
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.99σ]
LongPeriod-sig: 100.0% [18.93σ]
ModelChiSquare2-sig: 90.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.58e-106
RollingBand-fgt: 0.98 [99/101]
GhostDiagnostic-chr: 4.589
Centroid-sig: 20.8%
Centroid-so: 0.341 arcsec [0.60σ]
OotOffset-rm: 0.059 arcsec [0.32σ]
KicOffset-rm: 0.123 arcsec [0.62σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004077526-01, PDC Light Curves

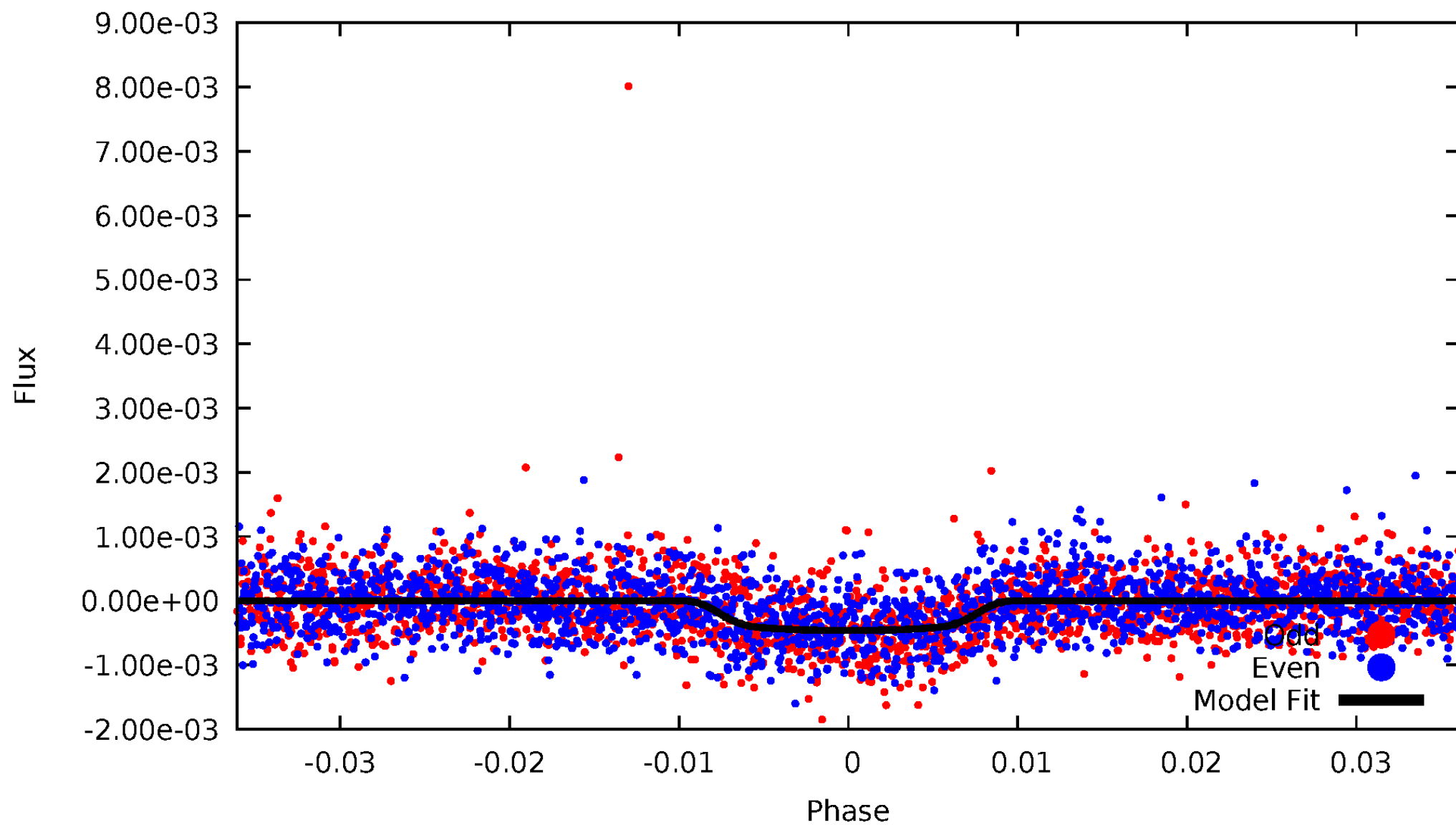


TCE 004077526-01



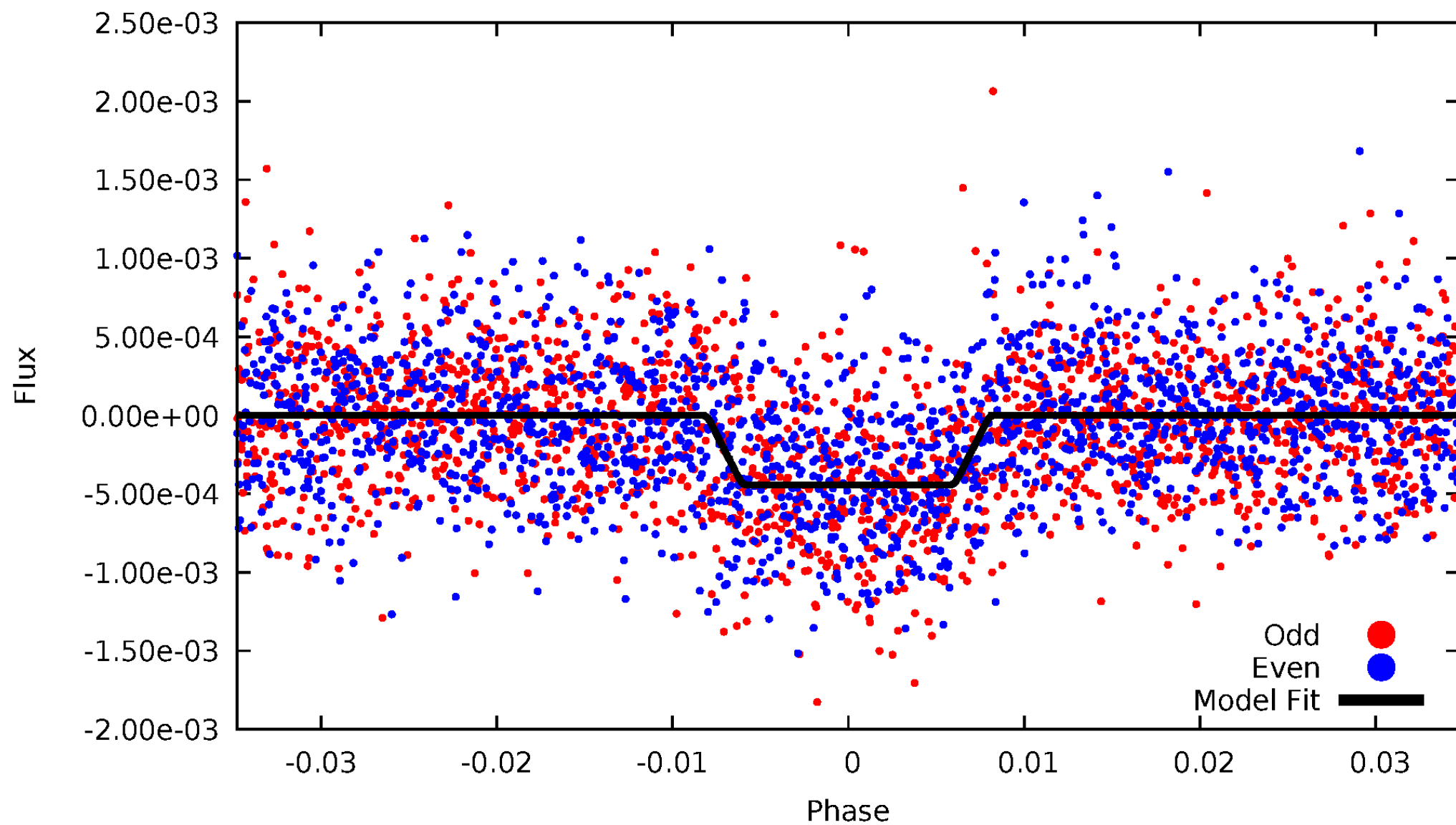
DV Odd/Even

TCE 004077526-01

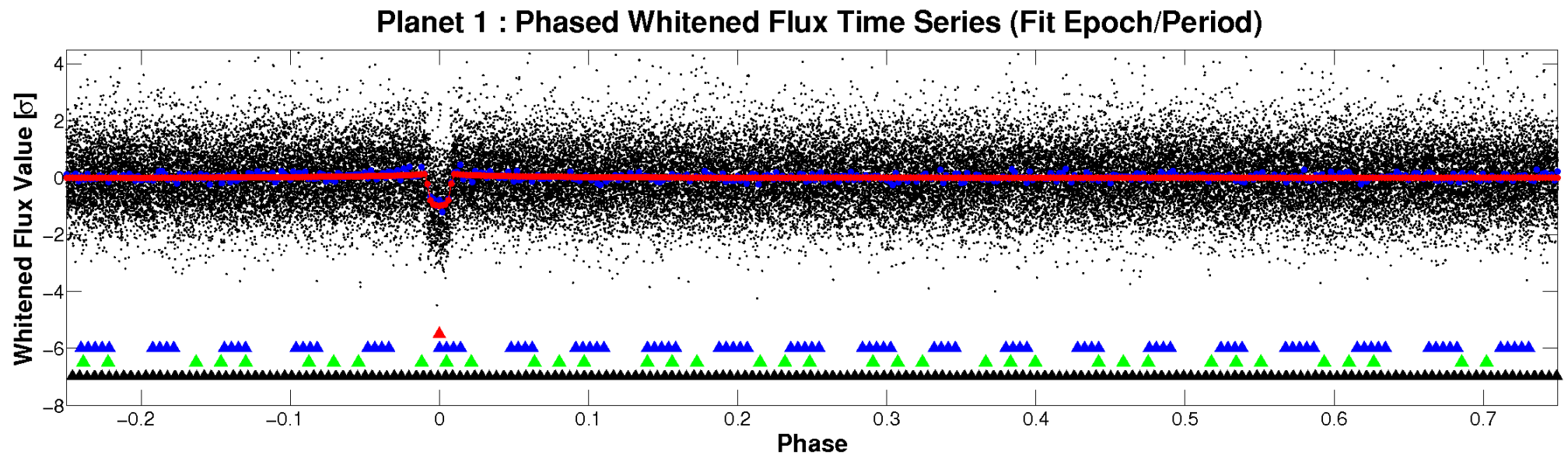
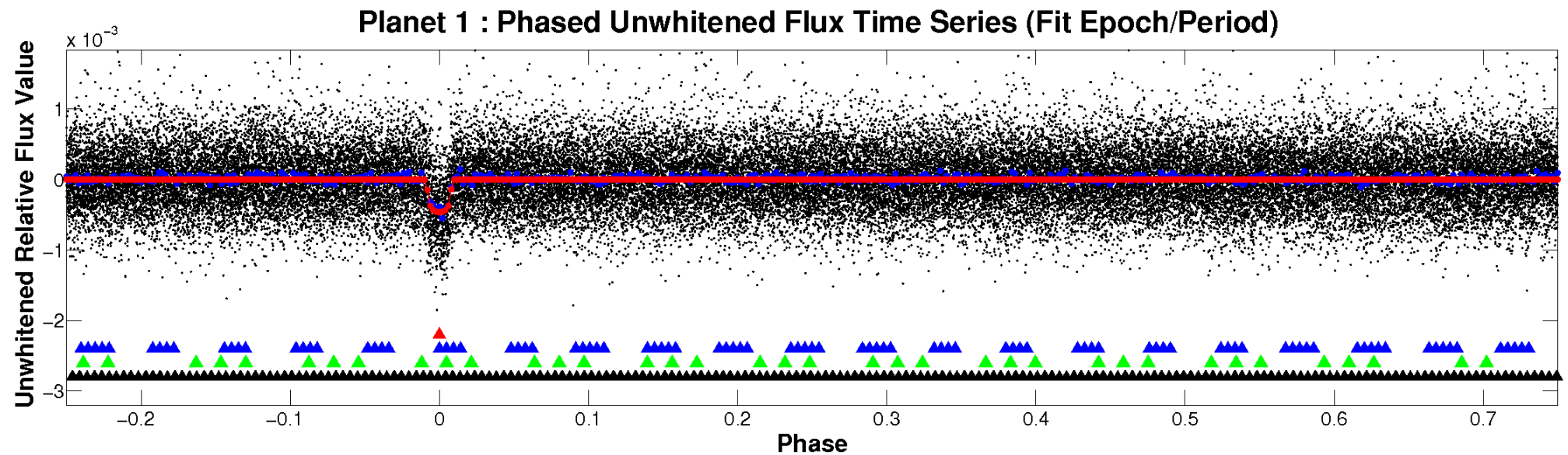


ALT Odd/Even

TCE 004077526-01

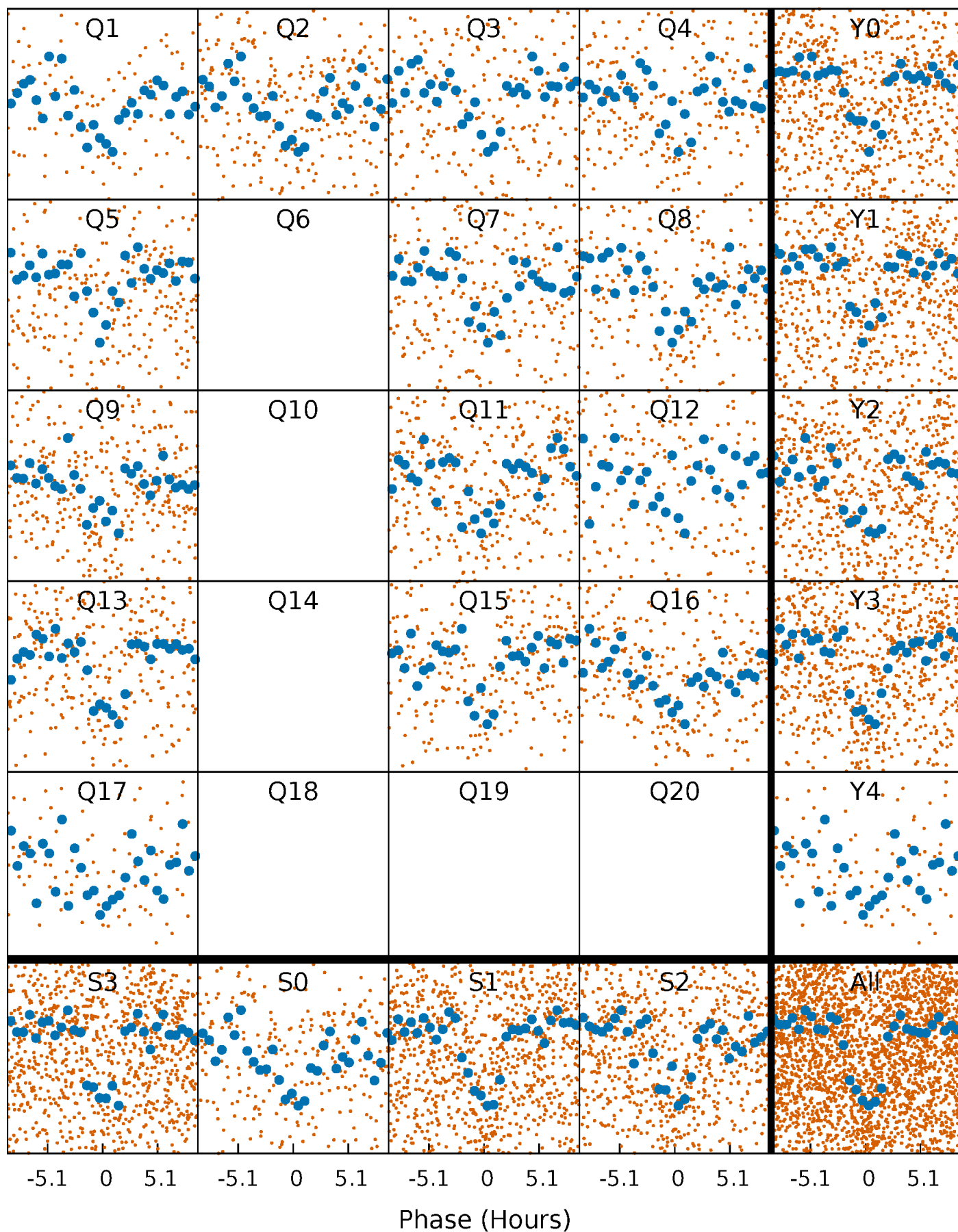


Non-Whitened Vs. Whitened Light Curve



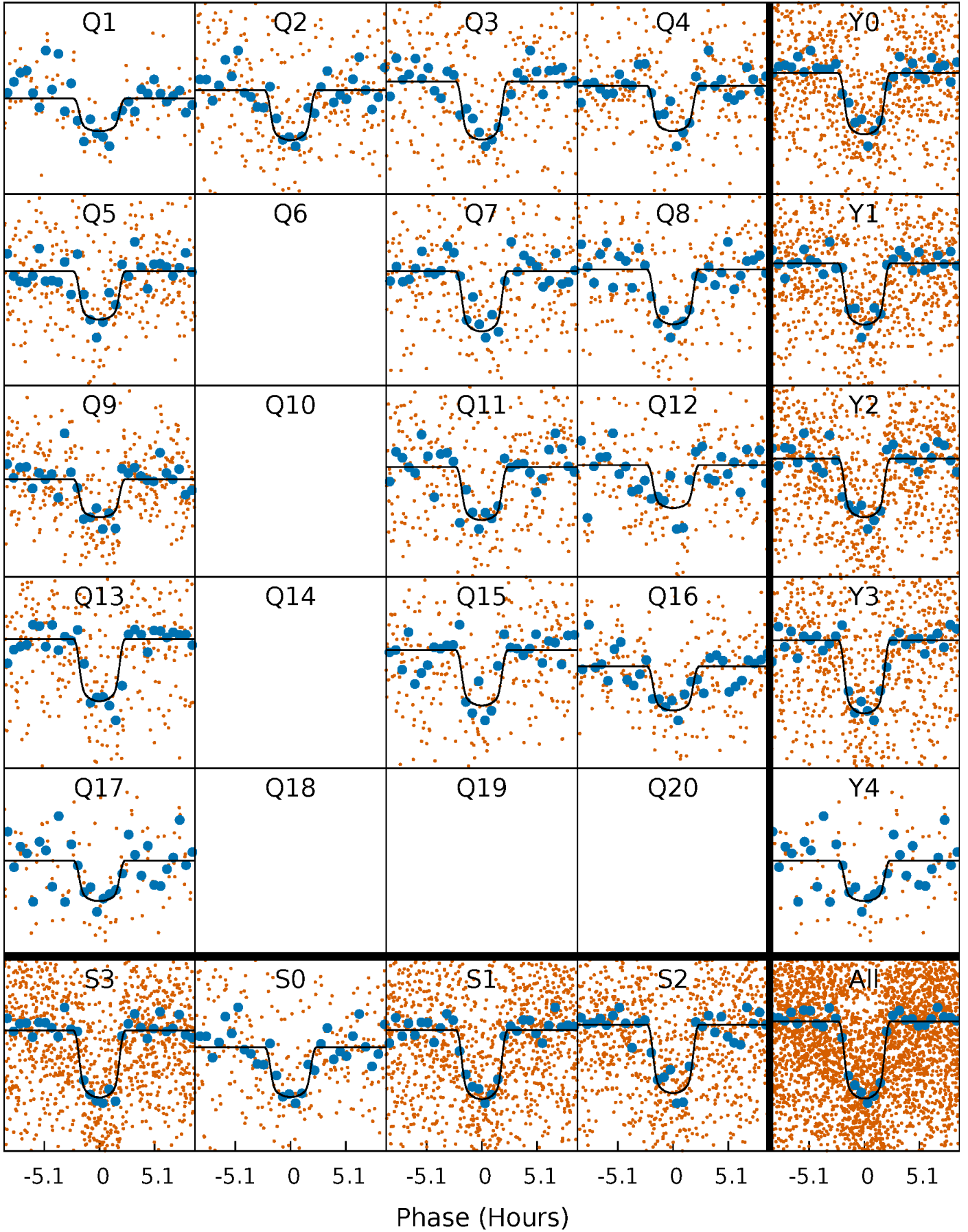
PDC Quarter-Phased Transit Curves

TCE 004077526-01 P= 10.218673 Days $T_0=136.862222$ (BKJD)



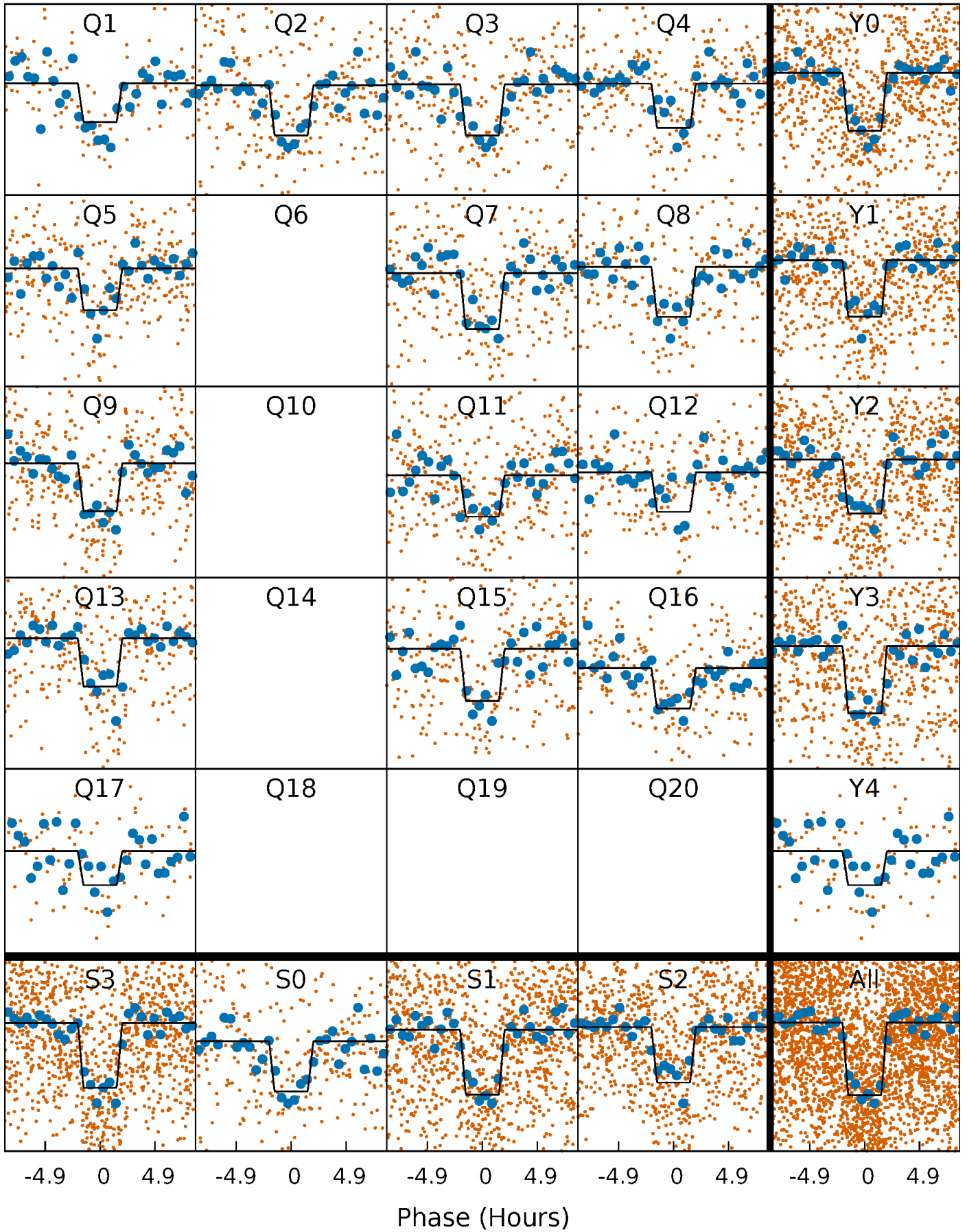
DV Quarter-Phased Transit Curves

TCE 004077526-01 P= 10.218673 Days $T_0=136.862222$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

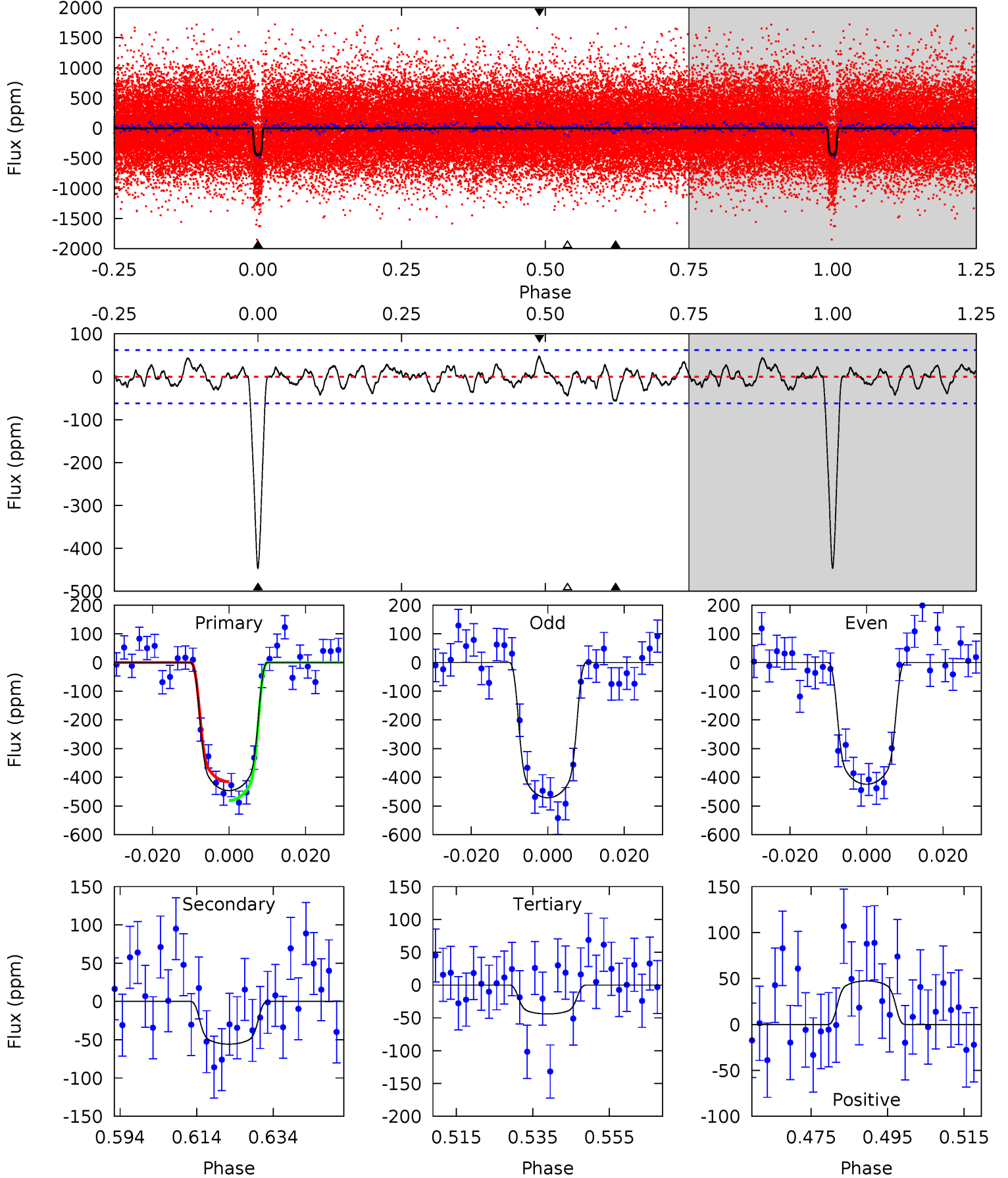
TCE 004077526-01 P= 10.218596 Days $T_0=136.866806$ (BKJD)



DV Model-Shift Uniqueness Test

004077526-01, P = 10.218673 Days, E = 126.643549 Days

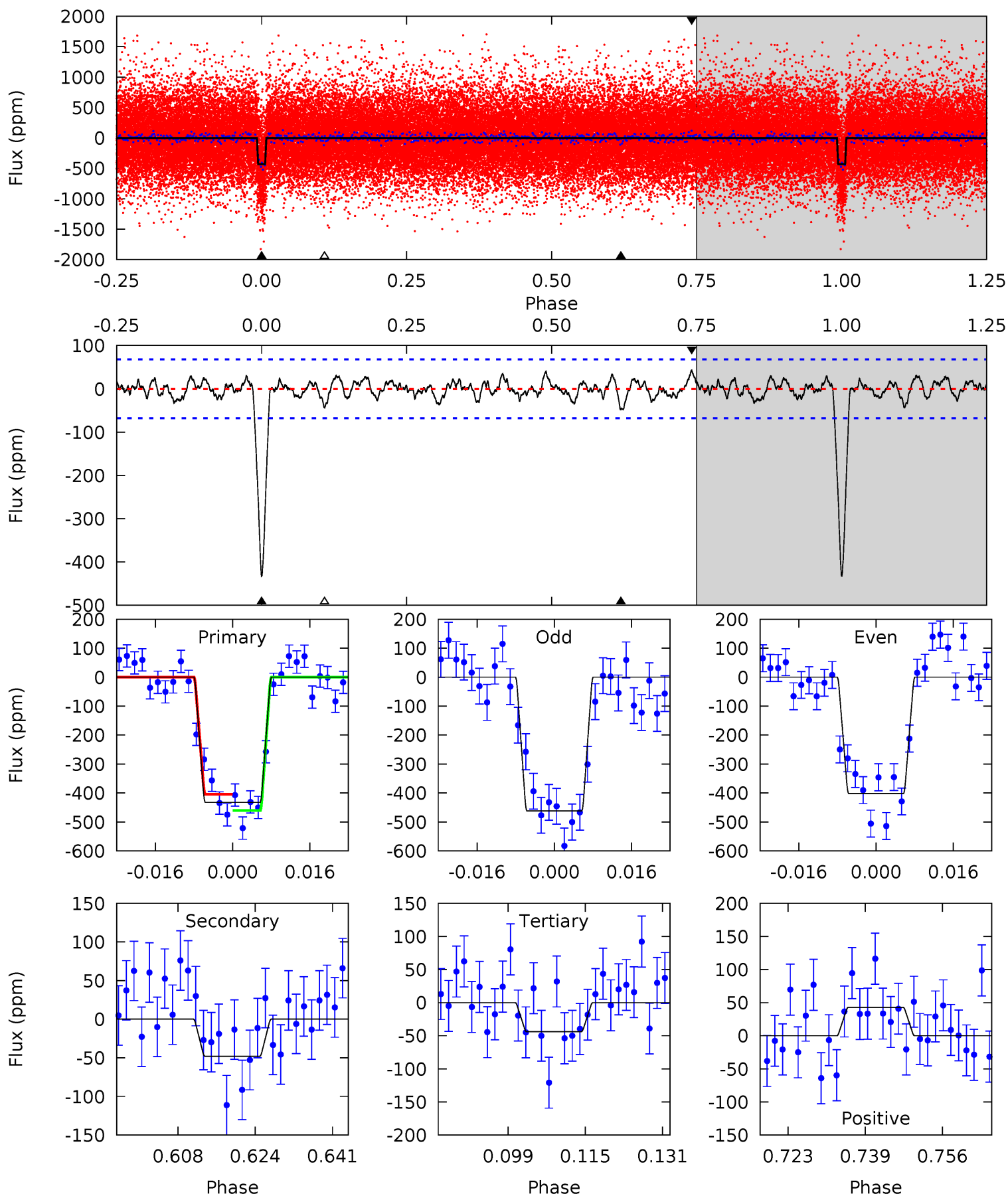
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.2	4.39	3.47	3.73	4.89	2.33	1.31	31.7	31.4	0.92	0.66	1.87	0.99	0.10	2.57



Alt Model-Shift Uniqueness Test

004077526-01, P = 10.218596 Days, E = 126.648210 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.4	3.49	3.18	3.11	4.93	2.40	1.10	28.2	28.3	0.31	0.38	2.19	0.98	0.09	2.03



Stellar Parameters For KIC 004077526

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6100^{+193}_{-214}	$4.376^{+0.105}_{-0.195}$	$-0.120^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.017^{+0.167}_{-0.125}$	$1.126^{+0.558}_{-0.599}$
	+3%/-4%	+2%/-4%	+208%/-250%	+32%/-14%	+16%/-12%	+50%/-53%
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 004077526-01 / KOI 1336.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-56 ± 13	$2.87^{+0.54}_{-0.32}$	1301^{+100}_{-82}	3762^{+200}_{-179}	30^{+12}_{-9}
Alt.	-48 ± 14	$2.52^{+0.41}_{-0.29}$	1297^{+92}_{-69}	3849^{+235}_{-238}	34^{+15}_{-12}

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 $A_{obs} \gg 1.0$

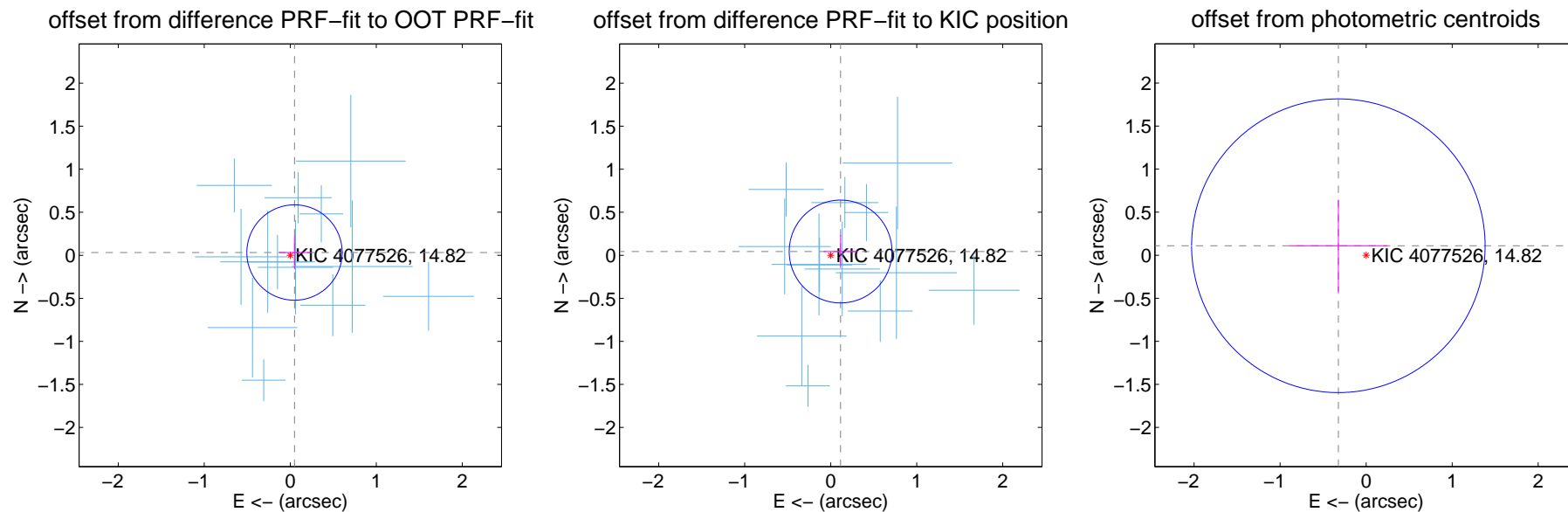
DV Centroid Data

Supplemental centroid analysis for 004077526-01. Kepler magnitude: 14.82. Transit SNR 24.80

There are 13 quarters with good PRF difference image offsets

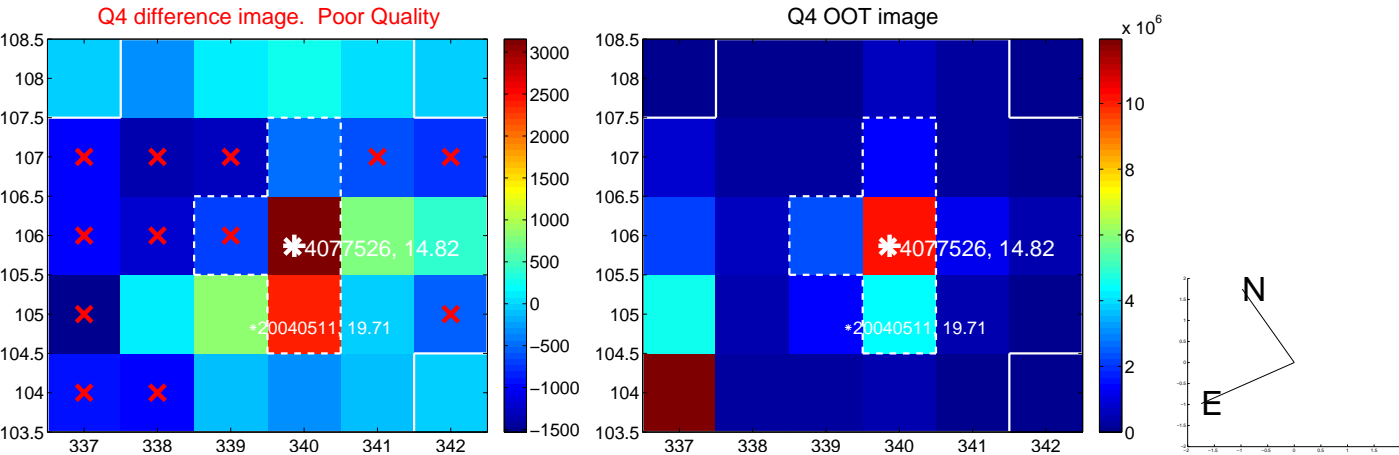
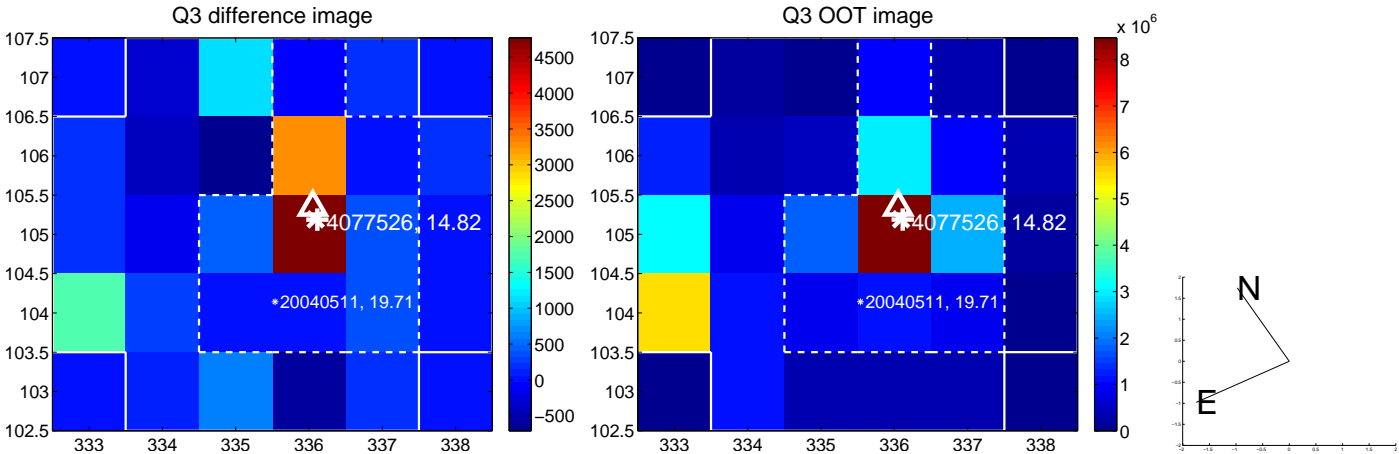
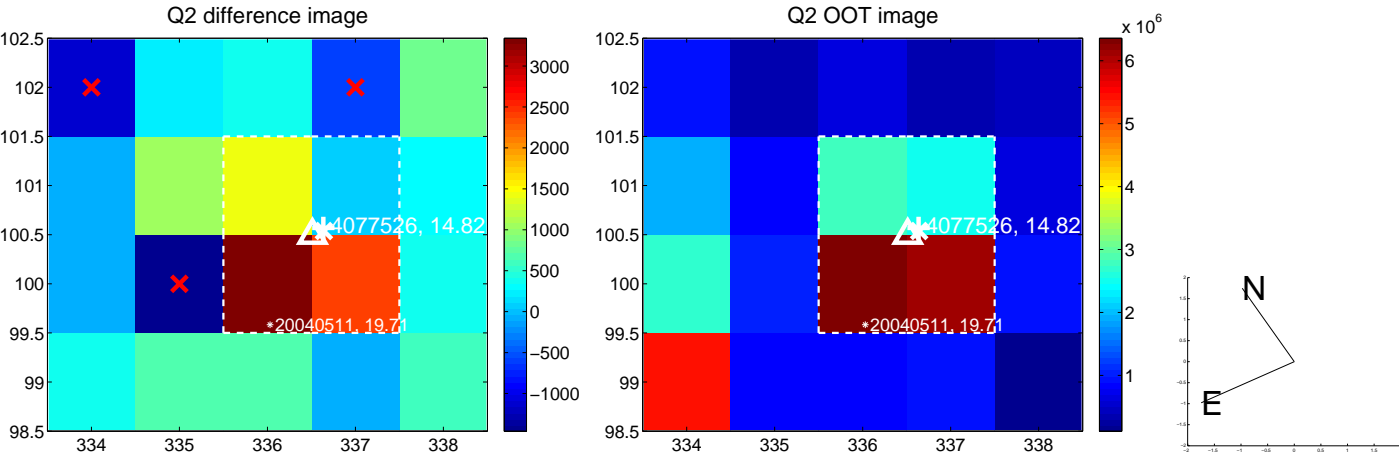
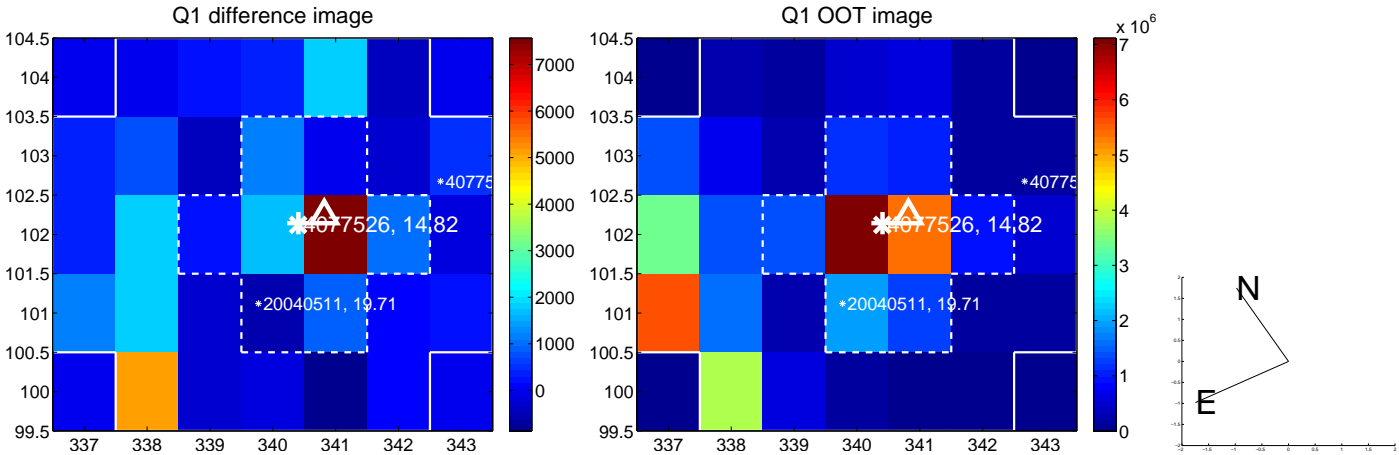
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.059 ± 0.185	0.32	-0.050 ± 0.180	0.032 ± 0.195
PRF-fit source offset from KIC position	0.123 ± 0.199	0.62	-0.115 ± 0.196	0.044 ± 0.191
photometric centroid source offset	0.34 ± 0.57	0.60	0.32 ± 0.57	0.11 ± 0.53

