

KIC 010157458

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})
010157458-01	OBS	1083.01	7.336819	138.585672	318.7	3.659	18.4	20.2	0.85	5795	1.75	138.69
010157458-02	OBS	1083.02	4.577947	135.634369	105.0	2.964	7.9	7.7	0.85	5795	1.03	260.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010157458-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010157458-02	OBS	PC	0.82	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 010157458-01

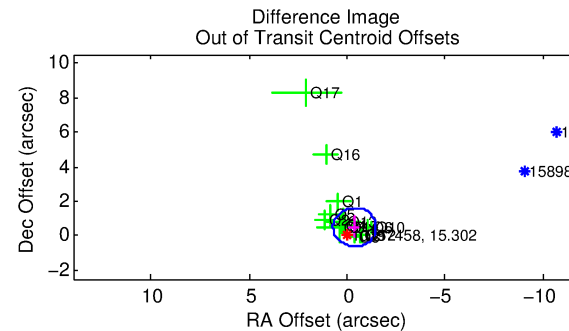
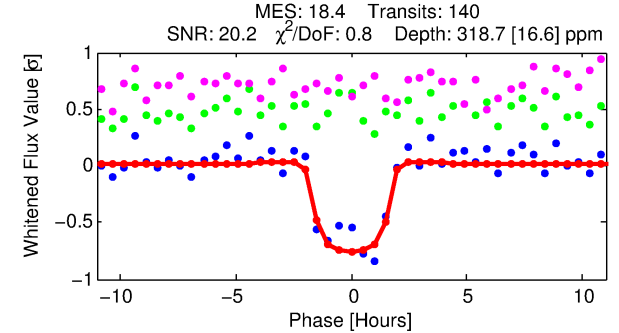
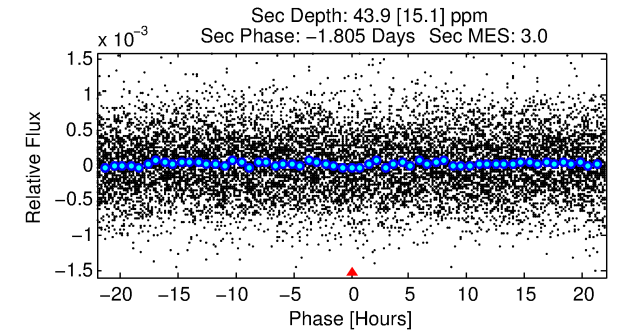
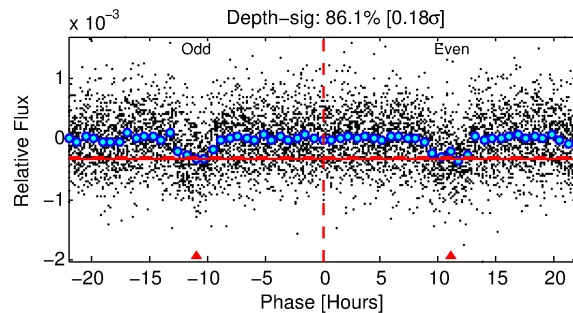
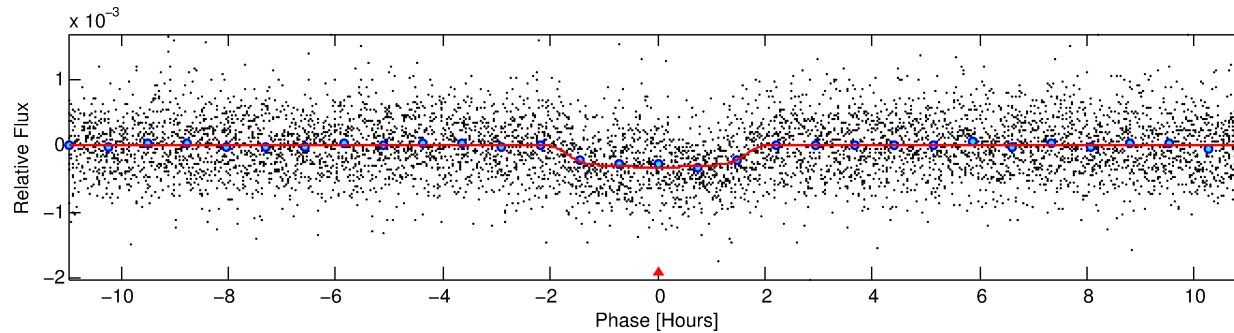
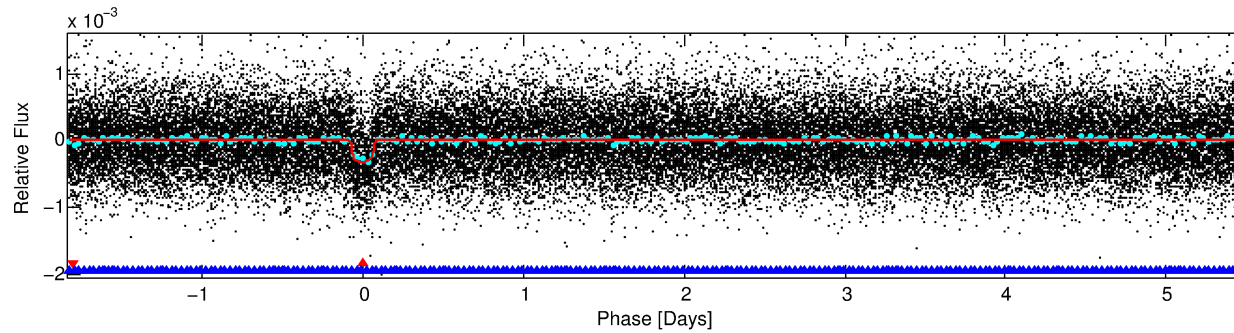
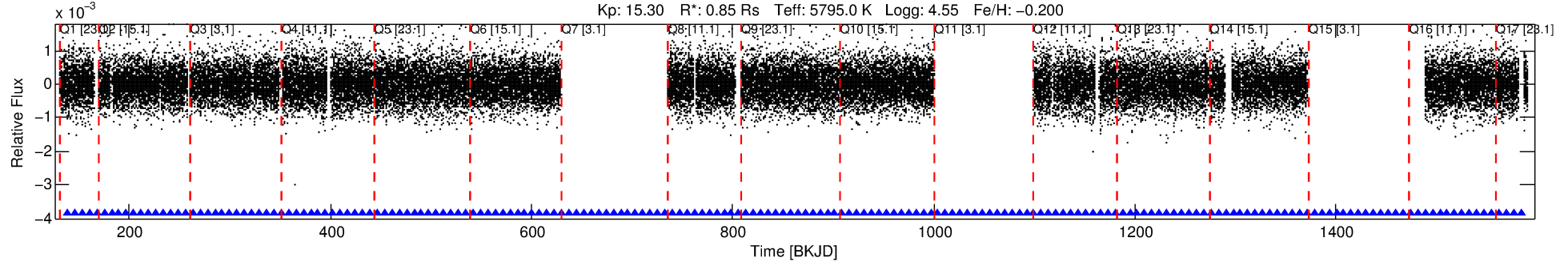
No Significant Match Found

DV One-Page Summary

KIC: 10157458 Candidate: 1 of 2 Period: 7.337 d

KOI: K01083.01 Corr: 0.980

Kp: 15.30 R*: 0.85 Rs Teff: 5795.0 K Logg: 4.55 Fe/H: -0.200



DV Fit Results:

Period = 7.33682 [0.00004] d
Epoch = 138.5857 [0.0036] BKJD
Rp/R* = 0.0189 [0.0054]
a/R* = 8.13 [10.79]
b = 0.87 [0.38]
Seff = 138.68 [51.93]
Teq = 875 [82] K
Rp = 1.75 [0.72] Re
a = 0.0724 [0.0179] AU
Ag = 41.18 [30.93] [1.30σ]
Teffp = 3427 [576] K [4.39σ]

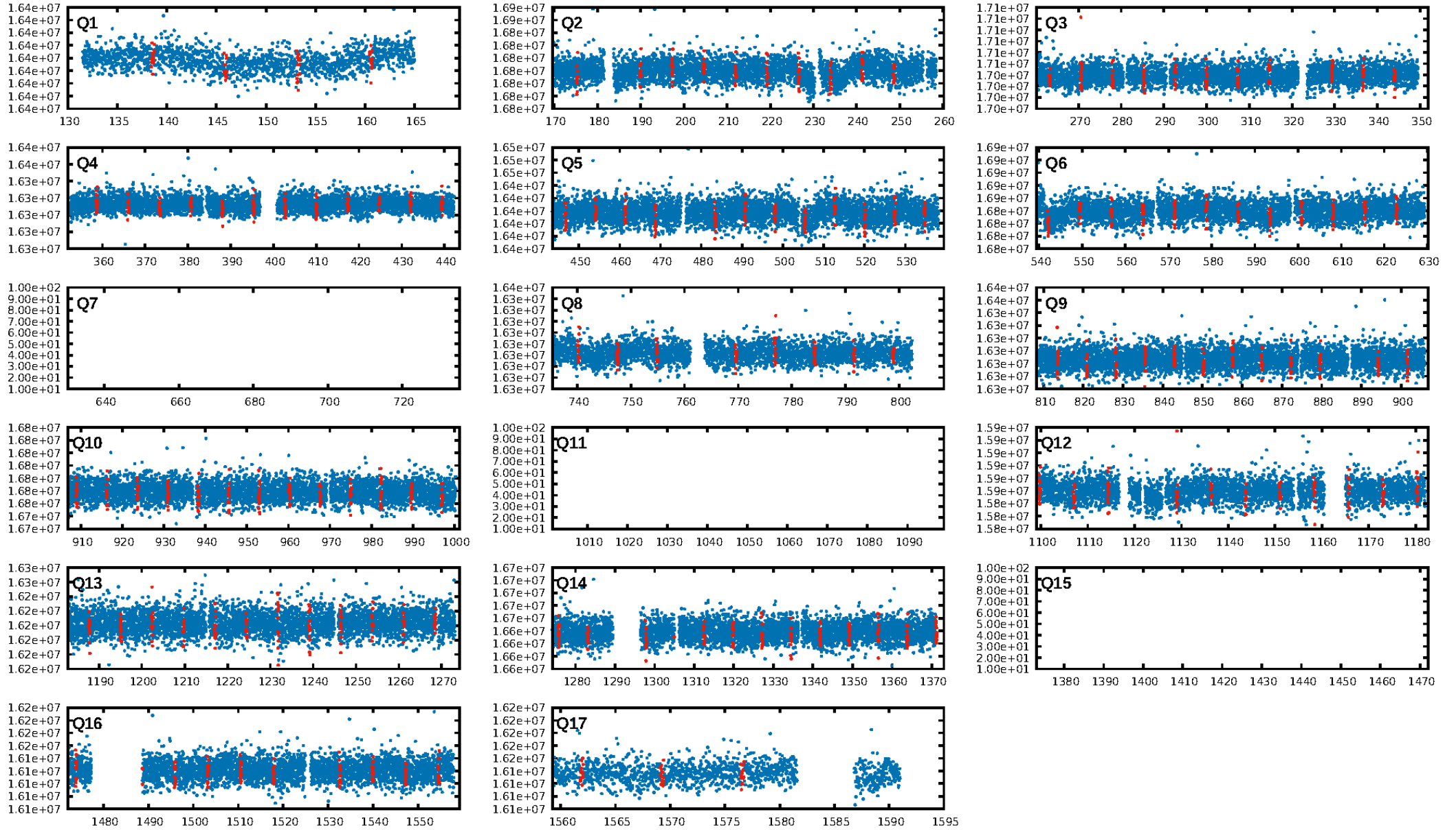
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.06σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.44e-75
RollingBand-fgt: 1.00 [133/133]
GhostDiagnostic-chr: 2.525
Centroid-sig: 48.8%
Centroid-so: 0.546 arcsec [0.71σ]
OotOffset-rm: 0.625 arcsec [1.70σ]
KicOffset-rm: 0.725 arcsec [2.26σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

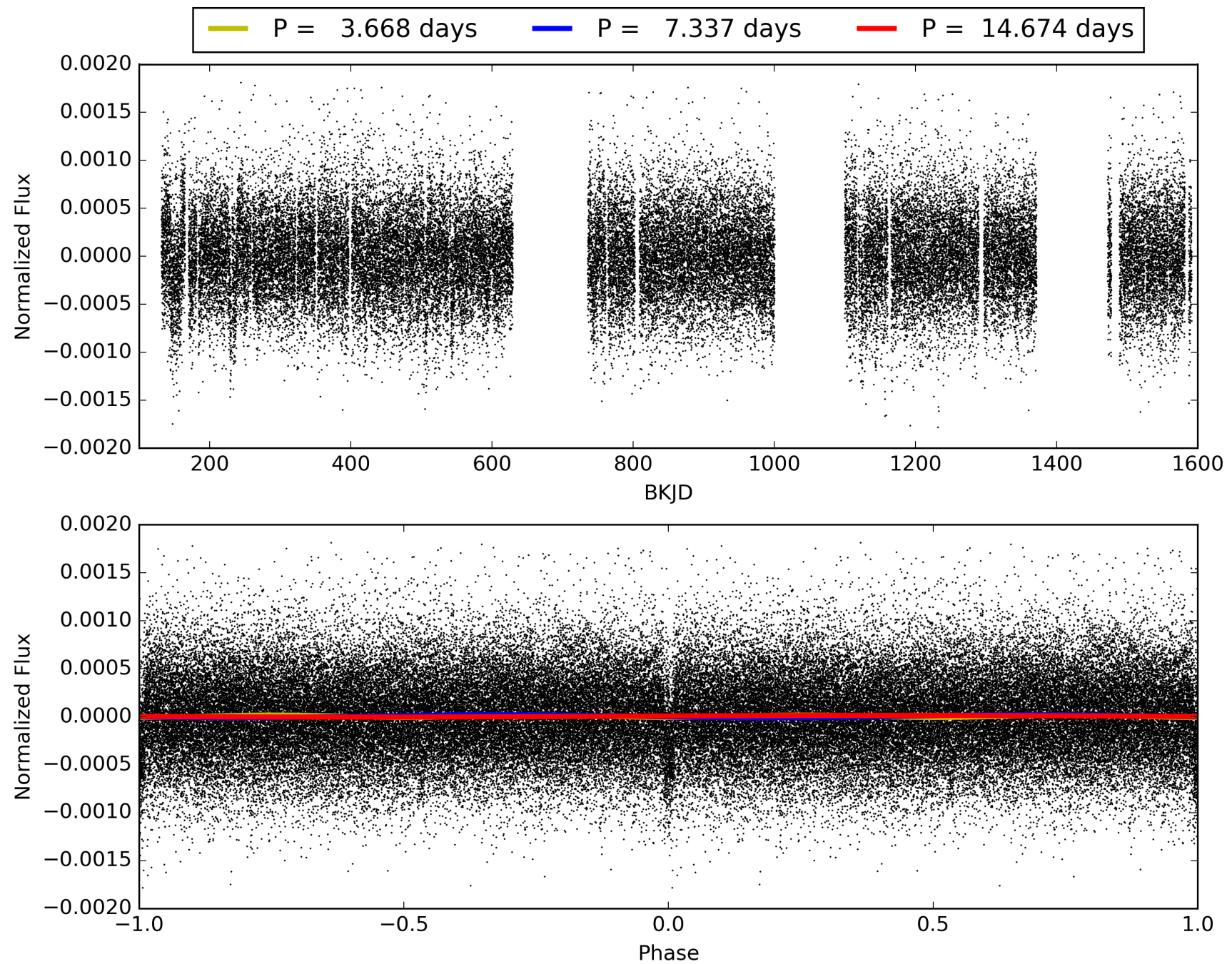
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:27:49 Z