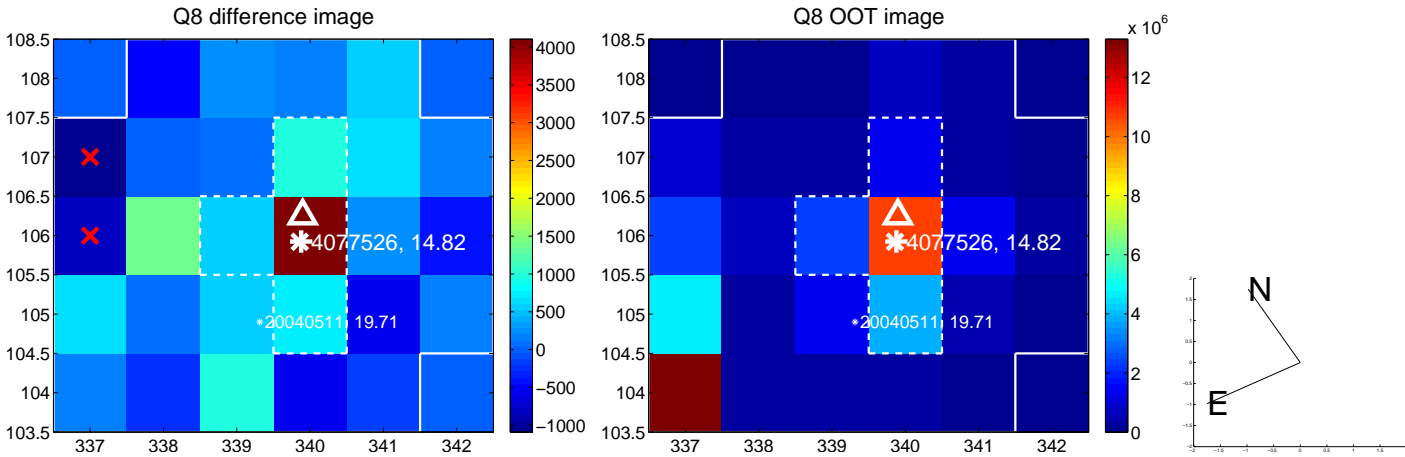
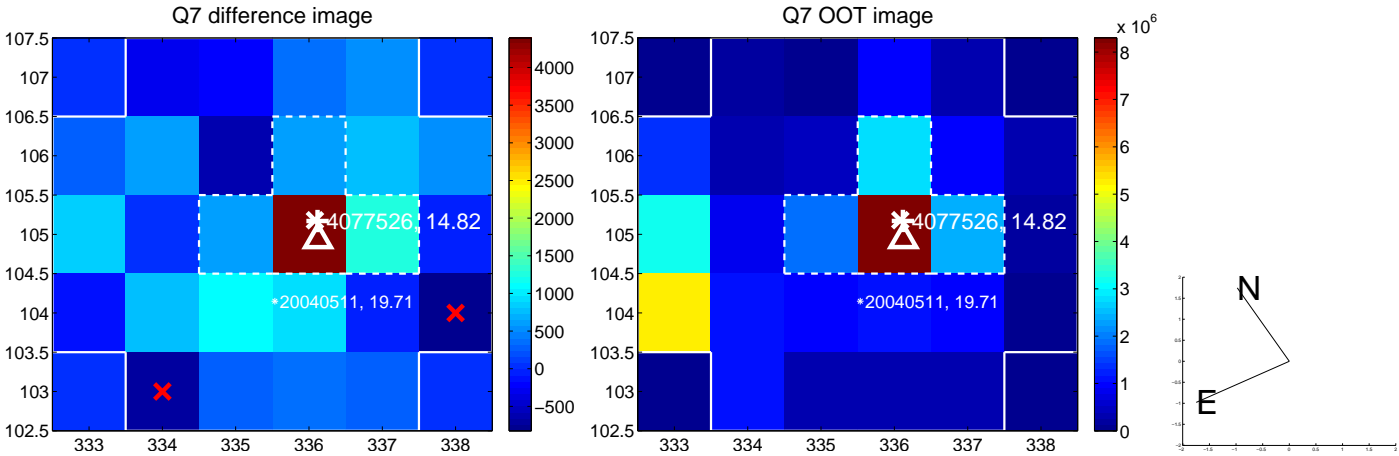
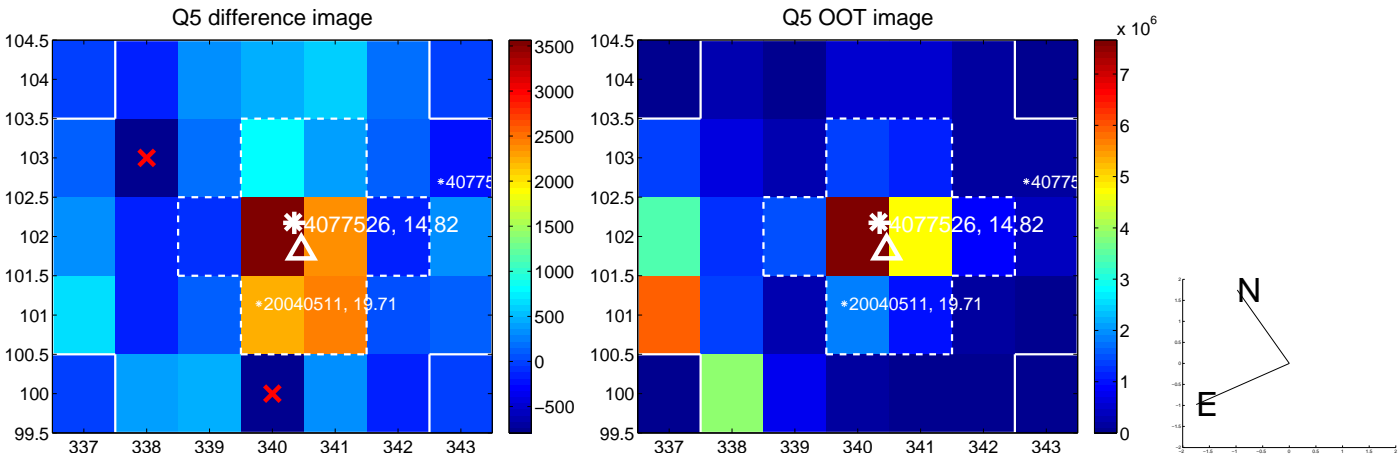


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

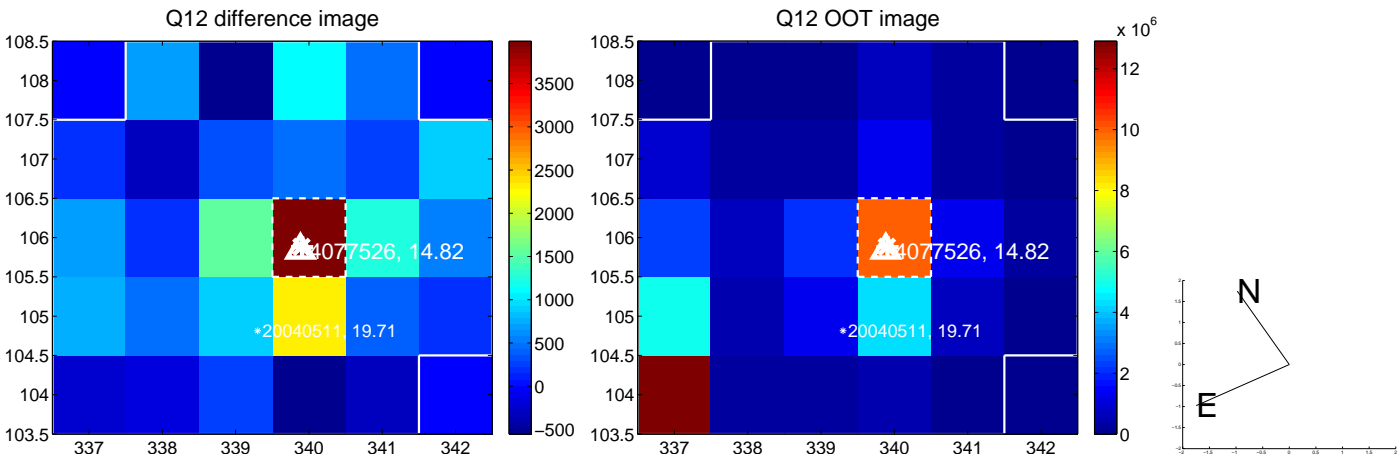
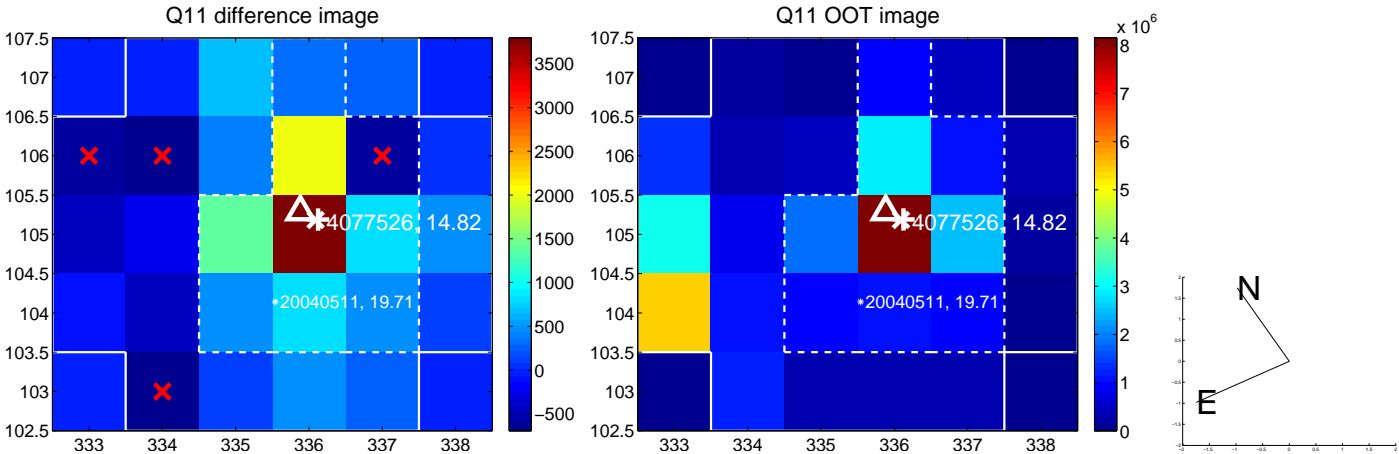
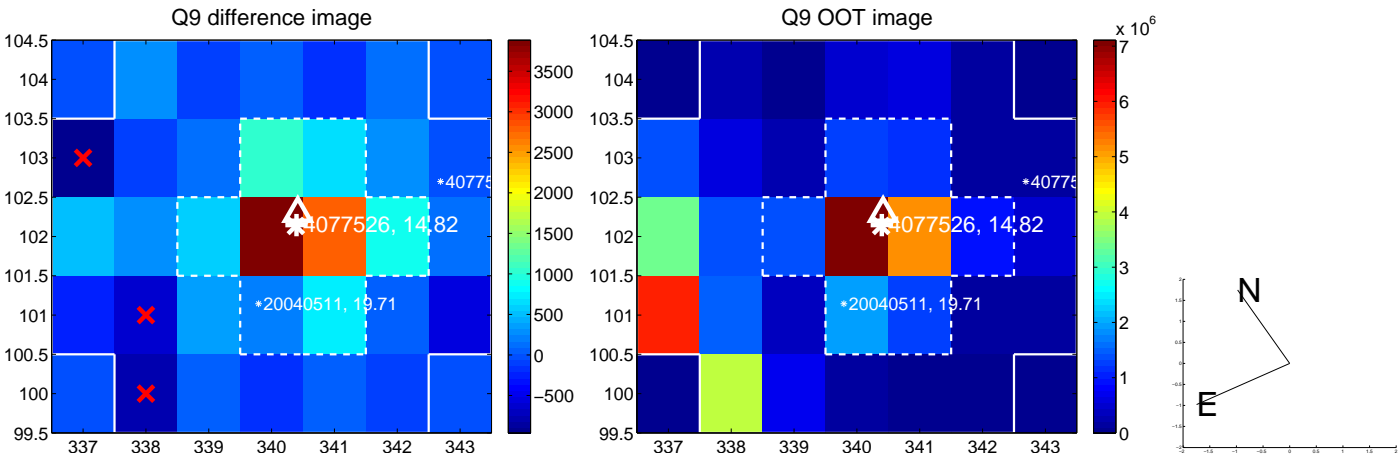
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



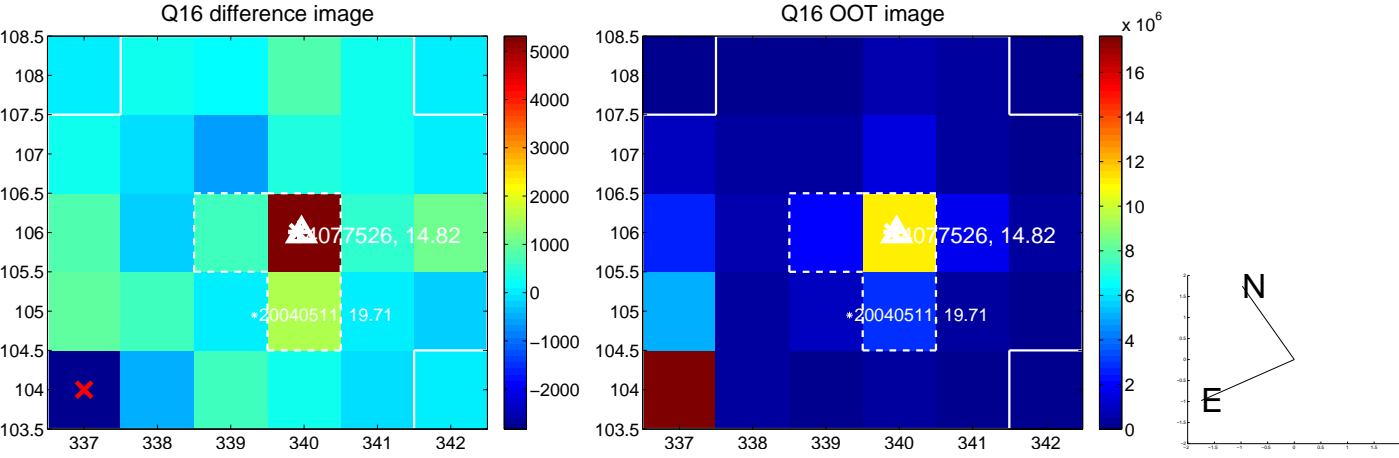
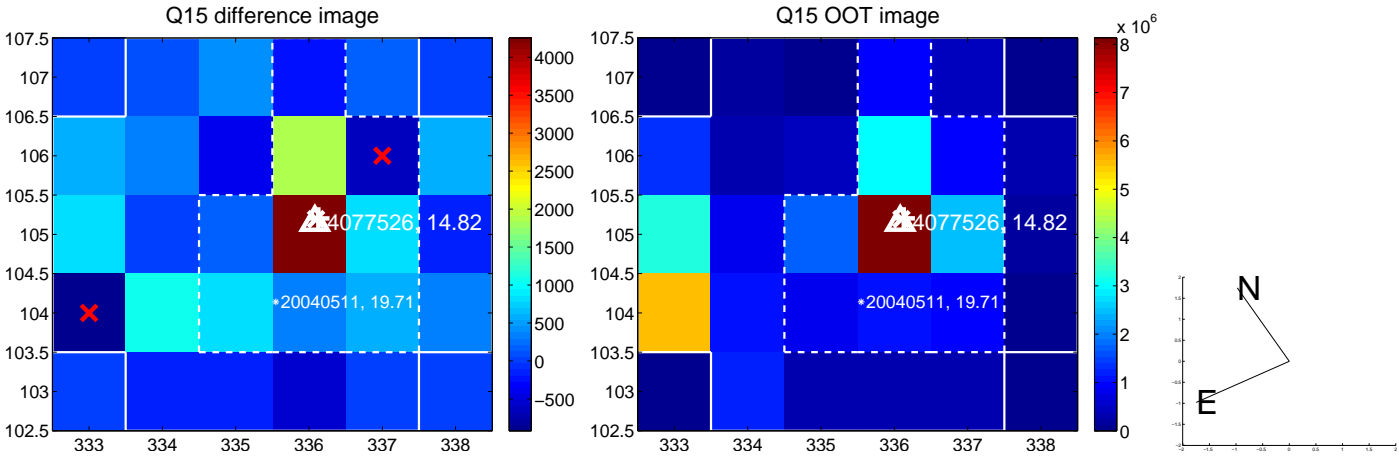
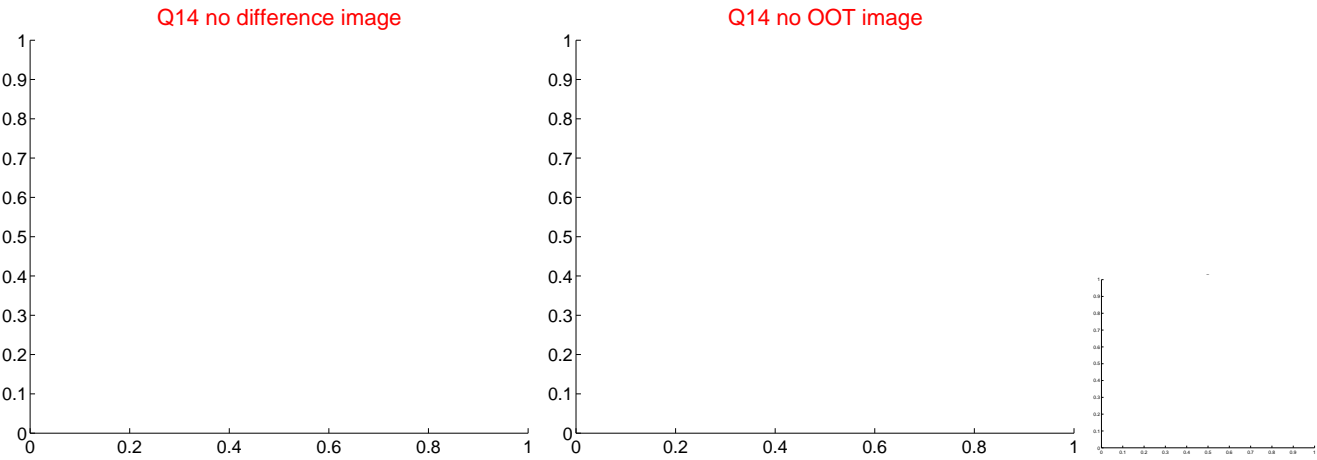
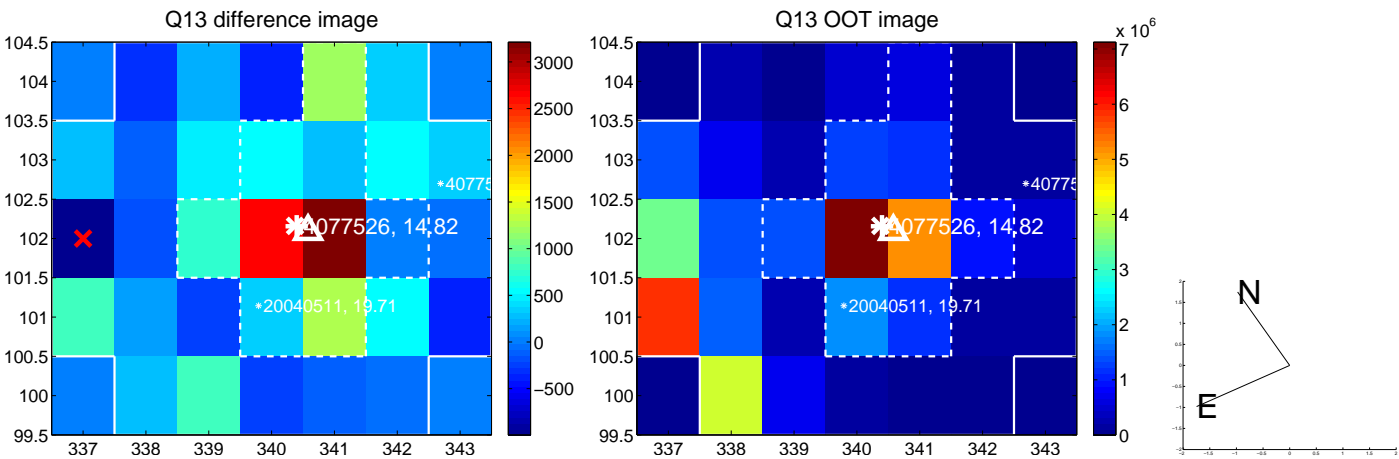
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



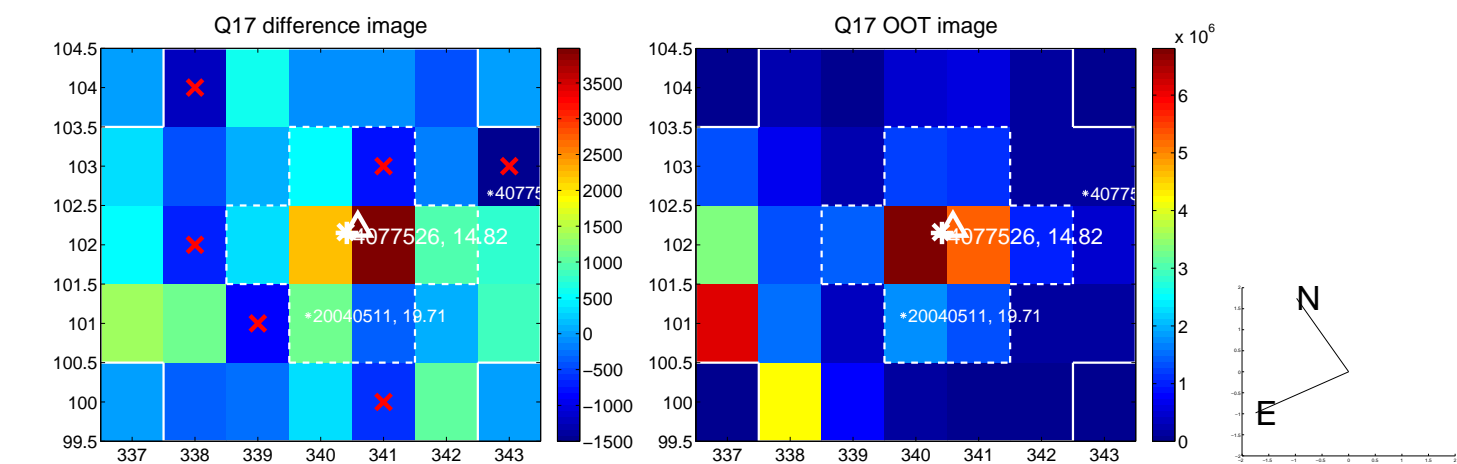
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



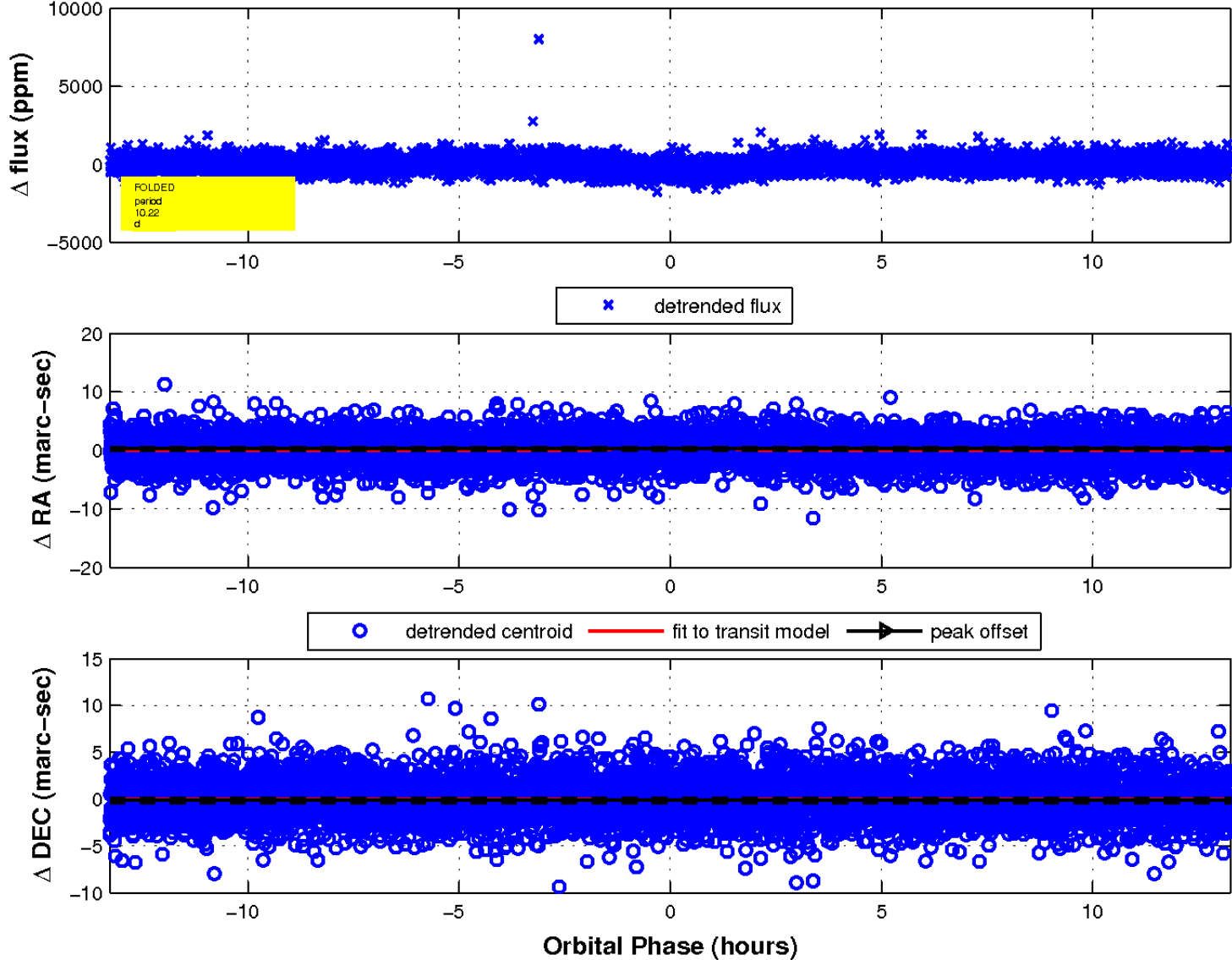
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

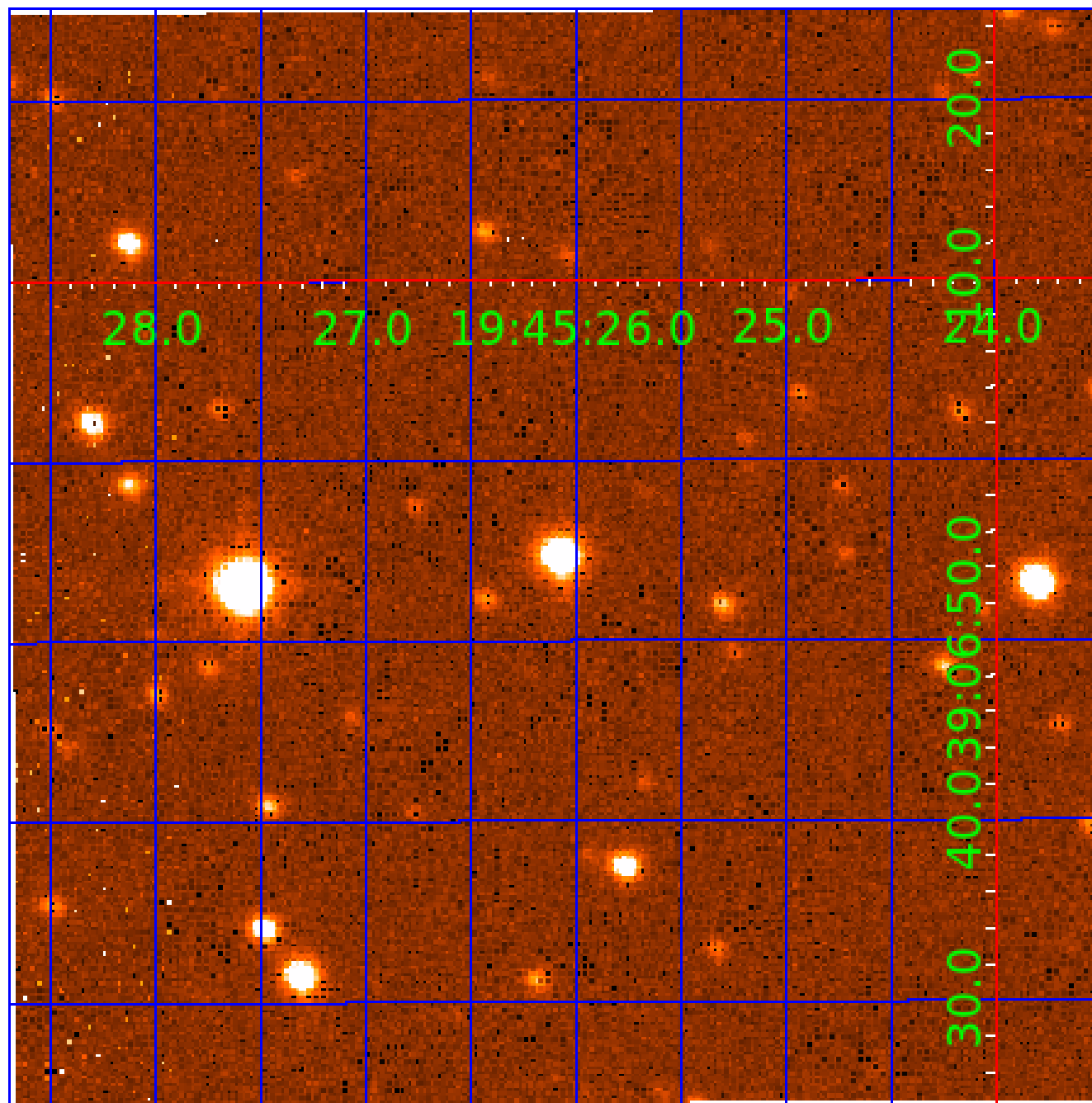


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 004077526

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})
004077526-01	OBS	1336.01	10.218673	136.862222	463.4	4.424	22.1	24.8	1.08	6100	2.82	169.34
004077526-02	OBS	1336.02	15.573605	132.442196	454.6	5.151	18.6	20.4	1.08	6100	2.88	96.56
004077526-03	OBS	1336.03	40.101702	132.706620	532.0	5.143	14.2	15.3	1.08	6100	2.82	27.36
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004077526-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

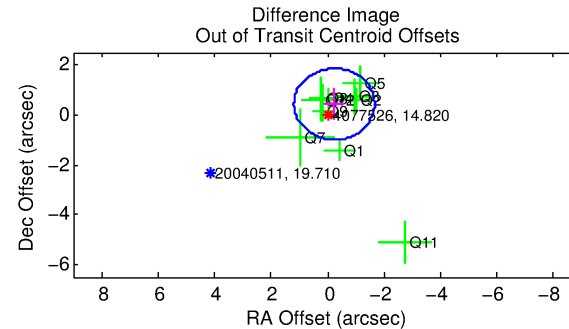
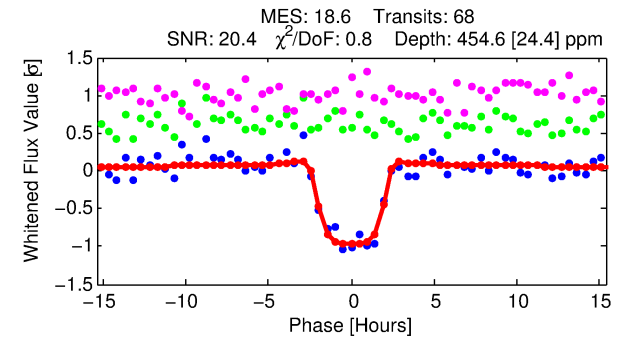
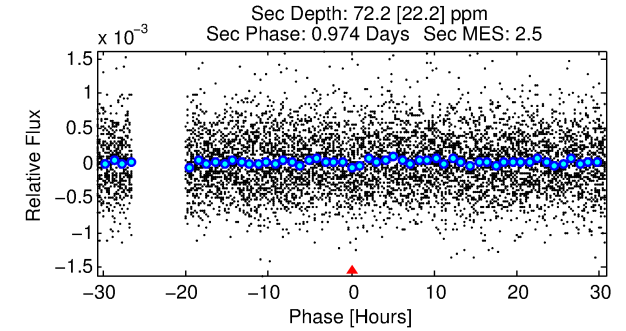
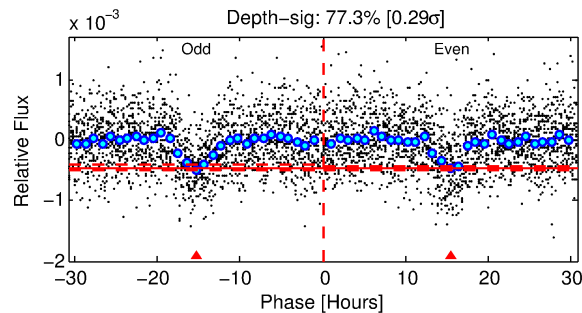
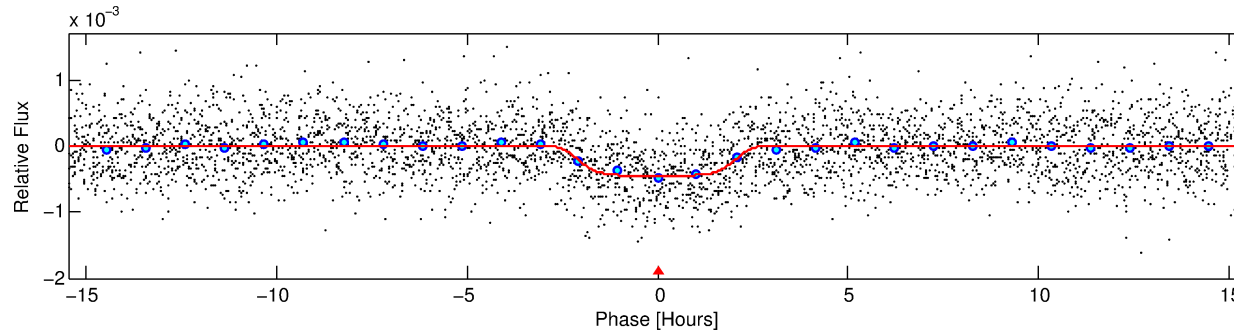
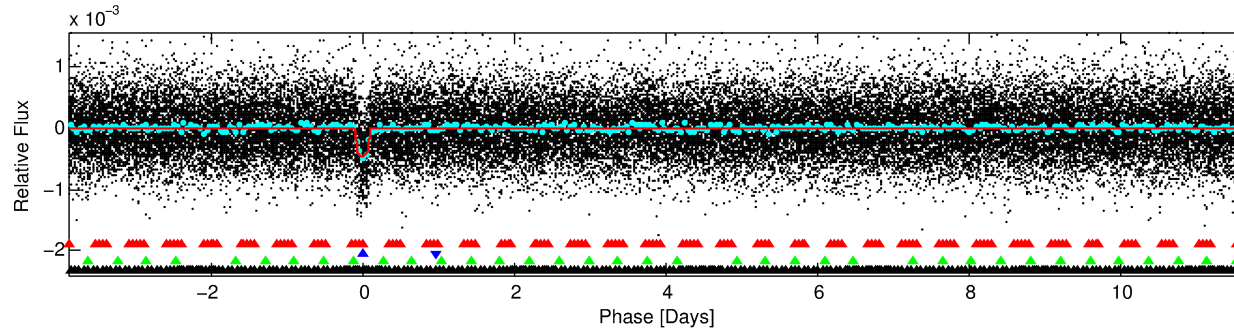
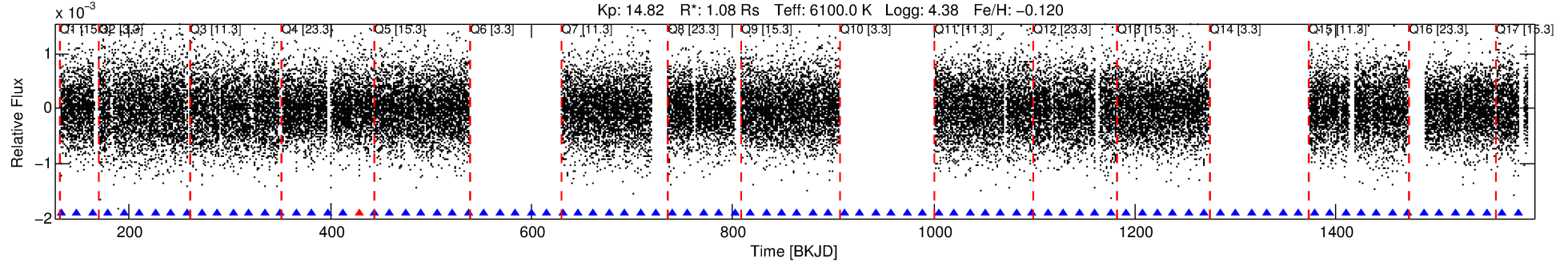
Ephemeris Match Information For 004077526-02

No Significant Match Found

DV One-Page Summary

KIC: 4077526 Candidate: 2 of 4 Period: 15.574 d
KOI: K01336.02 Name: Kepler-58c Corr: 0.968

Kp: 14.82 R*: 1.08 Rs Teff: 6100.0 K Logg: 4.38 Fe/H: -0.120



DV Fit Results:

Period = 15.57361 [0.00010] d
Epoch = 132.4422 [0.0051] BKJD
Rp/R* = 0.0243 [0.0012]
a/R* = 9.07 [1.69]
b = 0.95 [0.02]
Seff = 96.56 [38.10]
Teq = 799 [79] K
Rp = 2.88 [0.94] Re
a = 0.1228 [0.0322] AU
Ag = 72.34 [35.46] [2.01σ]
Teff = 3604 [317] K [8.58σ]