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

TCE 010157458-01, PDC Light Curves

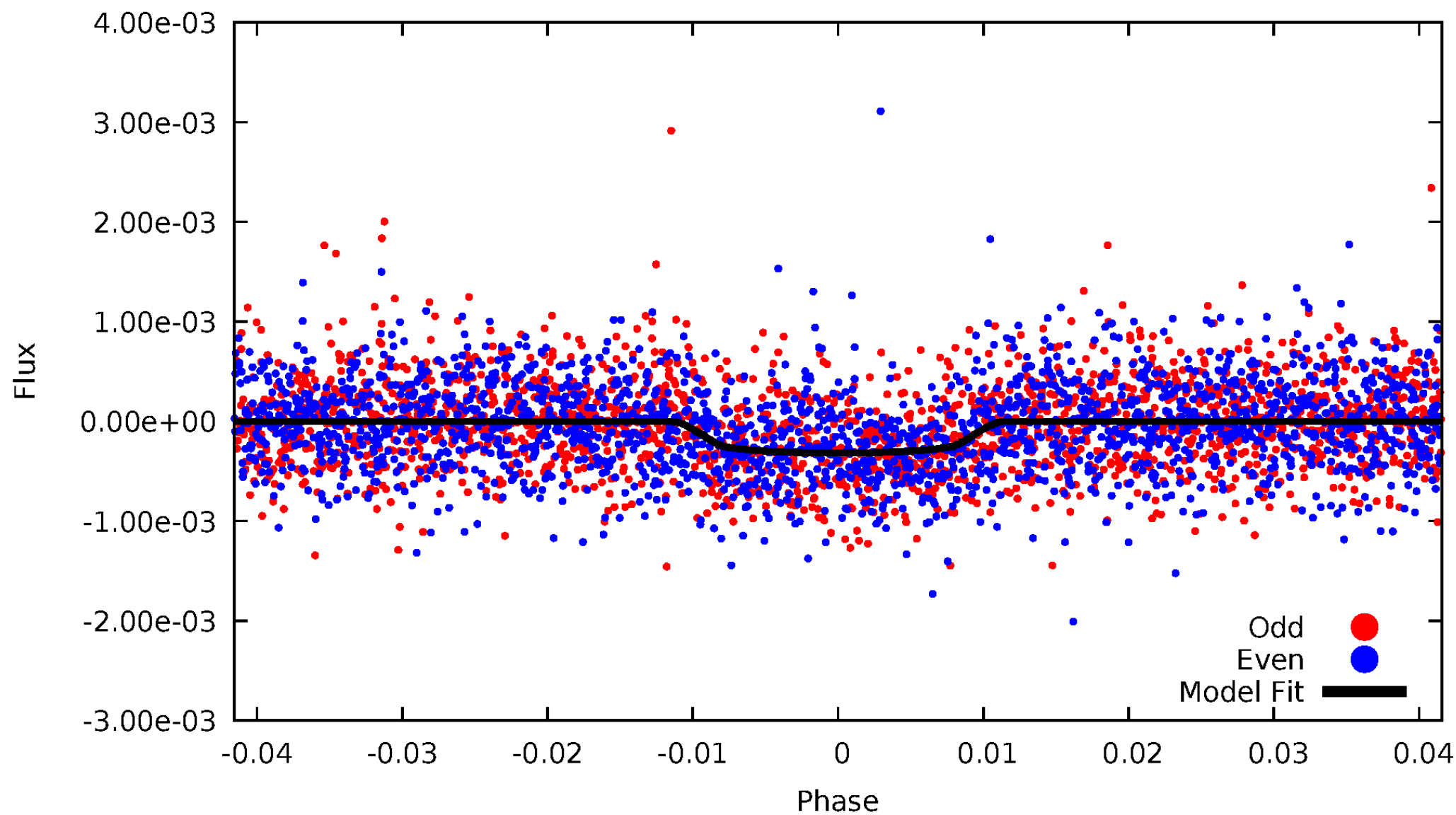


TCE 010157458-01



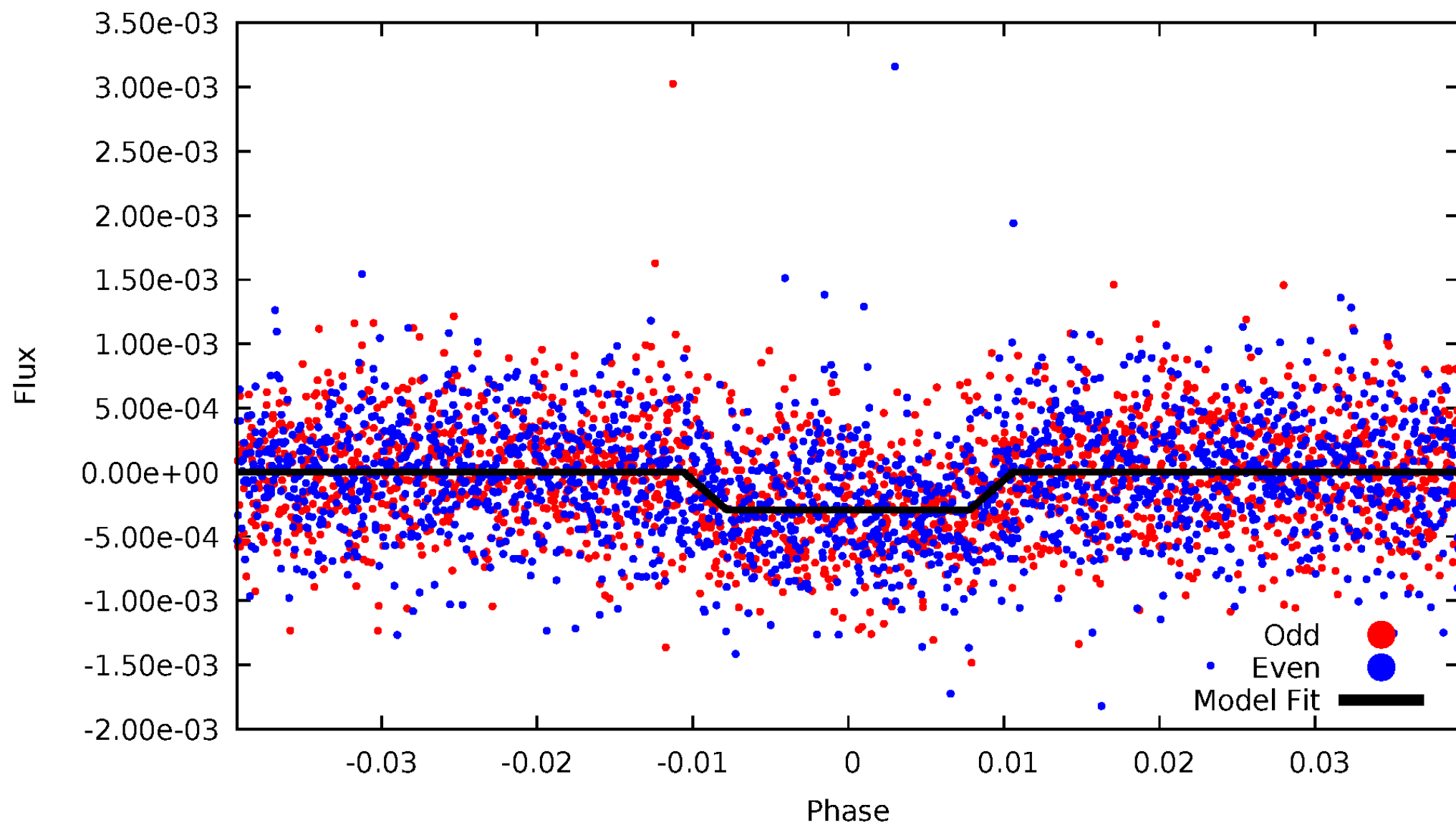
DV Odd/Even

TCE 010157458-01



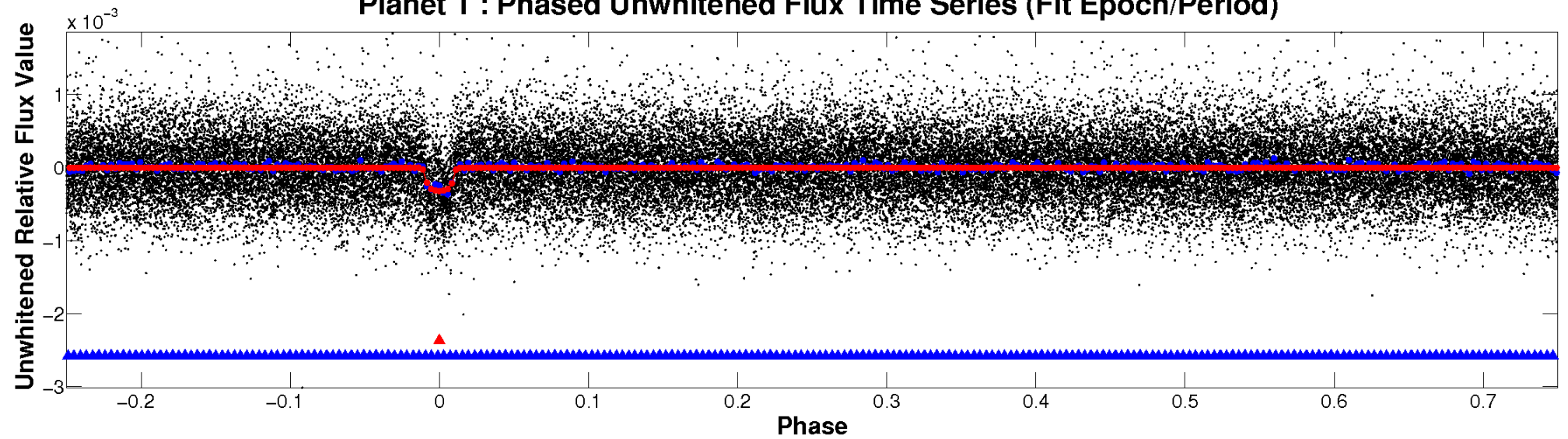
ALT Odd/Even

TCE 010157458-01

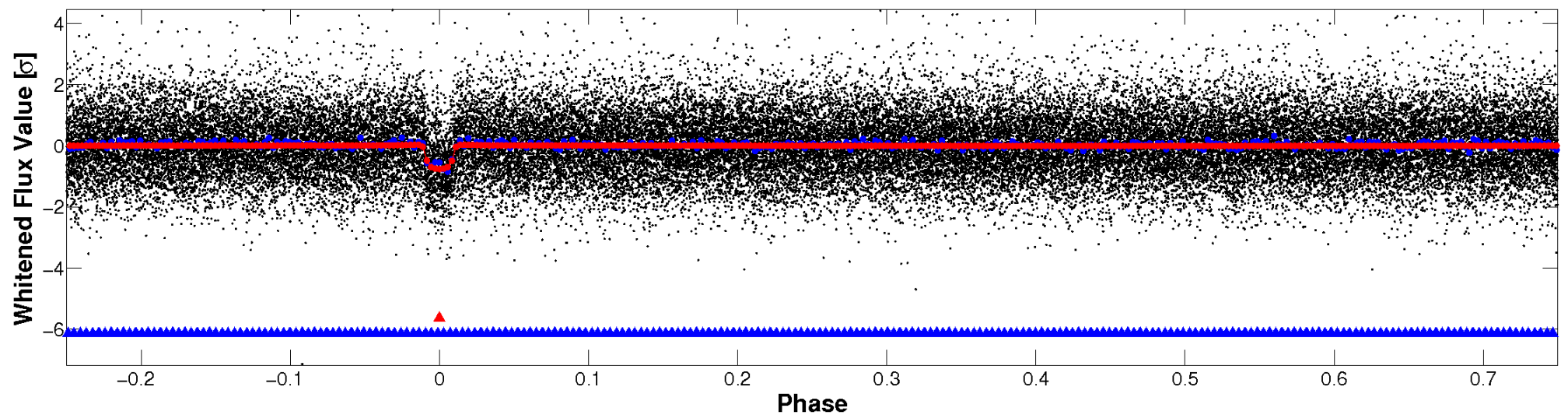


Non-Whitened Vs. Whitened Light Curve

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

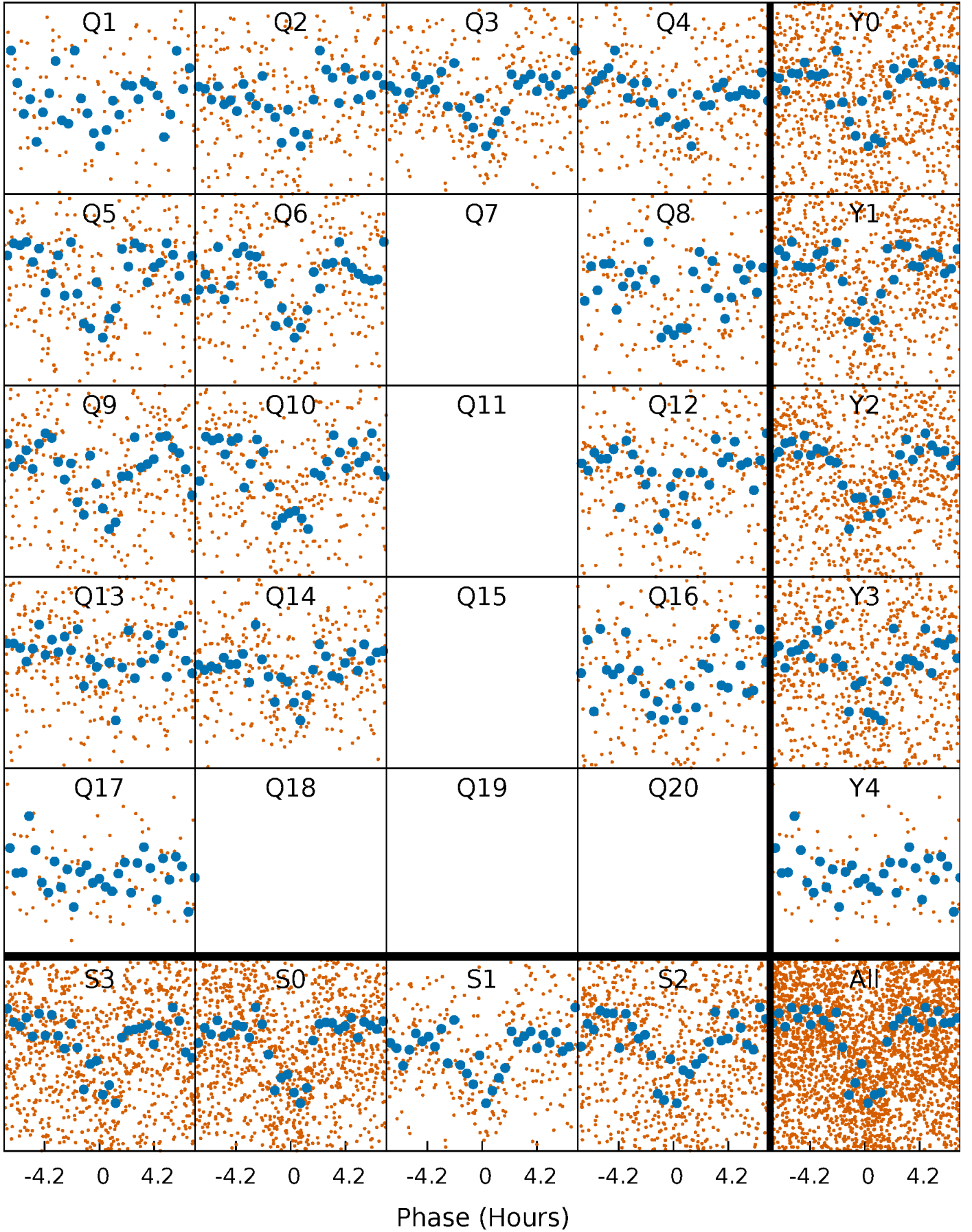


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



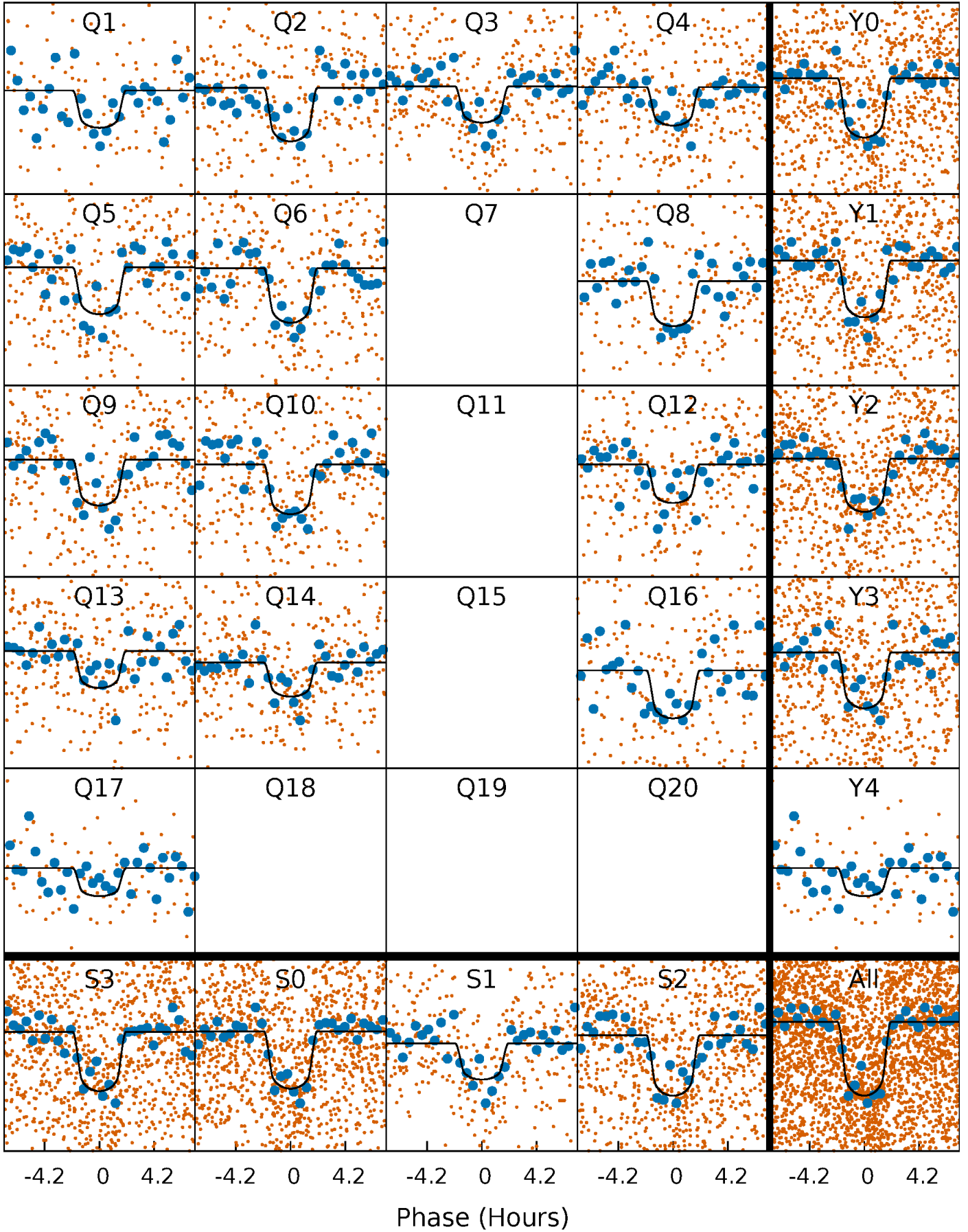
PDC Quarter-Phased Transit Curves

TCE 010157458-01 P= 7.336819 Days $T_0=138.585672$ (BKJD)



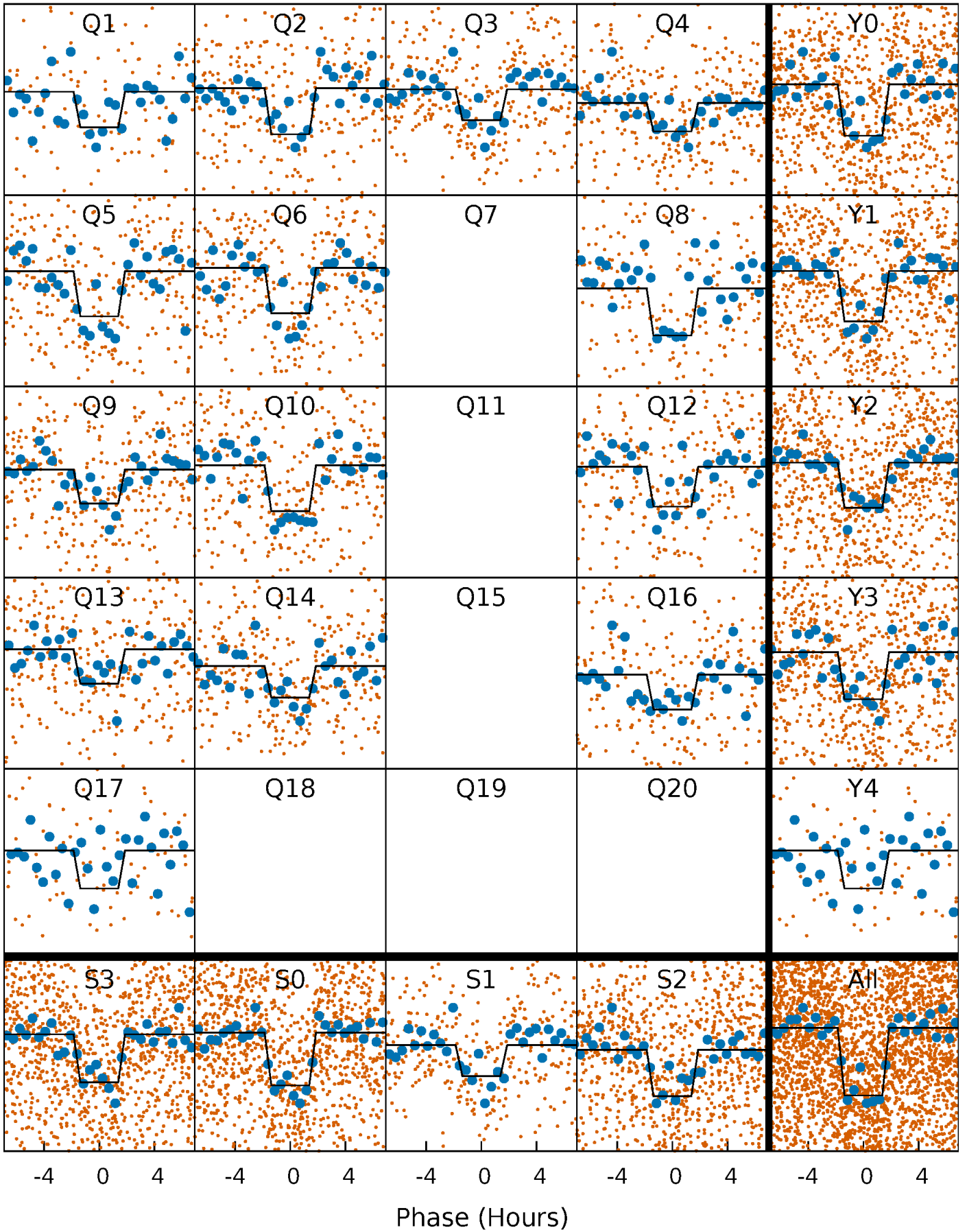
DV Quarter-Phased Transit Curves

TCE 010157458-01 P= 7.336819 Days $T_0=138.585672$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

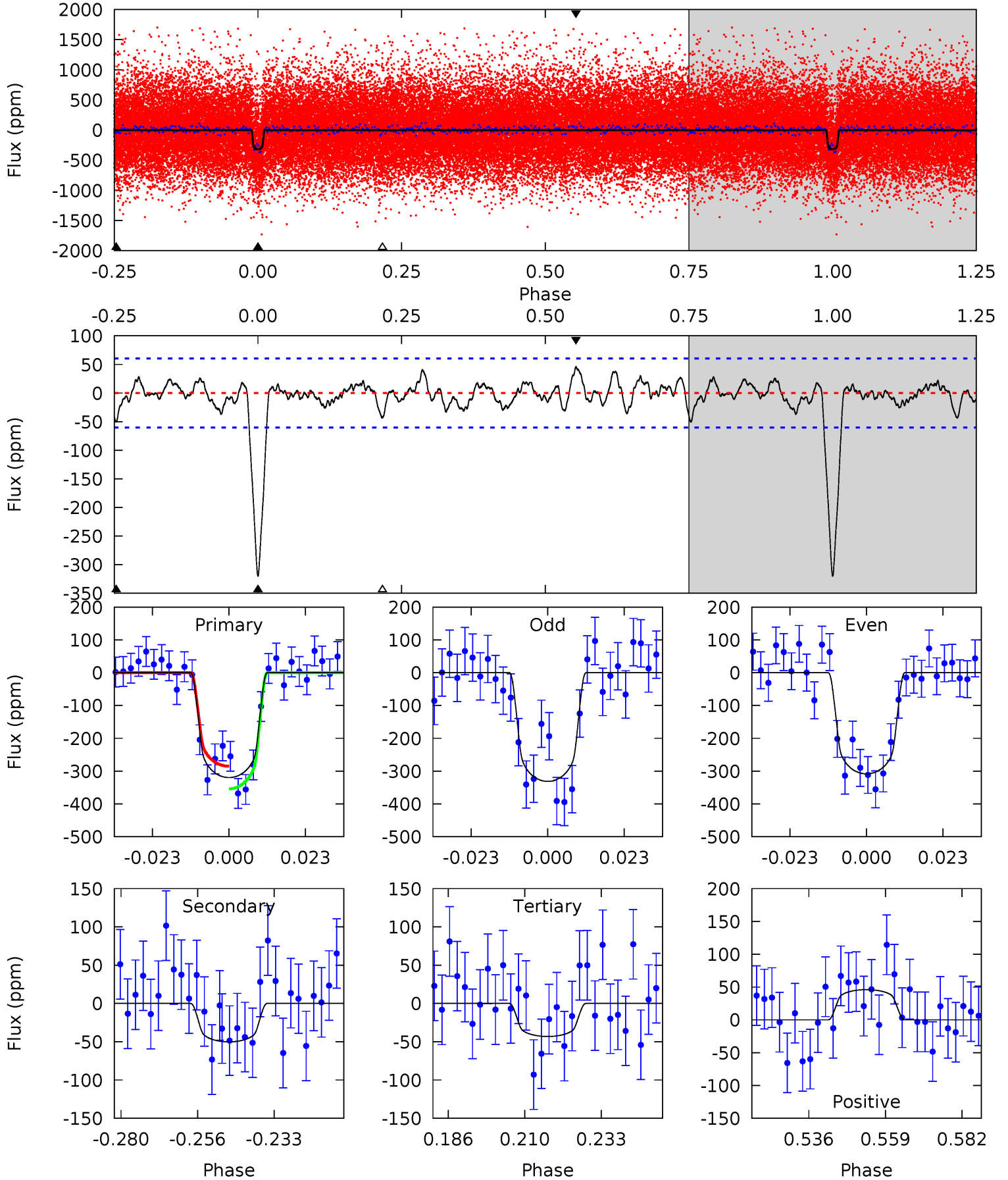
TCE 010157458-01 P= 7.336828 Days $T_0=138.583982$ (BKJD)



DV Model-Shift Uniqueness Test