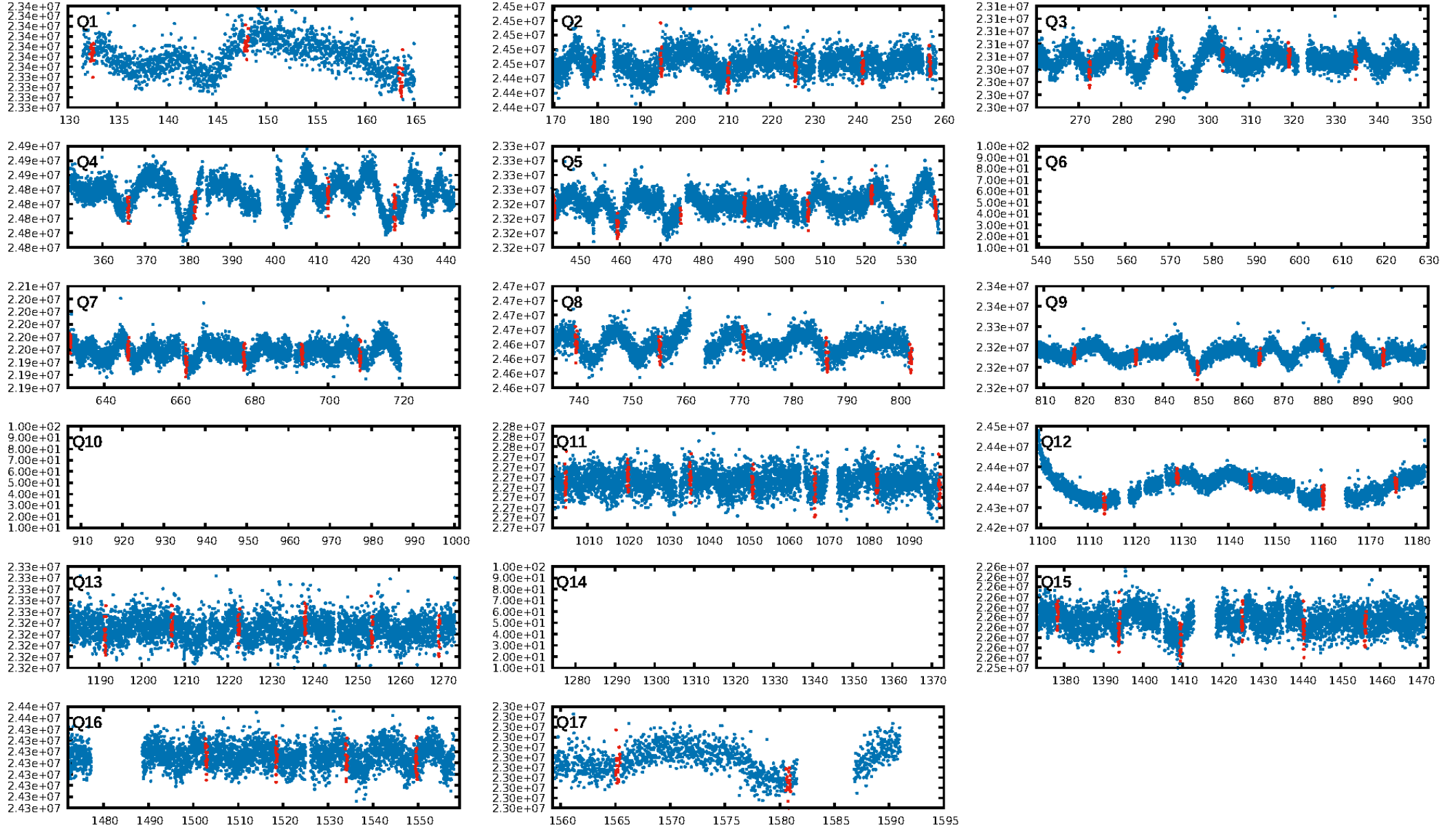
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.93σ]
LongPeriod-sig: 100.0% [80.88σ]
ModelChiSquare2-sig: 99.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.10e-76
RollingBand-fgt: 0.98 [62/63]
GhostDiagnostic-chr: 4.156
Centroid-sig: 50.4%
Centroid-so: 0.971 arcsec [1.43σ]
OotOffset-rm: 0.481 arcsec [1.01σ]
KicOffset-rm: 0.506 arcsec [1.27σ]
OotOffset-st: 1/3/3/3 [10]
KicOffset-st: 1/3/3/3 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 0.93 [13/14]

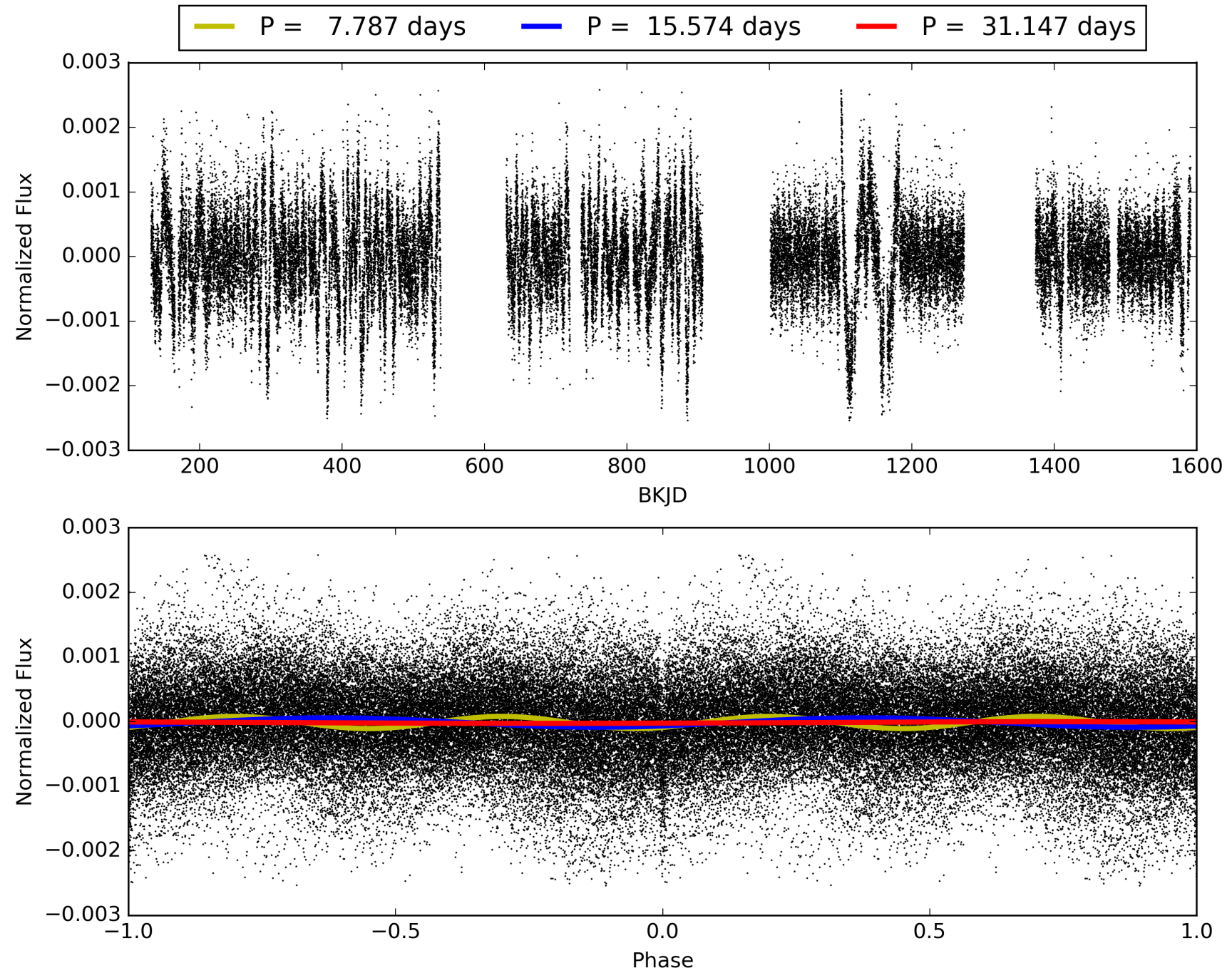
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:32:37 Z

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

TCE 004077526-02, PDC Light Curves

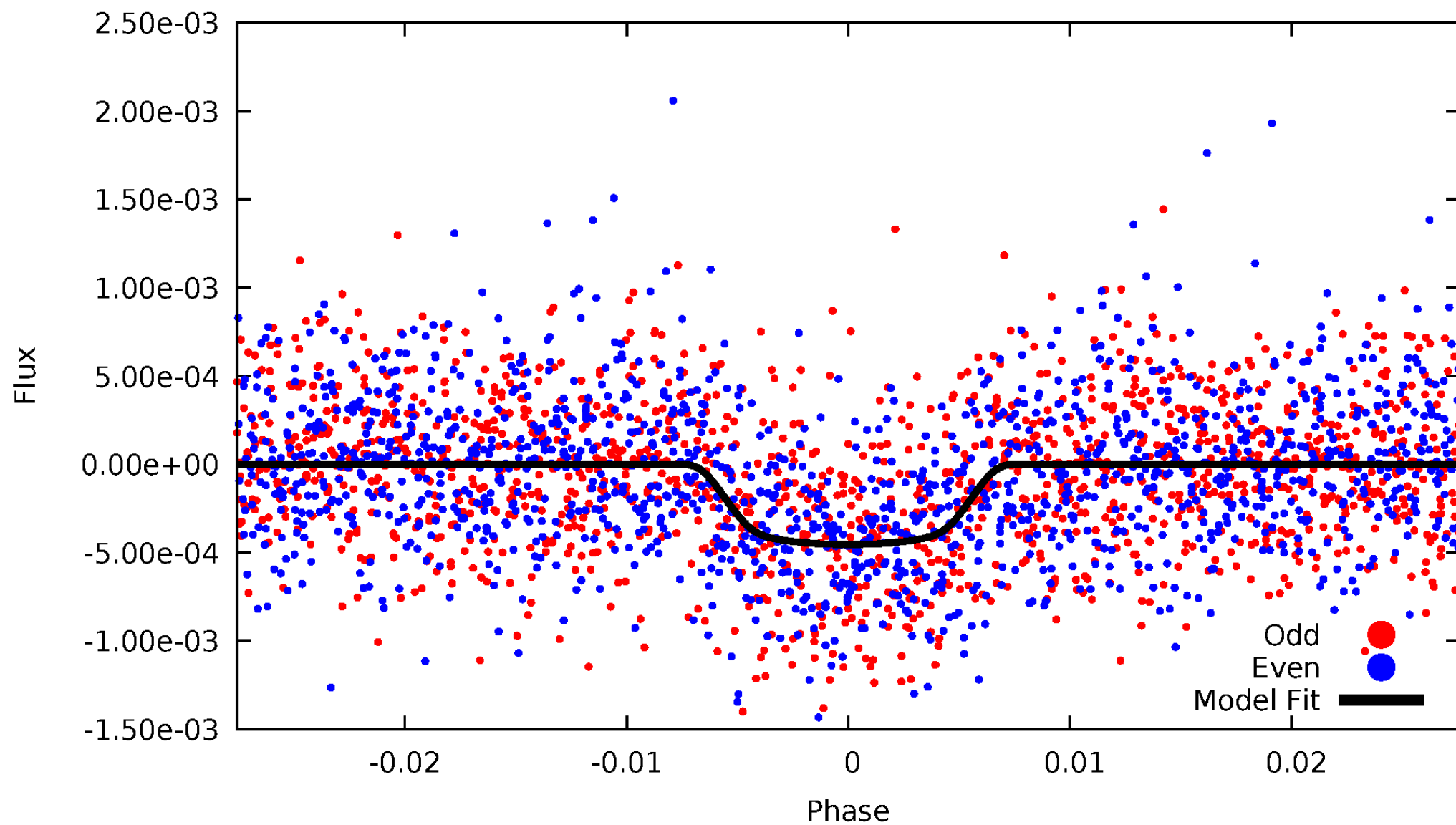


TCE 004077526-02



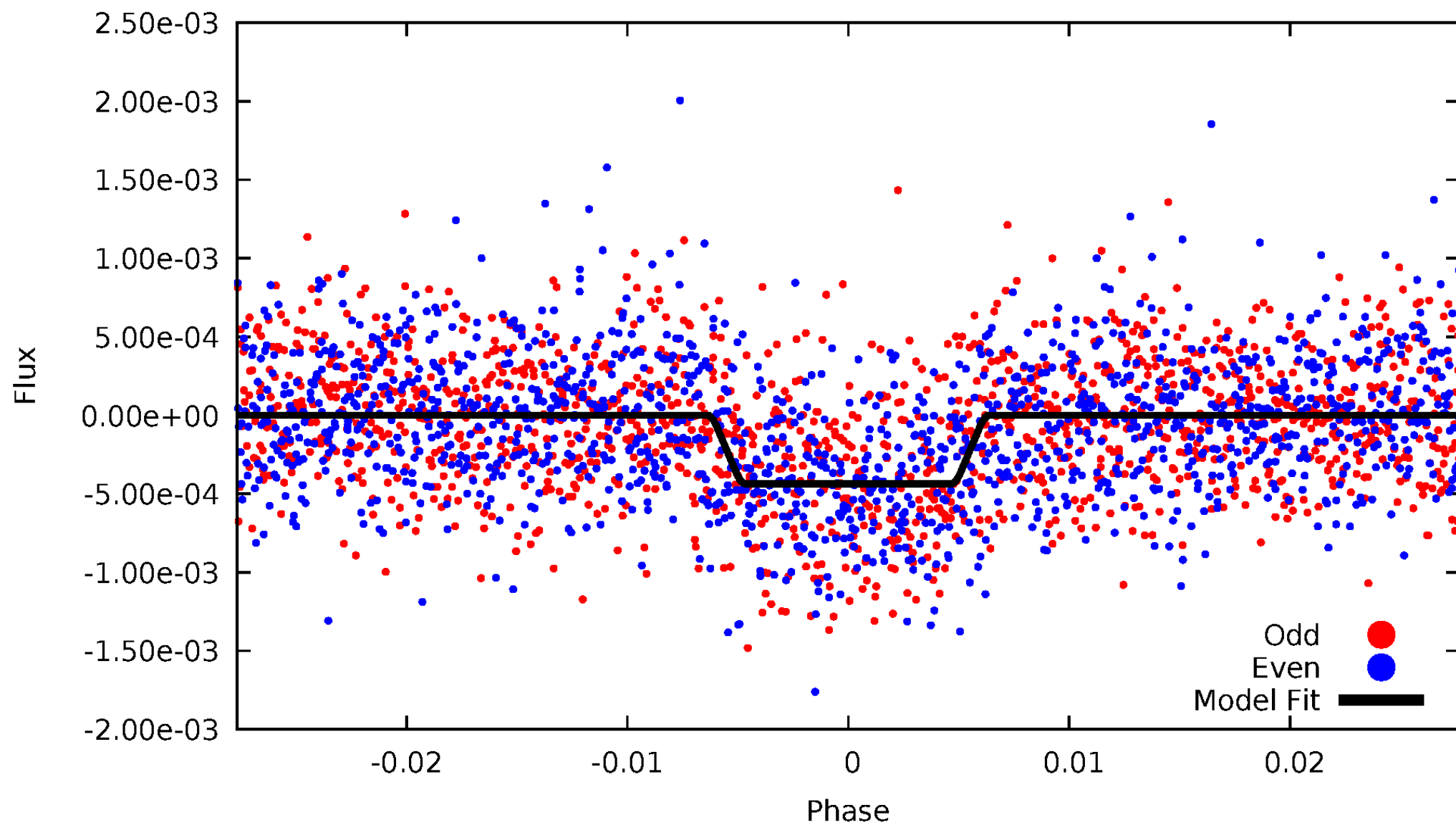
DV Odd/Even

TCE 004077526-02



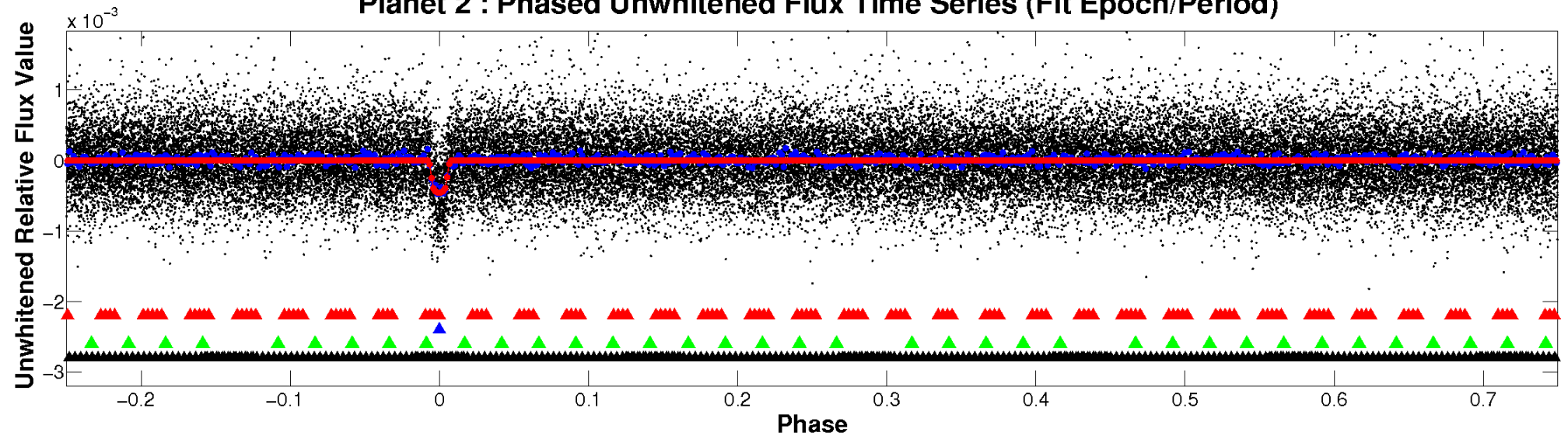
ALT Odd/Even

TCE 004077526-02

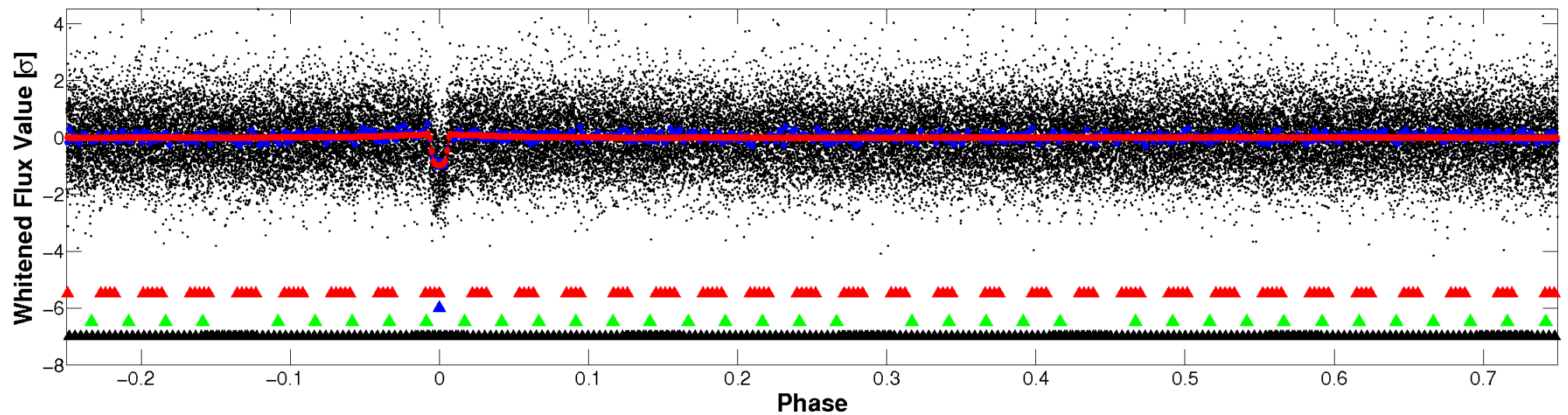


Non-Whitened Vs. Whitened Light Curve

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

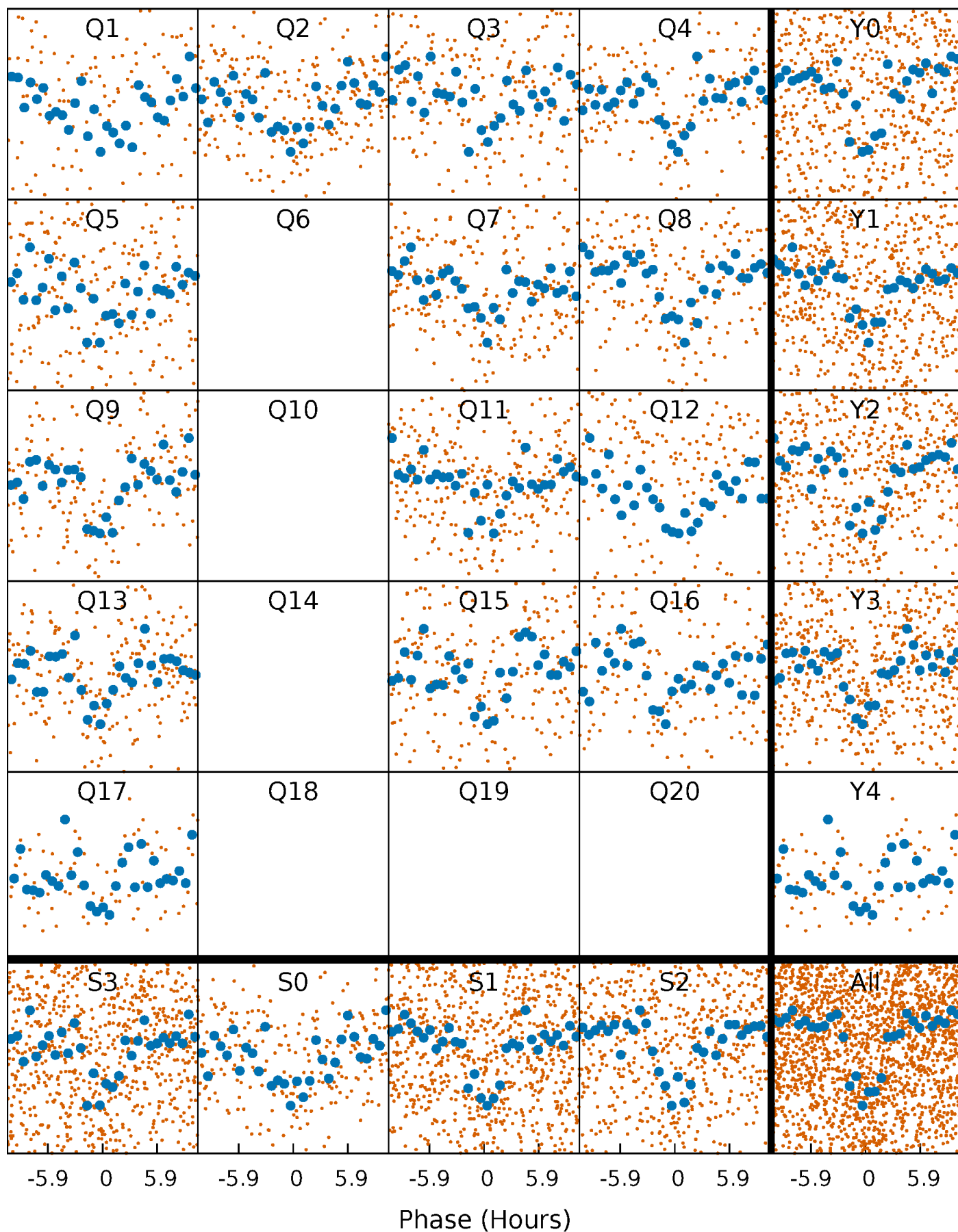


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



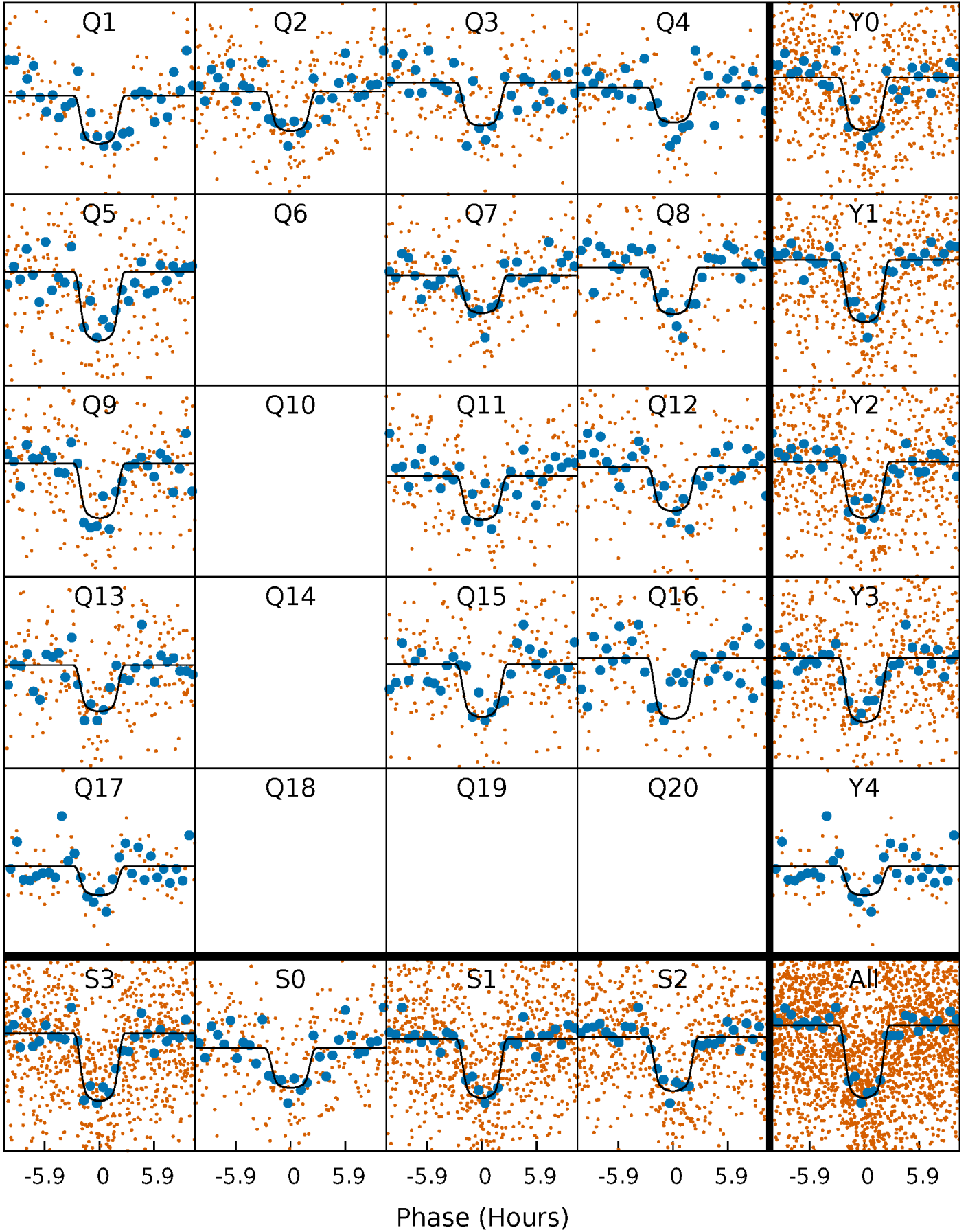
PDC Quarter-Phased Transit Curves

TCE 004077526-02 P= 15.573605 Days $T_0=132.442196$ (BKJD)



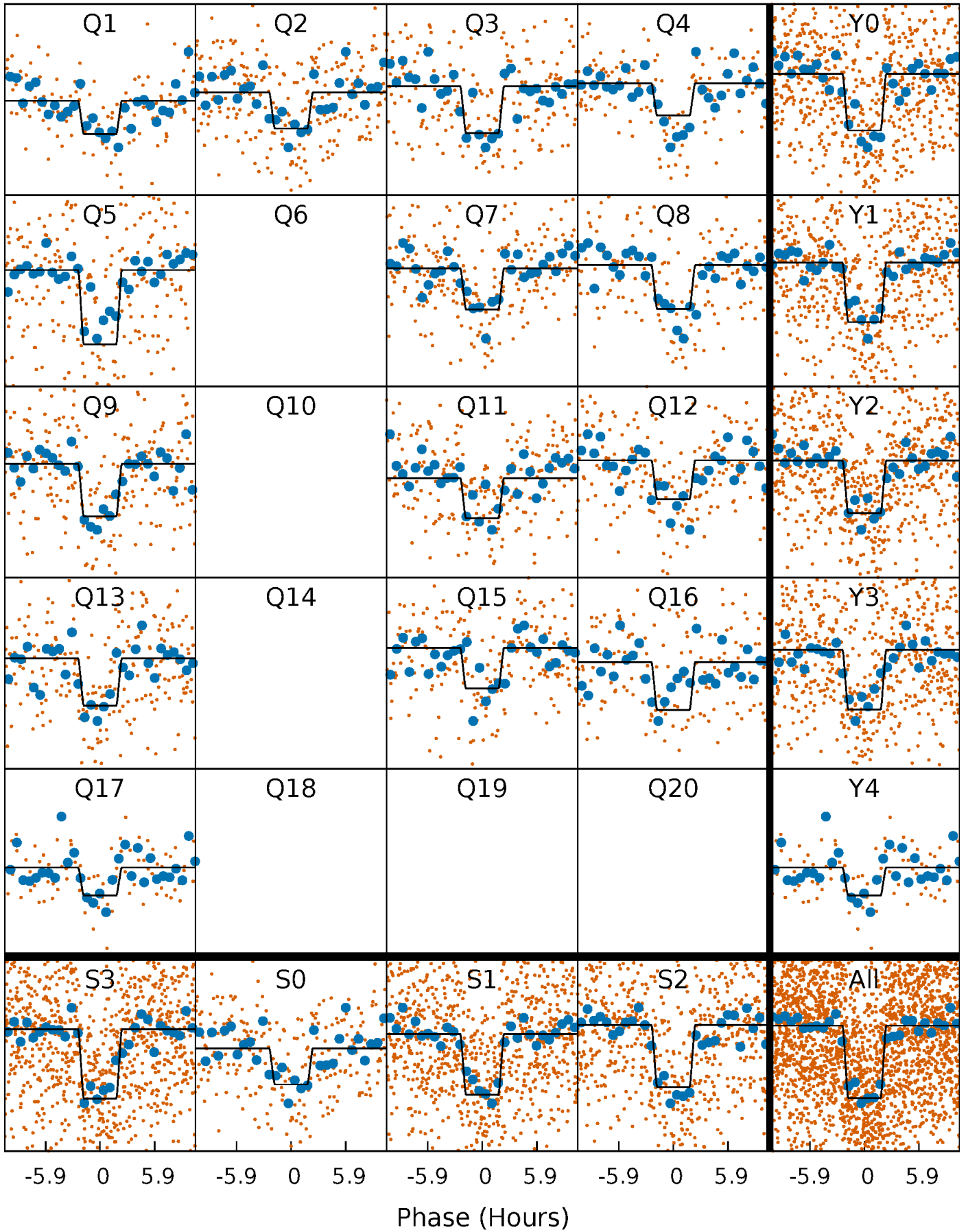
DV Quarter-Phased Transit Curves

TCE 004077526-02 P= 15.573605 Days $T_0=132.442196$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

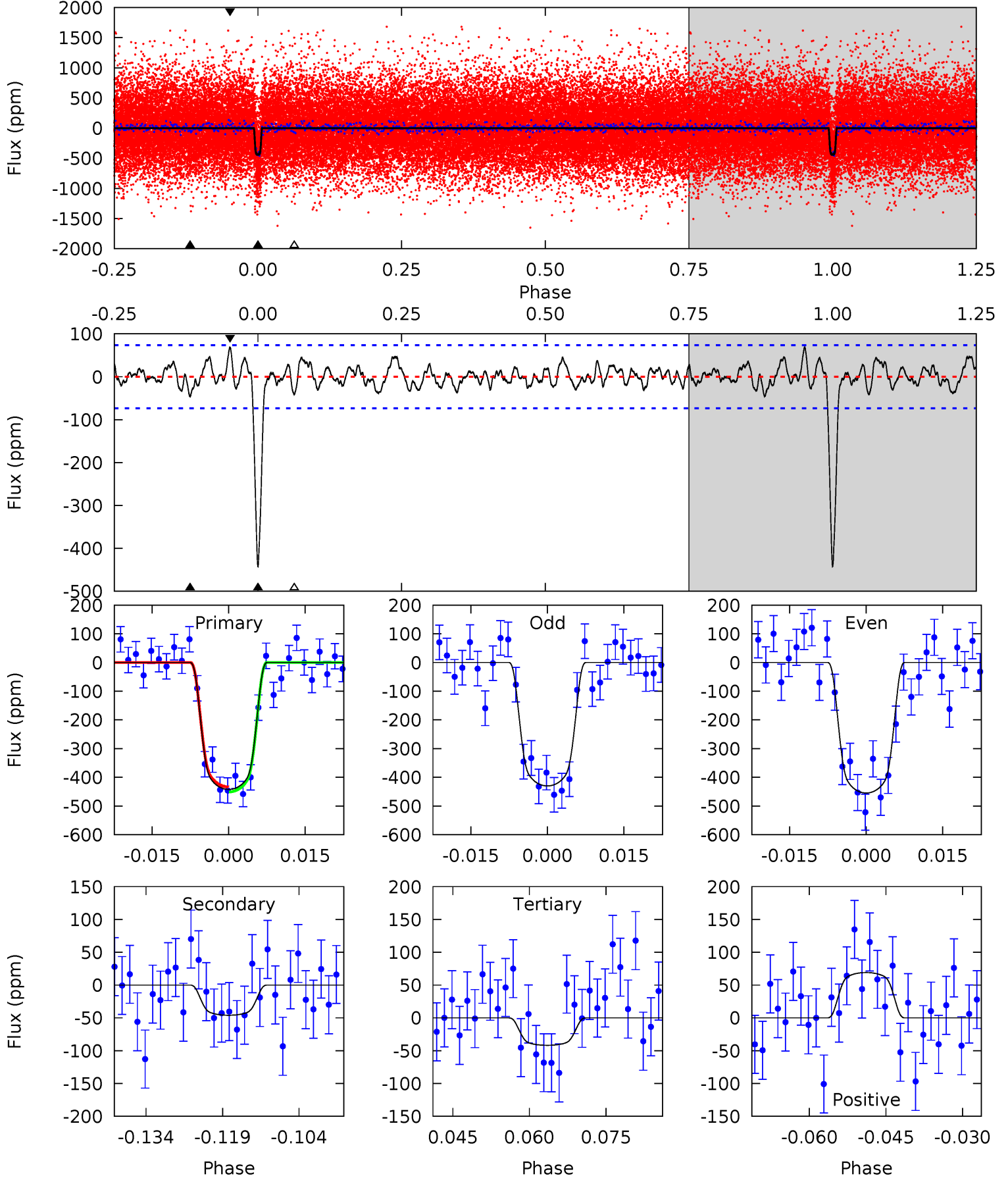
TCE 004077526-02 P= 15.573719 Days $T_0=132.437299$ (BKJD)



DV Model-Shift Uniqueness Test

004077526-02, P = 15.573605 Days, E = 116.868591 Days

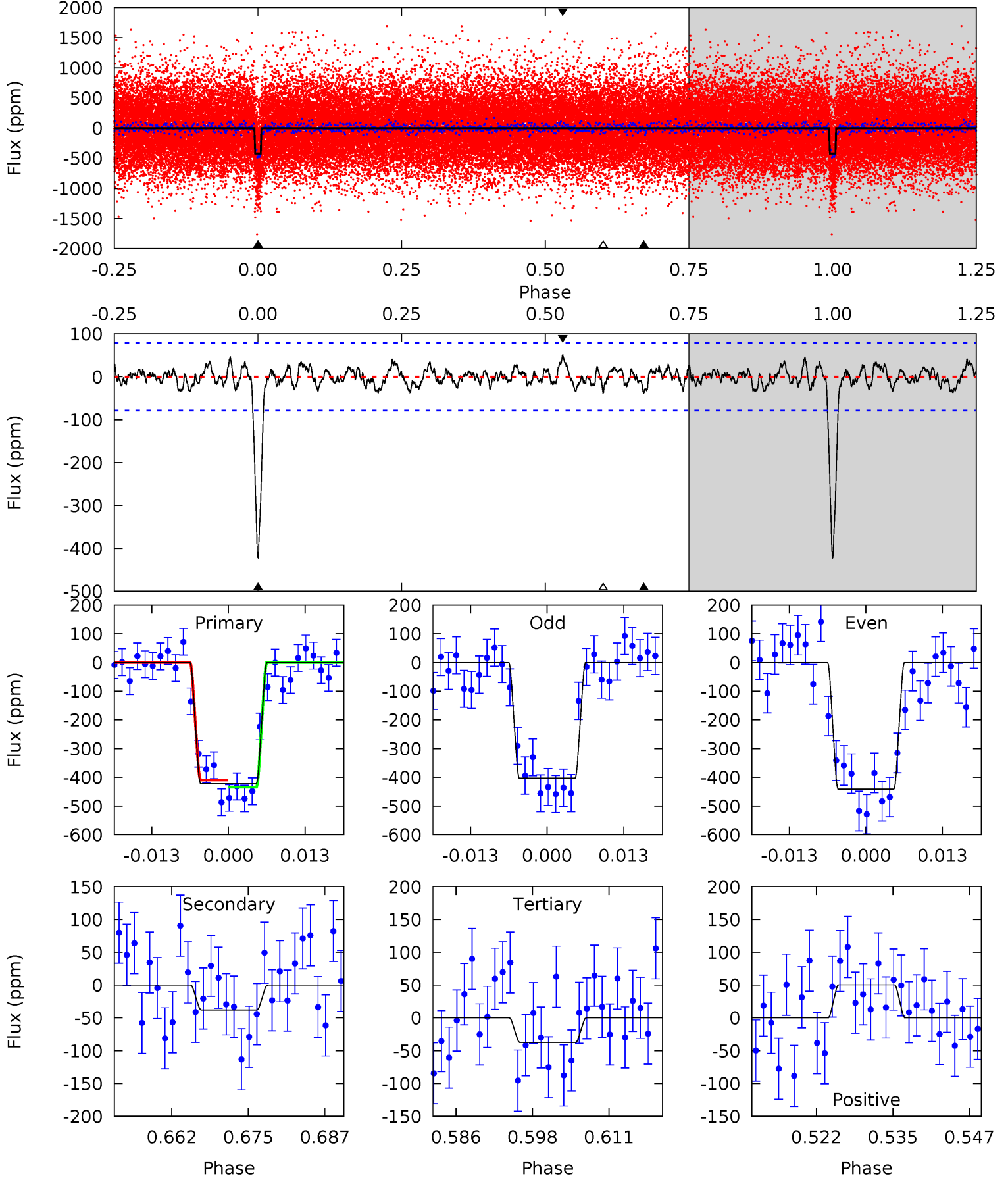
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.8	3.10	2.82	4.66	4.95	2.43	1.27	27.0	25.2	0.28	-1.55	0.83	0.98	0.14	0.59



Alt Model-Shift Uniqueness Test

004077526-02, P = 15.573719 Days, E = 116.863580 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.7	2.40	2.37	3.19	4.98	2.49	1.01	24.4	23.6	0.03	-0.79	1.20	0.96	0.11	0.80



Stellar Parameters For KIC 004077526

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6100^{+193}_{-214}	$4.376^{+0.105}_{-0.195}$	$-0.120^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.017^{+0.167}_{-0.125}$	$1.126^{+0.558}_{-0.599}$
	+3%/-4%	+2%/-4%	+208%/-250%	+32%/-14%	+16%/-12%	+50%/-53%
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 004077526-02 / KOI 1336.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-46 ± 15	$2.92^{+0.52}_{-0.33}$	1126^{+89}_{-61}	3637^{+217}_{-225}	43^{+22}_{-16}
Alt.	-38 ± 16	$2.52^{+0.44}_{-0.30}$	1127^{+91}_{-61}	3703^{+269}_{-317}	47^{+26}_{-22}

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 $A_{obs} \gg 1.0$

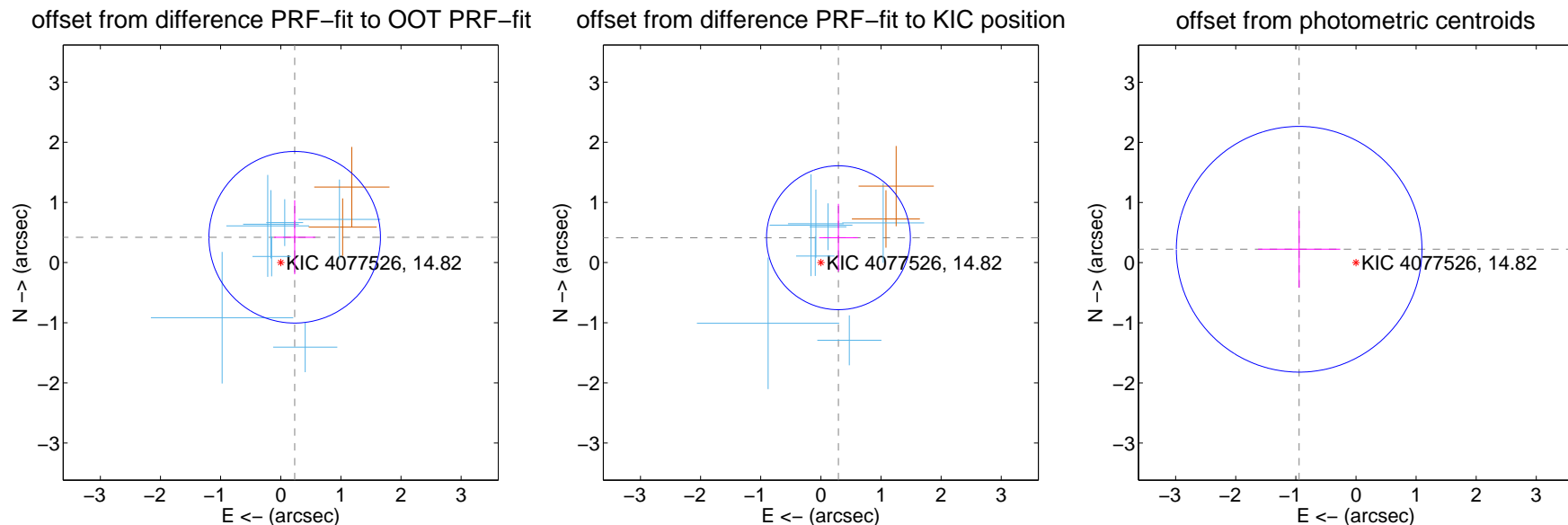
DV Centroid Data

Supplemental centroid analysis for 004077526-02. Kepler magnitude: 14.82. Transit SNR 20.36

There are 7 quarters with good PRF difference image offsets

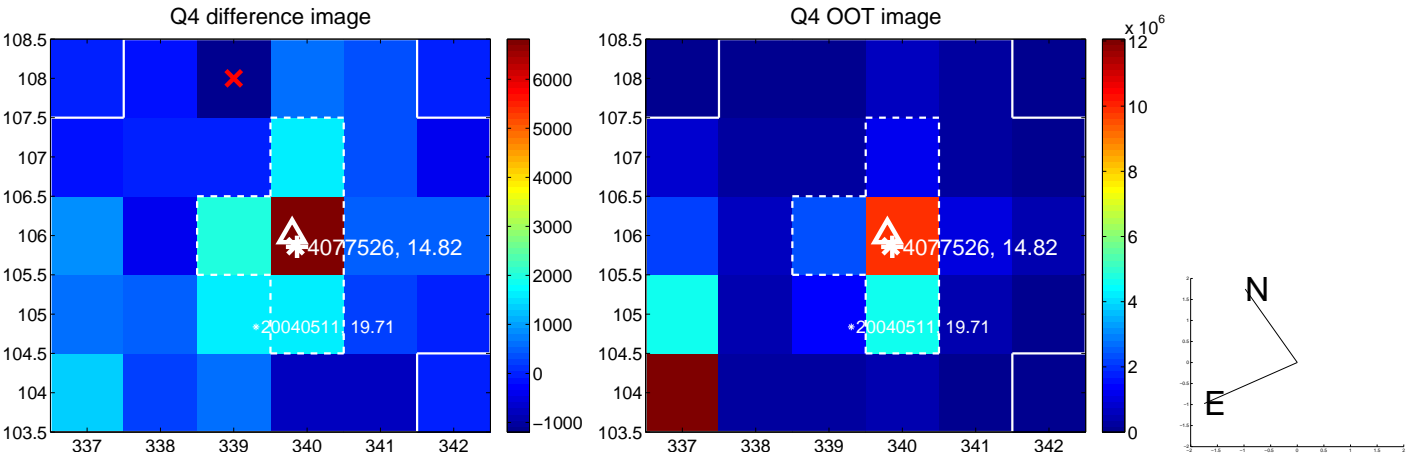
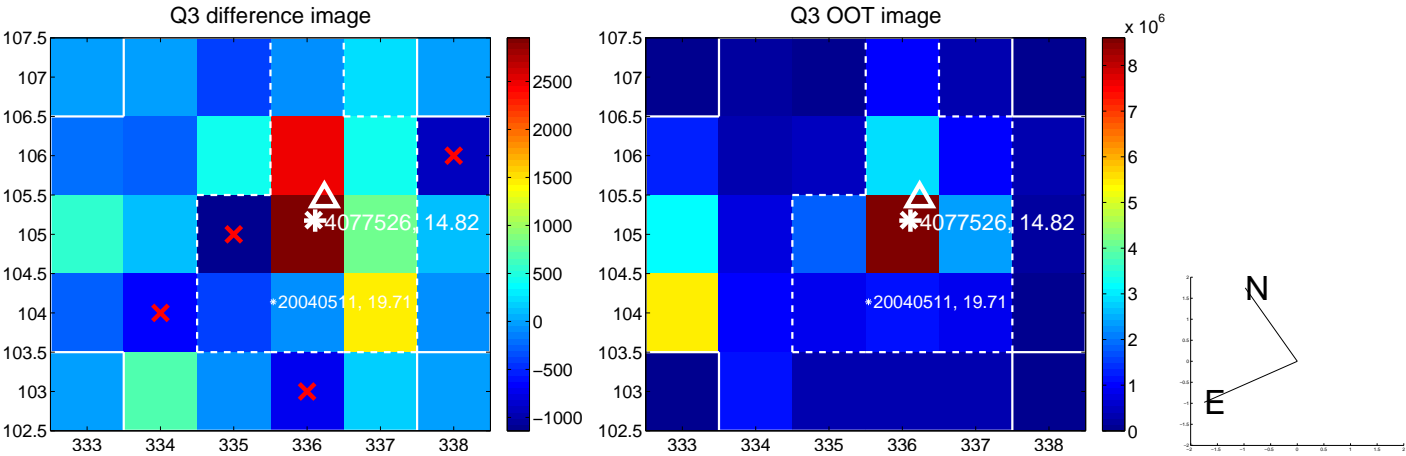
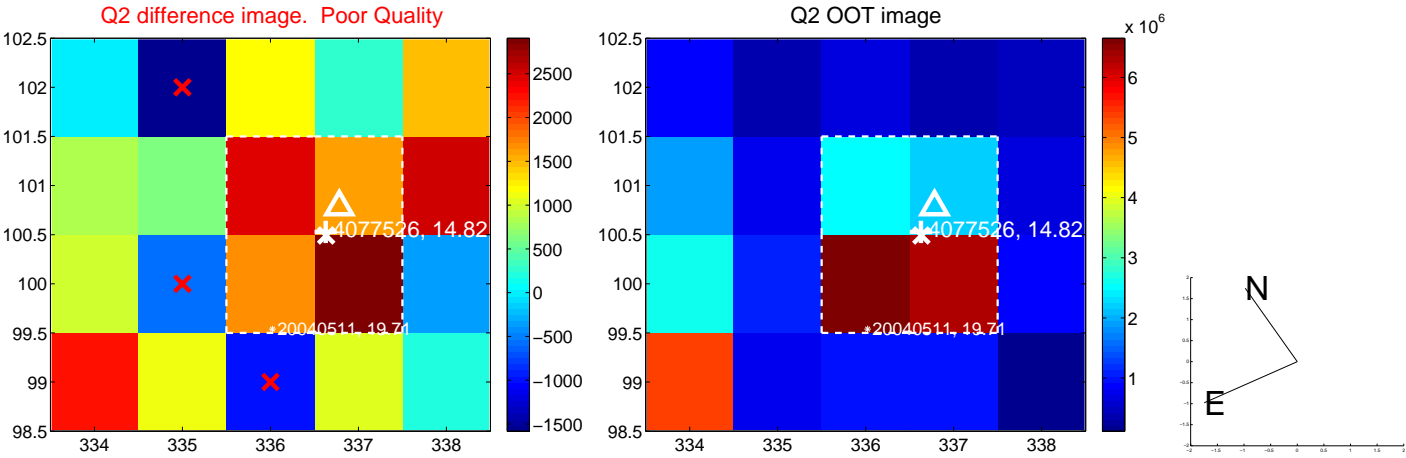
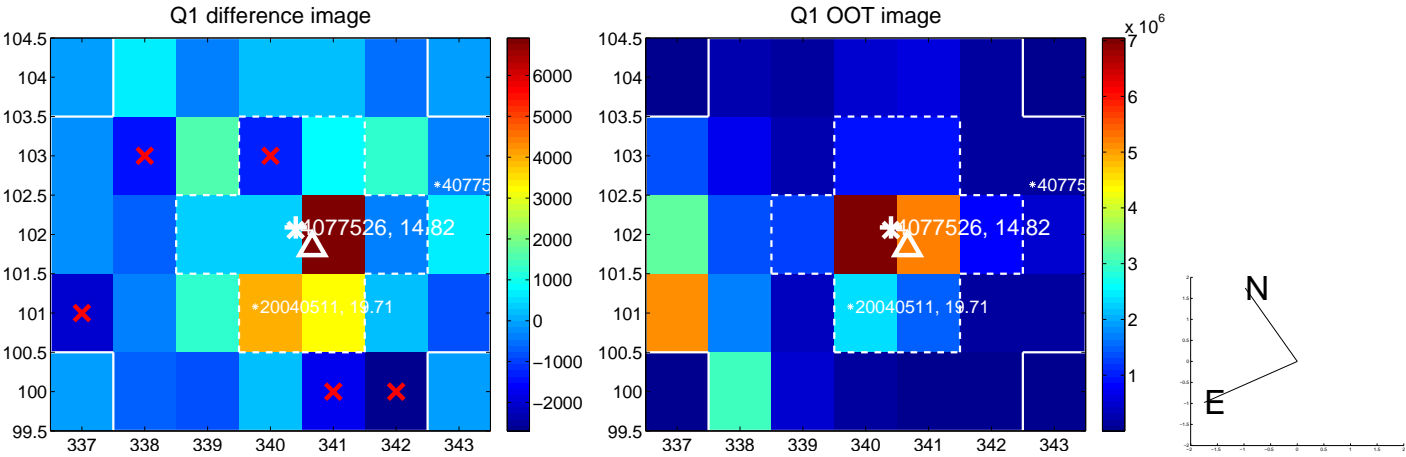
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.481 ± 0.475	1.01	-0.232 ± 0.343	0.421 ± 0.615
PRF-fit source offset from KIC position	0.506 ± 0.399	1.27	-0.292 ± 0.321	0.413 ± 0.563
photometric centroid source offset	0.97 ± 0.68	1.43	0.95 ± 0.68	0.22 ± 0.64

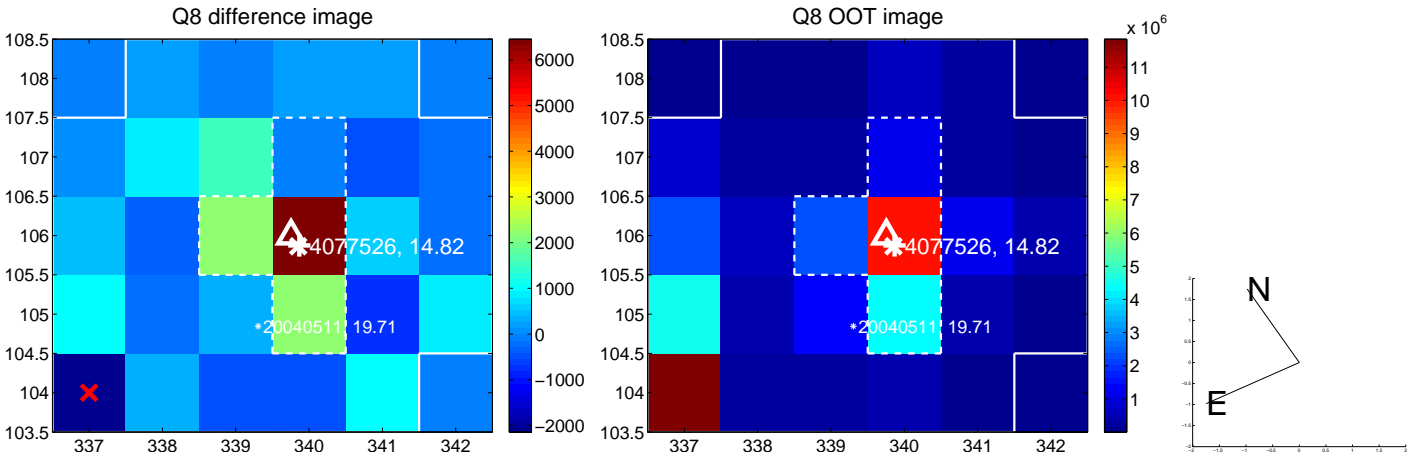
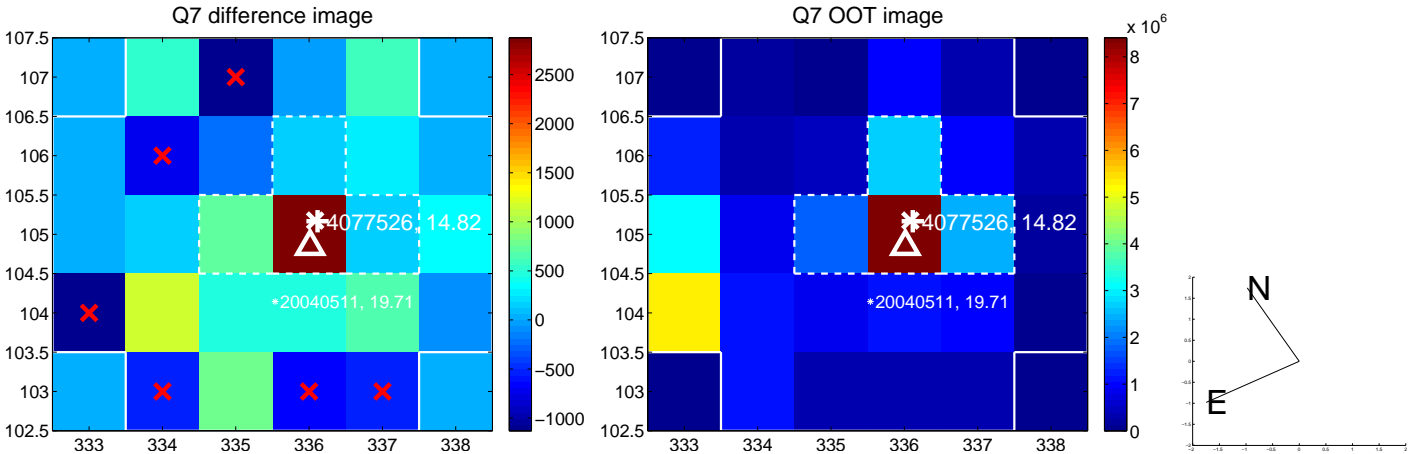
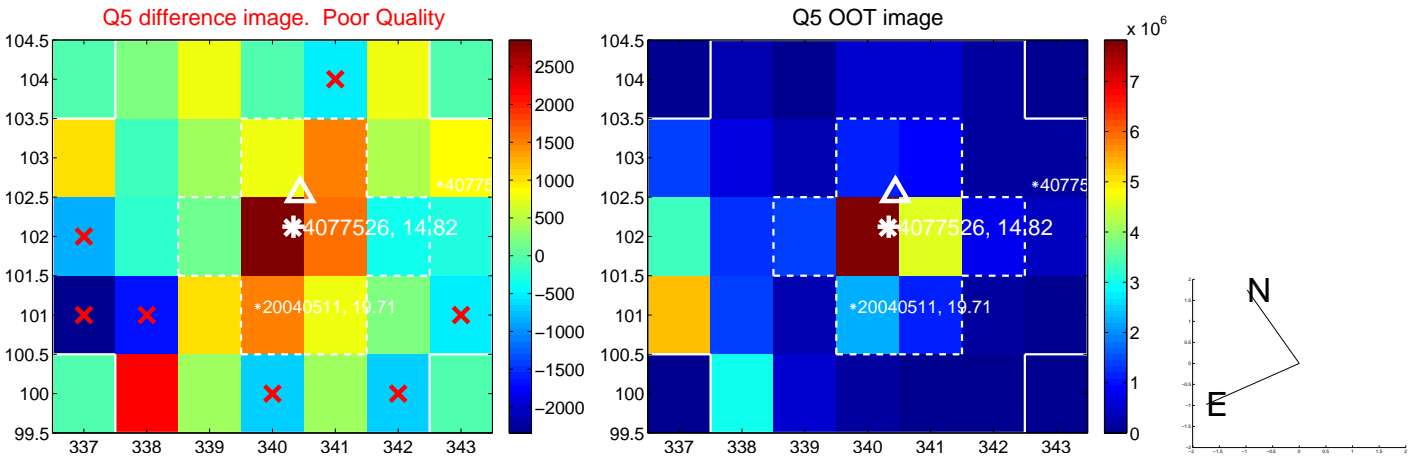


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

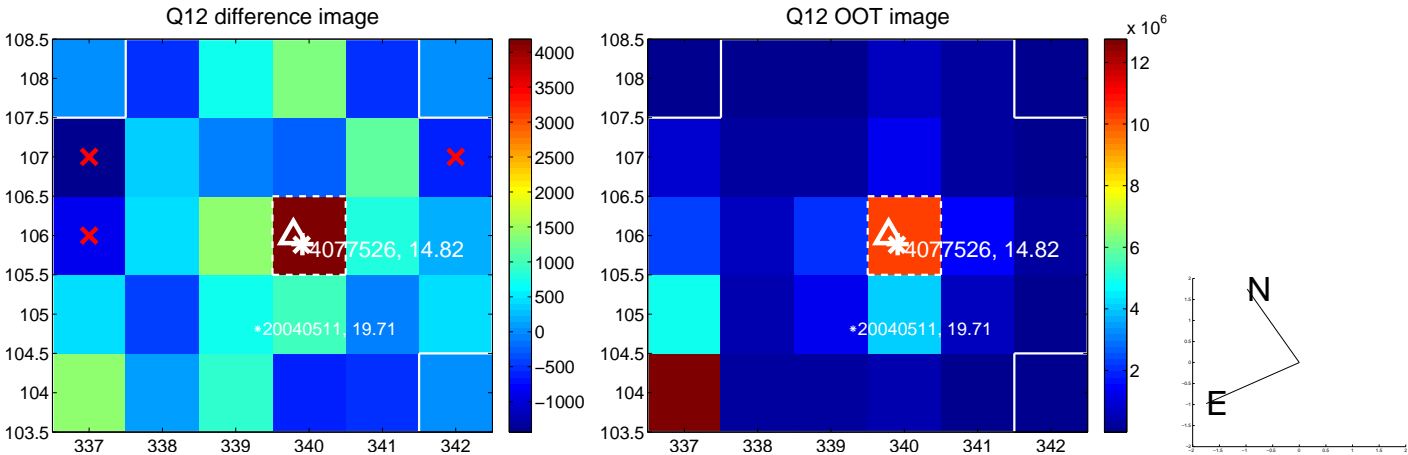
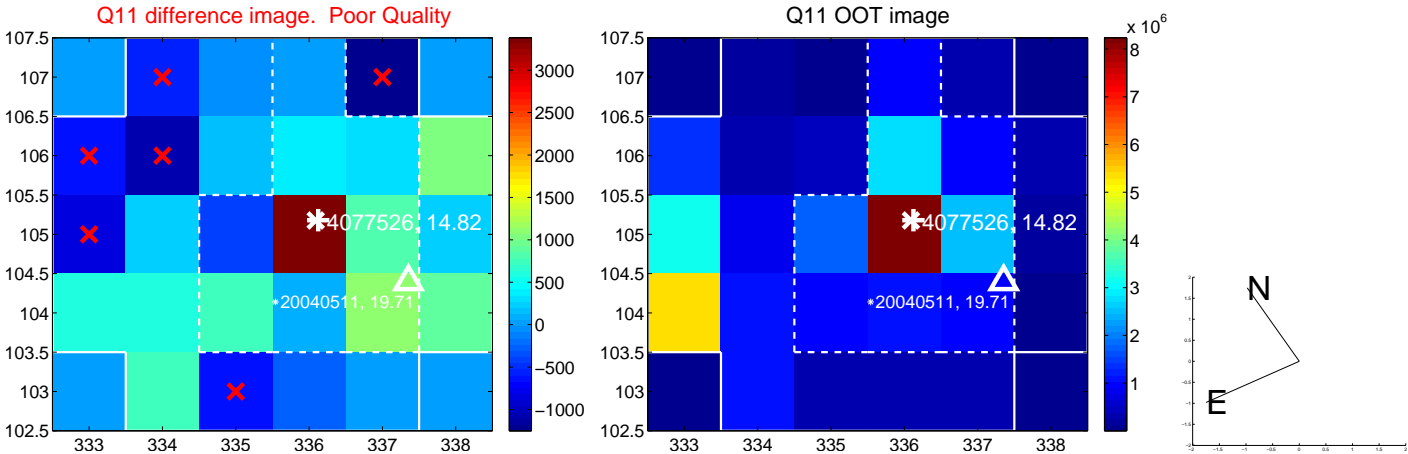
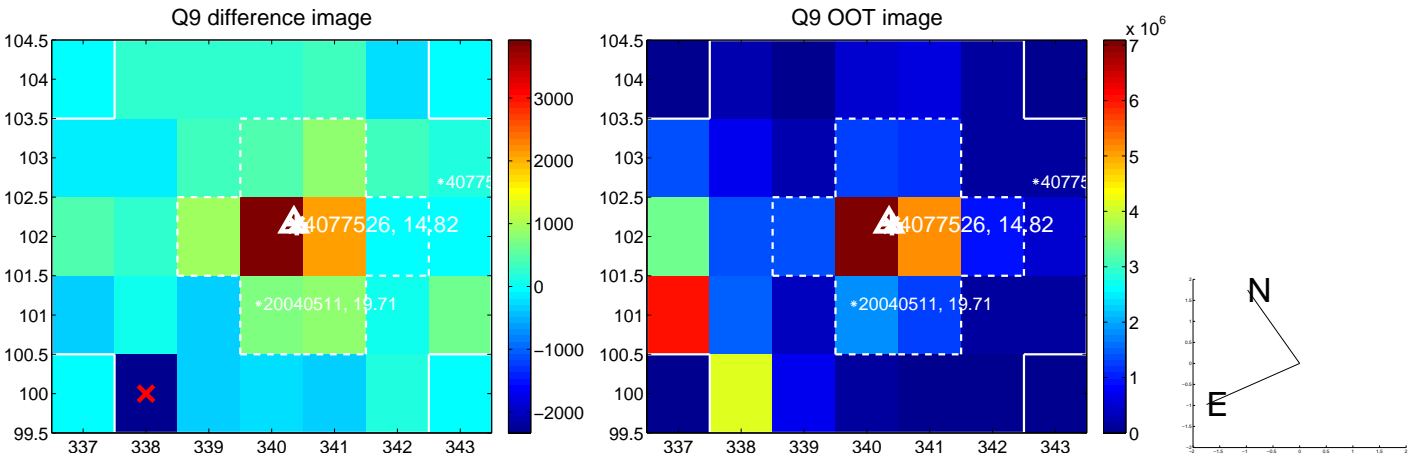
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



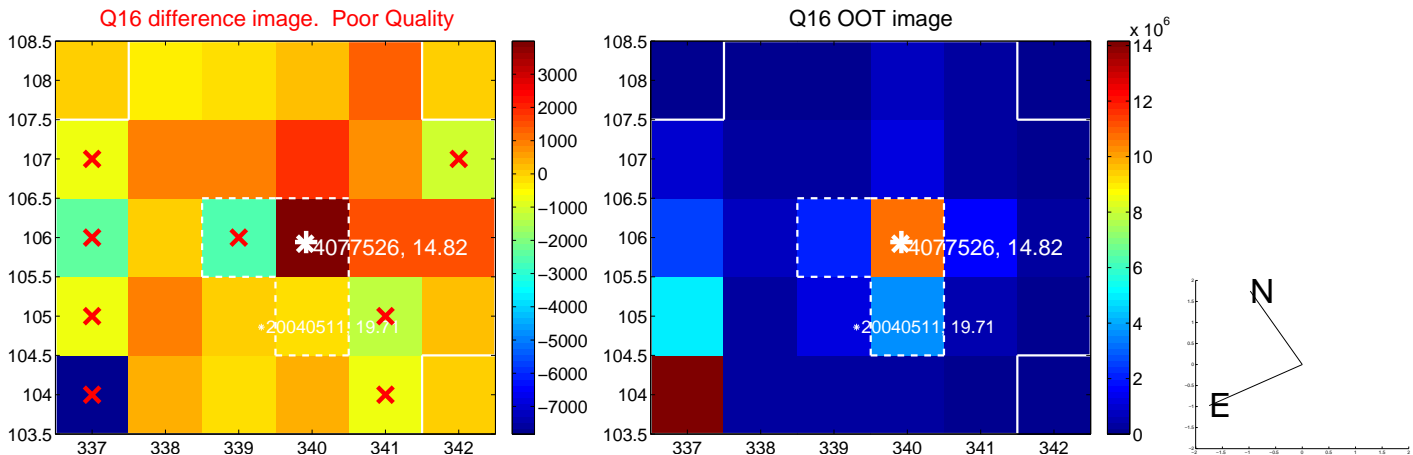
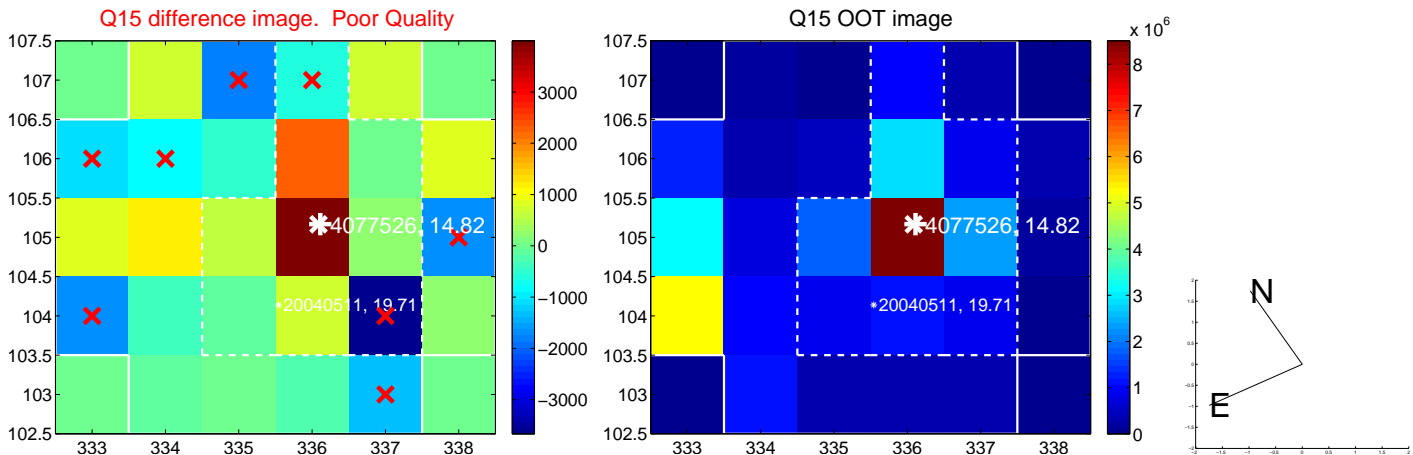
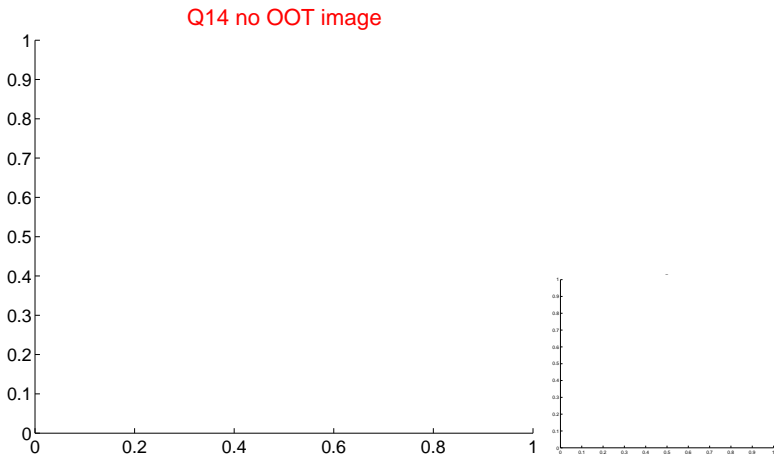
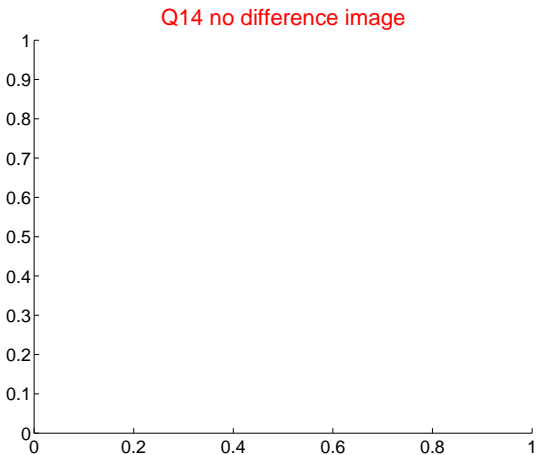
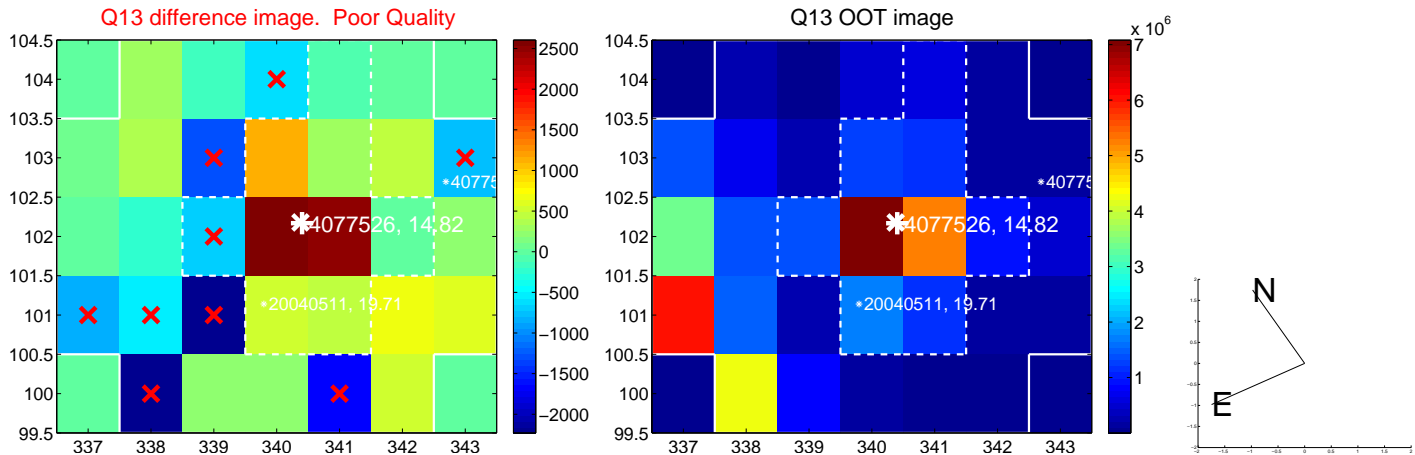
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



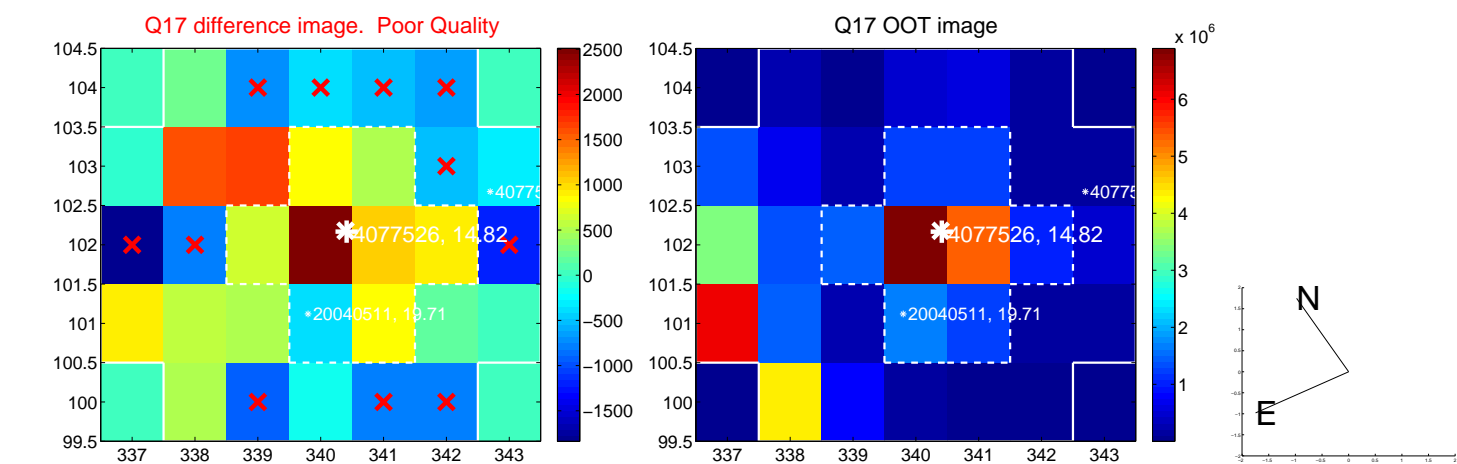
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



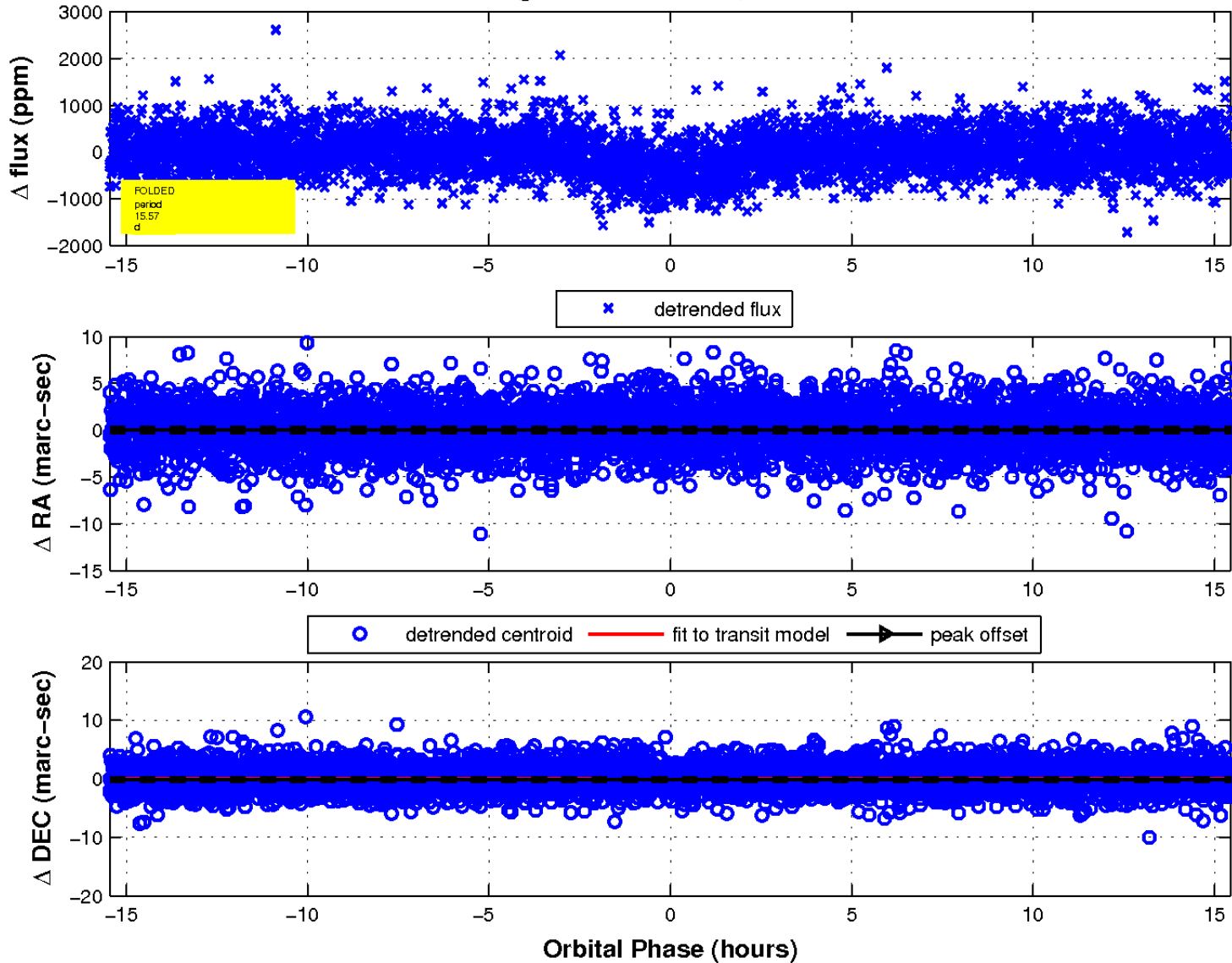
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

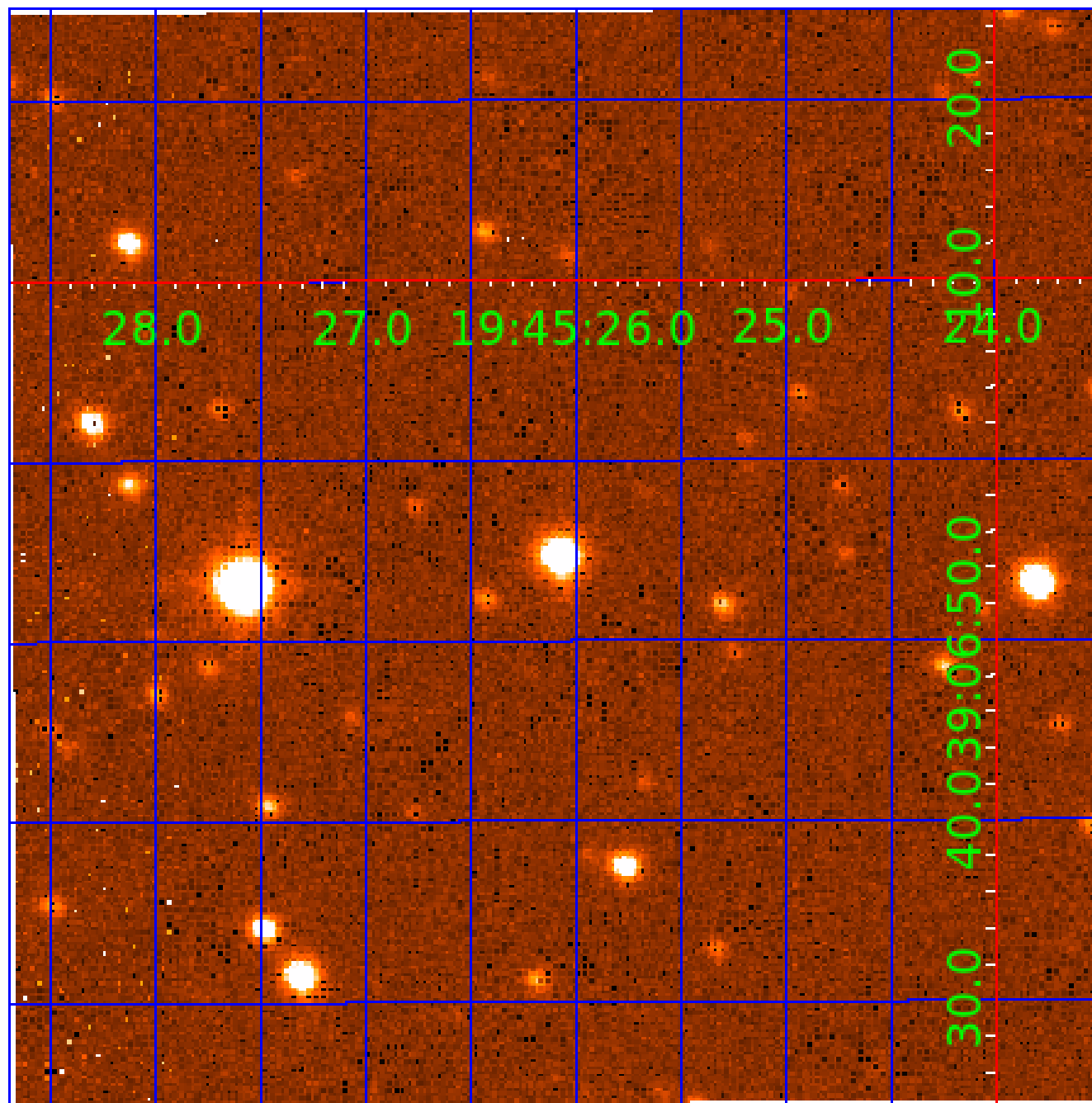


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 004077526

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})
004077526-01	OBS	1336.01	10.218673	136.862222	463.4	4.424	22.1	24.8	1.08	6100	2.82	169.34
004077526-02	OBS	1336.02	15.573605	132.442196	454.6	5.151	18.6	20.4	1.08	6100	2.88	96.56
004077526-03	OBS	1336.03	40.101702	132.706620	532.0	5.143	14.2	15.3	1.08	6100	2.82	27.36
004077526-04	OBS	1336.04	4.458173	134.394270	175.7	2.952	11.4	12.0	1.08	6100	1.69	511.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004077526-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