010157458-01, P = 7.336819 Days, E = 131.248853 Days

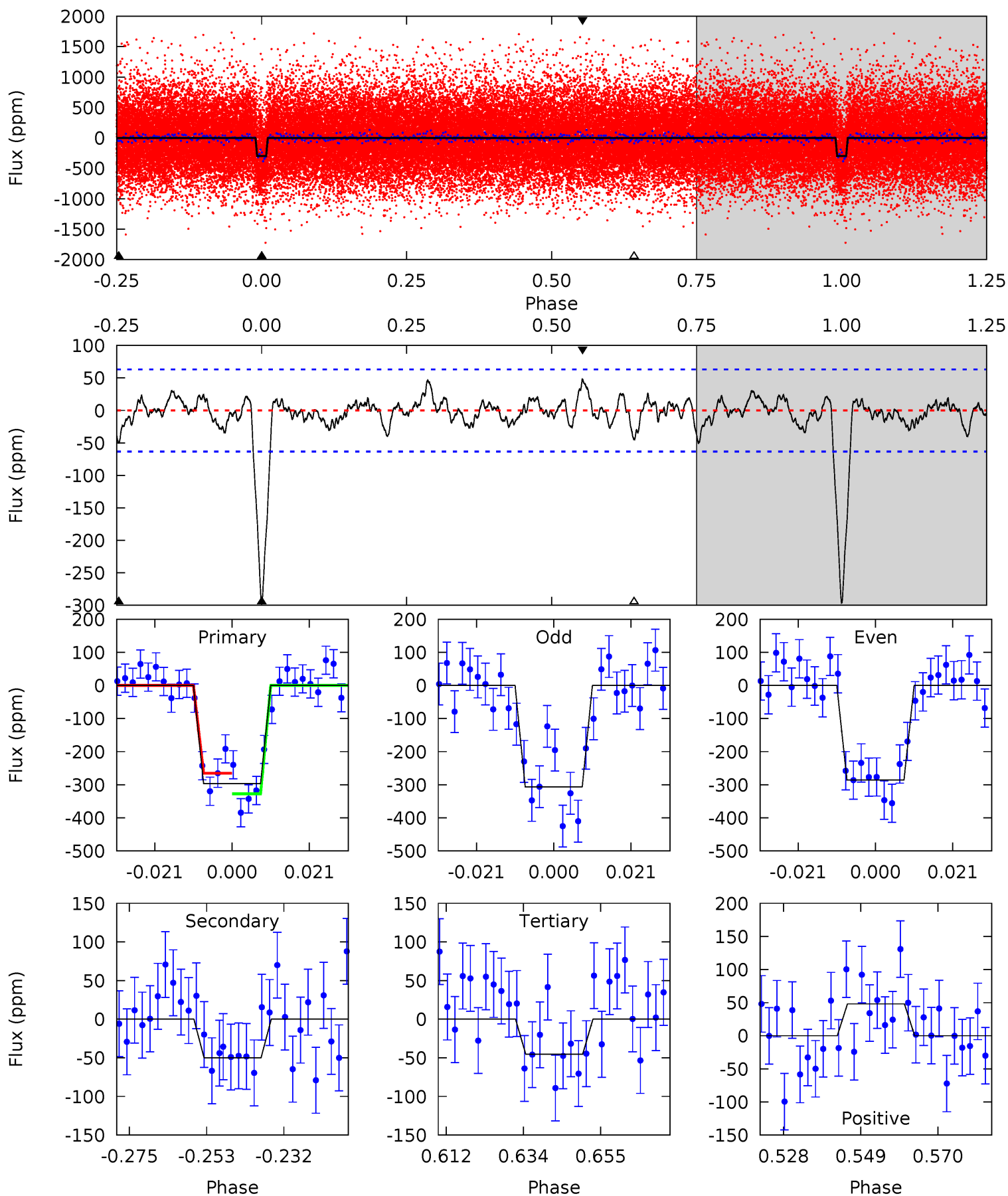
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.7	4.03	3.47	3.70	4.86	2.27	1.30	22.3	22.0	0.57	0.33	0.93	0.98	0.13	2.77



Alt Model-Shift Uniqueness Test

010157458-01, P = 7.336828 Days, E = 131.247154 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	3.86	3.49	3.71	4.88	2.31	1.20	19.4	19.2	0.37	0.15	0.81	1.01	0.14	2.41



Stellar Parameters For KIC 010157458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5795^{+155}_{-172}	$4.554^{+0.036}_{-0.192}$	$-0.200^{+0.300}_{-0.300}$	$0.848^{+0.252}_{-0.079}$	$0.938^{+0.098}_{-0.120}$	$2.167^{+0.420}_{-1.094}$
	+3%/-3%	+1%/-4%	+150%/-150%	+30%/-9%	+10%/-13%	+19%/-50%
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 010157458-01 / KOI 1083.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50 ± 12	$1.80^{+0.57}_{-0.50}$	1254^{+77}_{-54}	3909^{+551}_{-396}	42^{+43}_{-20}
Alt.	-50 ± 13	$1.68^{+0.54}_{-0.53}$	1253^{+86}_{-58}	3996^{+638}_{-380}	50^{+59}_{-23}

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 $A_{obs} \gg 1.0$

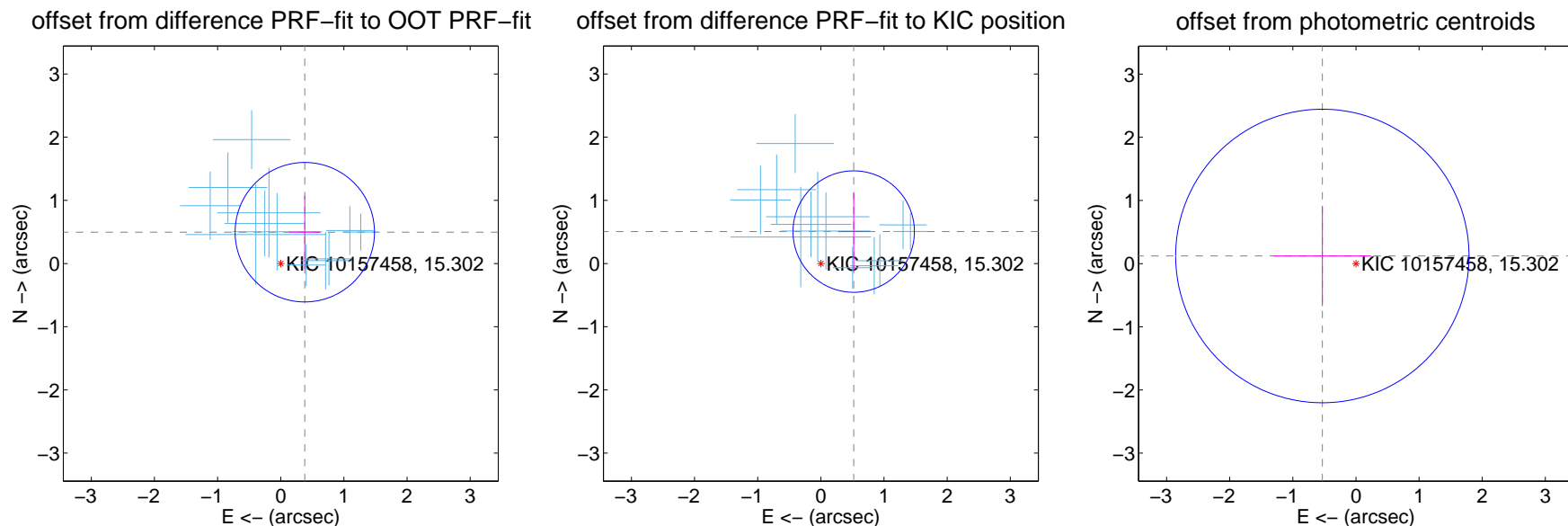
DV Centroid Data

Supplemental centroid analysis for 010157458-01. Kepler magnitude: 15.30. Transit SNR 20.19

There are 12 quarters with good PRF difference image offsets

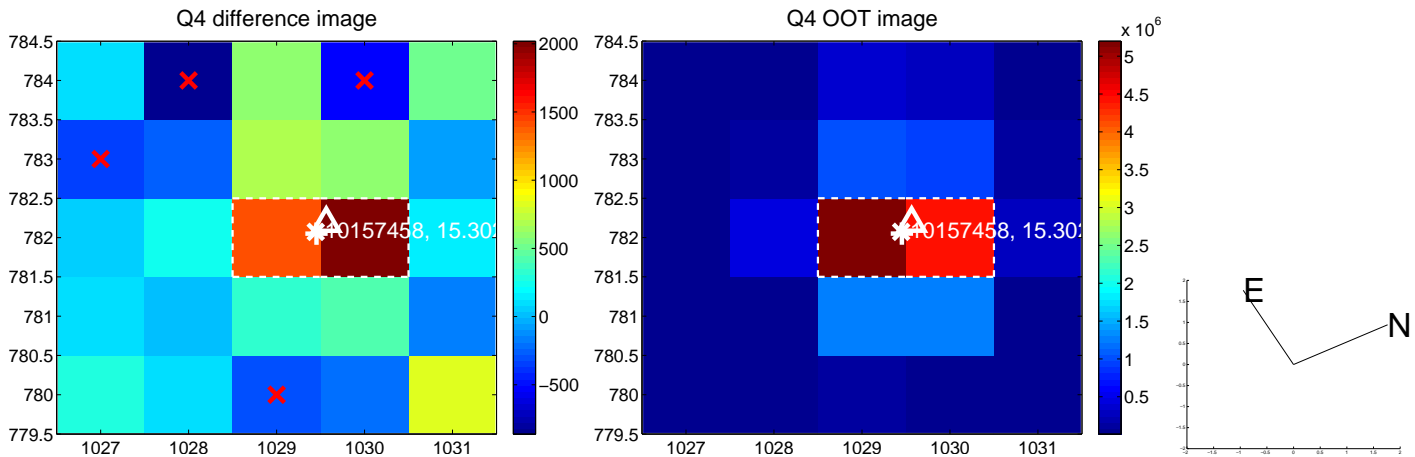
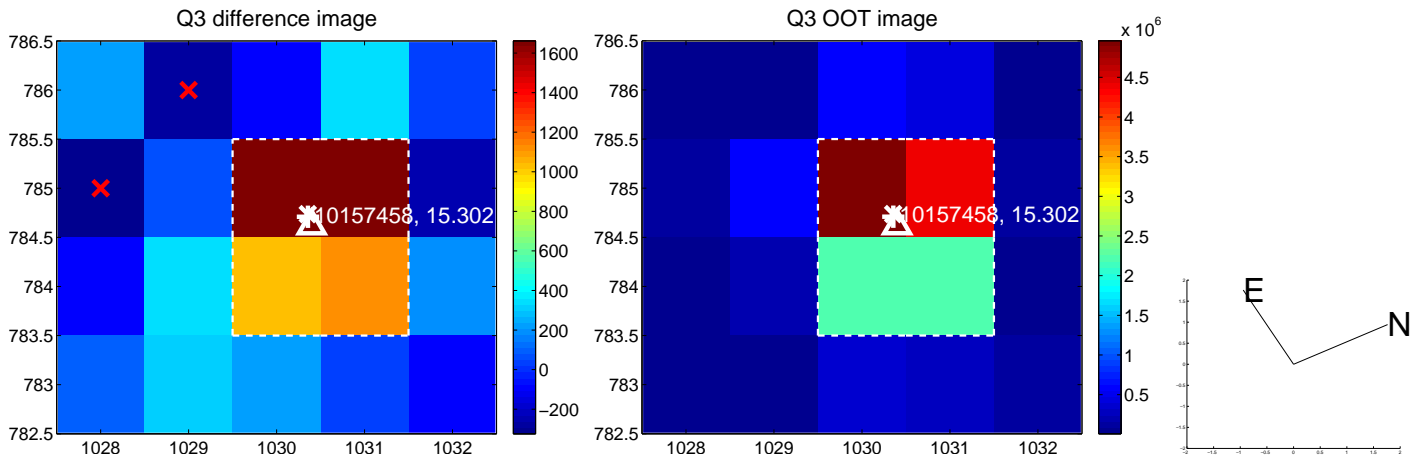
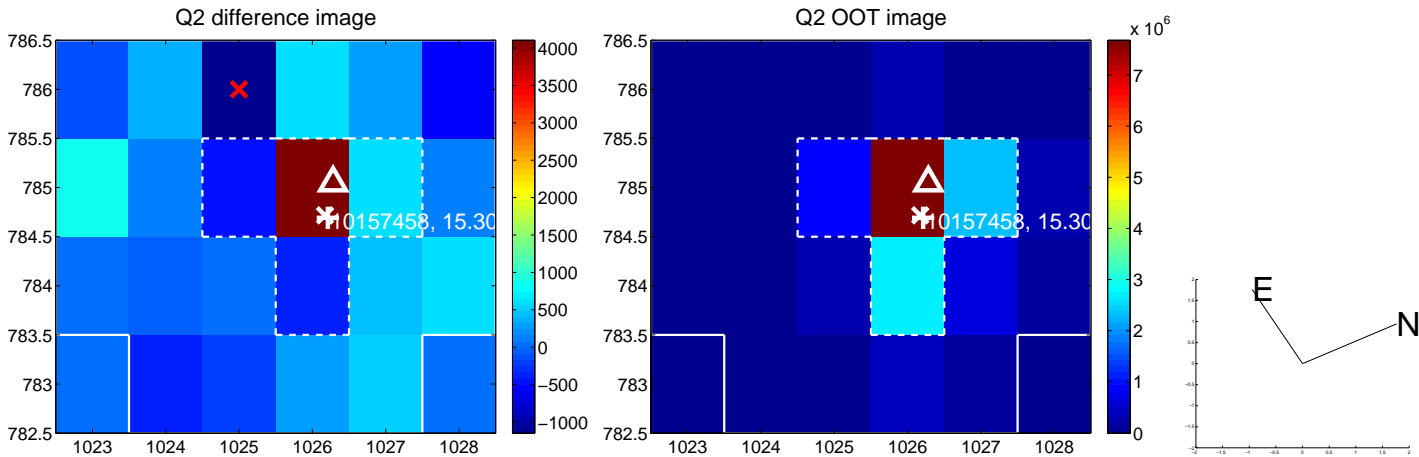
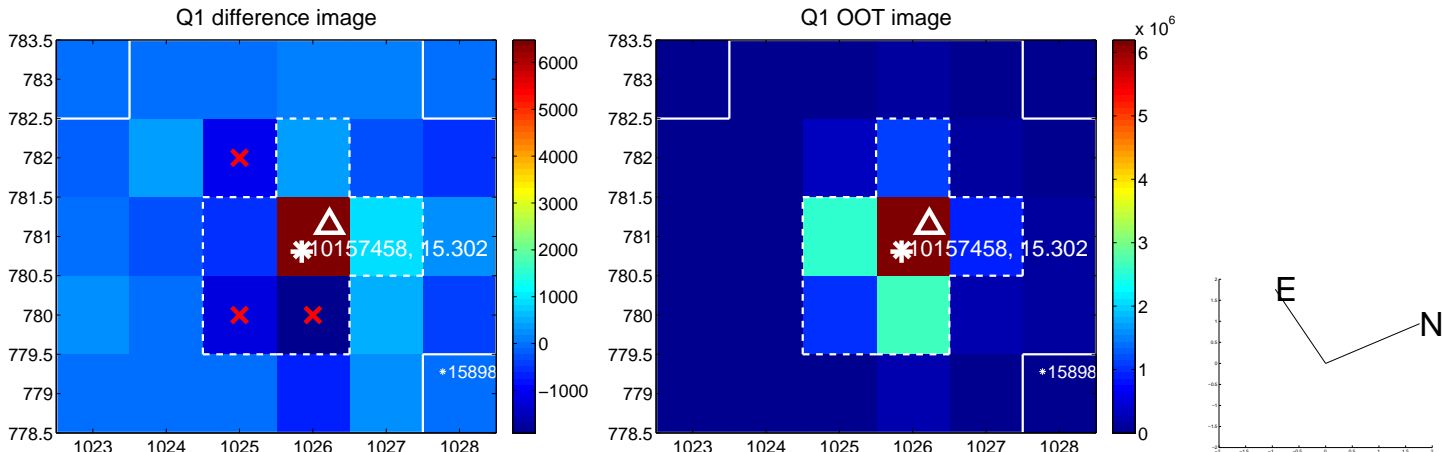
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.625 ± 0.368	1.70	-0.381 ± 0.243	0.496 ± 0.582
PRF-fit source offset from KIC position	0.725 ± 0.320	2.26	-0.520 ± 0.247	0.506 ± 0.611
photometric centroid source offset	0.55 ± 0.77	0.71	0.53 ± 0.77	0.12 ± 0.79

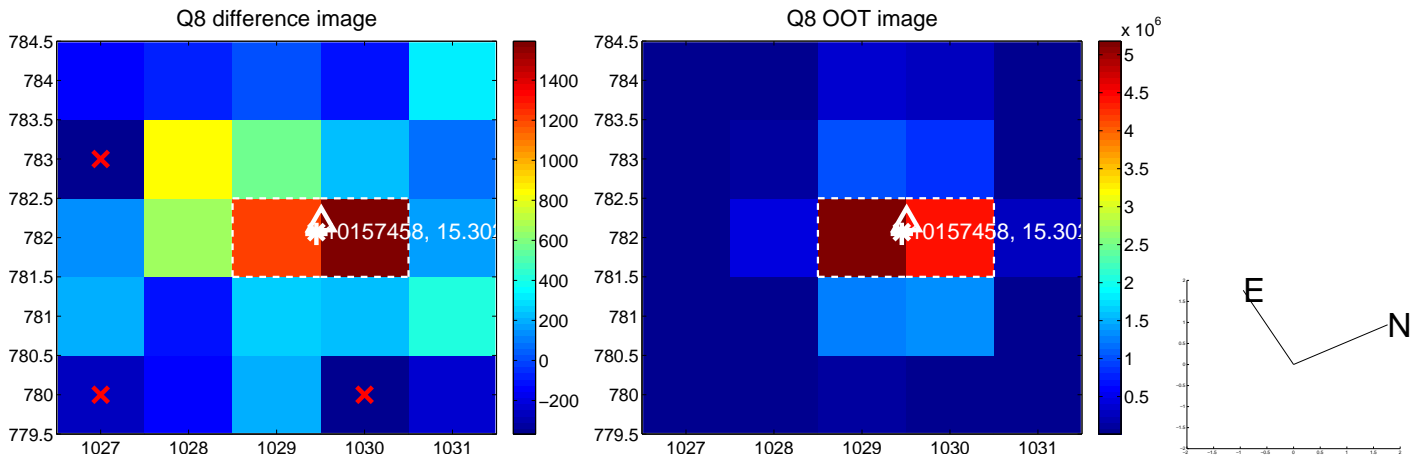
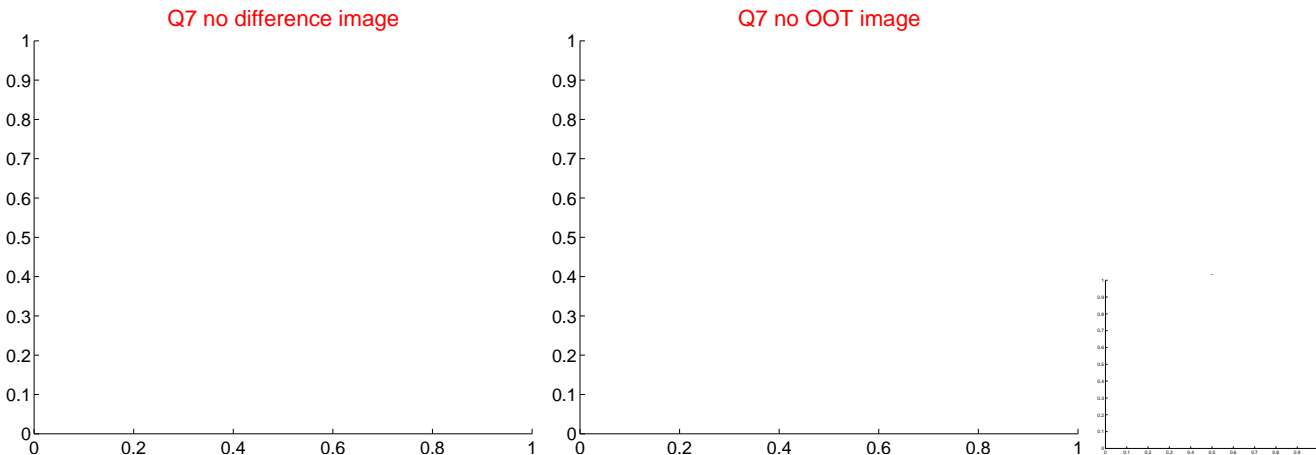
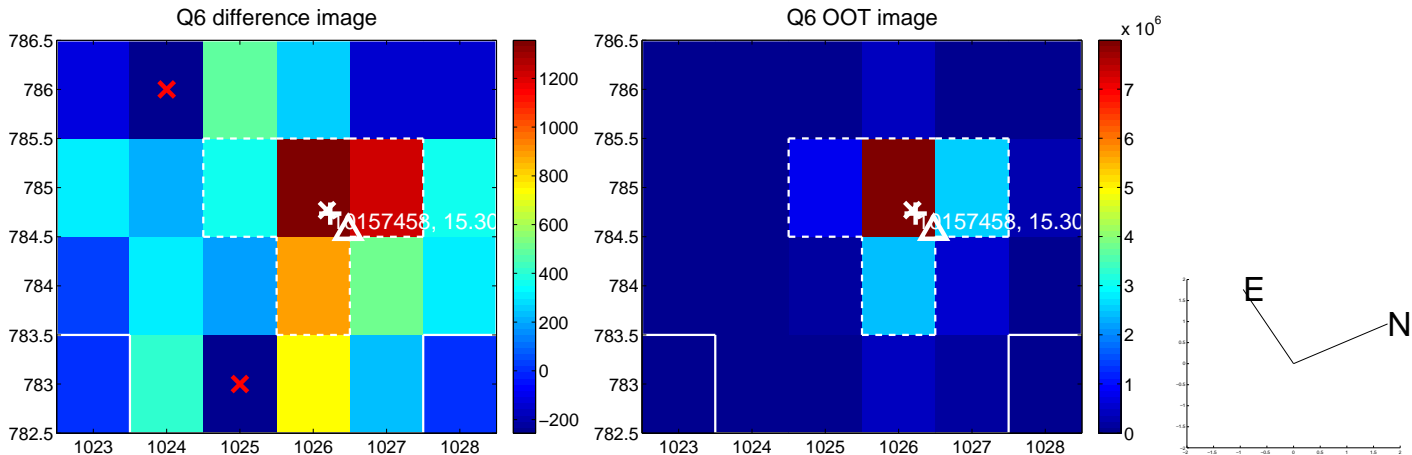
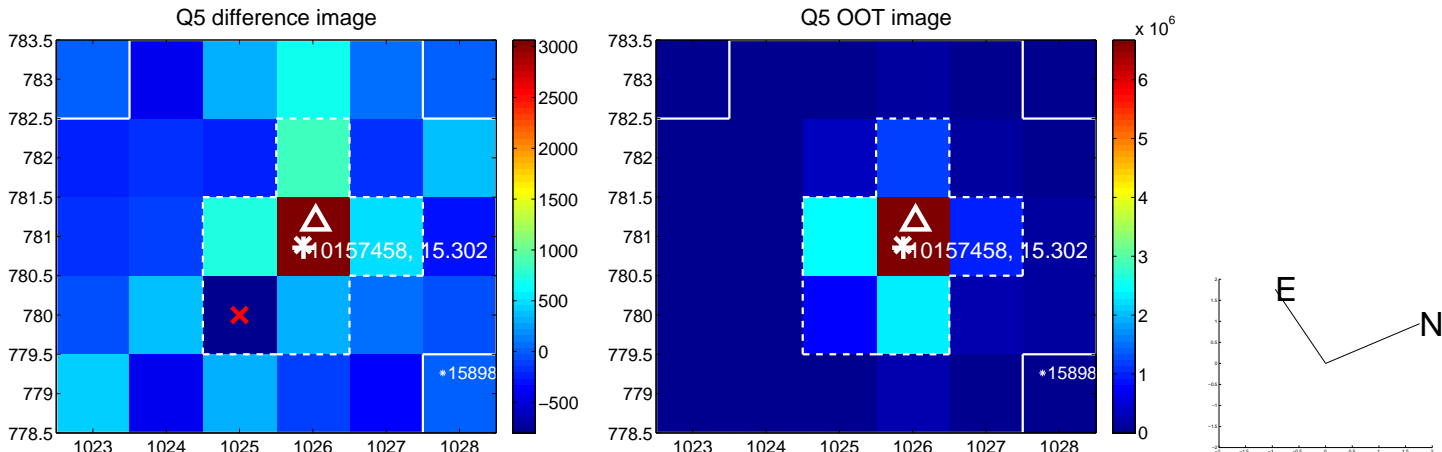