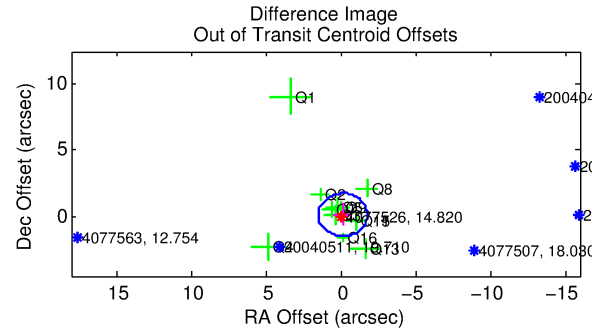
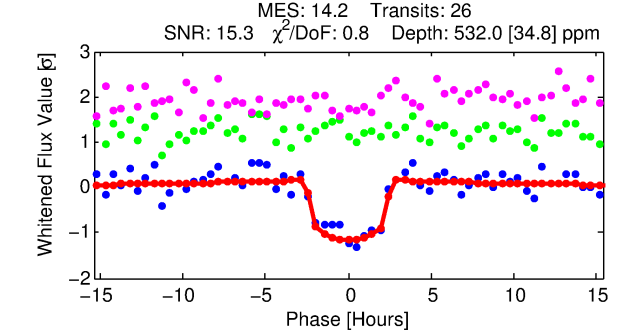
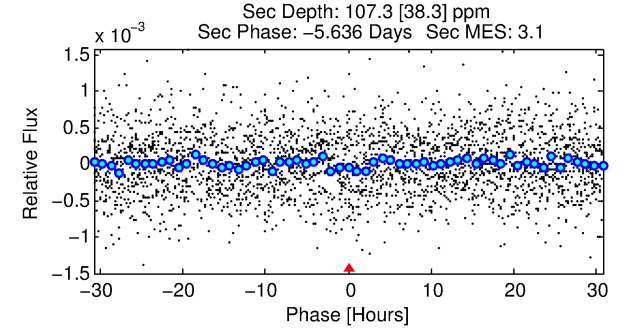
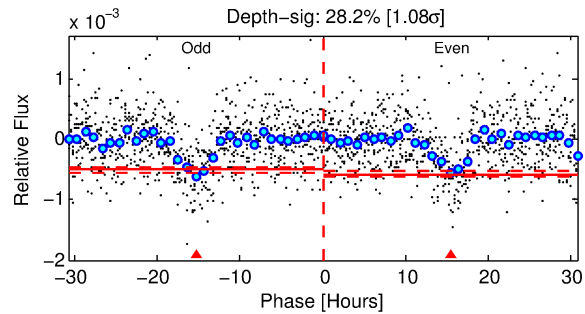
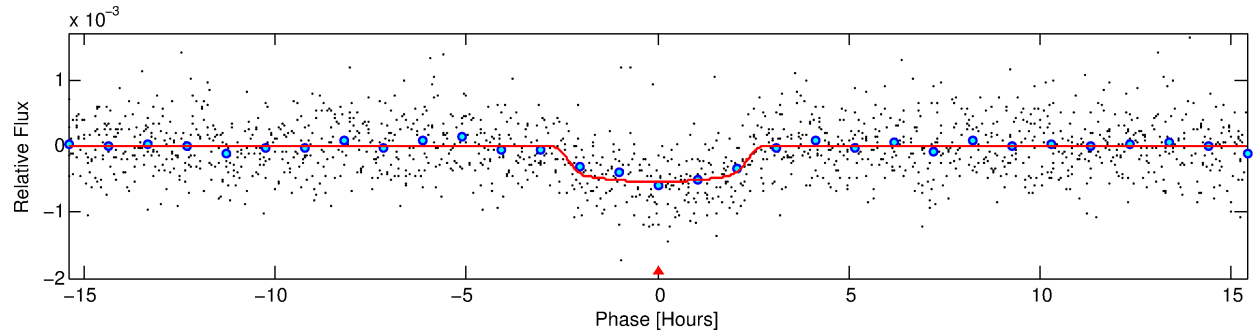
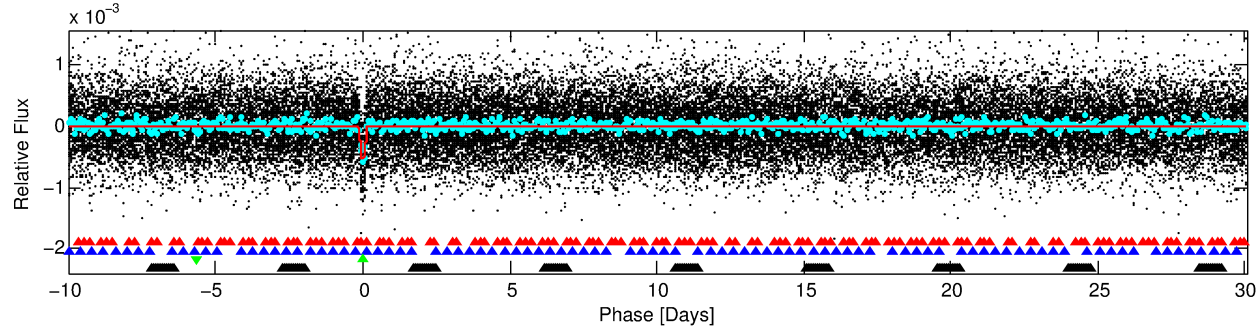
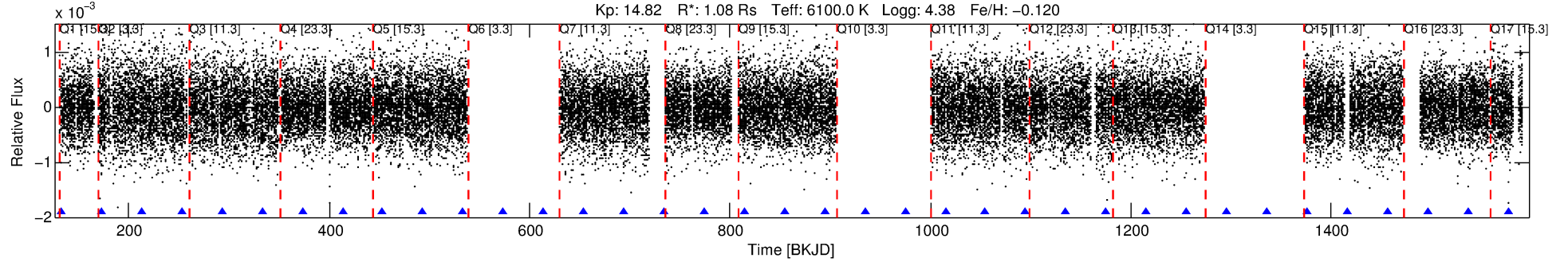
Ephemeris Match Information For 004077526-03

No Significant Match Found

DV One-Page Summary

KIC: 4077526 Candidate: 3 of 4 Period: 40.102 d
KOI: K01336.03 Name: Kepler-58d Corr: 0.947

Kp: 14.82 R*: 1.08 Rs Teff: 6100.0 K Logg: 4.38 Fe/H: -0.120



DV Fit Results:

Period = 40.10170 [0.00029] d
Epoch = 132.7066 [0.0059] BKJD
Rp/R* = 0.0239 [0.0047]
a/R* = 34.67 [33.62]
b = 0.84 [0.34]
Seff = 27.36 [10.80]
Teff = 583 [58] K
Rp = 2.82 [1.07] Re
a = 0.2306 [0.0605] AU
Ag = 393.70 [254.48] [1.54σ]
Teffp = 4016 [551] K [6.19σ]

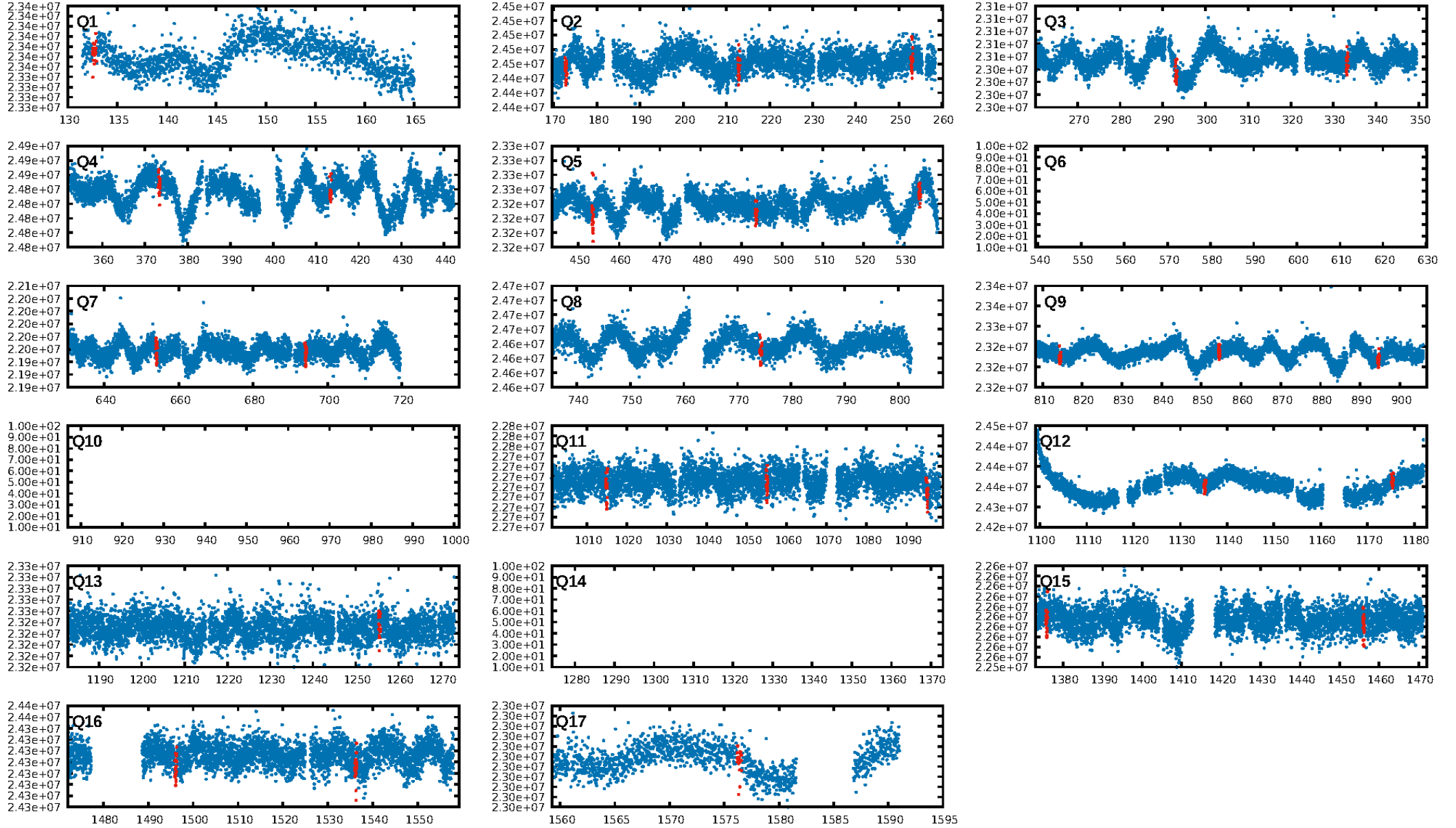
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [80.88σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.82e-44
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 7.059
Centroid-sig: 0.8%
Centroid-so: 0.850 arcsec [0.98σ]
OotOffset-rm: 0.200 arcsec [0.37σ]
KicOffset-rm: 0.266 arcsec [0.51σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 0.93 [13/14]

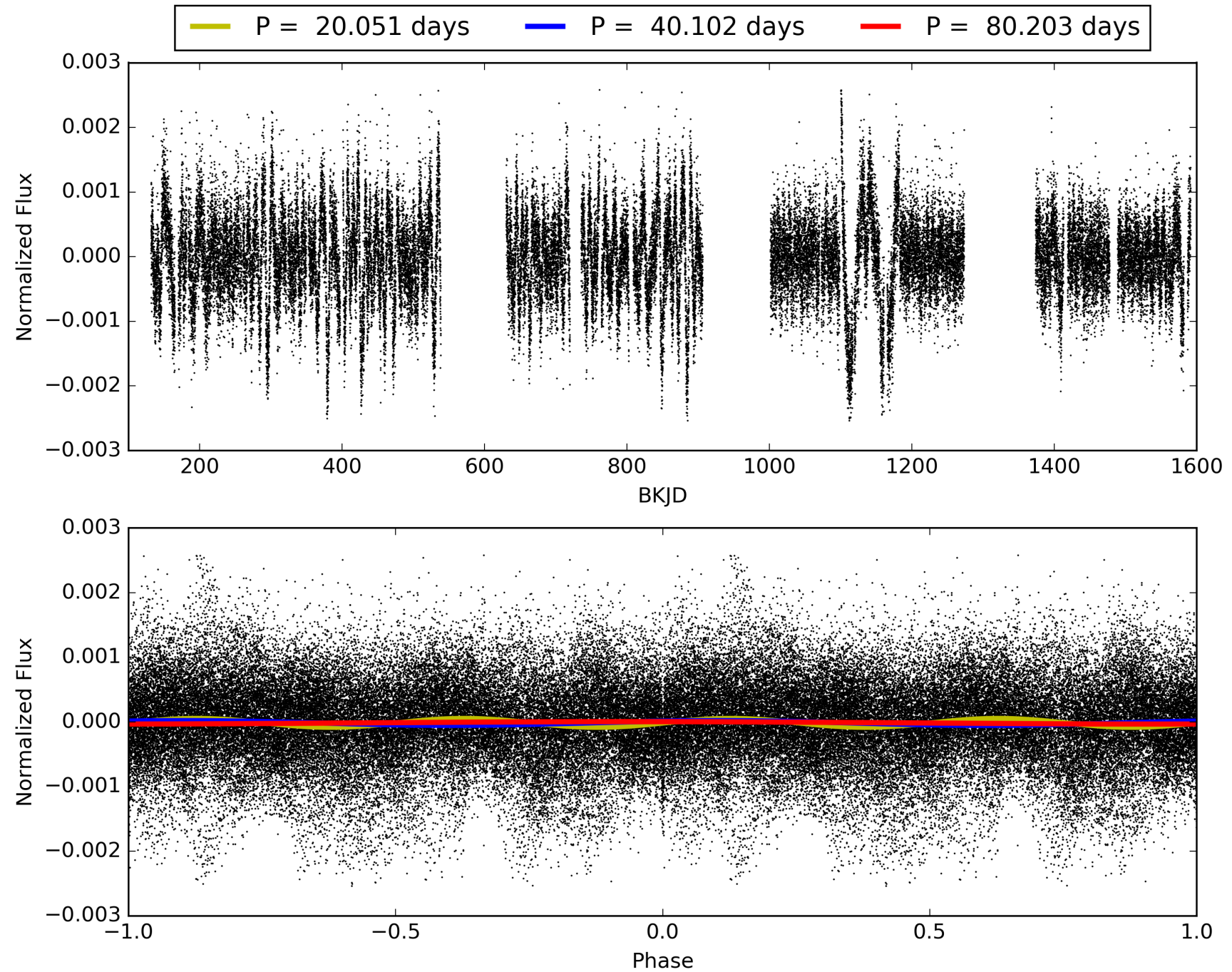
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:32:44 Z

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

TCE 004077526-03, PDC Light Curves

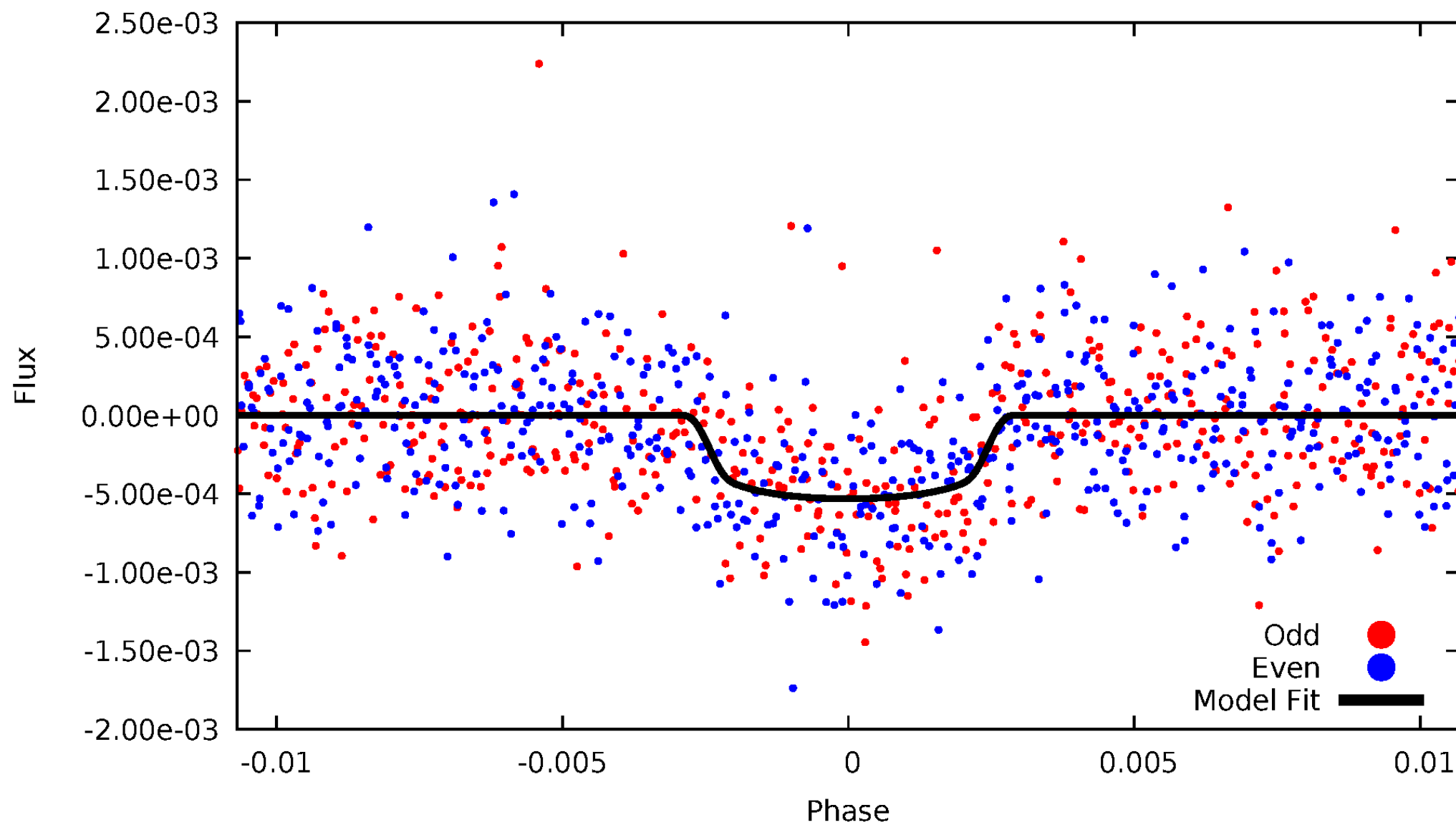


TCE 004077526-03



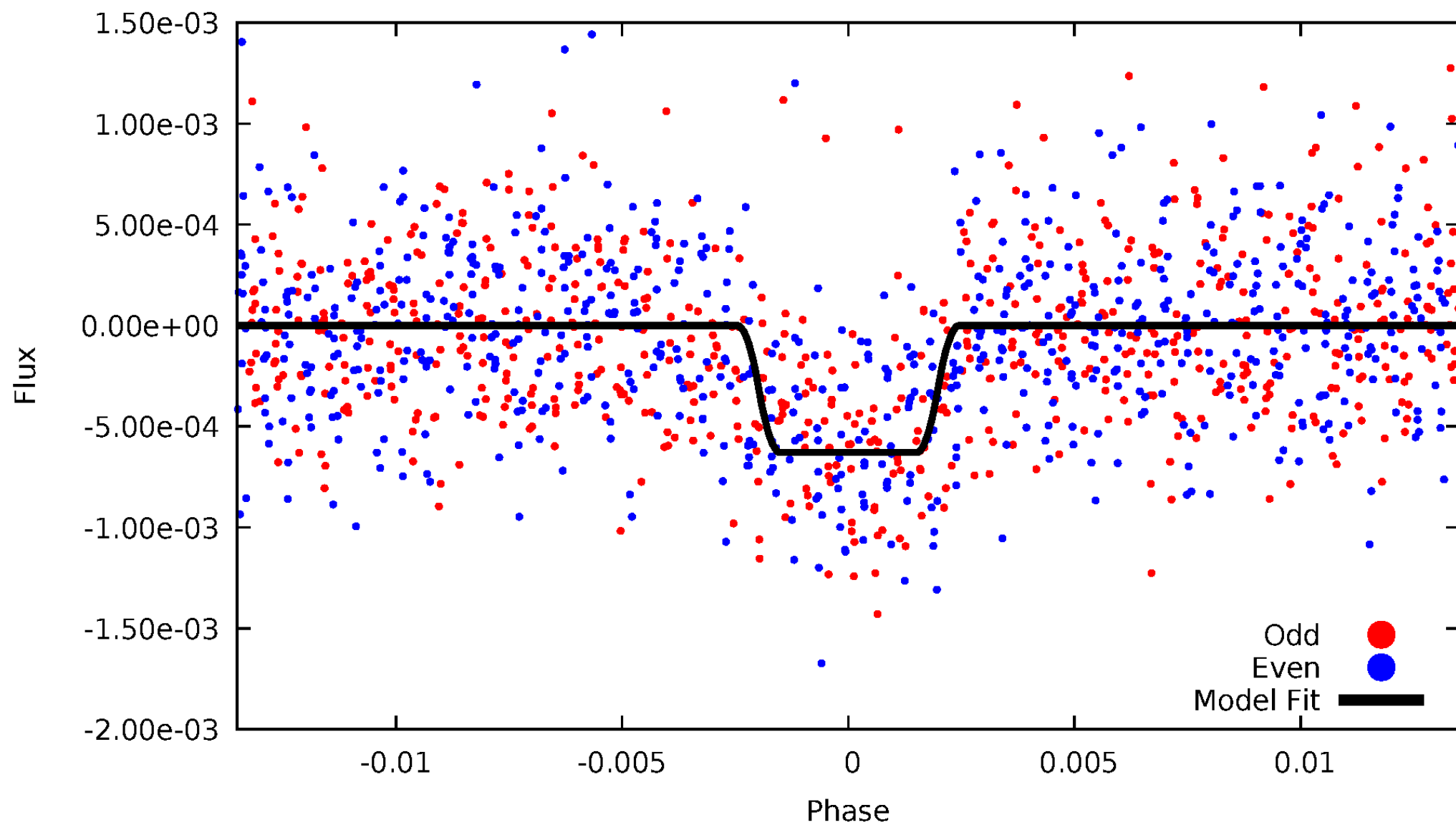
DV Odd/Even

TCE 004077526-03

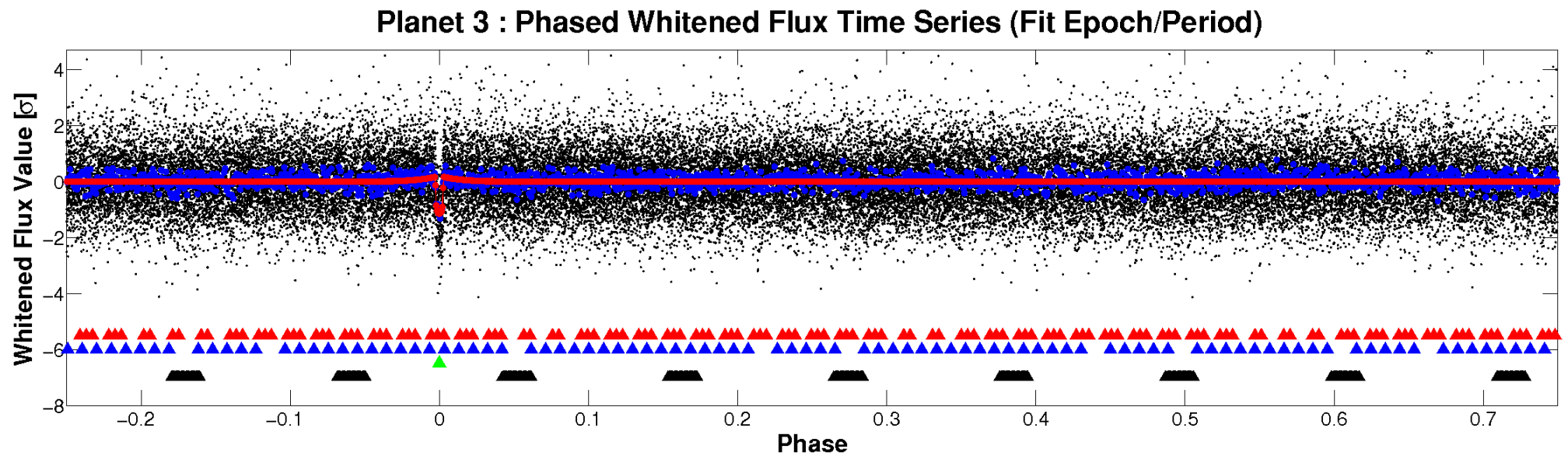
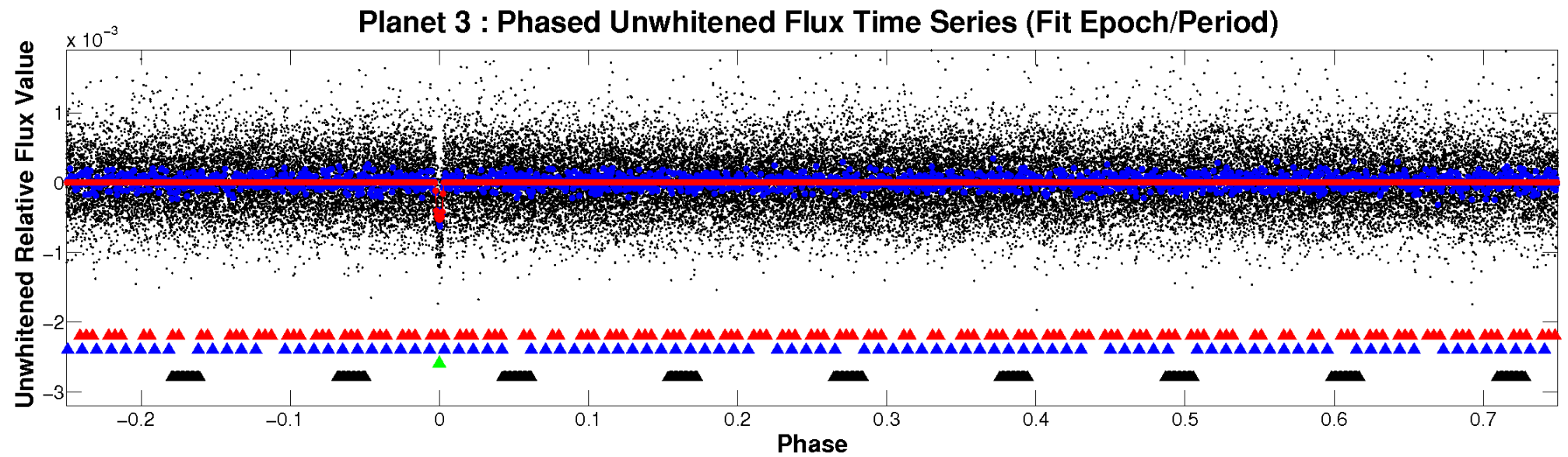


ALT Odd/Even

TCE 004077526-03

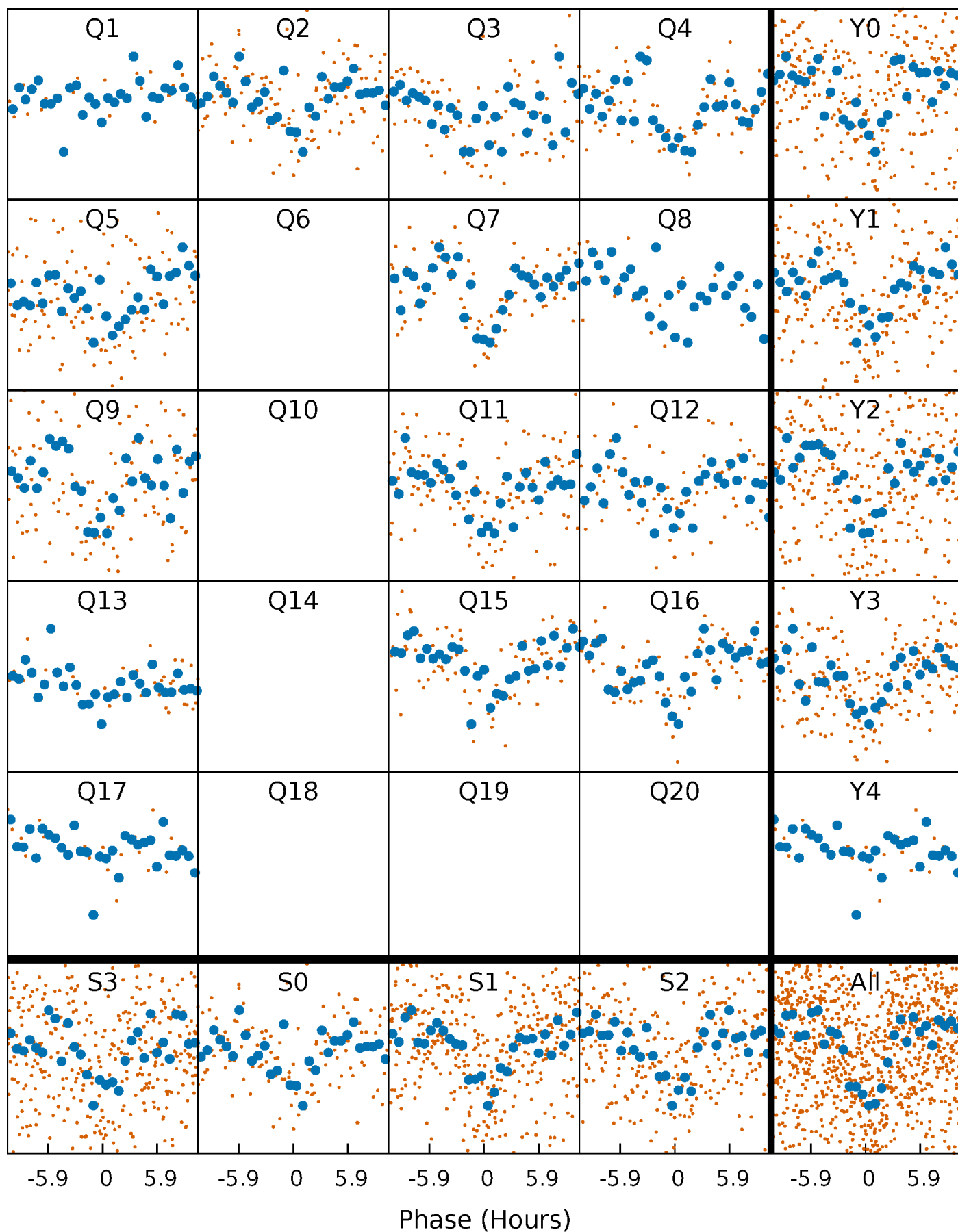


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 004077526-03 P= 40.101702 Days $T_0=132.706619$ (BKJD)



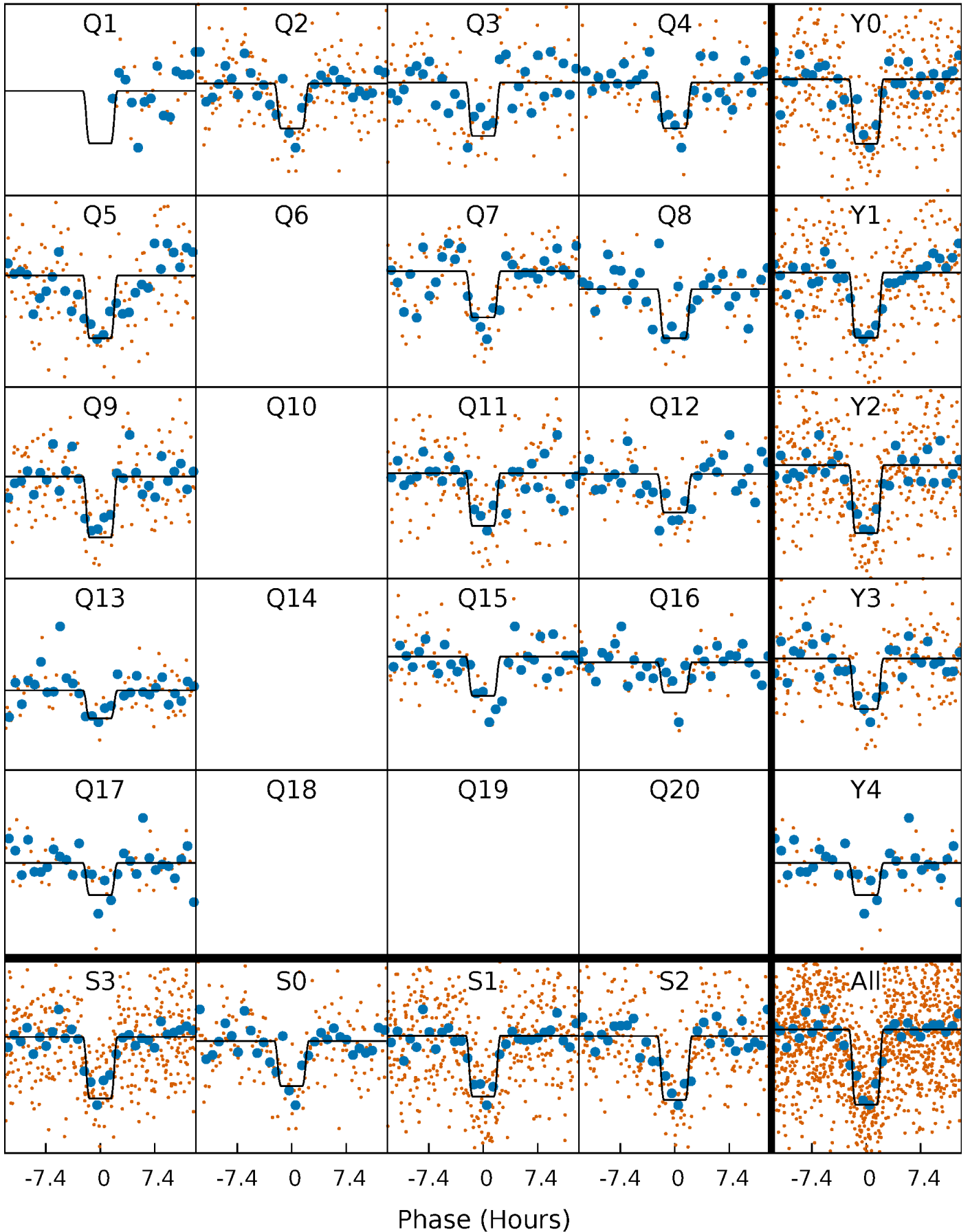
DV Quarter-Phased Transit Curves

TCE 004077526-03 P= 40.101702 Days $T_0=132.706619$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

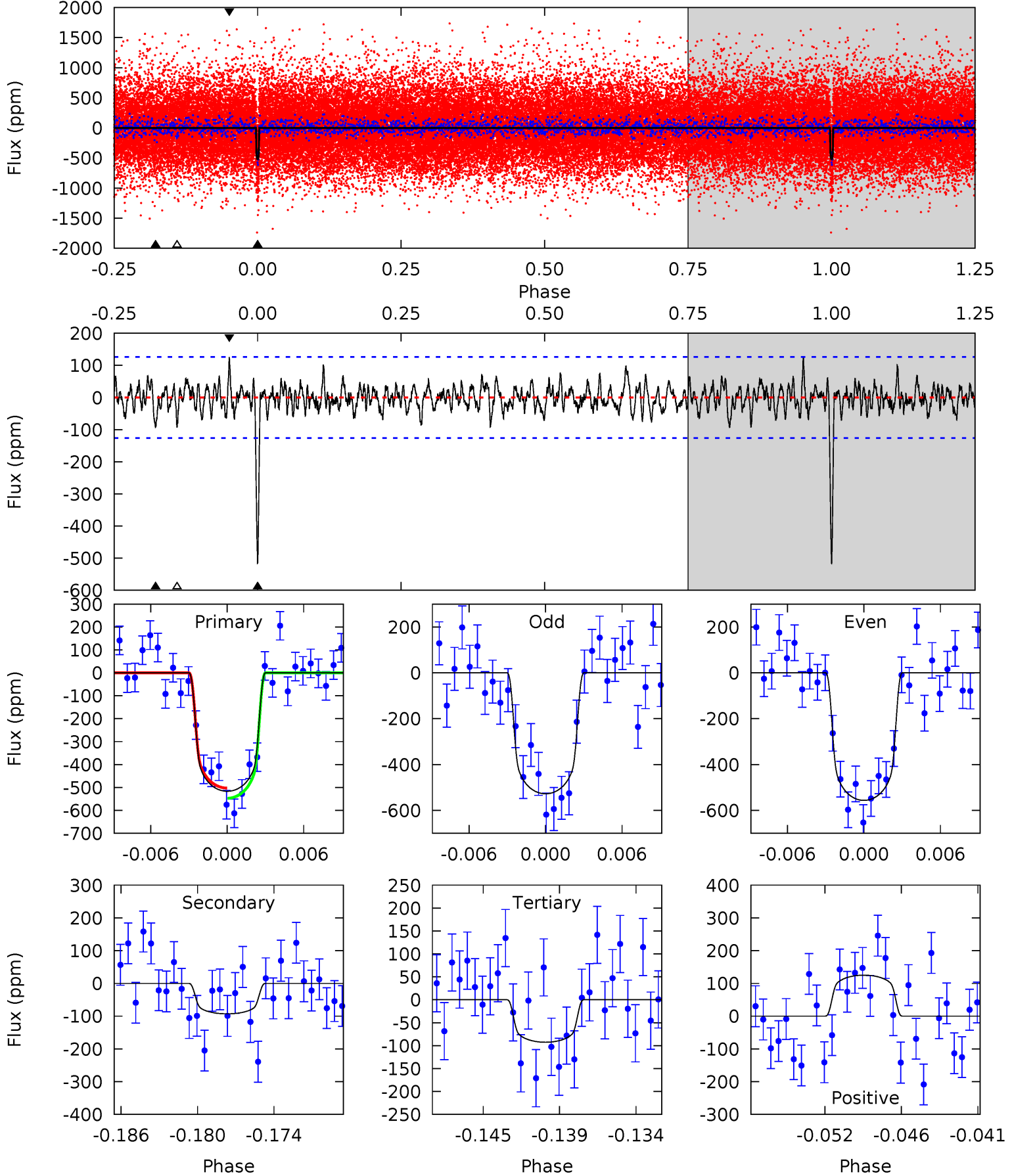
TCE 004077526-03 P= 40.100713 Days $T_0=132.727116$ (BKJD)



DV Model-Shift Uniqueness Test

004077526-03, P = 40.101702 Days, E = 92.604917 Days

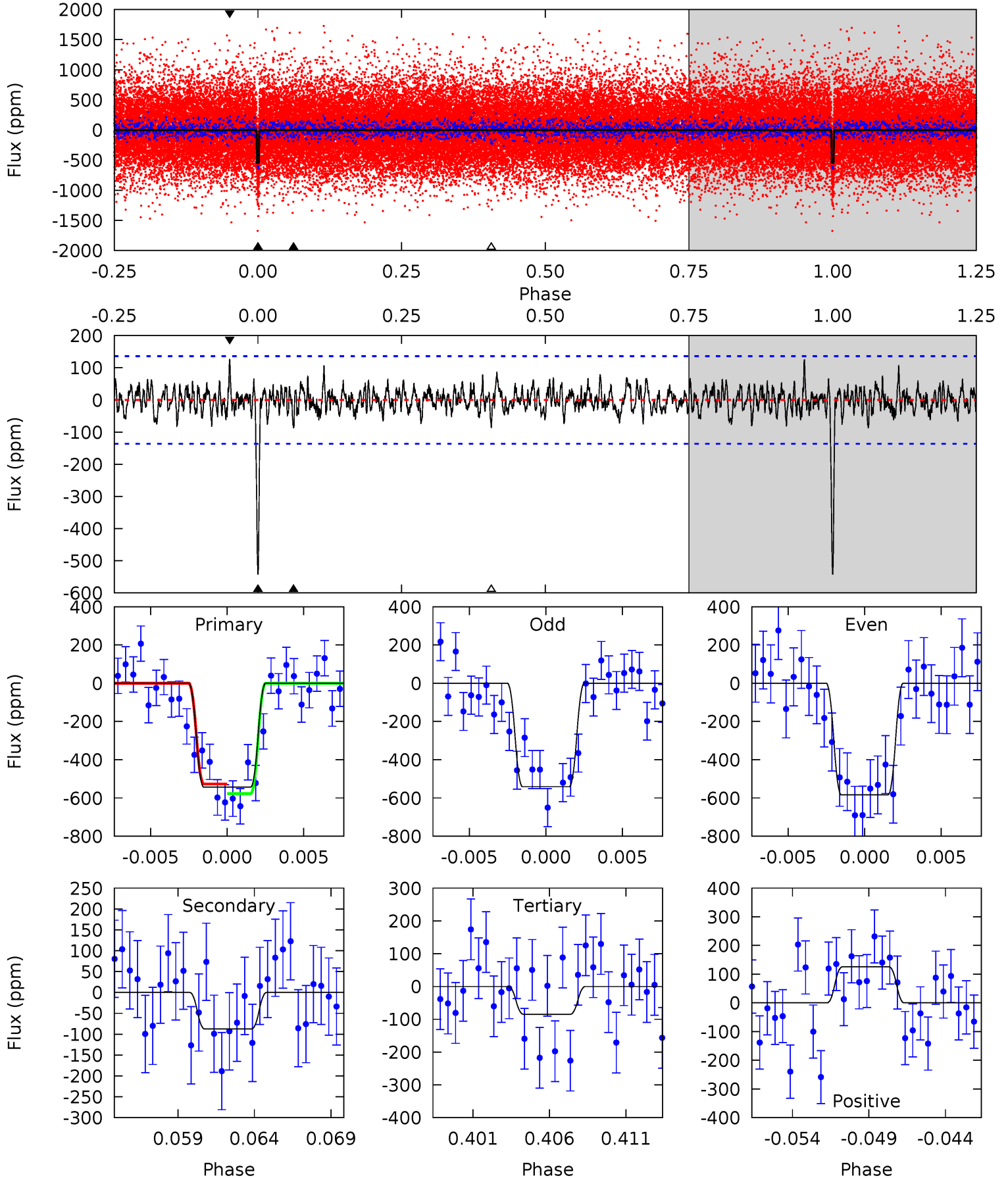
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	3.78	3.76	5.08	5.13	2.76	1.27	17.2	15.9	0.01	-1.30	0.58	1.01	0.19	0.91