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

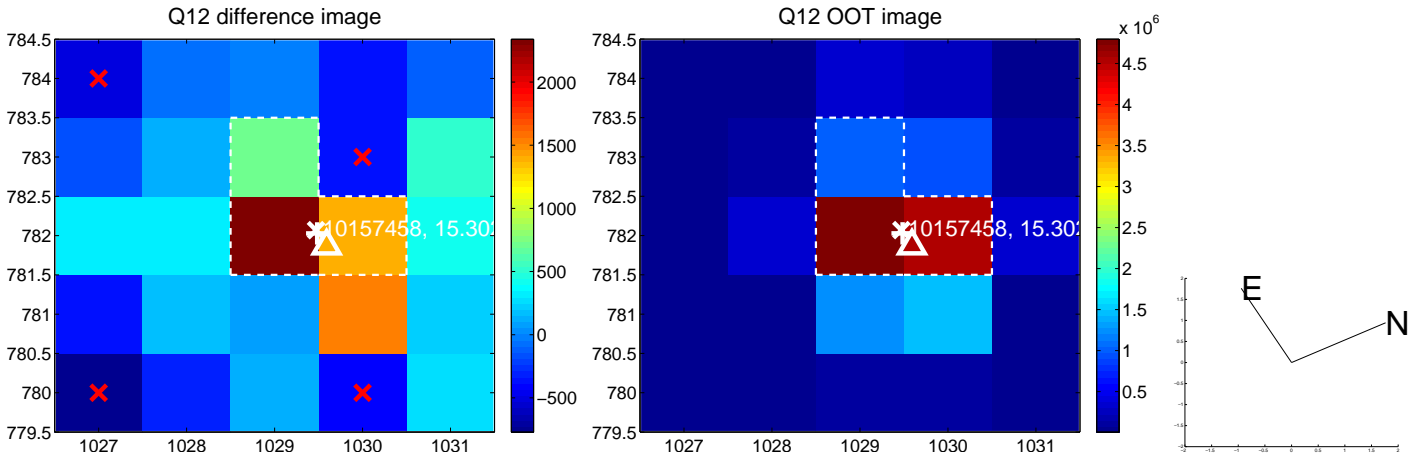
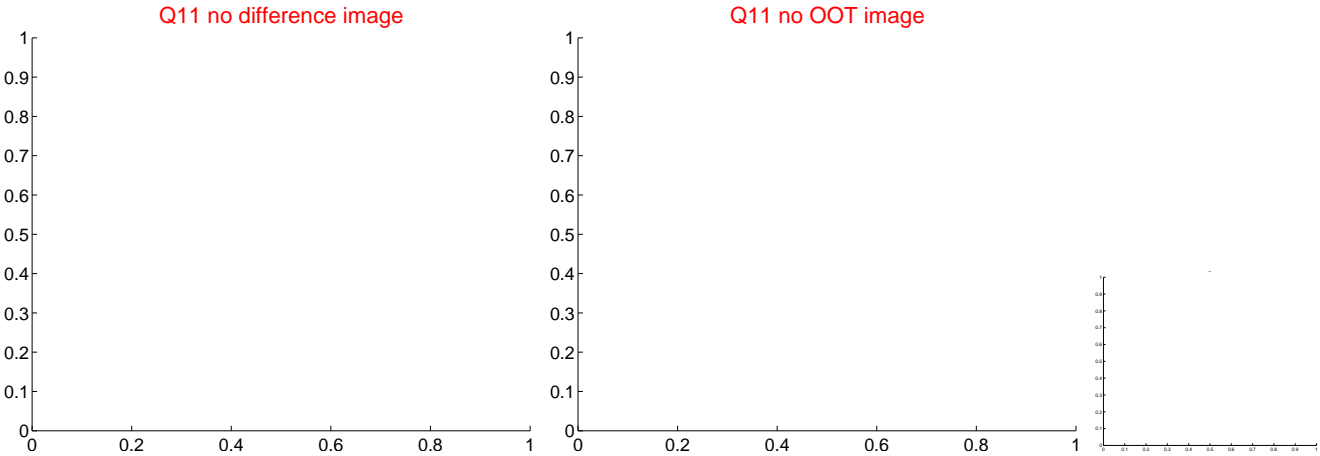
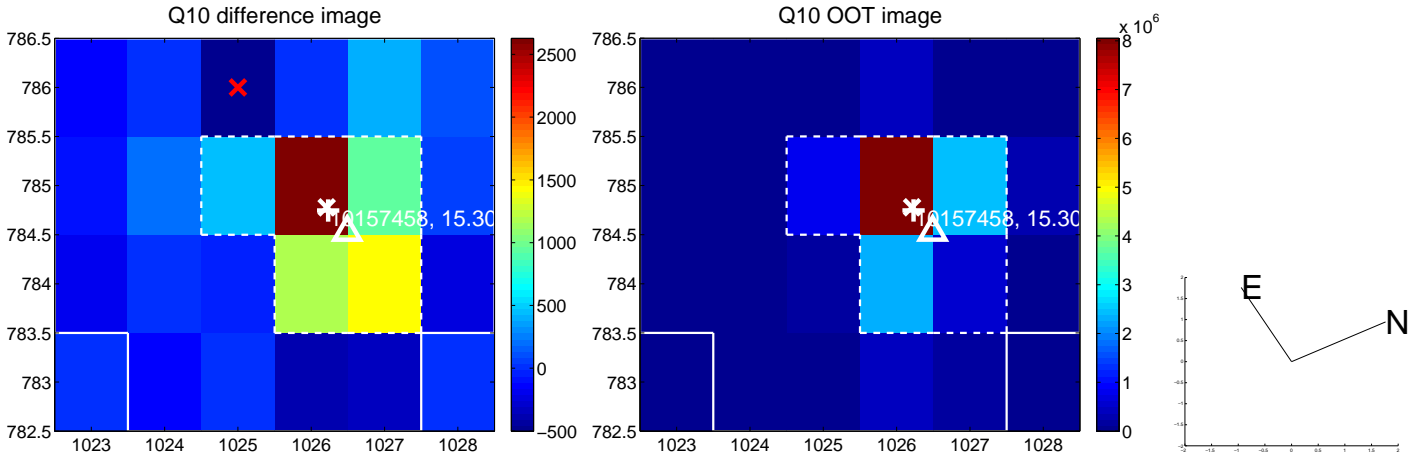
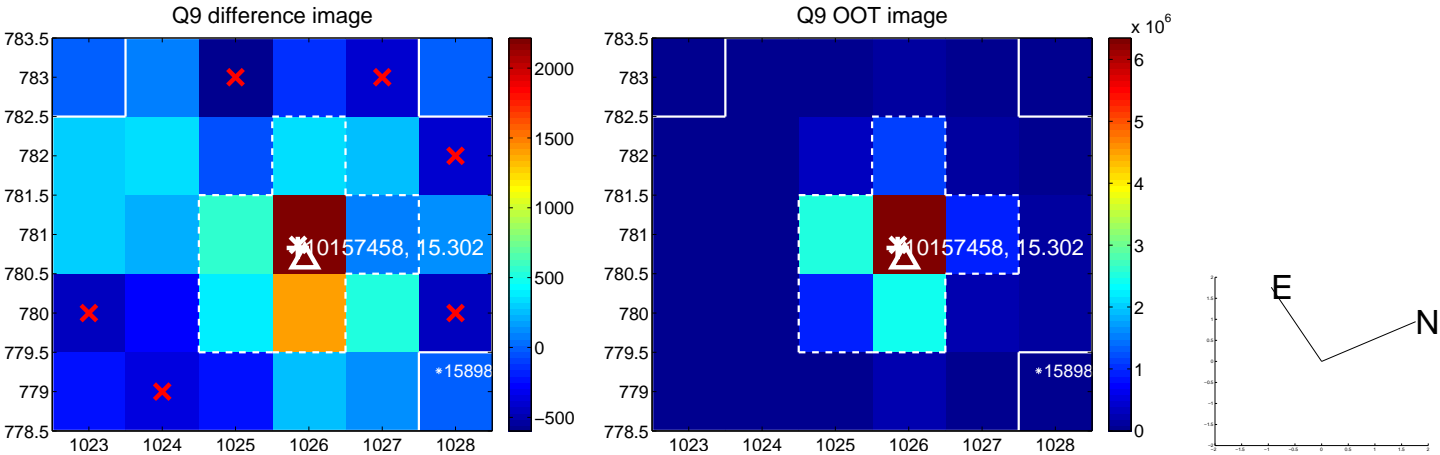
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



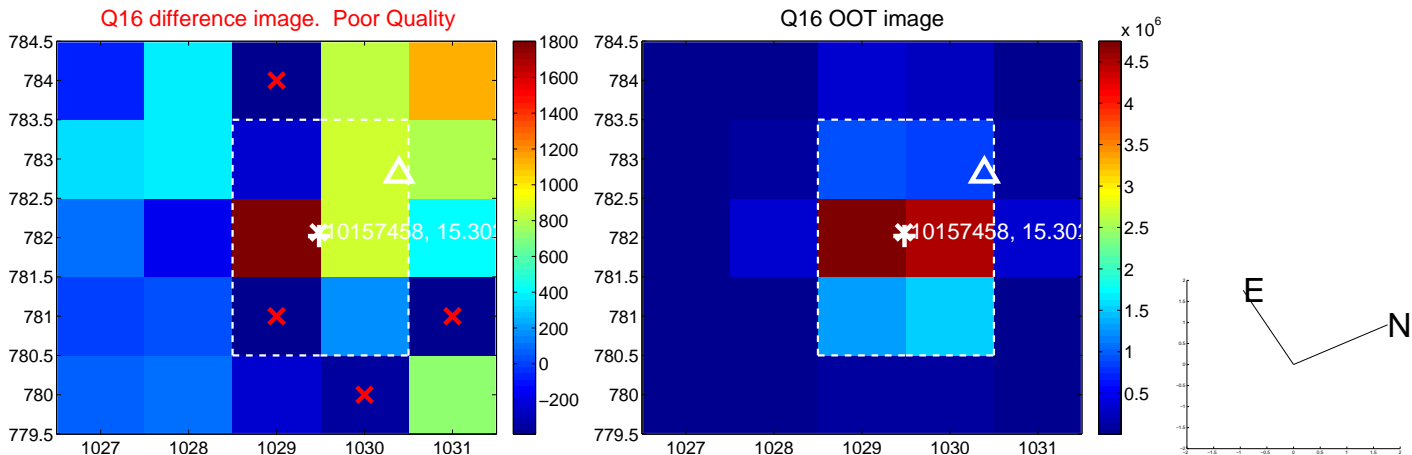
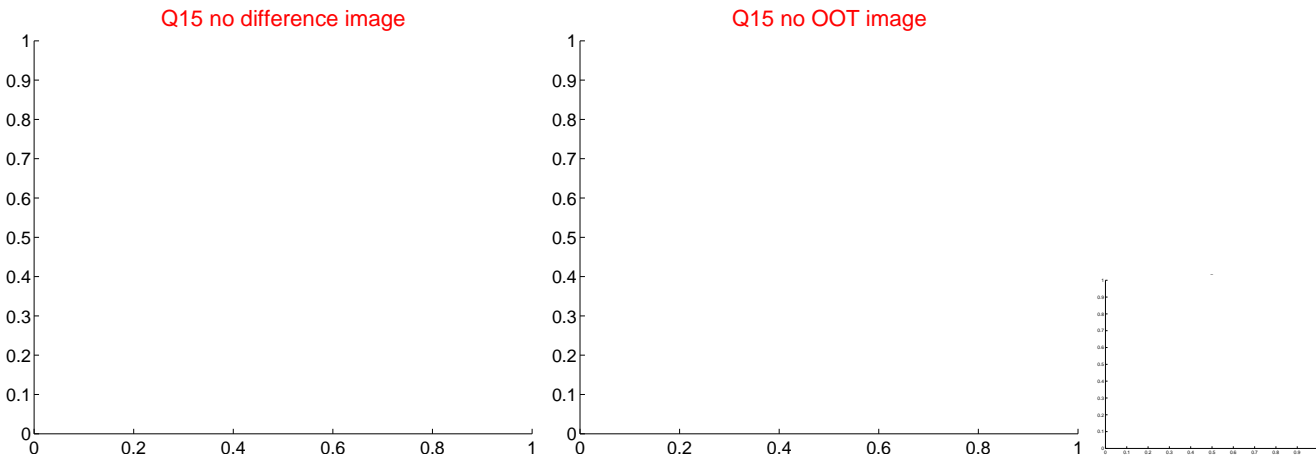
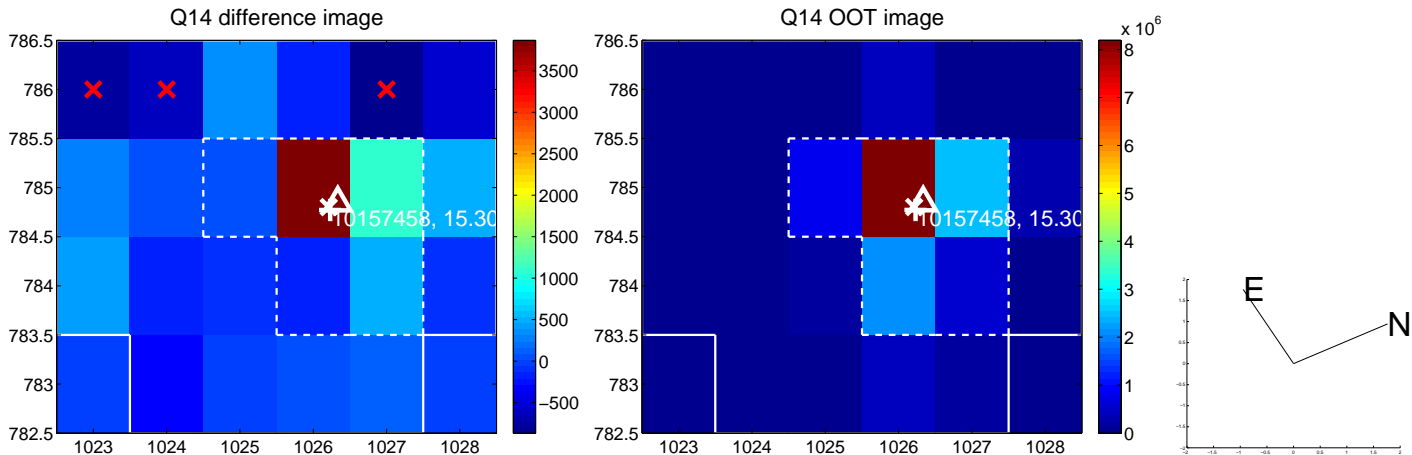
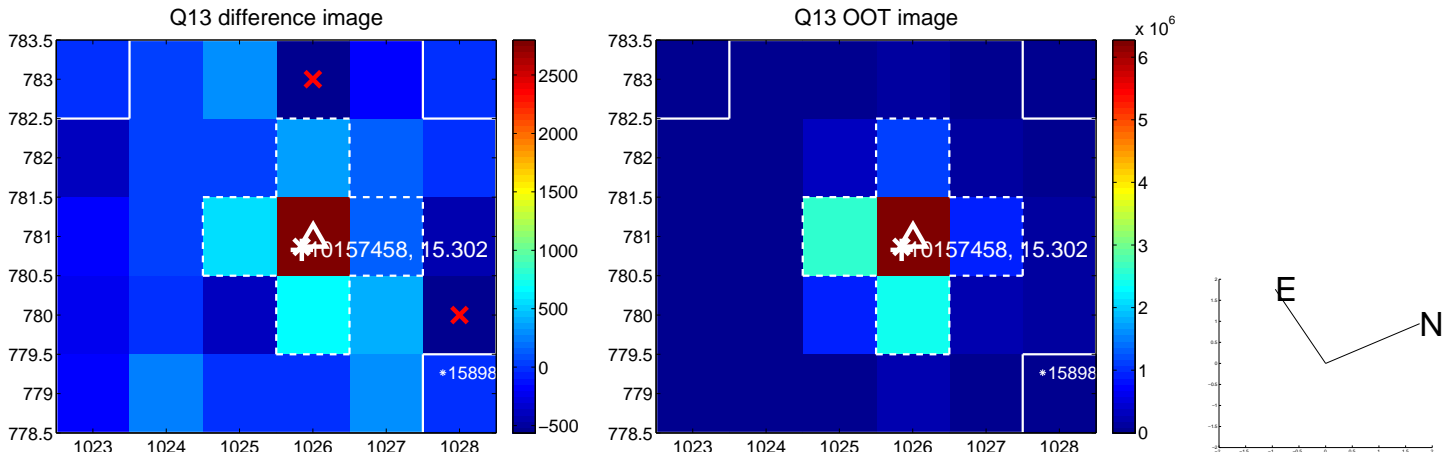
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