Alt Model-Shift Uniqueness Test

004077526-03, P = 40.100713 Days, E = 92.626403 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	3.31	3.21	4.75	5.16	2.81	1.12	17.4	15.8	0.11	-1.44	0.80	0.97	0.19	0.97



Stellar Parameters For KIC 004077526

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6100^{+193}_{-214}	$4.376^{+0.105}_{-0.195}$	$-0.120^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.017^{+0.167}_{-0.125}$	$1.126^{+0.558}_{-0.599}$
	+3%/-4%	+2%/-4%	+208%/-250%	+32%/-14%	+16%/-12%	+50%/-53%
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 004077526-03 / KOI 1336.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-93 ± 25	$2.90^{+0.70}_{-0.61}$	823^{+59}_{-46}	4134^{+455}_{-342}	314^{+245}_{-128}
Alt.	-88 ± 26	$3.10^{+0.73}_{-0.67}$	827^{+62}_{-52}	4003^{+380}_{-317}	255^{+194}_{-107}

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 $A_{obs} \gg 1.0$

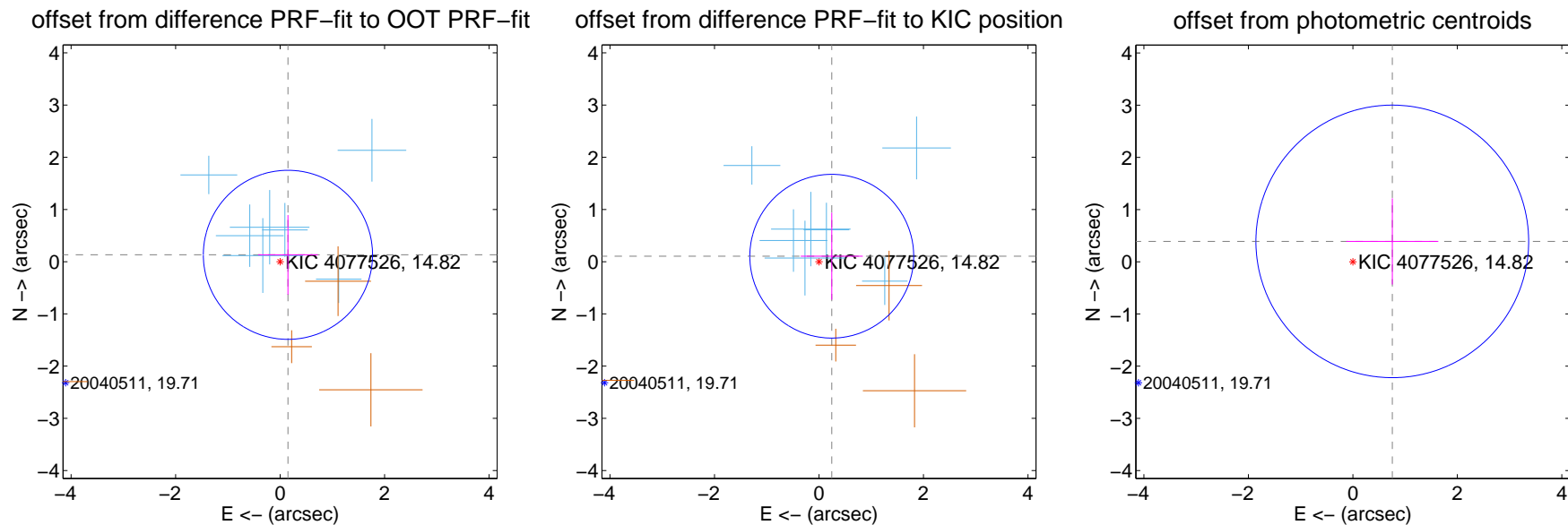
DV Centroid Data

Supplemental centroid analysis for 004077526-03. Kepler magnitude: 14.82. Transit SNR 15.30

There are 7 quarters with good PRF difference image offsets

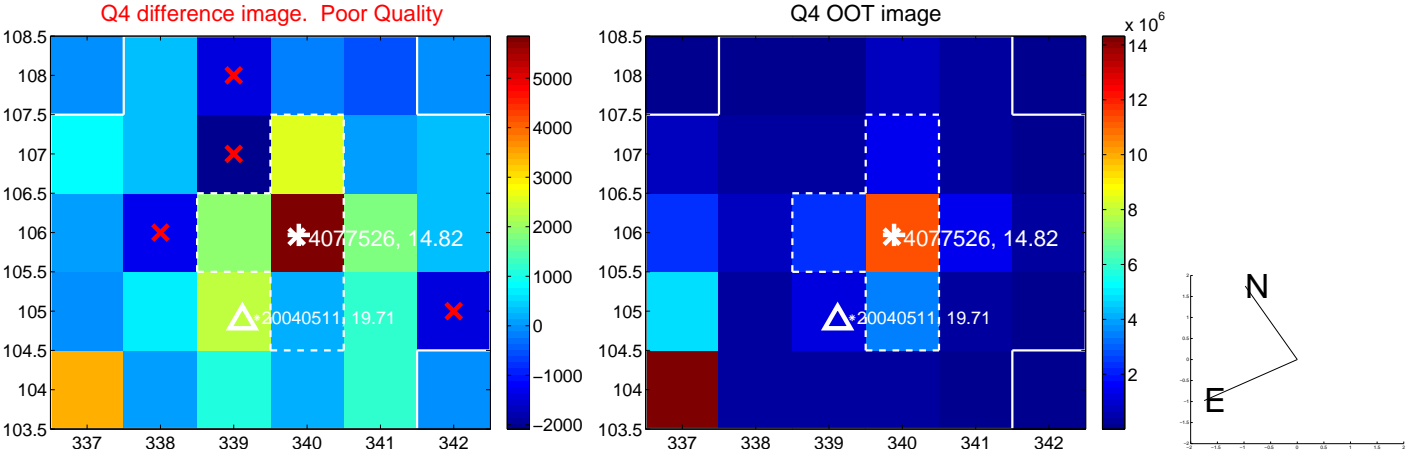
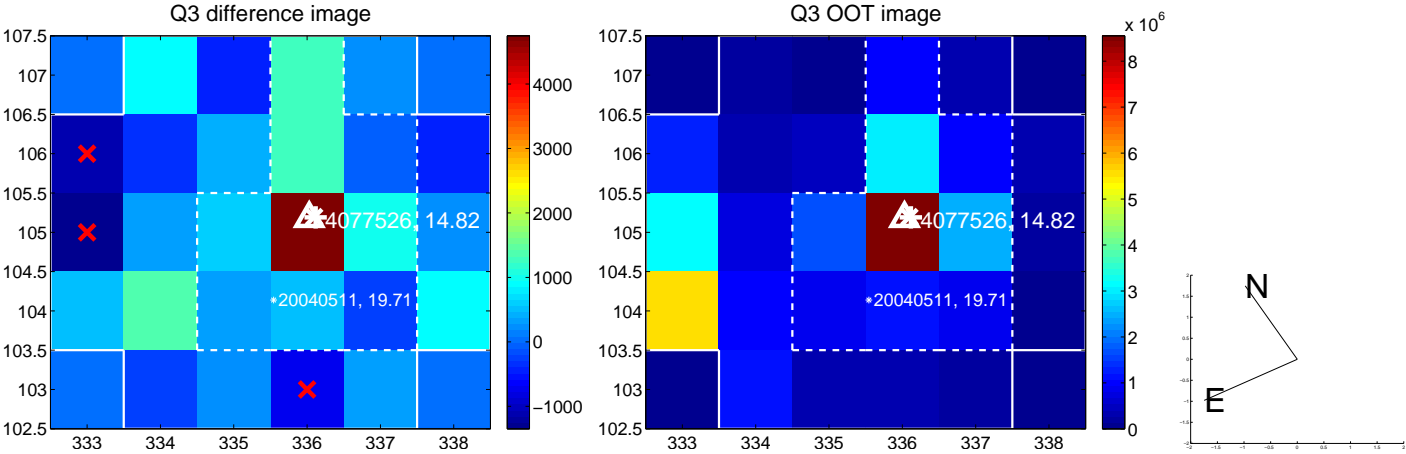
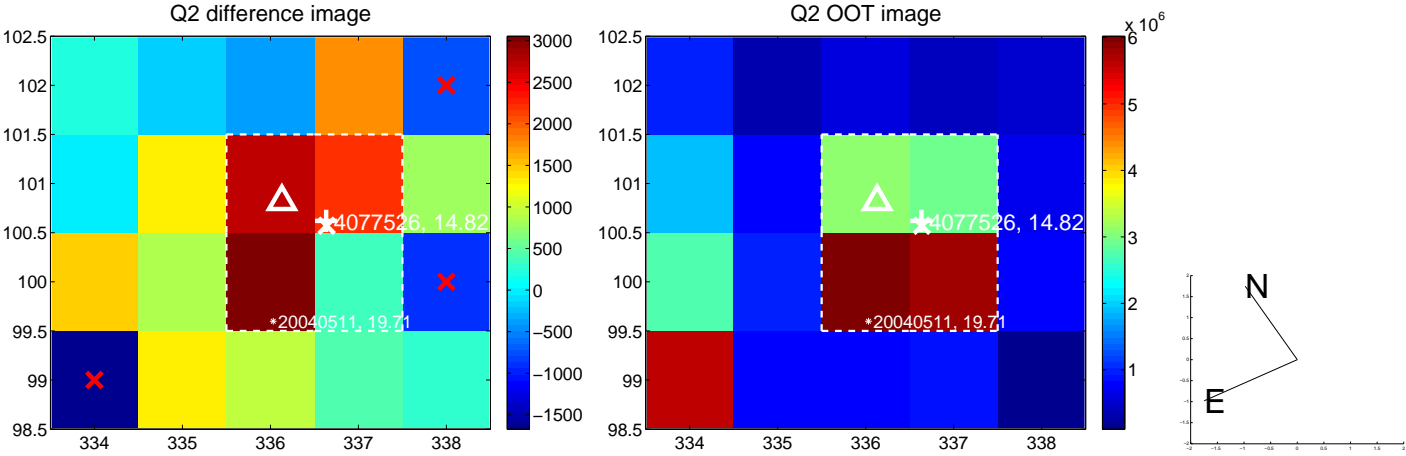
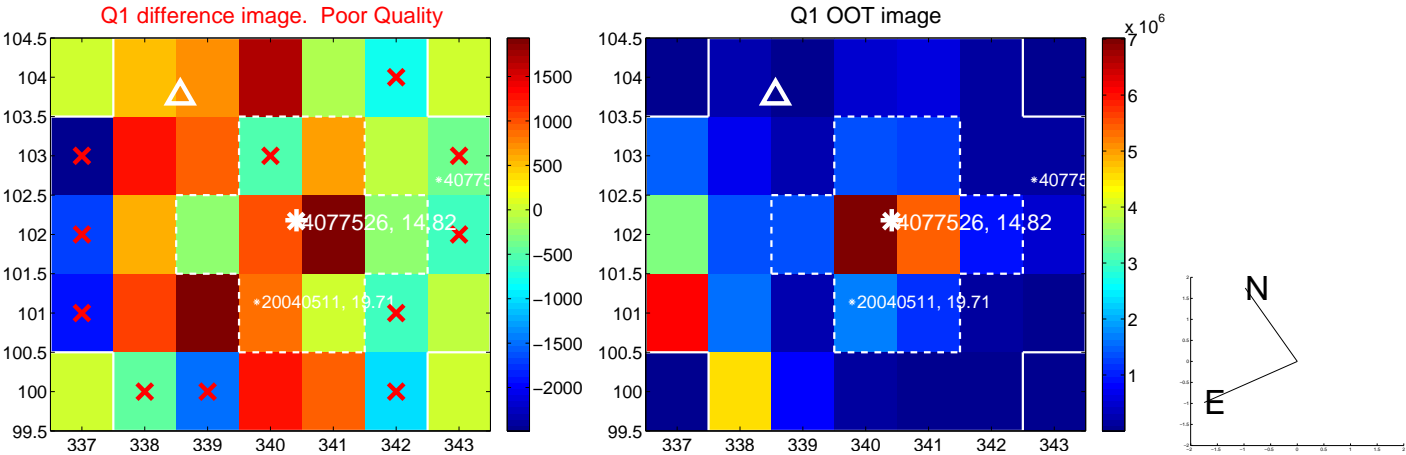
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.200 ± 0.540	0.37	-0.150 ± 0.572	0.132 ± 0.762
PRF-fit source offset from KIC position	0.266 ± 0.523	0.51	-0.244 ± 0.593	0.105 ± 0.834
photometric centroid source offset	0.85 ± 0.87	0.98	-0.75 ± 0.88	0.39 ± 0.83

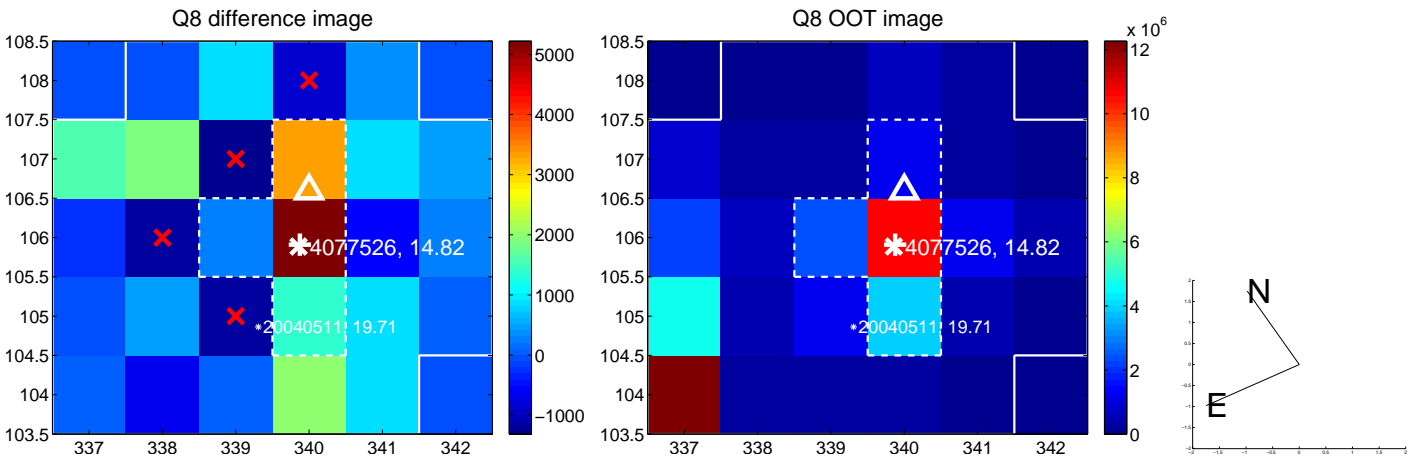
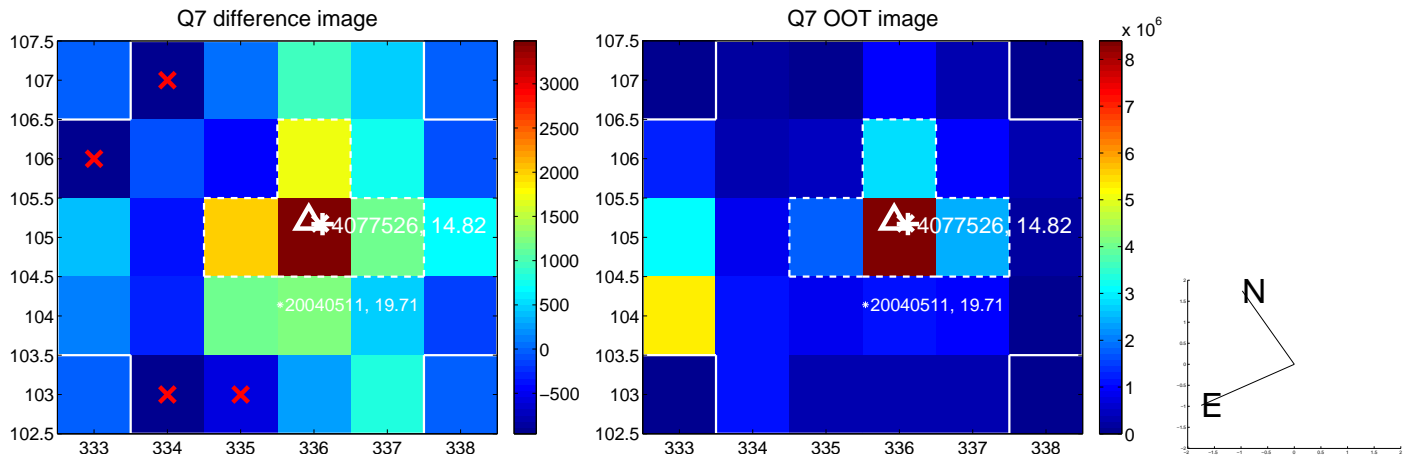
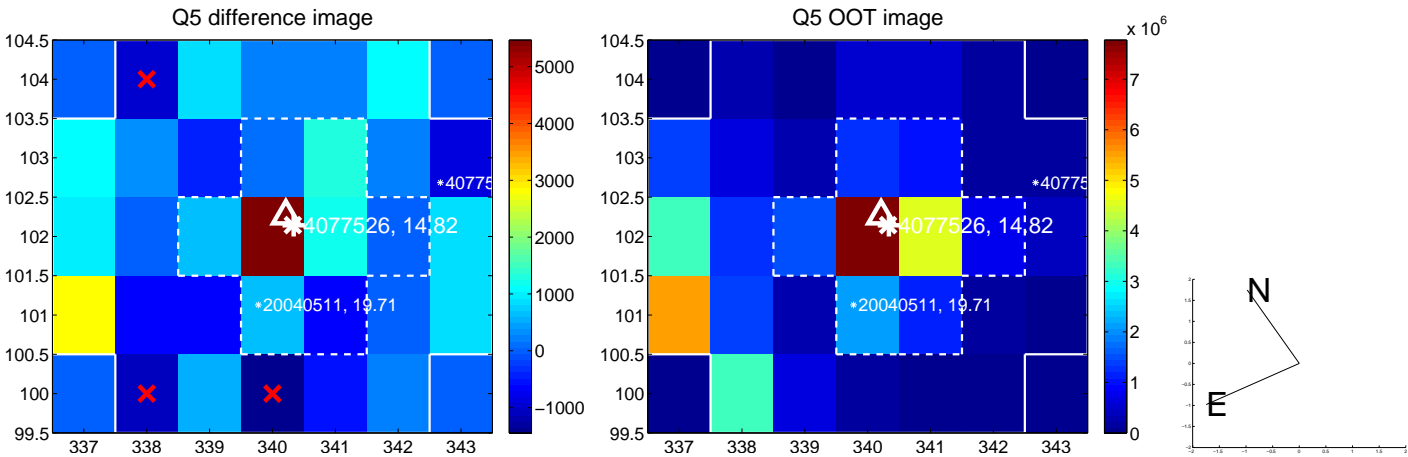


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

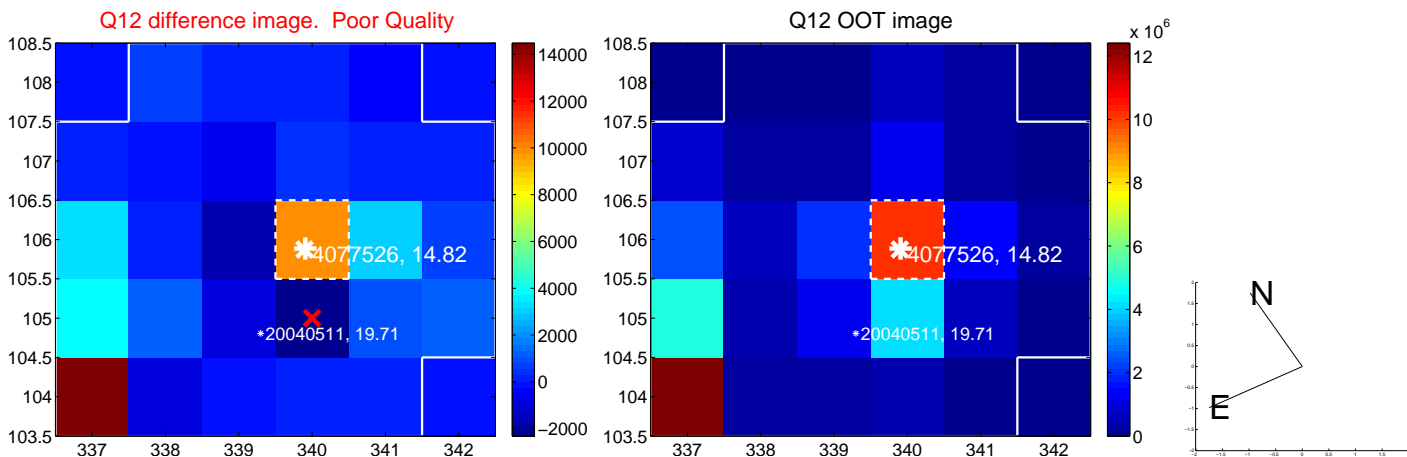
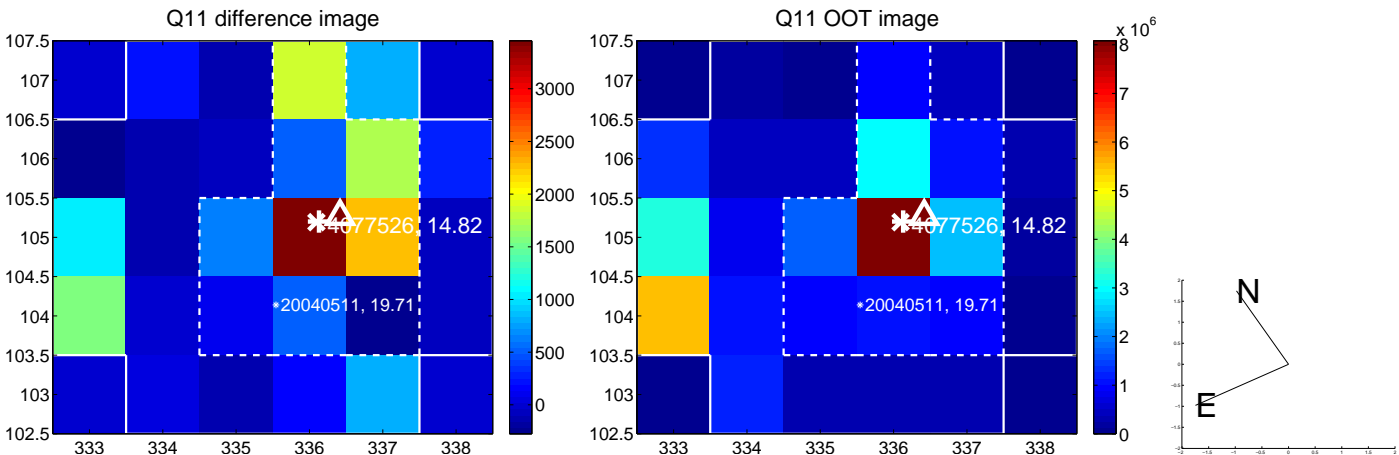
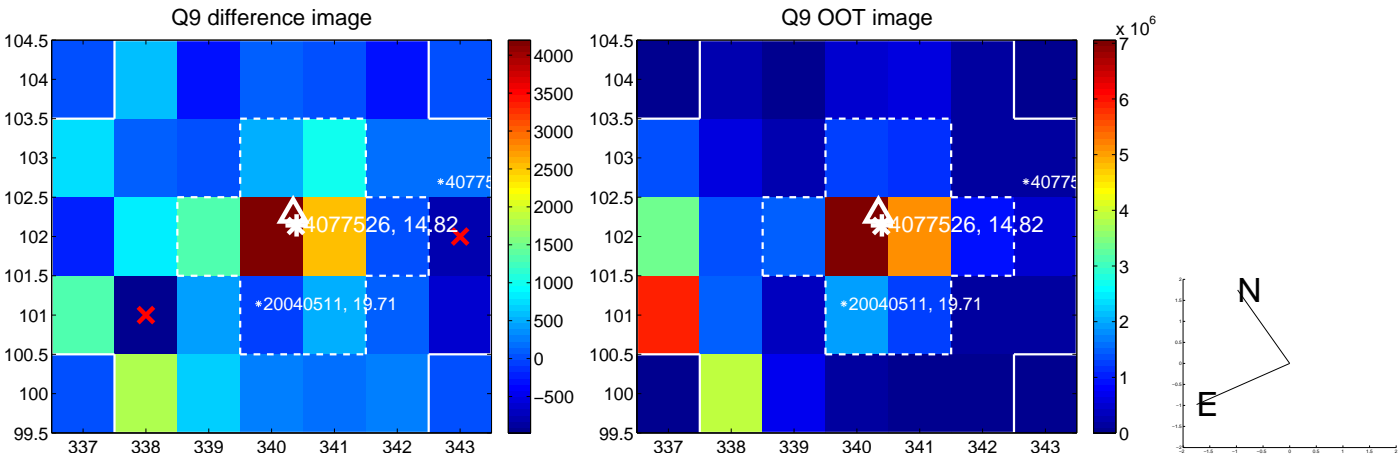
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



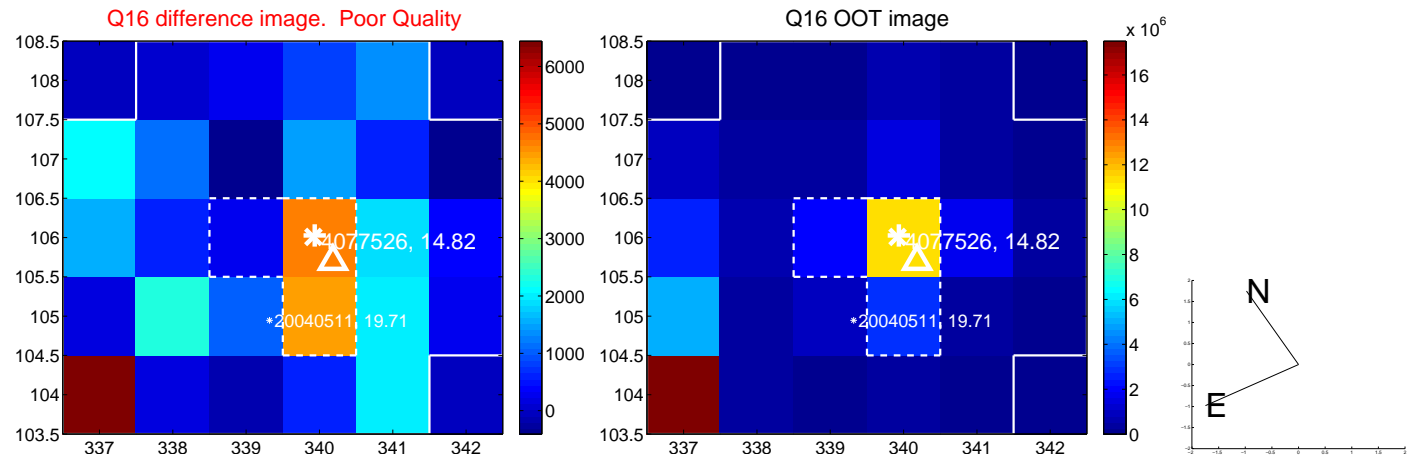
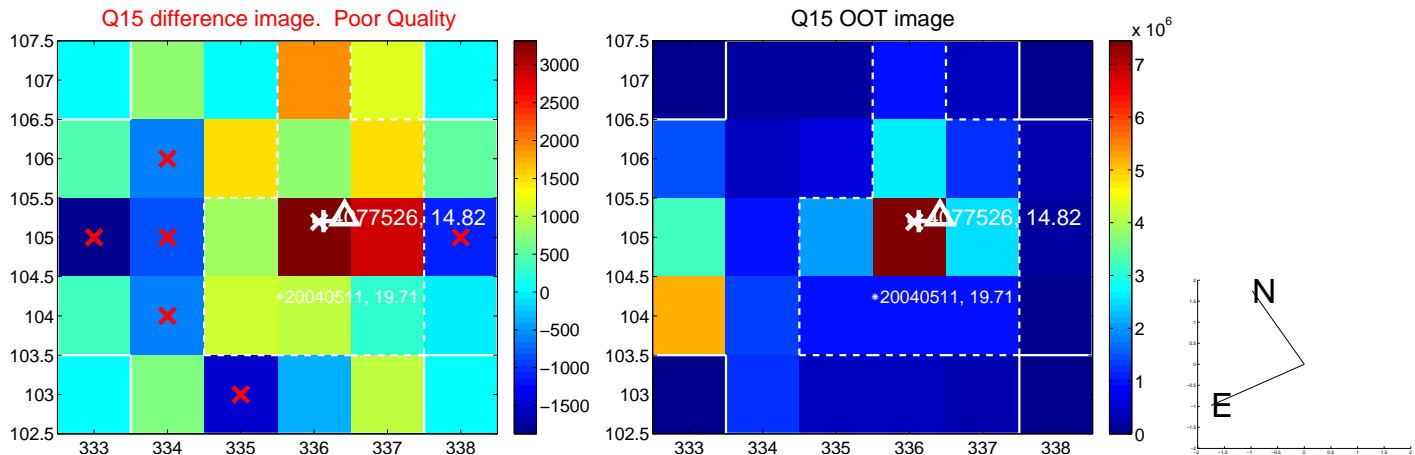
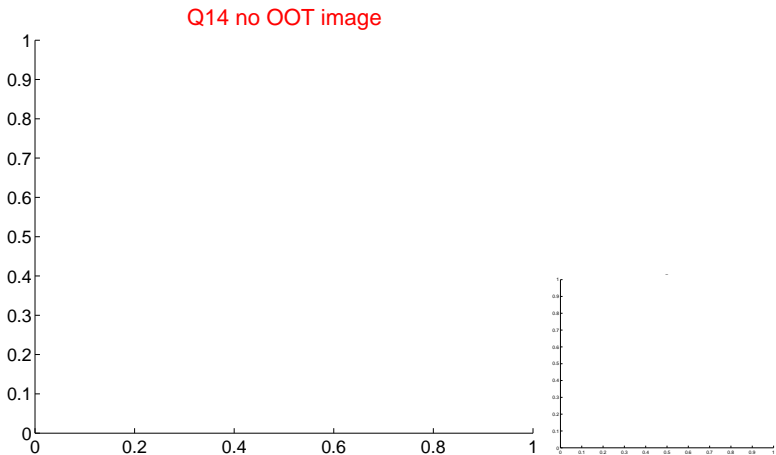
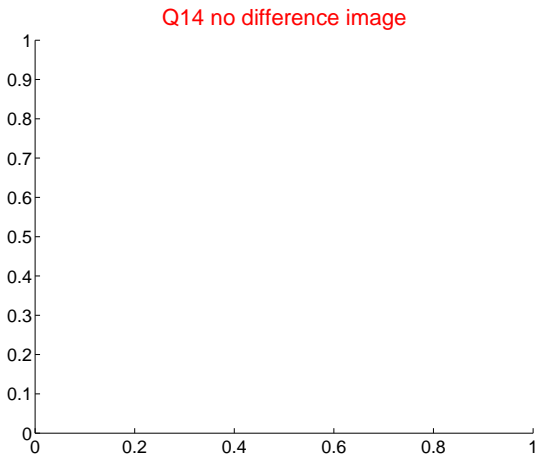
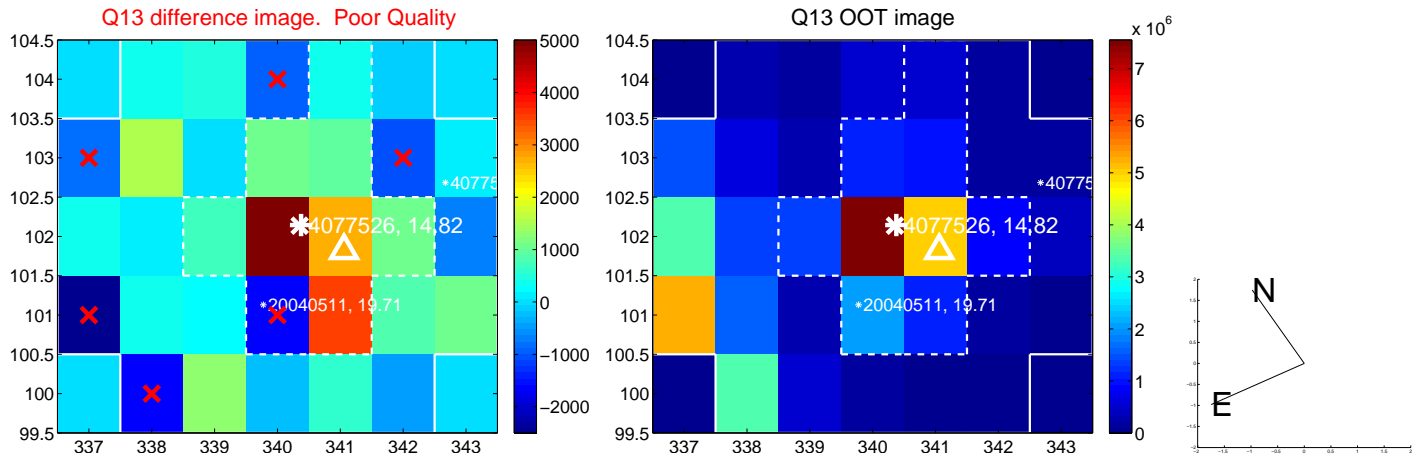
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



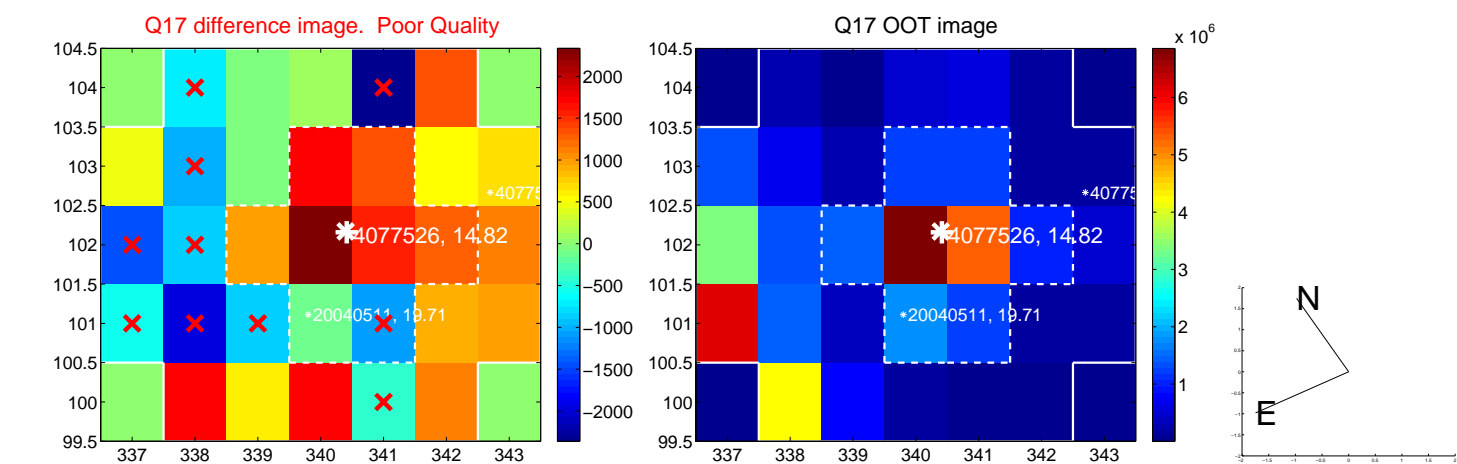
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



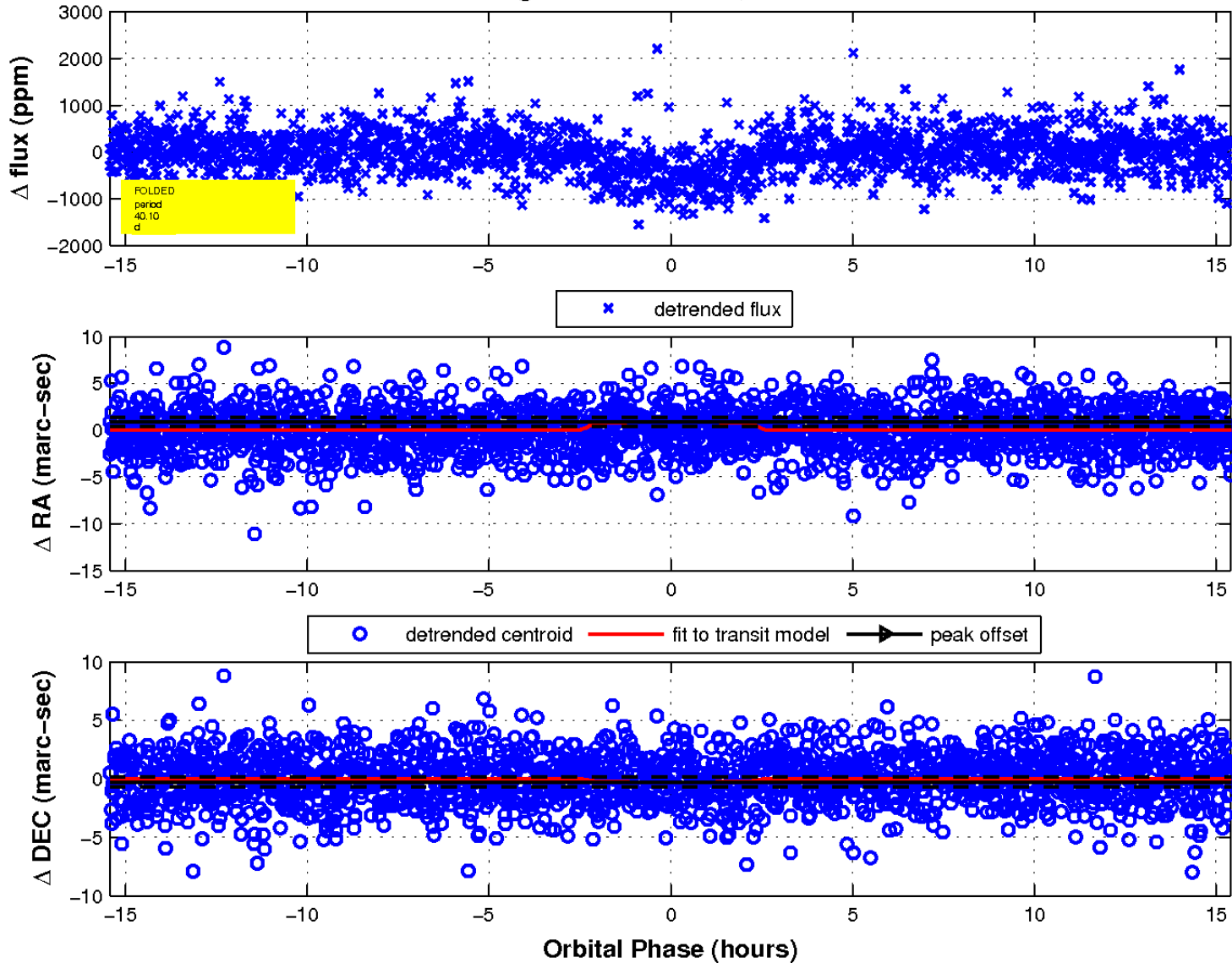
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

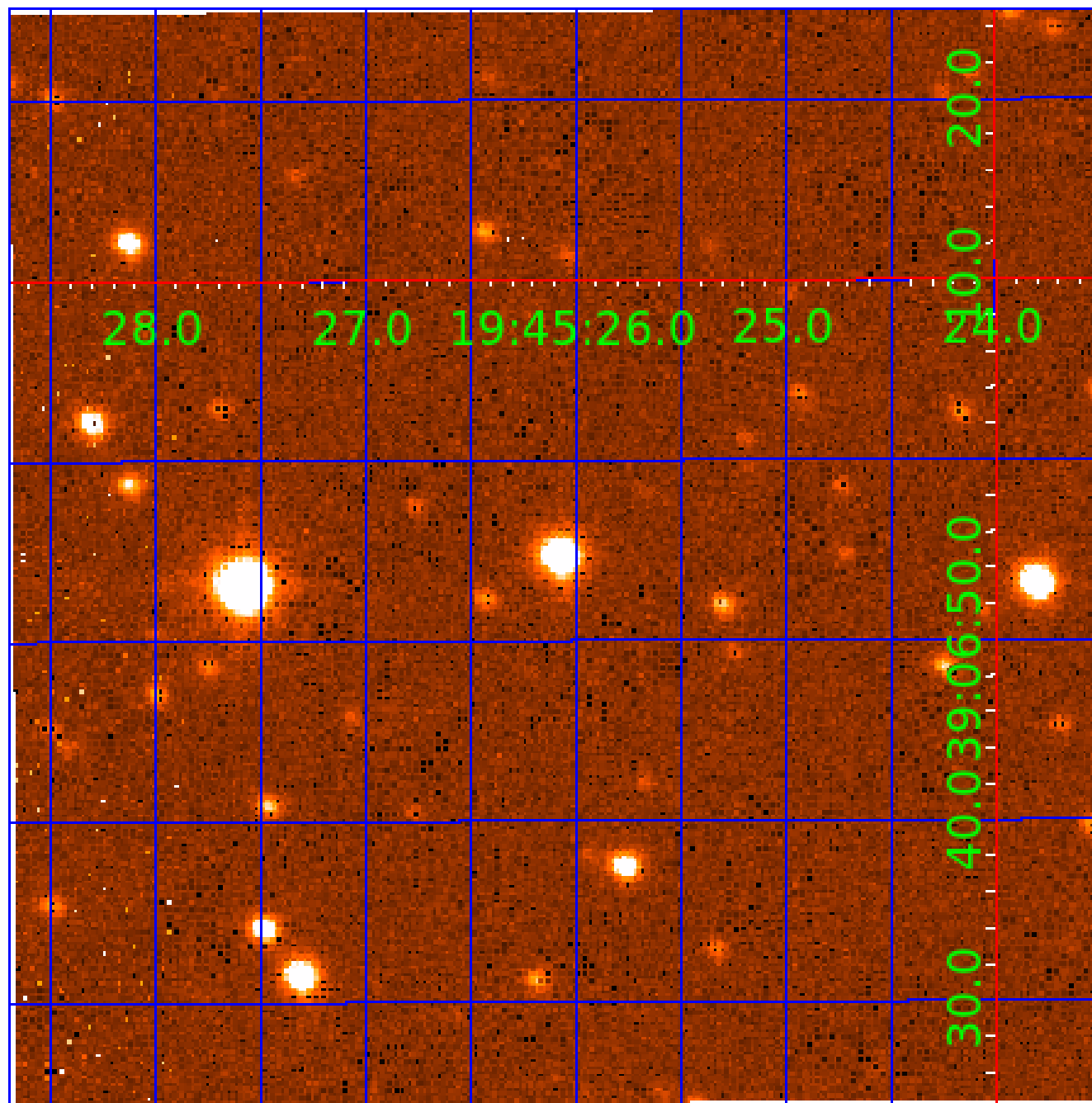


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 004077526

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})
004077526-01	OBS	1336.01	10.218673	136.862222	463.4	4.424	22.1	24.8	1.08	6100	2.82	169.34
004077526-02	OBS	1336.02	15.573605	132.442196	454.6	5.151	18.6	20.4	1.08	6100	2.88	96.56
004077526-03	OBS	1336.03	40.101702	132.706620	532.0	5.143	14.2	15.3	1.08	6100	2.82	27.36
004077526-04	OBS	1336.04	4.458173	134.394270	175.7	2.952	11.4	12.0	1.08	6100	1.69	511.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004077526-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
004077526-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

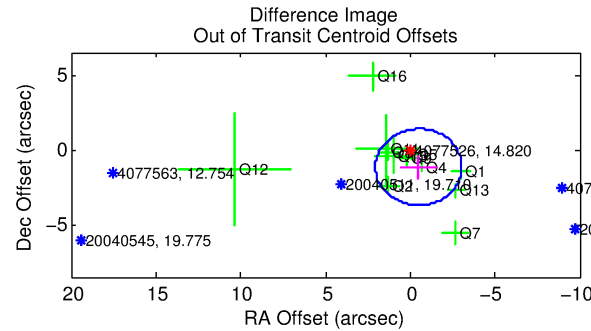
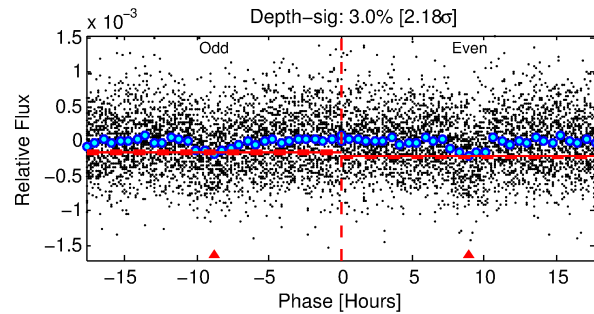
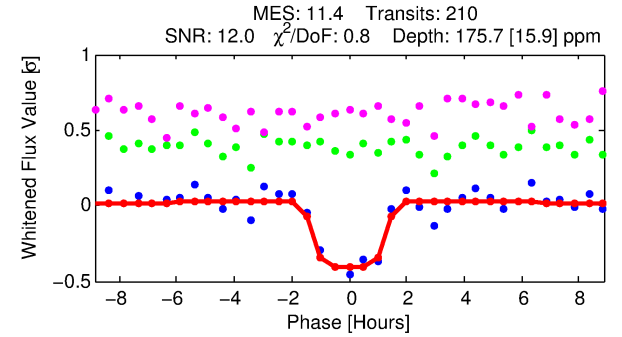
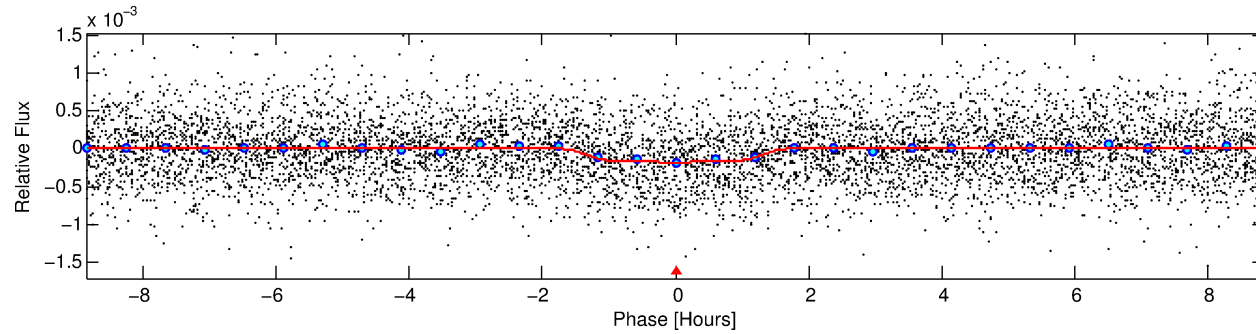
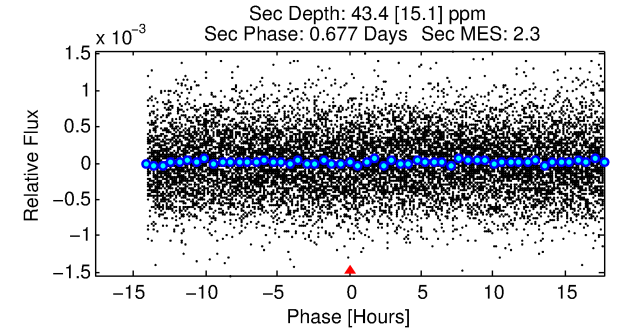
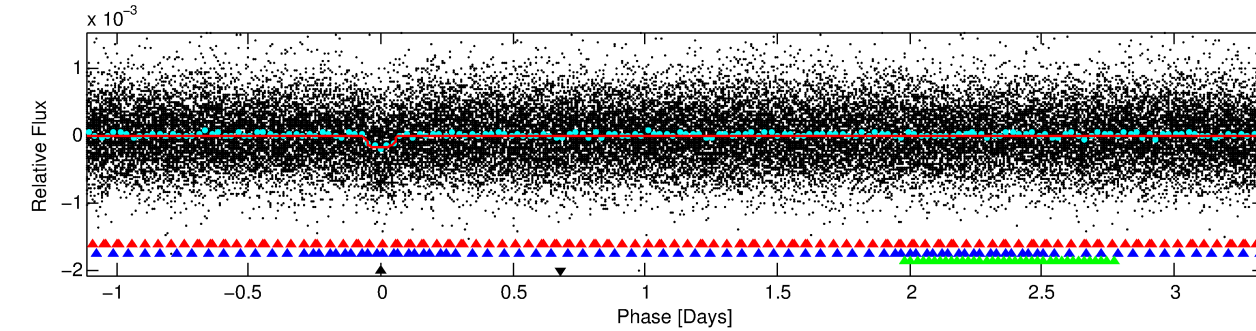
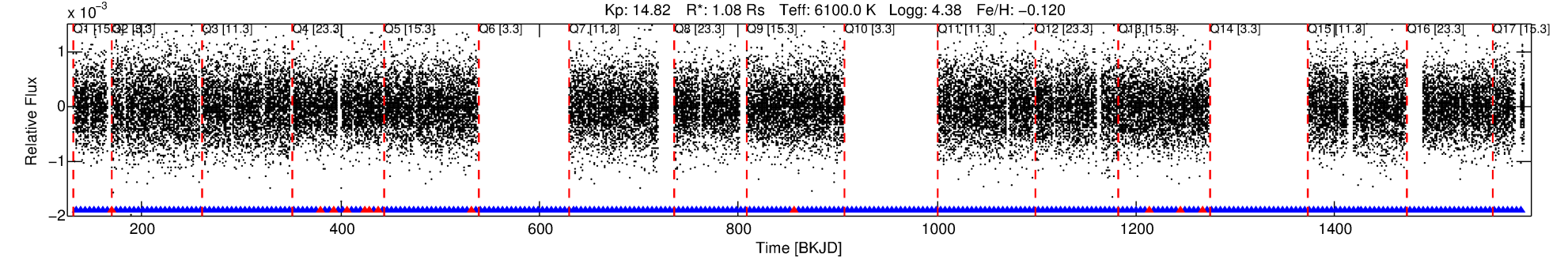
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004077526-04

No Significant Match Found

DV One-Page Summary

KIC: 4077526 Candidate: 4 of 4 Period: 4.458 d
KOI: K01336.04 Corr: 0.986



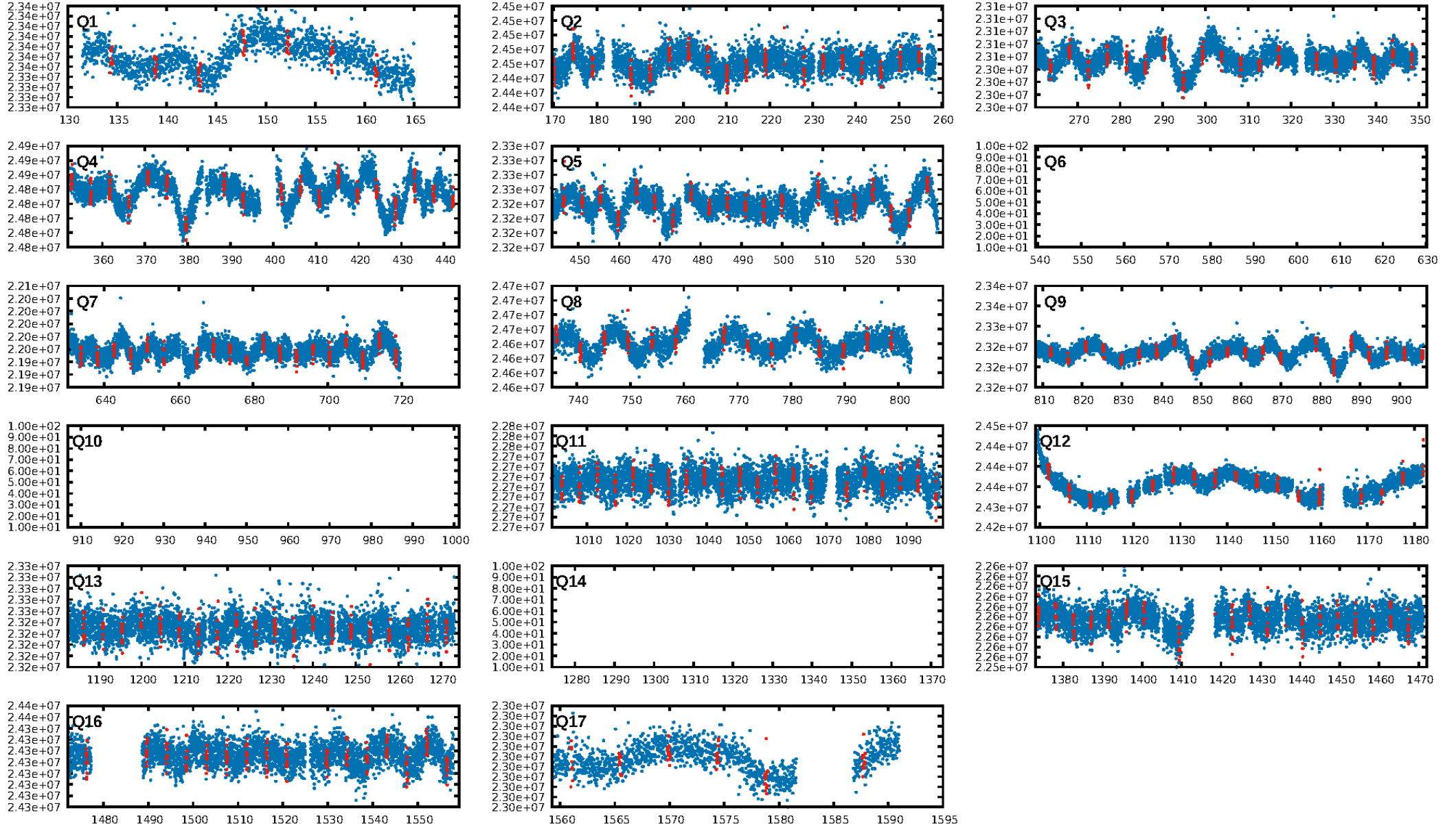
DV Fit Results:

Period = 4.45817 [0.00003] d
Epoch = 134.3943 [0.0040] BKJD
Rp/R* = 0.0143 [0.0060]
a/R* = 5.46 [11.67]
b = 0.90 [0.47]
Seff = 511.79 [201.95]
Teff = 1213 [120] K
Rp = 1.69 [0.90] Re
a = 0.0533 [0.0140] AU
Ag = 23.74 [23.31] [0.98σ]
Teffp = 4139 [953] K [3.05σ]

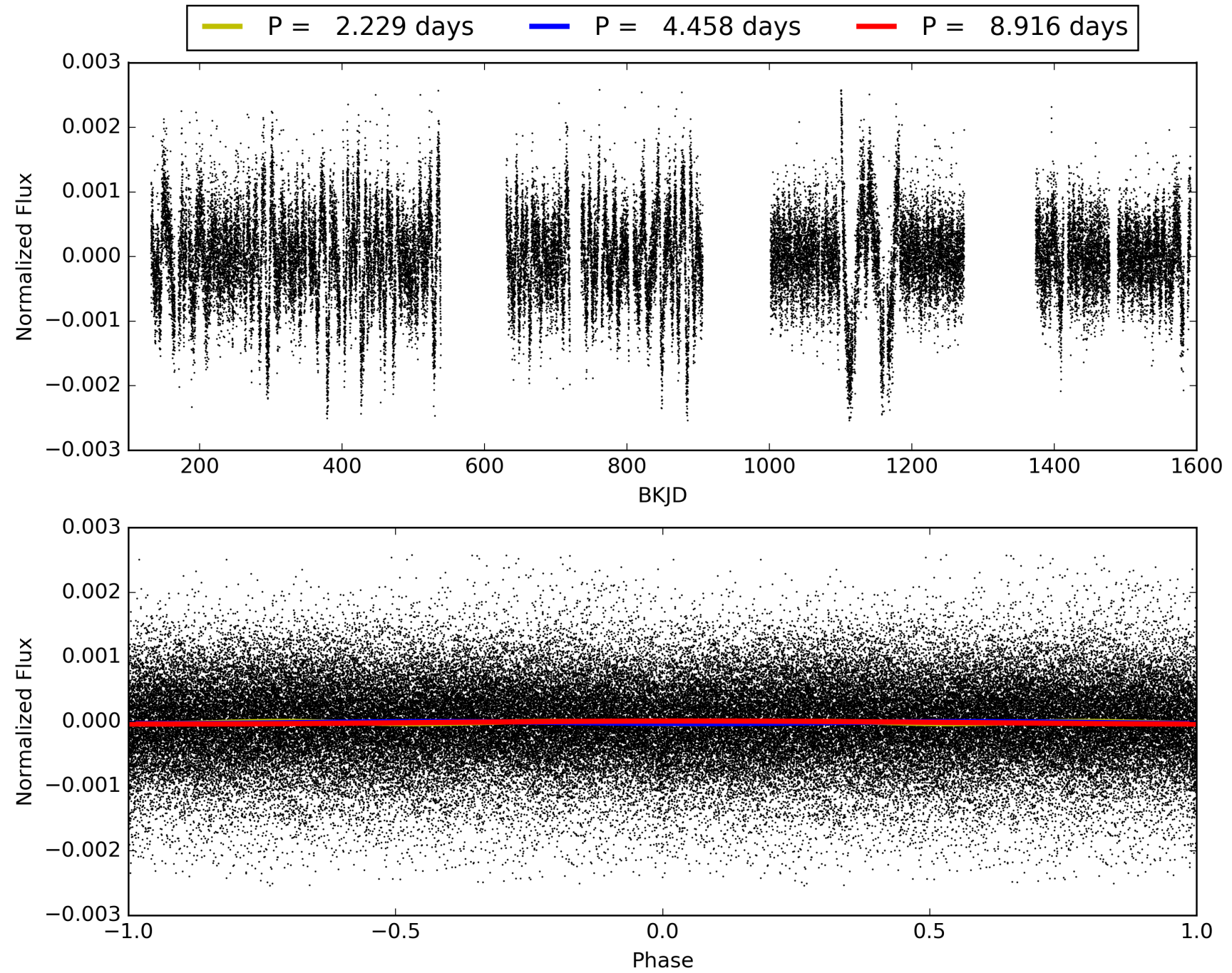
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [25.99σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.98e-30
RollingBand-fgt: 0.94 [188/200]
GhostDiagnostic-chr: 1.704
Centroid-sig: 0.0%
Centroid-so: 2.952 arcsec [2.69σ]
OotOffset-rm: 1.259 arcsec [1.48σ]
KicOffset-rm: 1.294 arcsec [1.48σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 0.25 [3/12]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004077526-04, PDC Light Curves

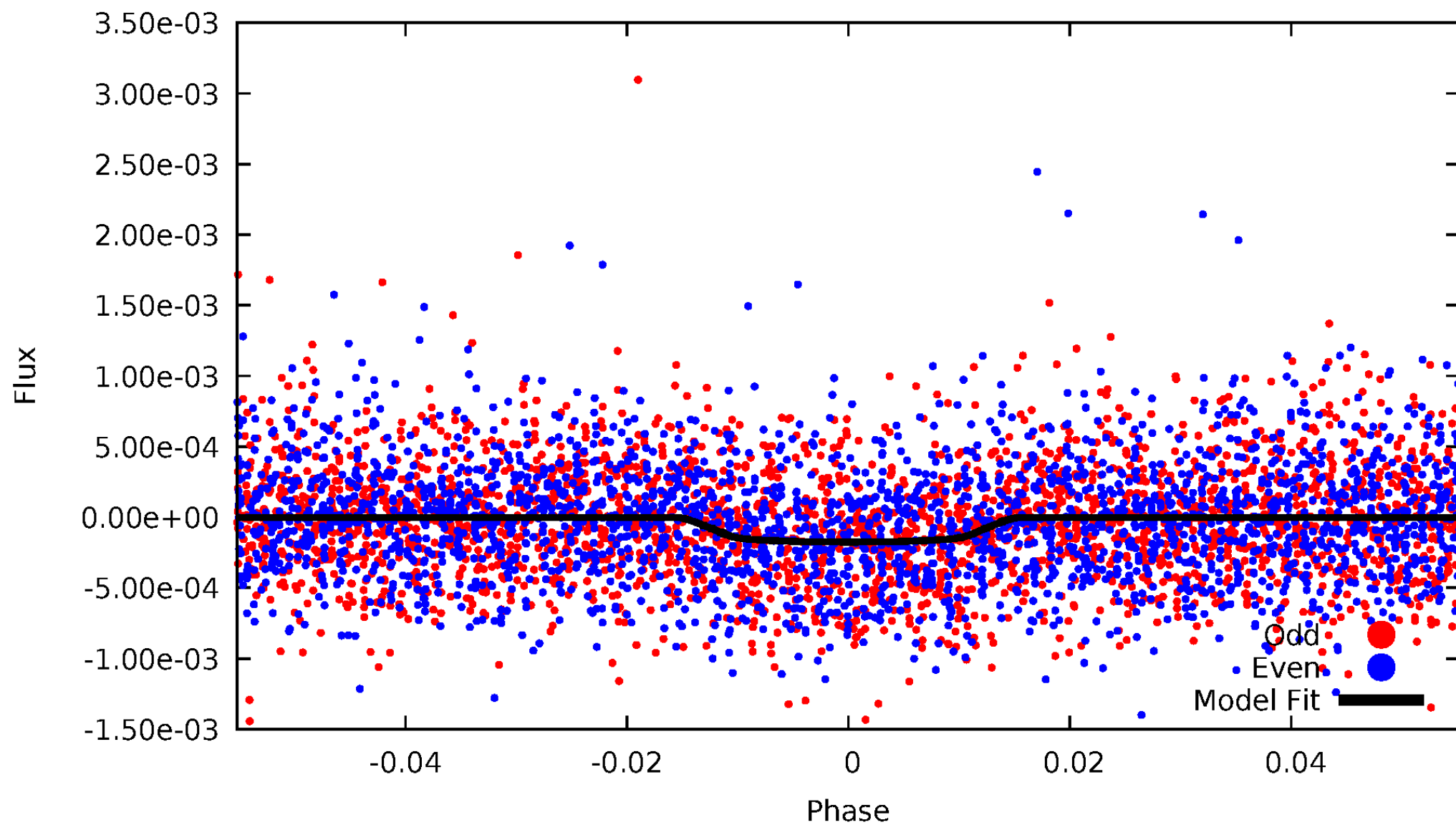


TCE 004077526-04



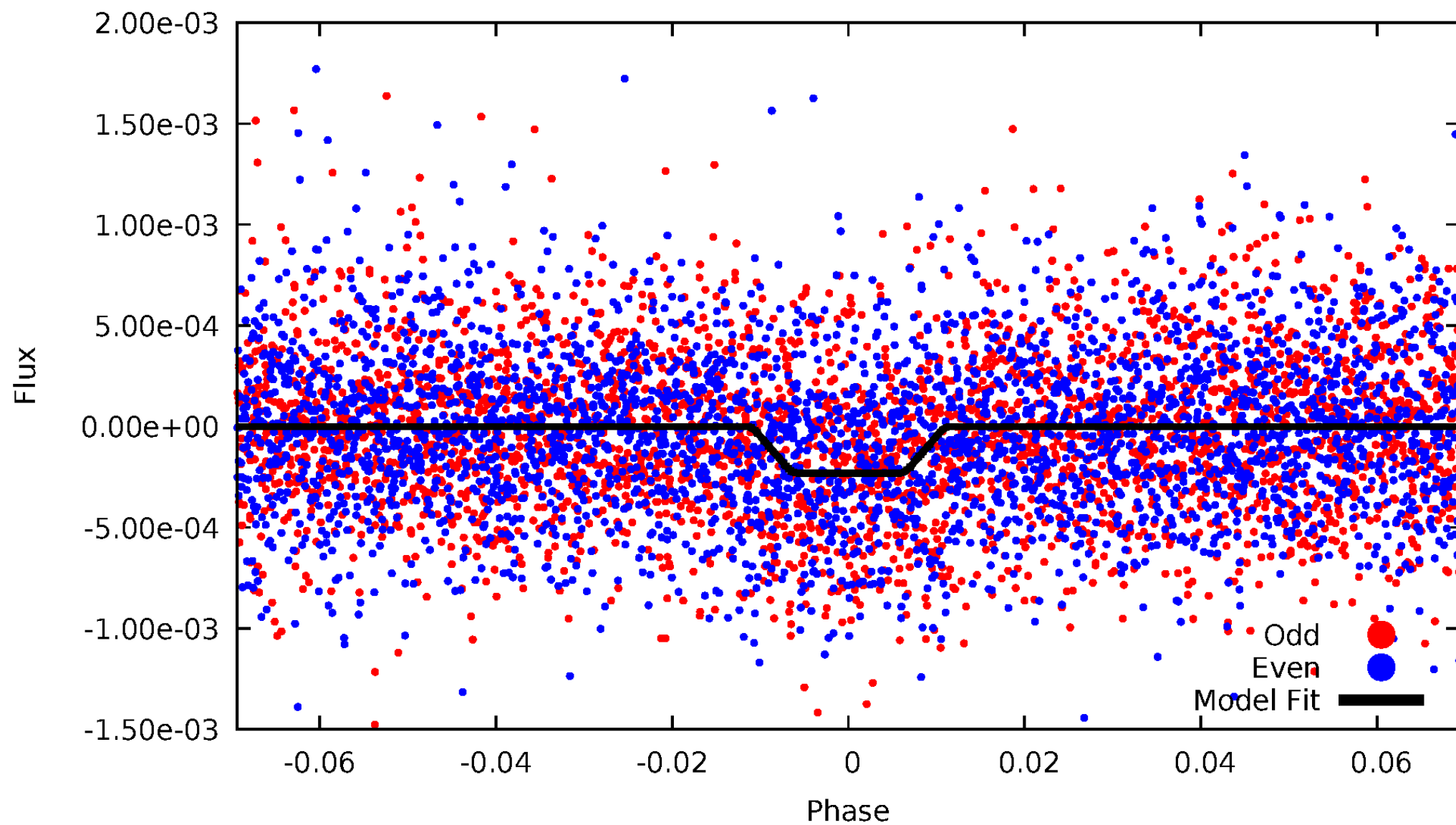
DV Odd/Even

TCE 004077526-04



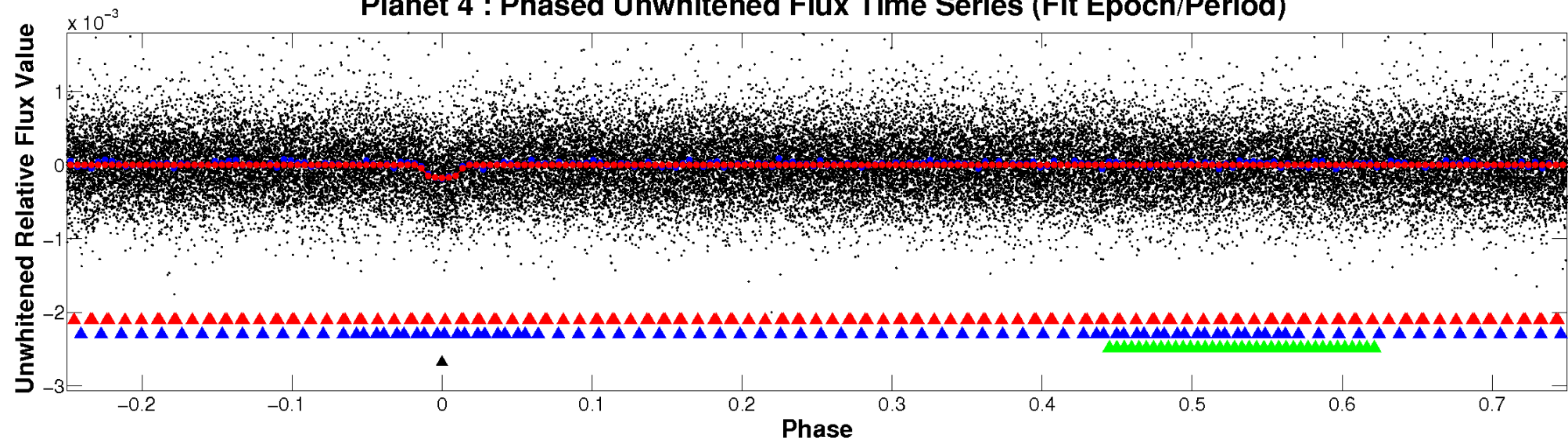
ALT Odd/Even

TCE 004077526-04

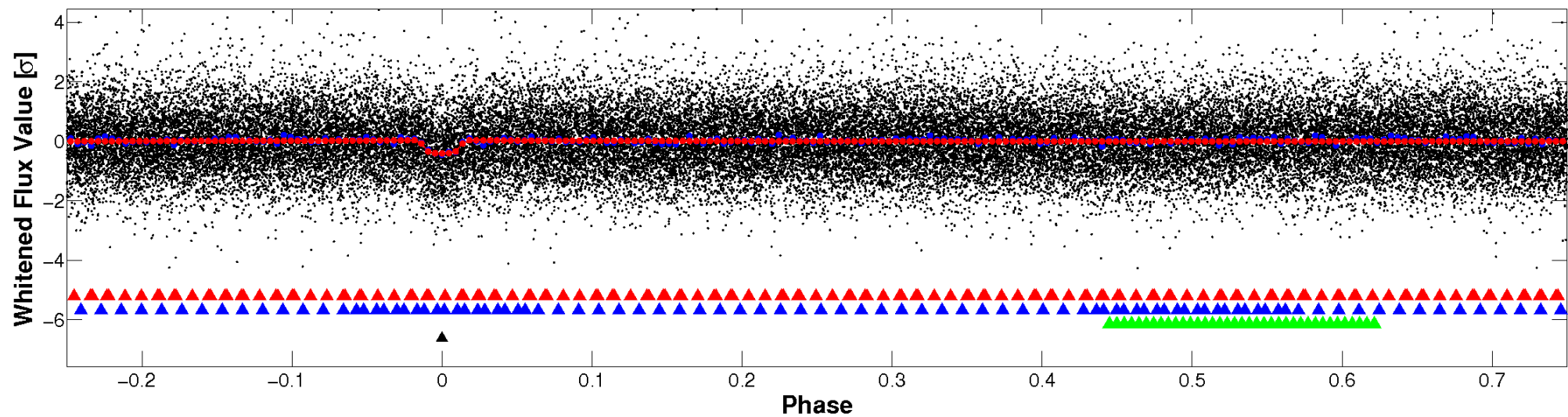


Non-Whitened Vs. Whitened Light Curve

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

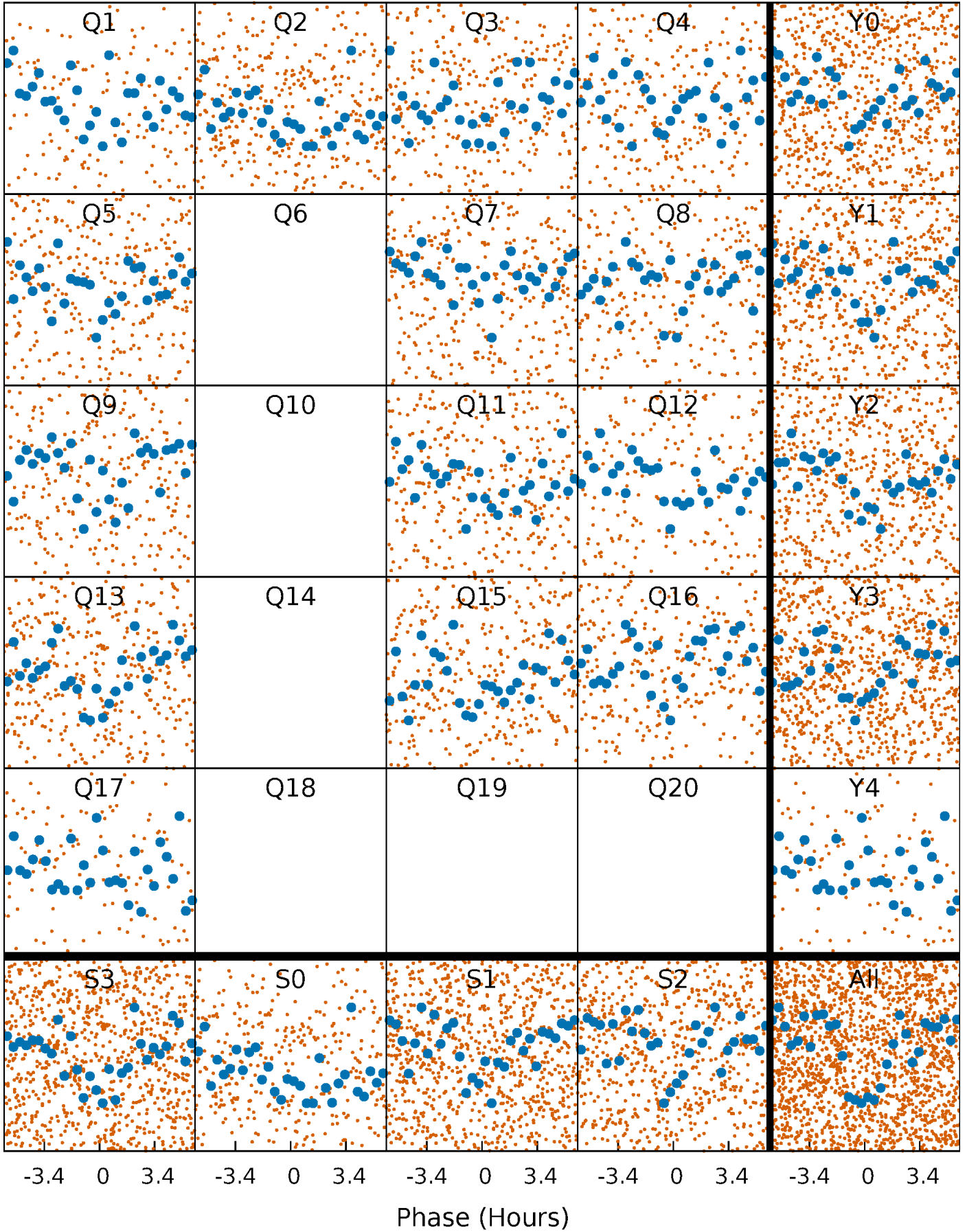


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



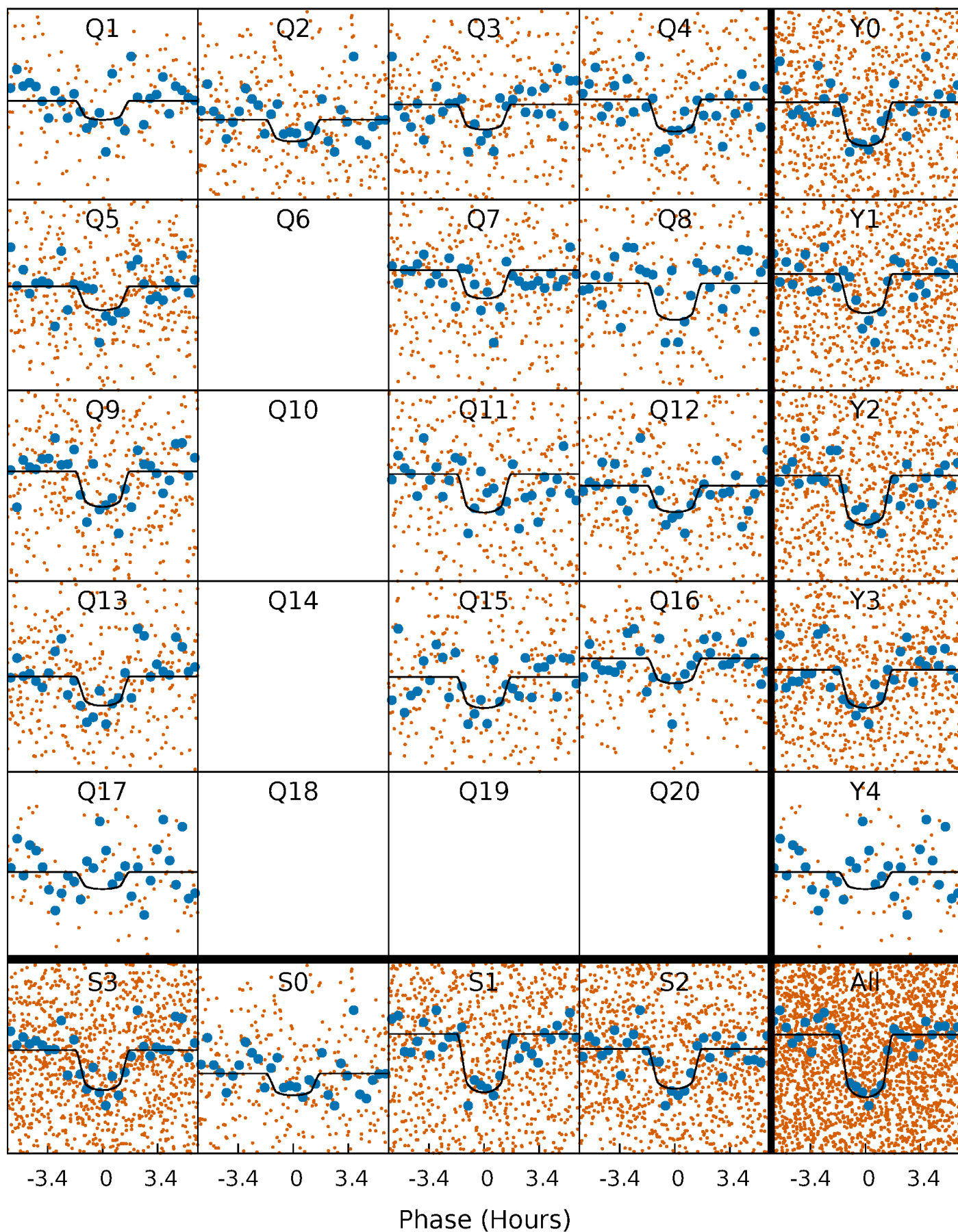
PDC Quarter-Phased Transit Curves

TCE 004077526-04 P= 4.458173 Days $T_0=134.394270$ (BKJD)



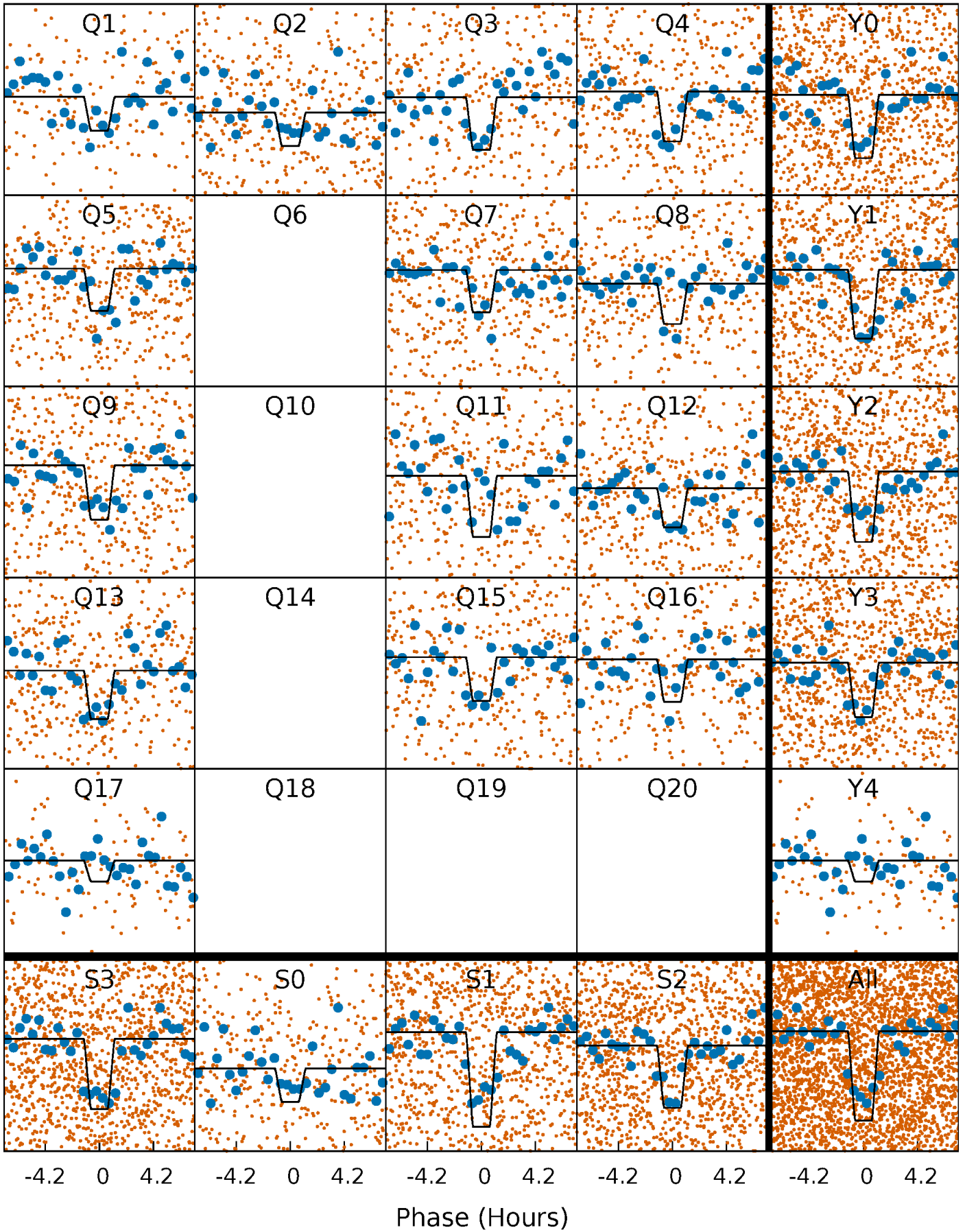
DV Quarter-Phased Transit Curves

TCE 004077526-04 $P = 4.458173$ Days $T_0 = 134.394270$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