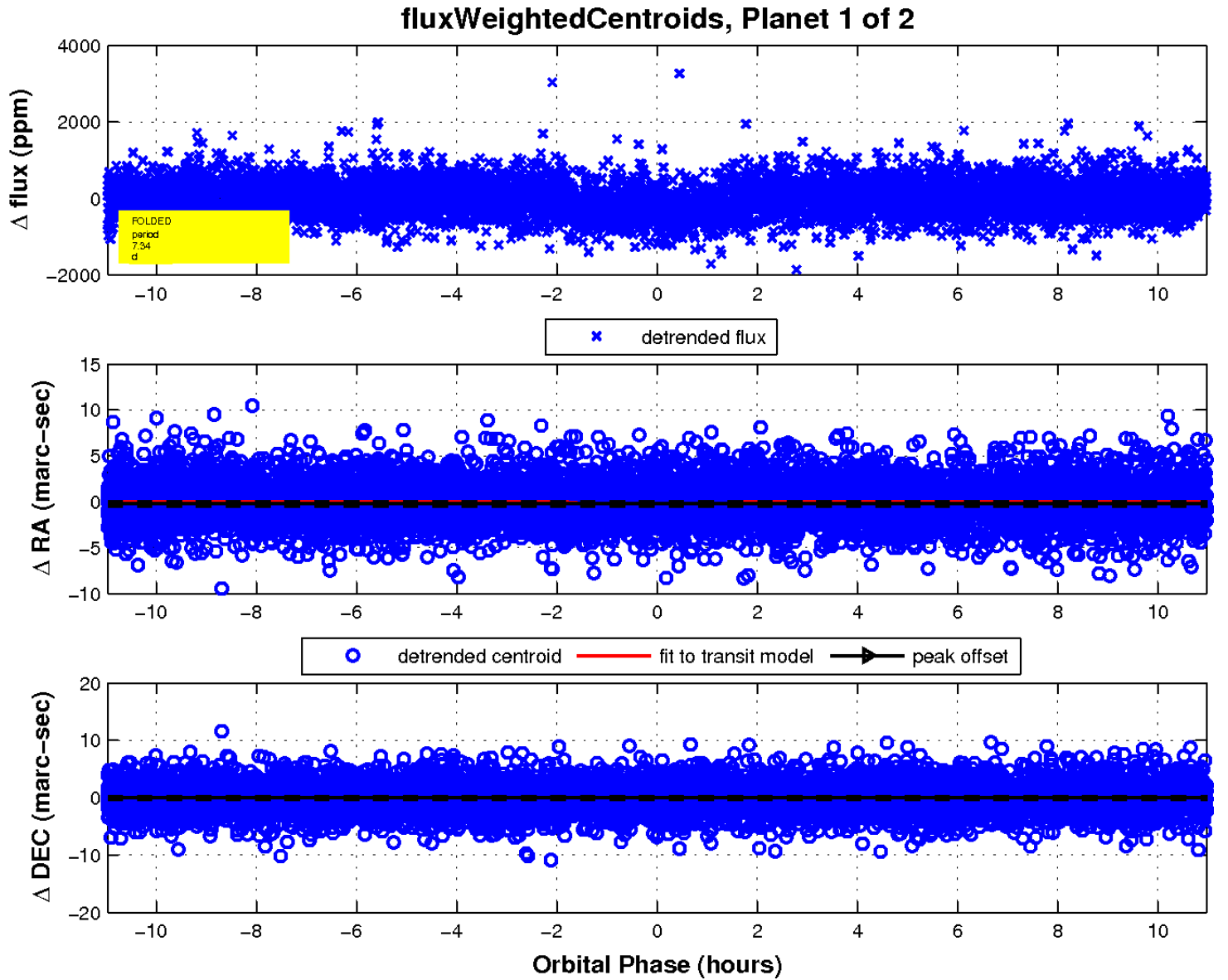
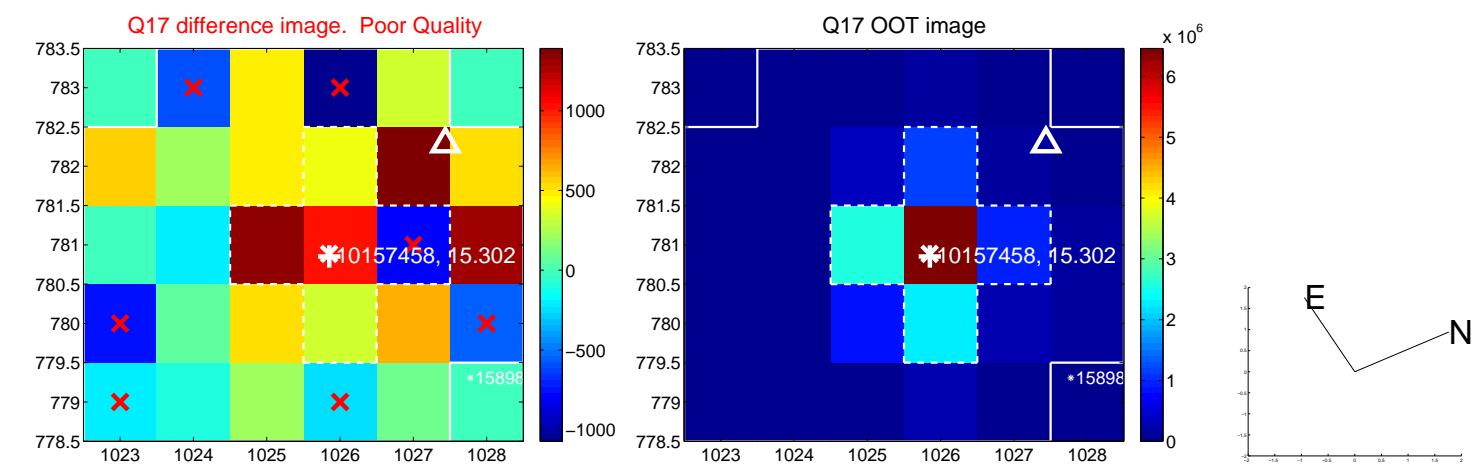
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

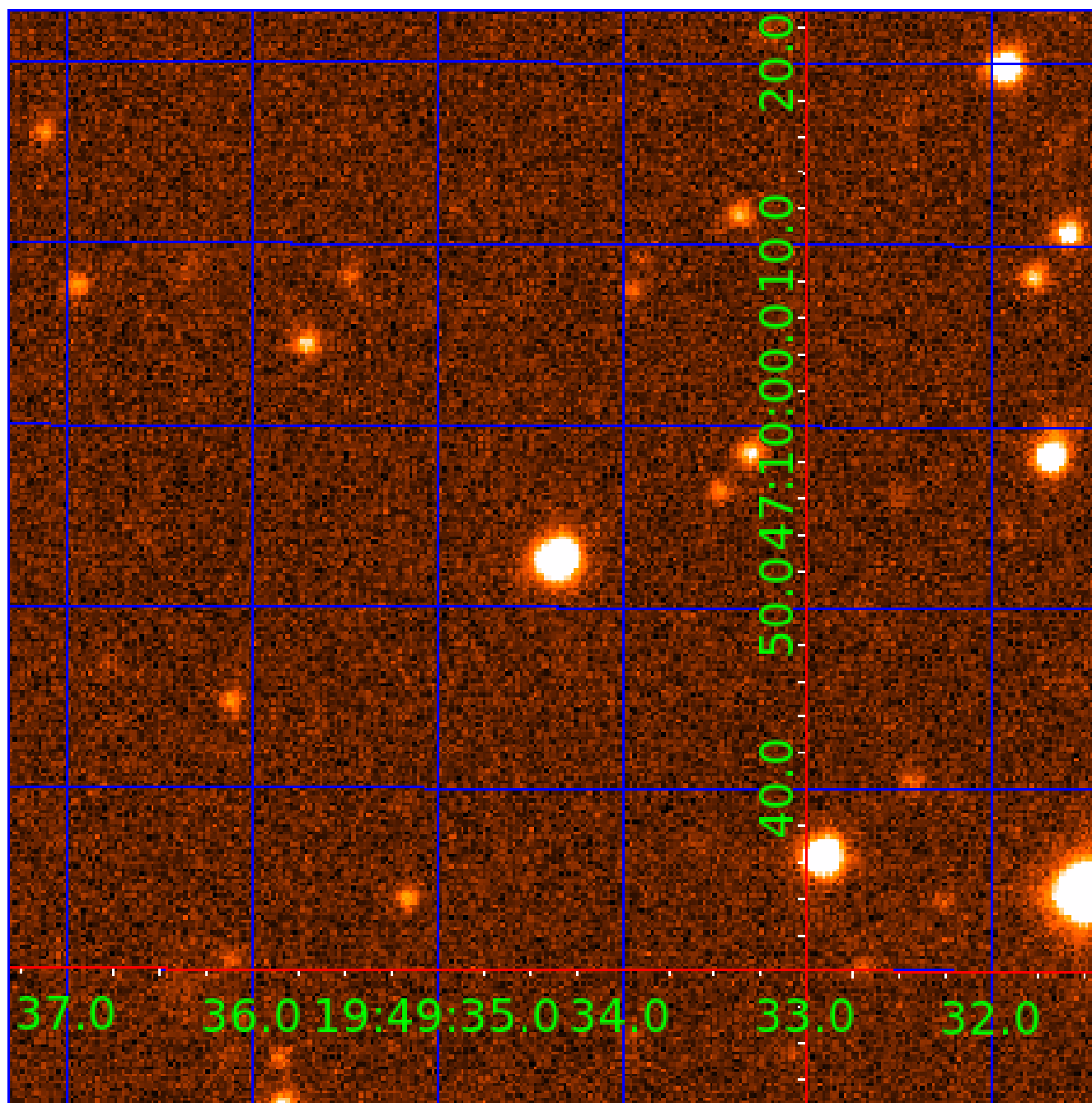


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010157458

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})
010157458-01	OBS	1083.01	7.336819	138.585672	318.7	3.659	18.4	20.2	0.85	5795	1.75	138.69
010157458-02	OBS	1083.02	4.577947	135.634369	105.0	2.964	7.9	7.7	0.85	5795	1.03	260.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010157458-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010157458-02	OBS	PC	0.82	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 010157458-02

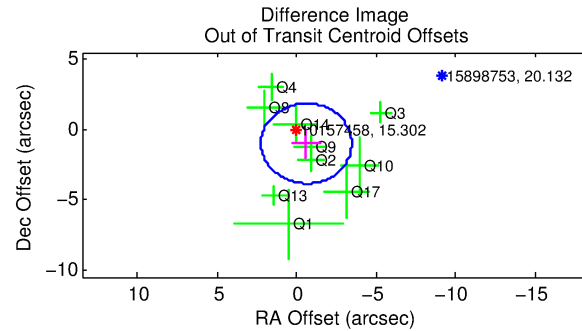
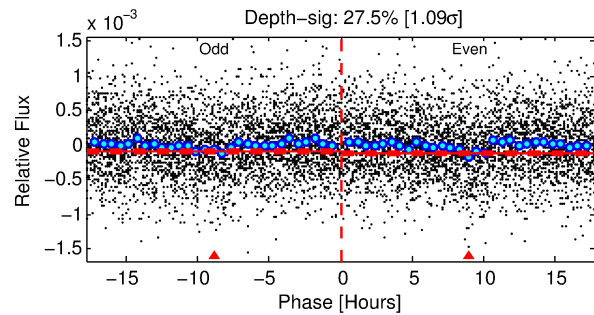
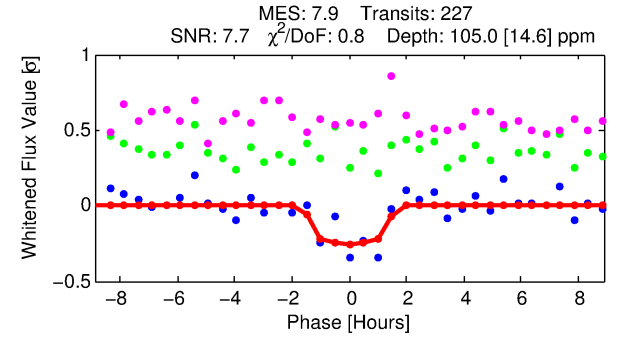
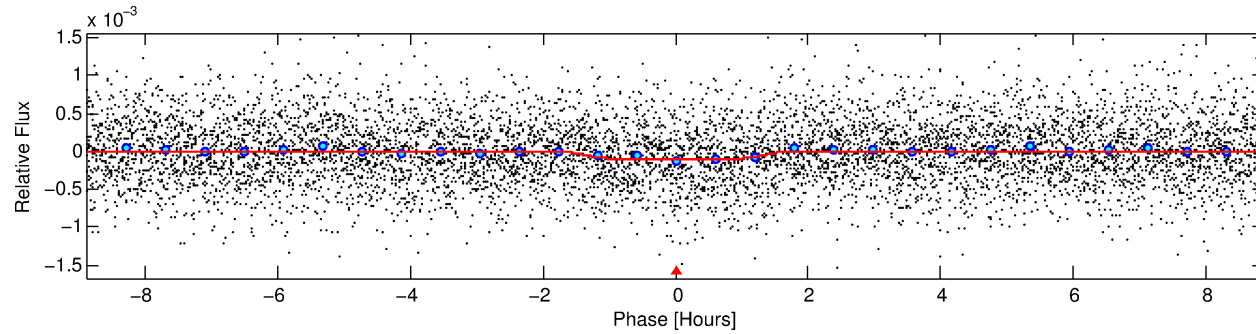
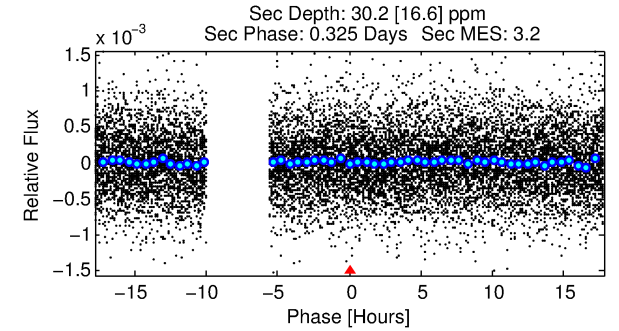
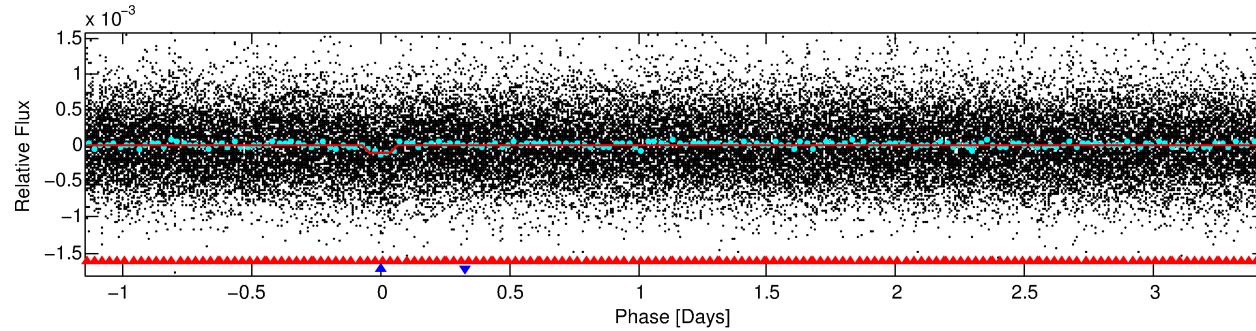
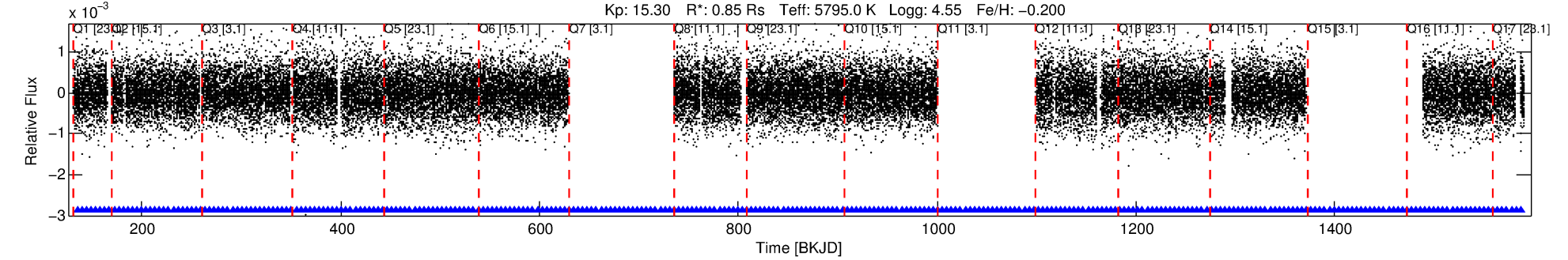
No Significant Match Found

DV One-Page Summary

KIC: 10157458 Candidate: 2 of 2 Period: 4.578 d

KOI: K01083 Corr: No Ephemeris Match

Kp: 15.30 R*: 0.85 Rs Teff: 5795.0 K Logg: 4.55 Fe/H: -0.200



DV Fit Results:

Period = 4.57795 [0.00005] d
Epoch = 135.6344 [0.0067] BKJD
Rp/R* = 0.0111 [0.0102]
a/R* = 5.57 [24.62]
b = 0.90 [1.01]
Seff = 260.10 [97.39]
Teff = 1024 [96] K
Rp = 1.03 [0.99] Re
a = 0.0529 [0.0131] AU
Ag = 44.00 [86.02] [0.50σ]
Teffp = 4078 [1964] K [1.55σ]

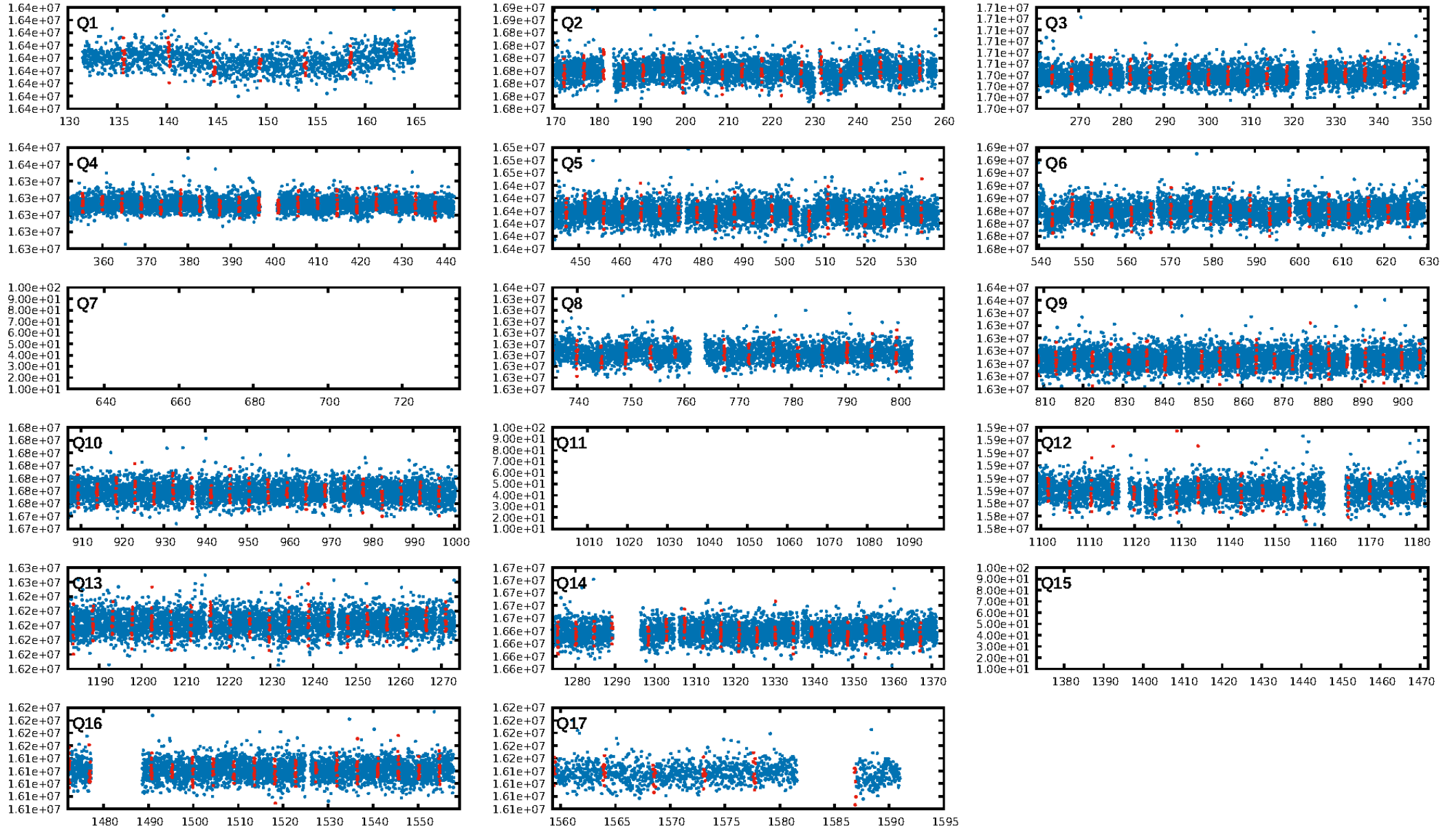
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.06σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.36e-15
RollingBand-fgt: 1.00 [214/214]
GhostDiagnostic-chr: -7.857
Centroid-sig: 95.7%
Centroid-so: 0.450 arcsec [0.22σ]
OotOffset-rm: 1.166 arcsec [1.23σ]
KicOffset-rm: 1.265 arcsec [1.34σ]
OotOffset-st: 3/1/2/4 [10]
KicOffset-st: 3/1/2/4 [10]
DiffImageQuality-fgm: 0.20 [2/10]
DiffImageOverlap-fno: 1.00 [14/14]

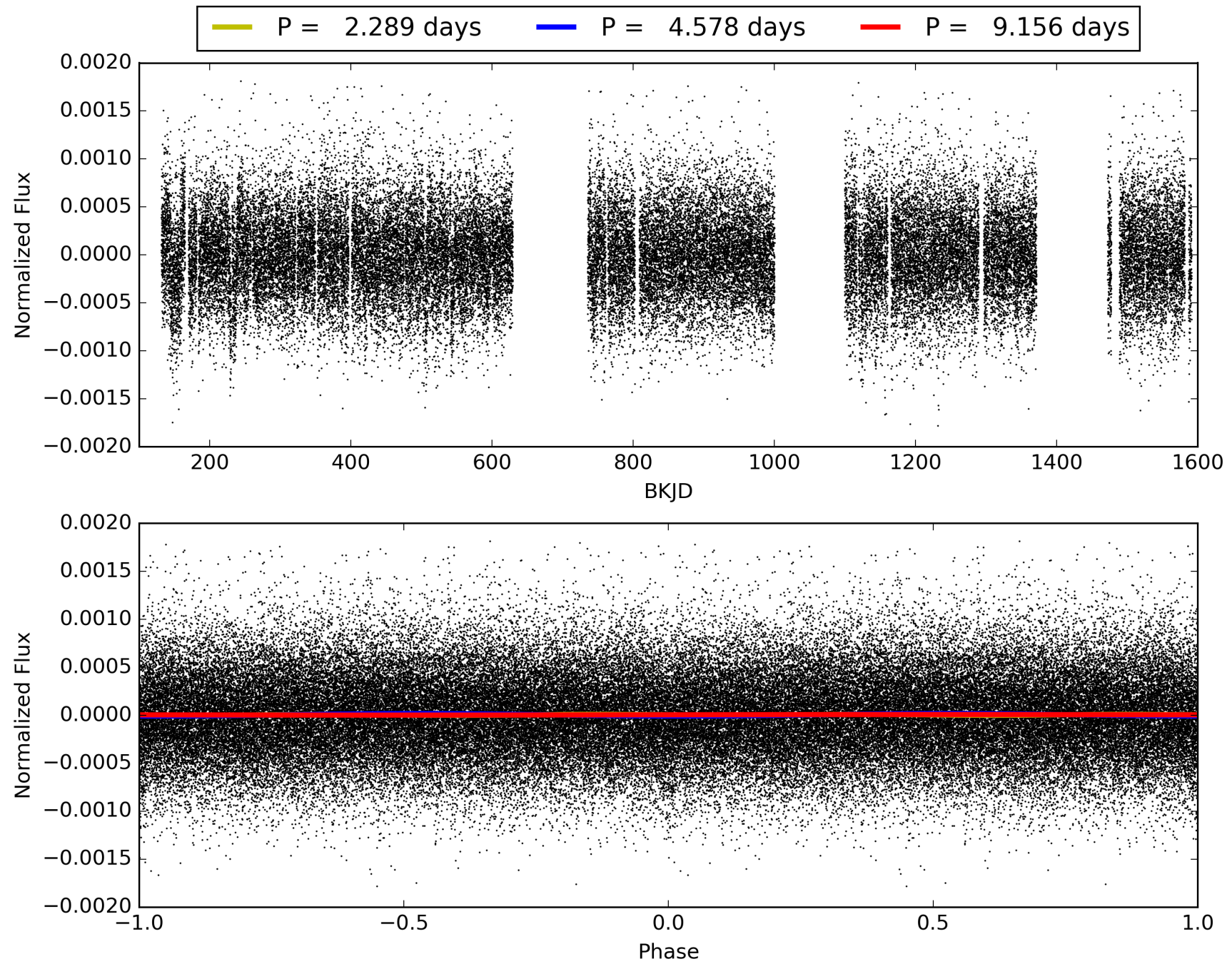
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:27:55 Z