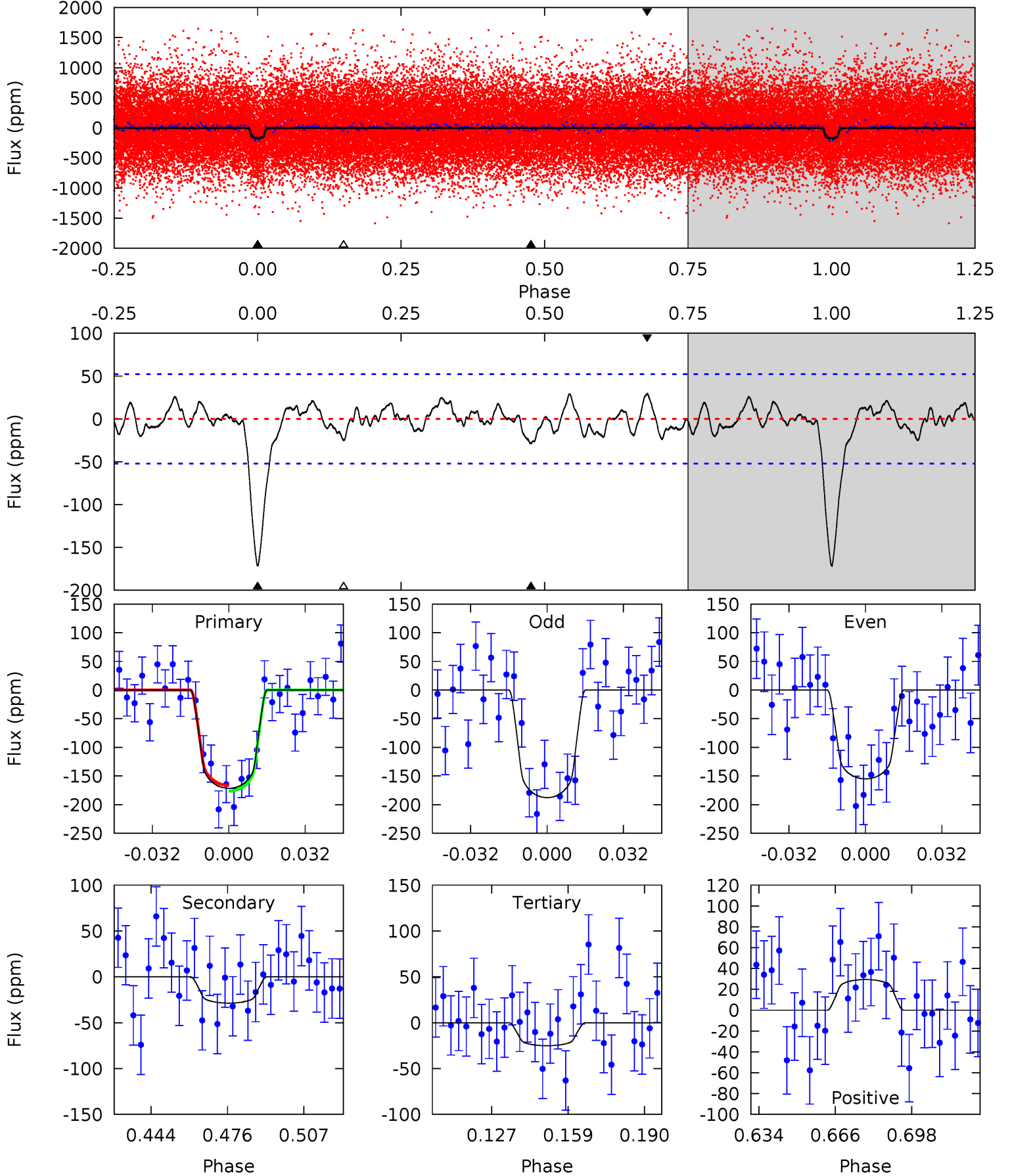
TCE 004077526-04 P= 4.458161 Days $T_0=134.395428$ (BKJD)



DV Model-Shift Uniqueness Test

004077526-04, P = 4.458173 Days, E = 129.936097 Days

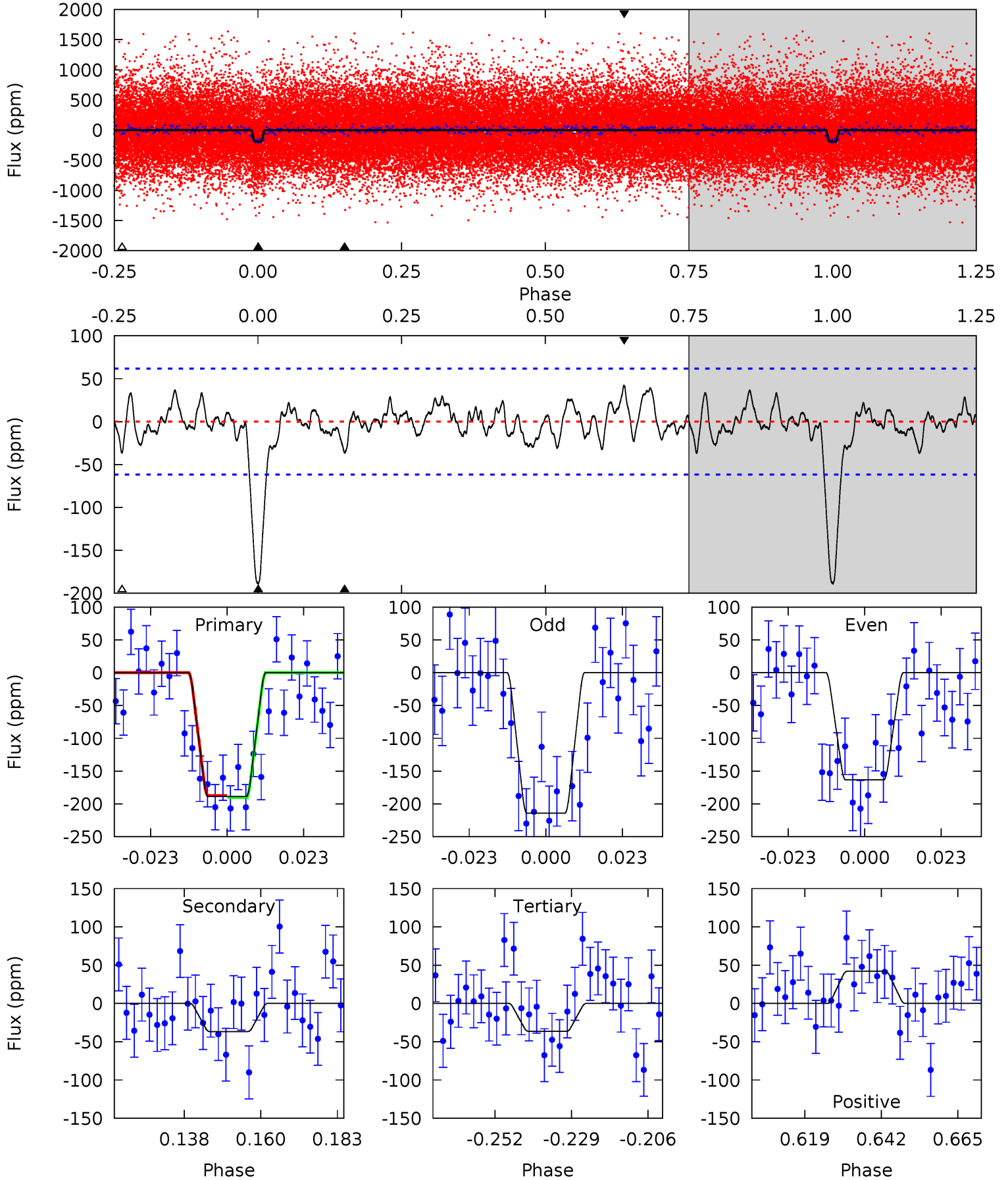
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	2.63	2.31	2.70	4.80	2.15	1.09	13.4	13.1	0.32	-0.07	1.51	0.94	0.15	0.45



Alt Model-Shift Uniqueness Test

004077526-04, P = 4.458161 Days, E = 129.937267 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	2.89	2.87	3.31	4.86	2.27	1.21	12.0	11.6	0.02	-0.42	1.99	0.91	0.18	0.12



Stellar Parameters For KIC 004077526

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6100^{+193}_{-214}	$4.376^{+0.105}_{-0.195}$	$-0.120^{+0.250}_{-0.300}$	$1.083^{+0.350}_{-0.150}$	$1.017^{+0.167}_{-0.125}$	$1.126^{+0.558}_{-0.599}$
	+3%/-4%	+2%/-4%	+208%/-250%	+32%/-14%	+16%/-12%	+50%/-53%
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 004077526-04 / KOI 1336.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-29 ± 11	$1.79^{+0.76}_{-0.76}$	1710^{+131}_{-97}	3949^{+907}_{-505}	13^{+28}_{-7}
Alt.	-37 ± 13	$1.86^{+0.70}_{-0.77}$	1702^{+131}_{-95}	4085^{+1054}_{-548}	16^{+32}_{-9}

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 $A_{obs} \gg 1.0$

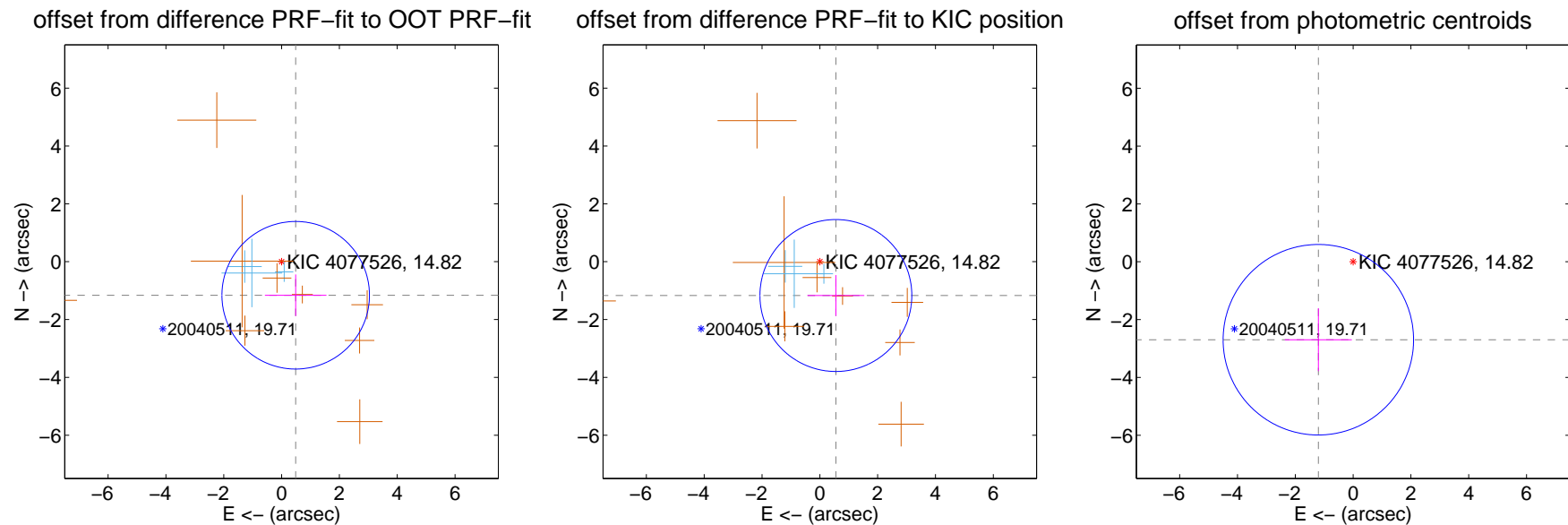
DV Centroid Data

Supplemental centroid analysis for 004077526-04. Kepler magnitude: 14.82. Transit SNR 11.99

There are 3 quarters with good PRF difference image offsets

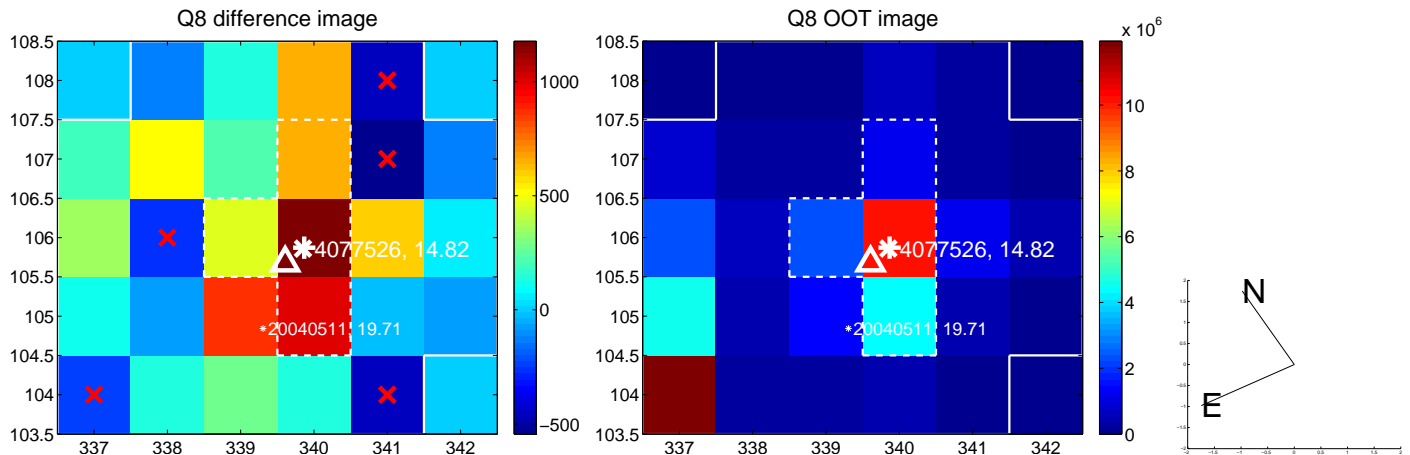
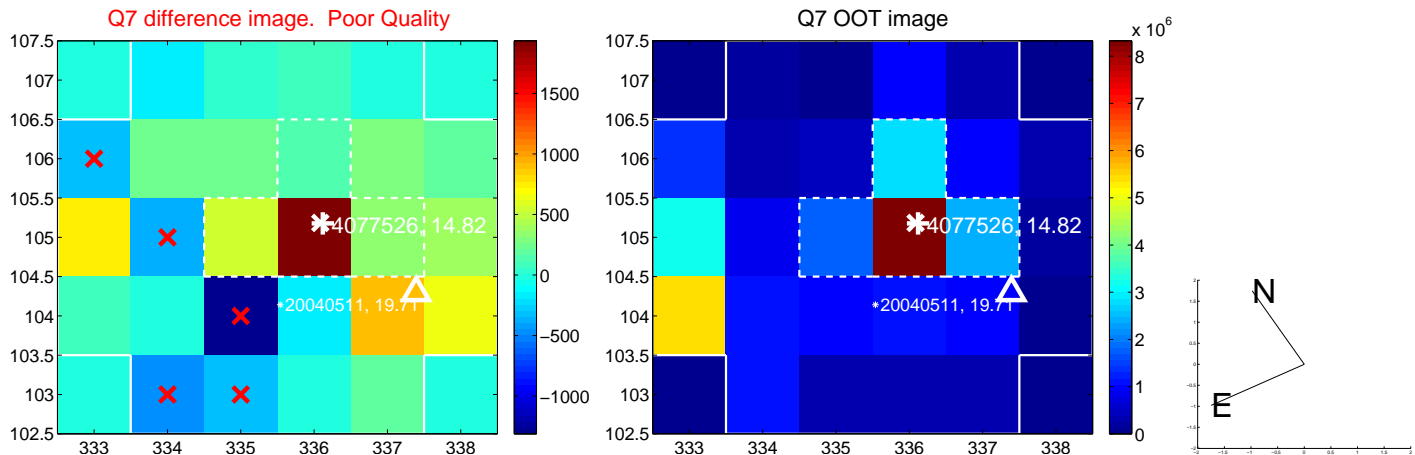
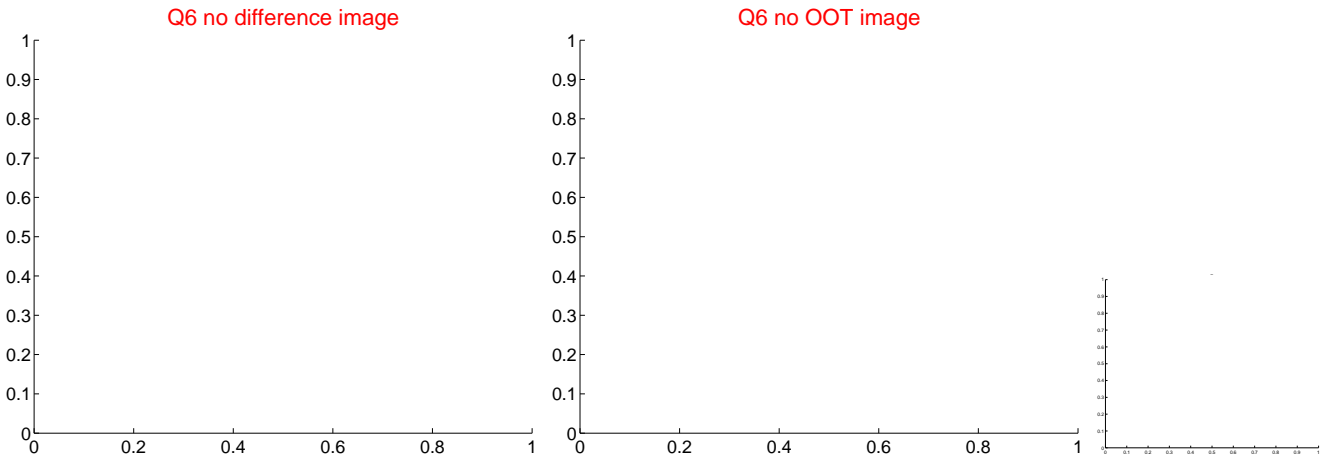
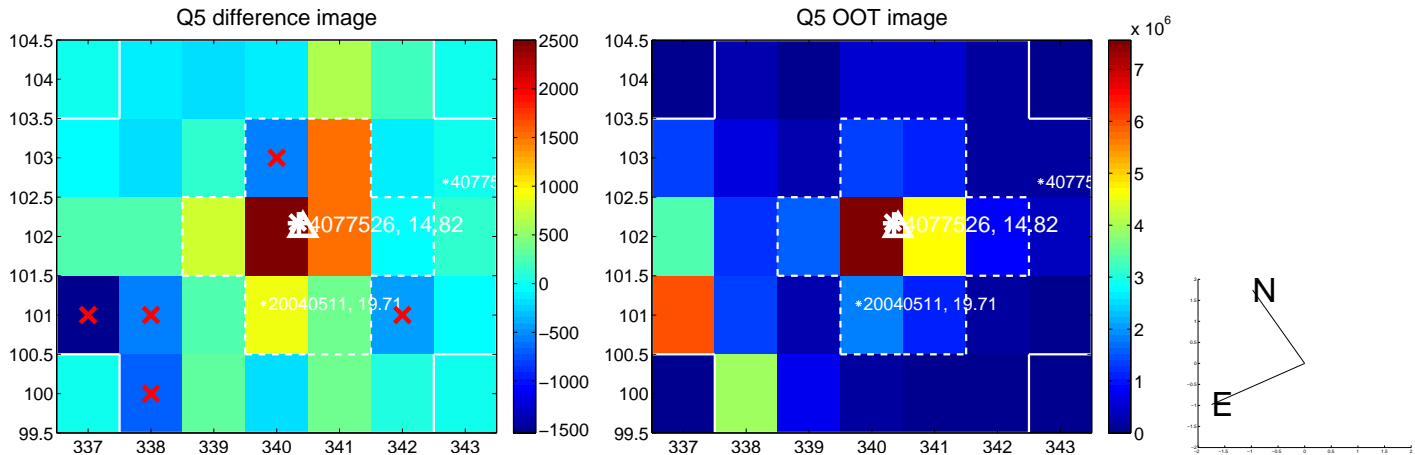
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.259 ± 0.850	1.48	-0.488 ± 1.064	-1.160 ± 0.717
PRF-fit source offset from KIC position	1.294 ± 0.875	1.48	-0.554 ± 0.985	-1.169 ± 0.706
photometric centroid source offset	2.95 ± 1.10	2.69	1.20 ± 1.16	-2.70 ± 1.09

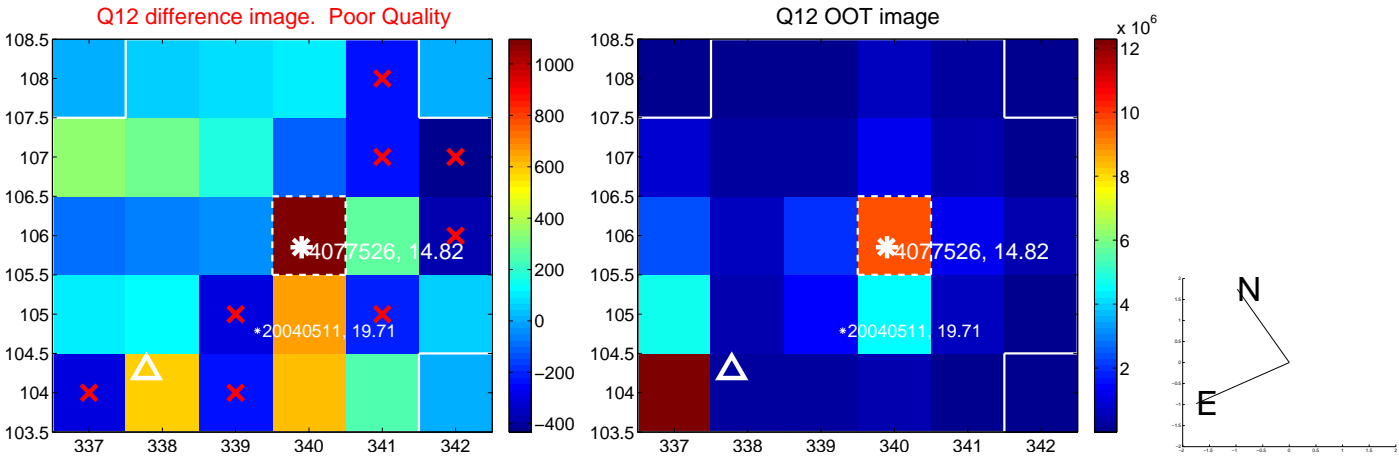
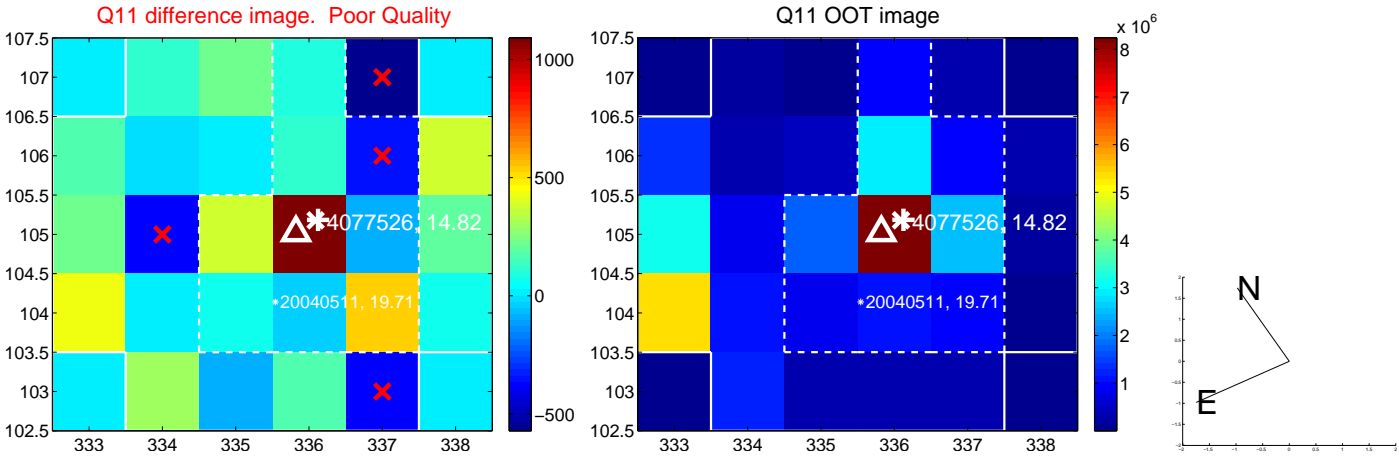
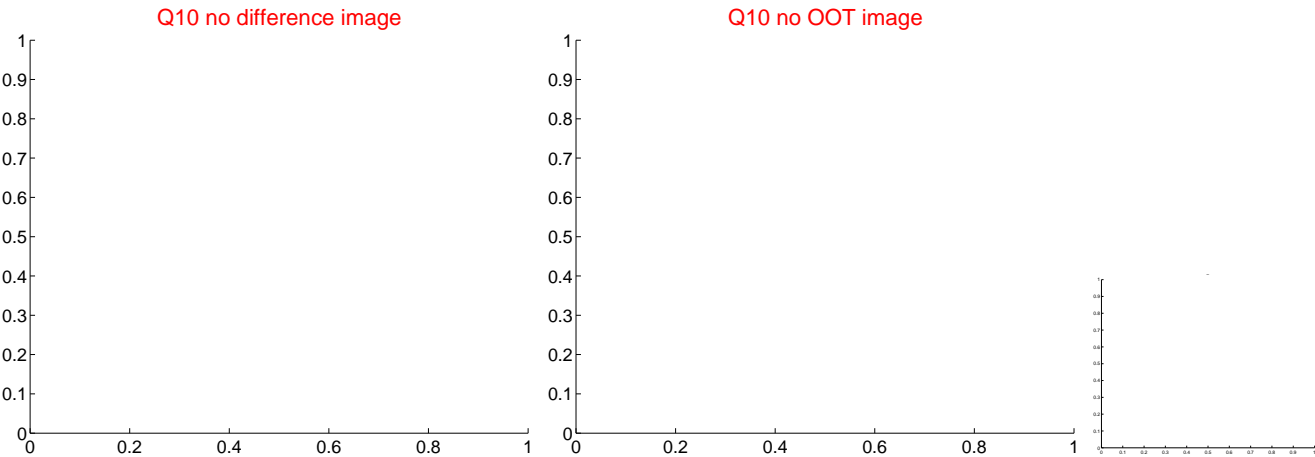
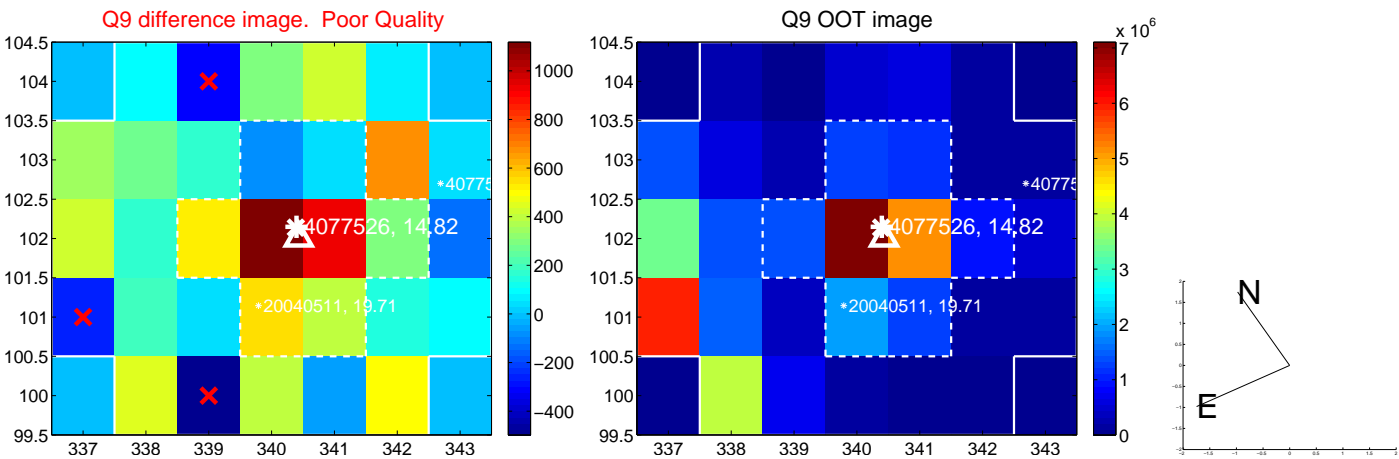


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

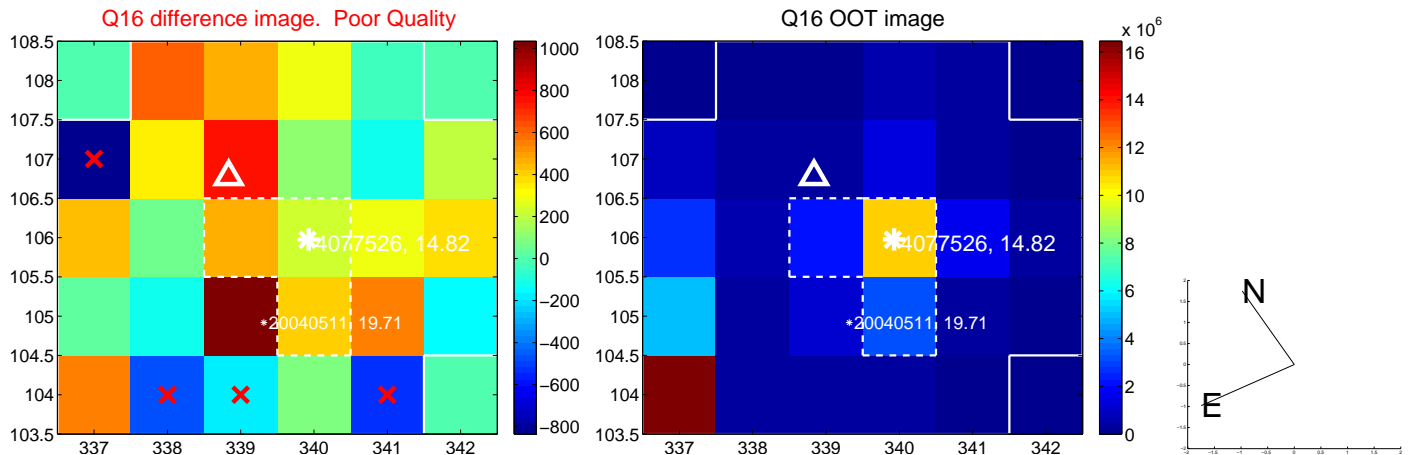
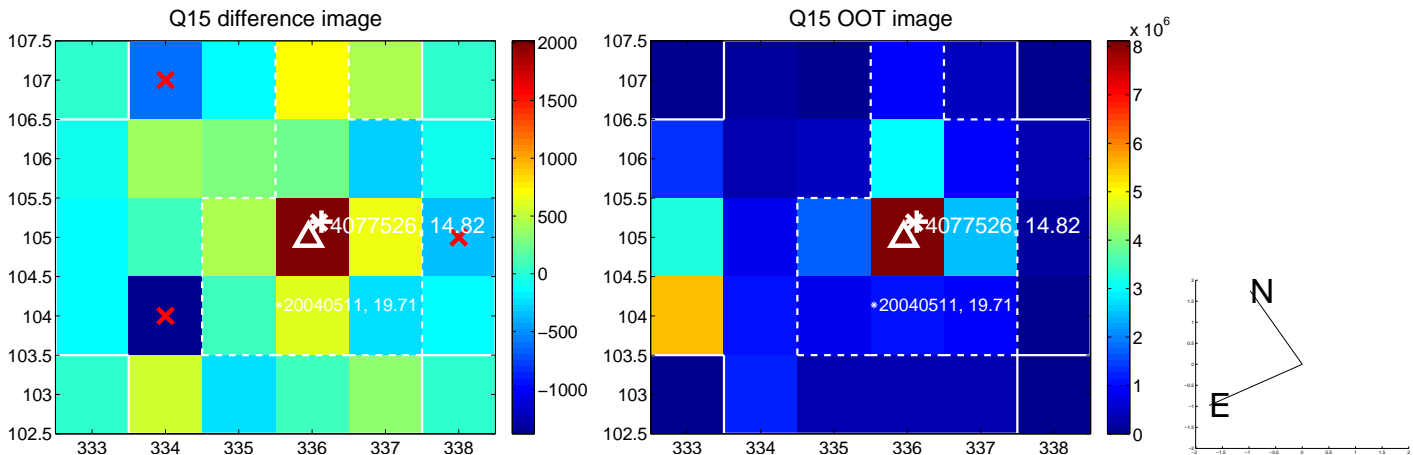
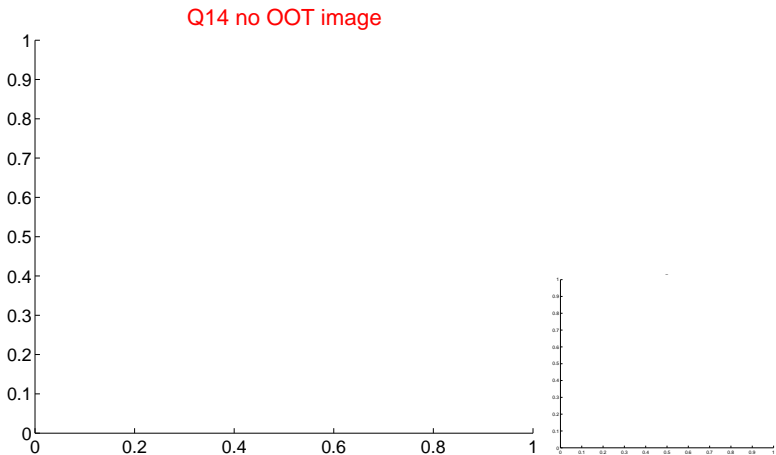
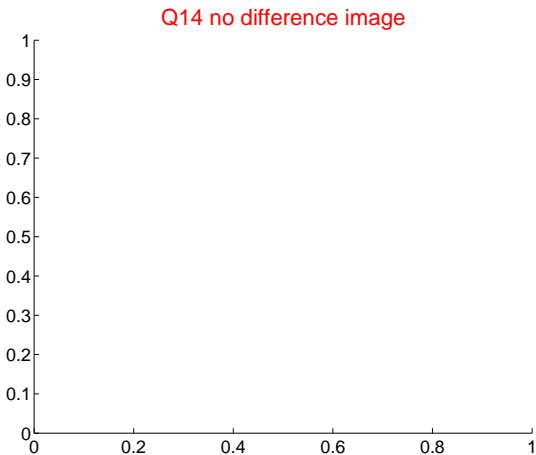
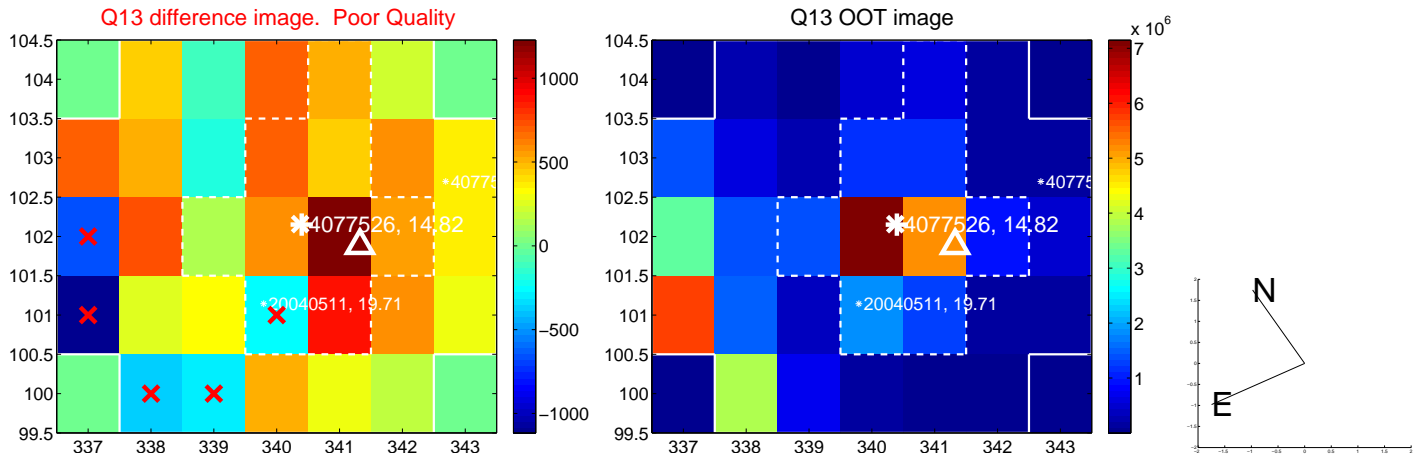
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



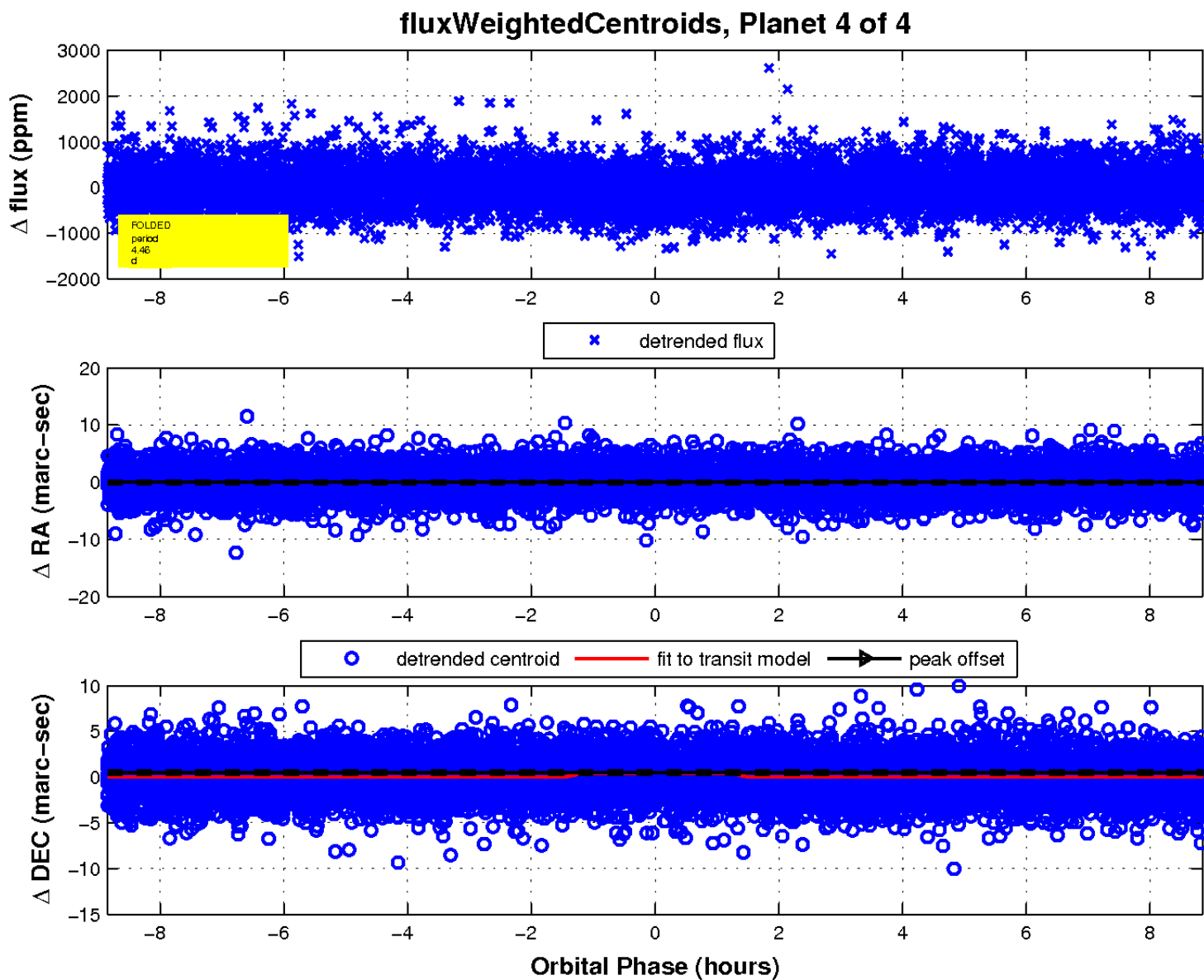
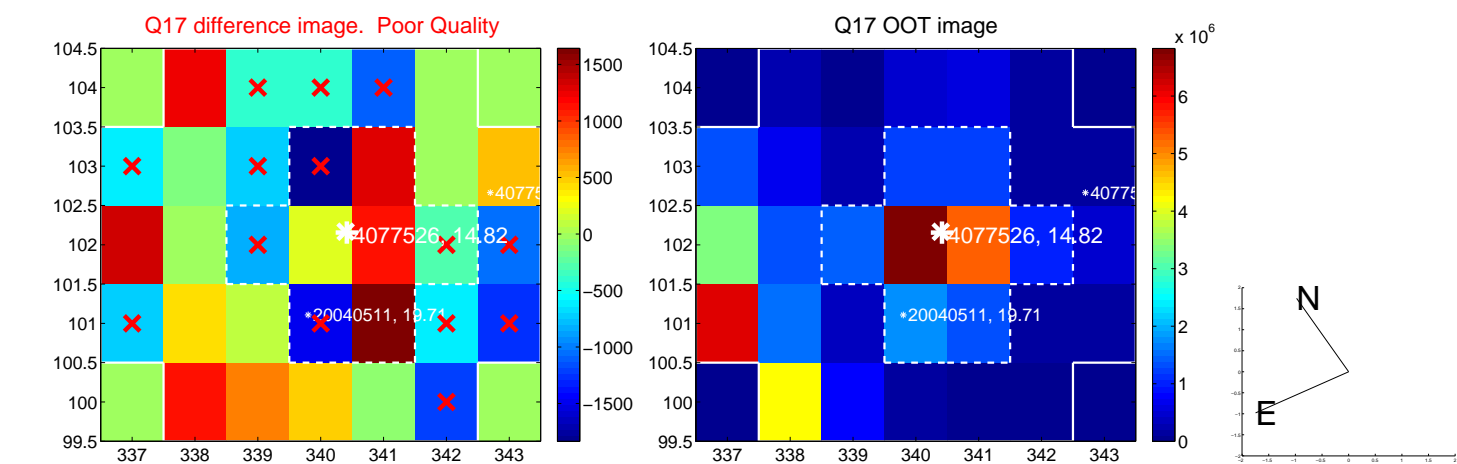
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