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

TCE 010157458-02, PDC Light Curves

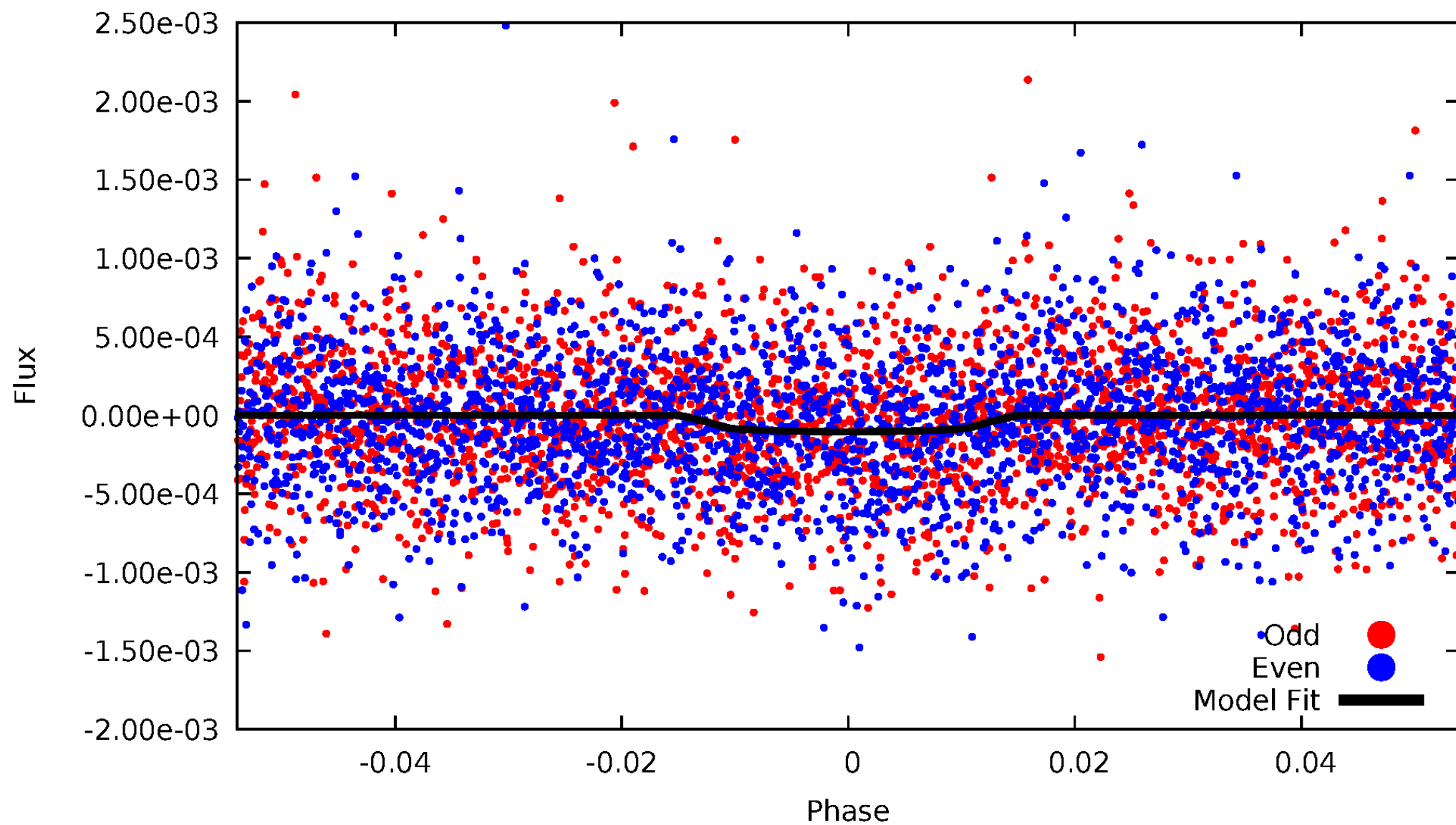


TCE 010157458-02



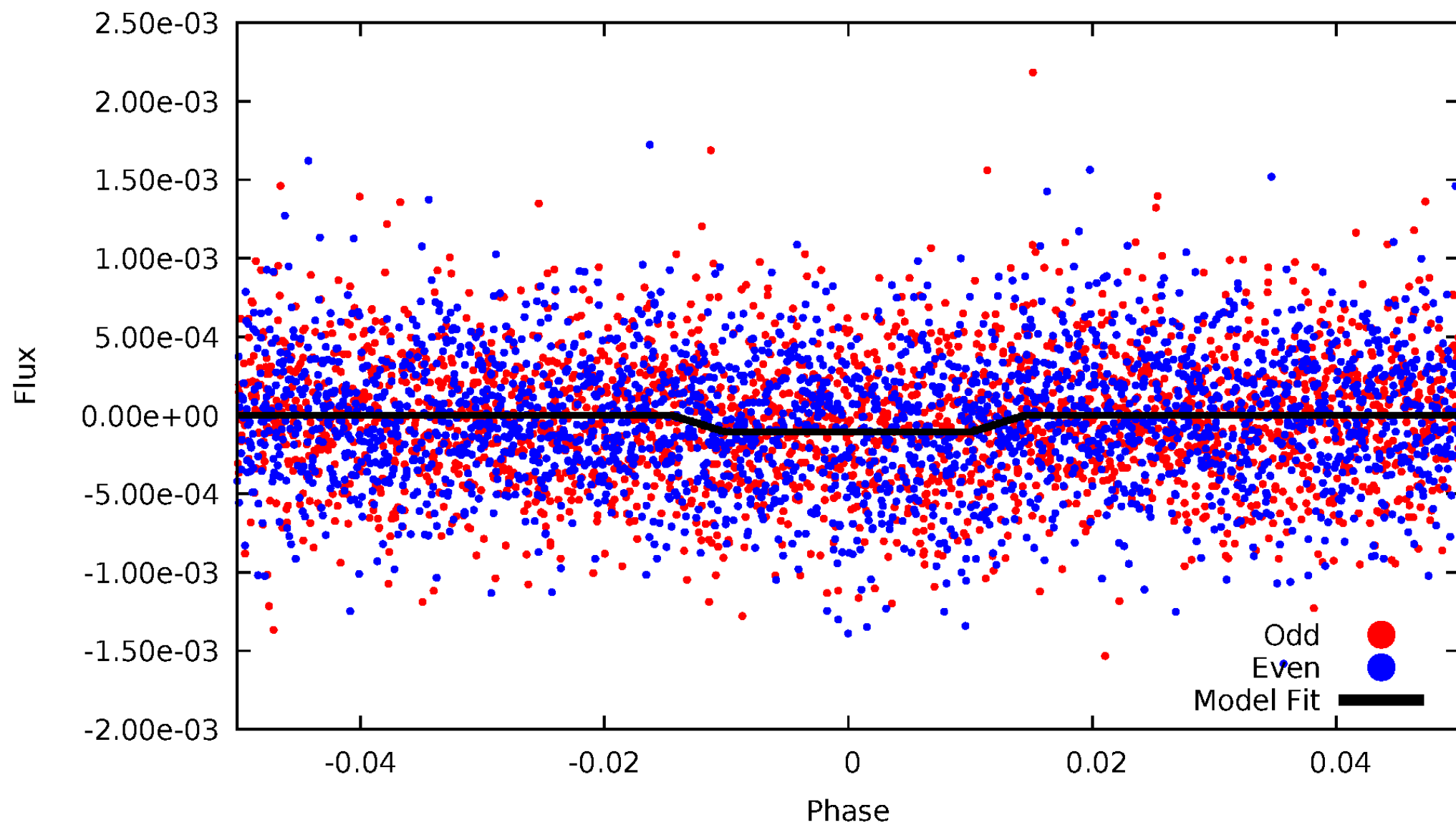
DV Odd/Even

TCE 010157458-02



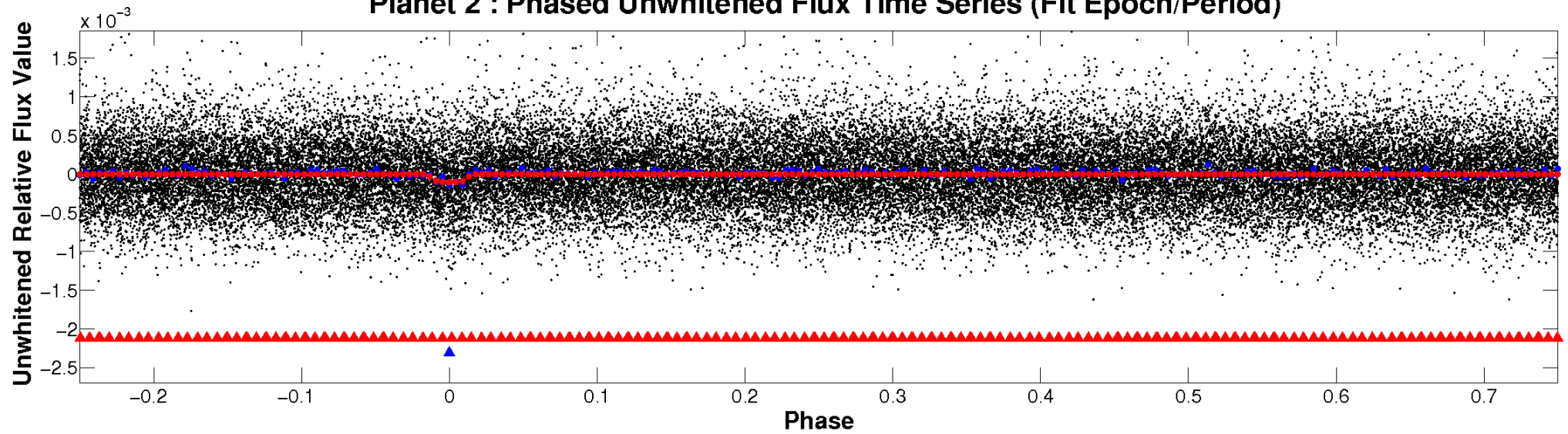
ALT Odd/Even

TCE 010157458-02

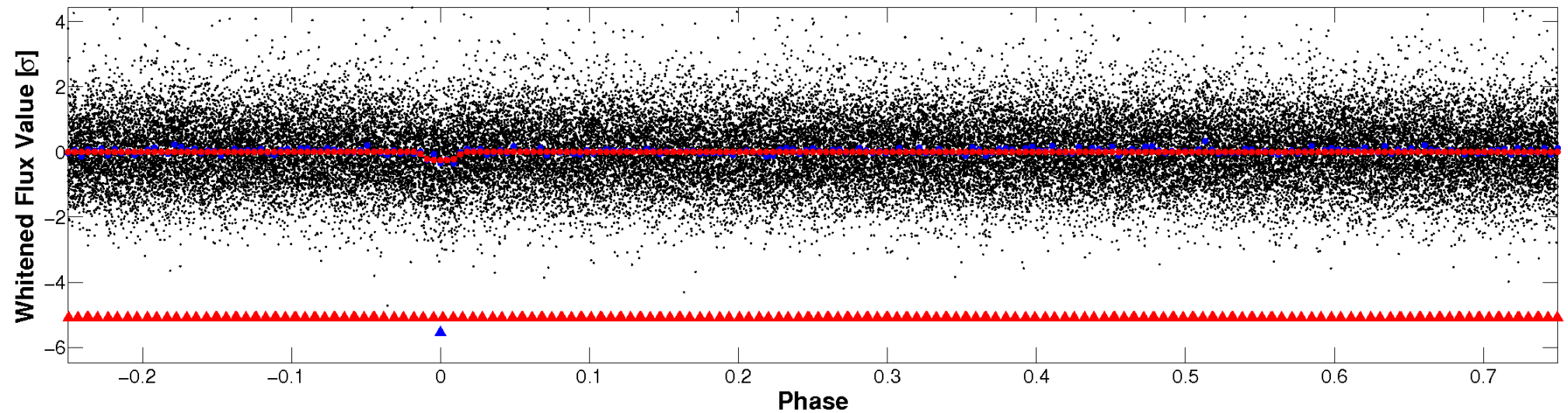


Non-Whitened Vs. Whitened Light Curve

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

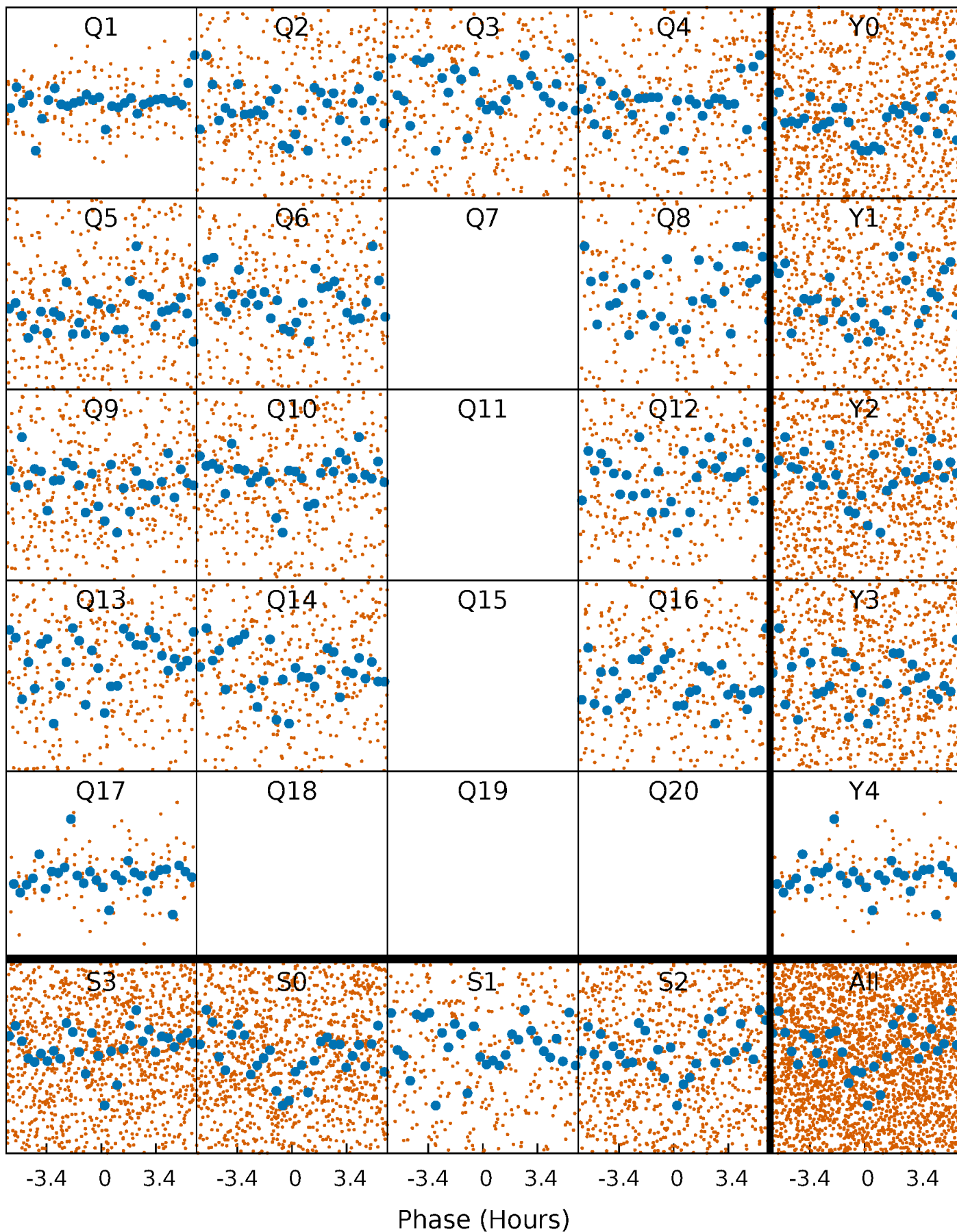


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



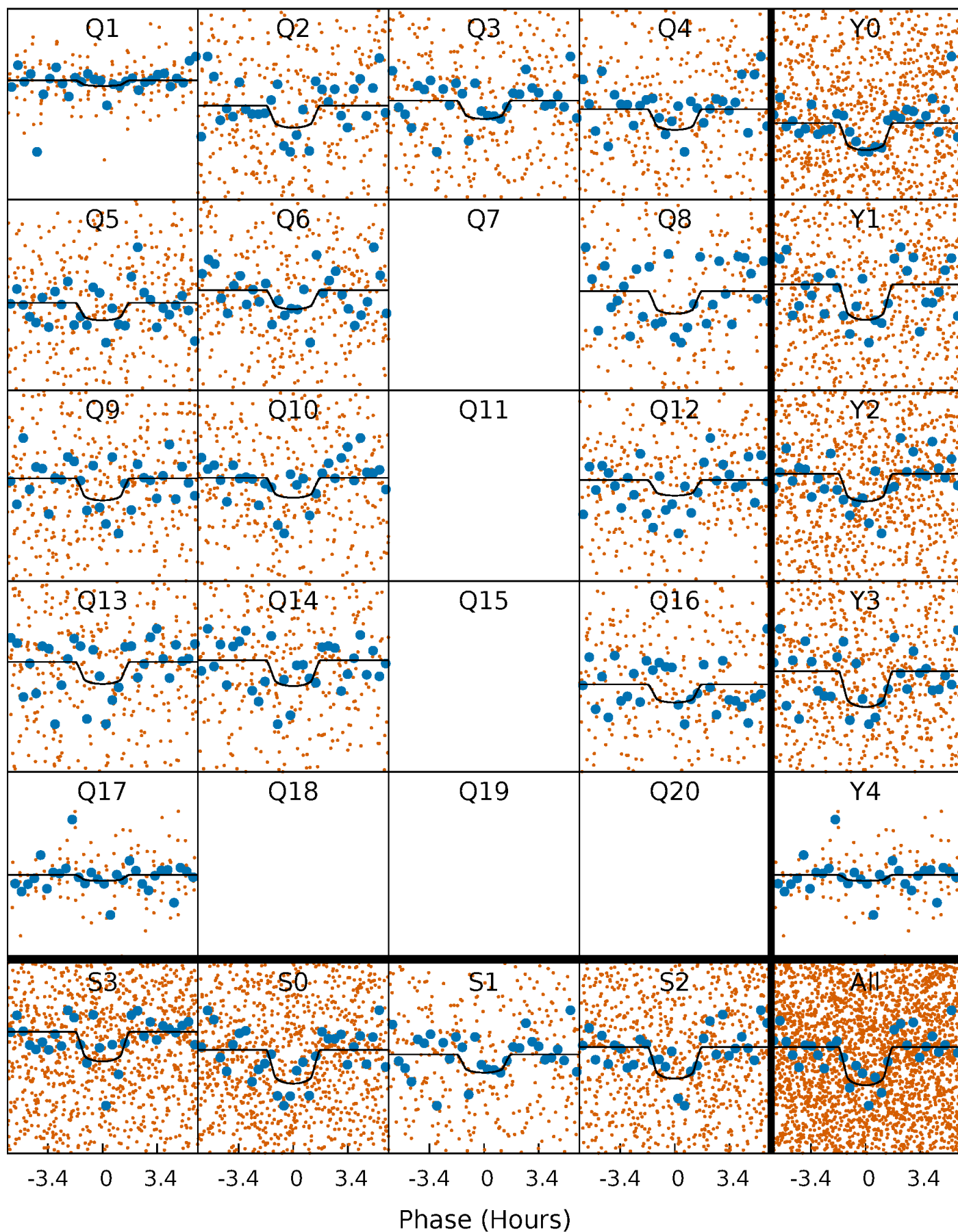
PDC Quarter-Phased Transit Curves

TCE 010157458-02 P= 4.577947 Days $T_0=135.634369$ (BKJD)



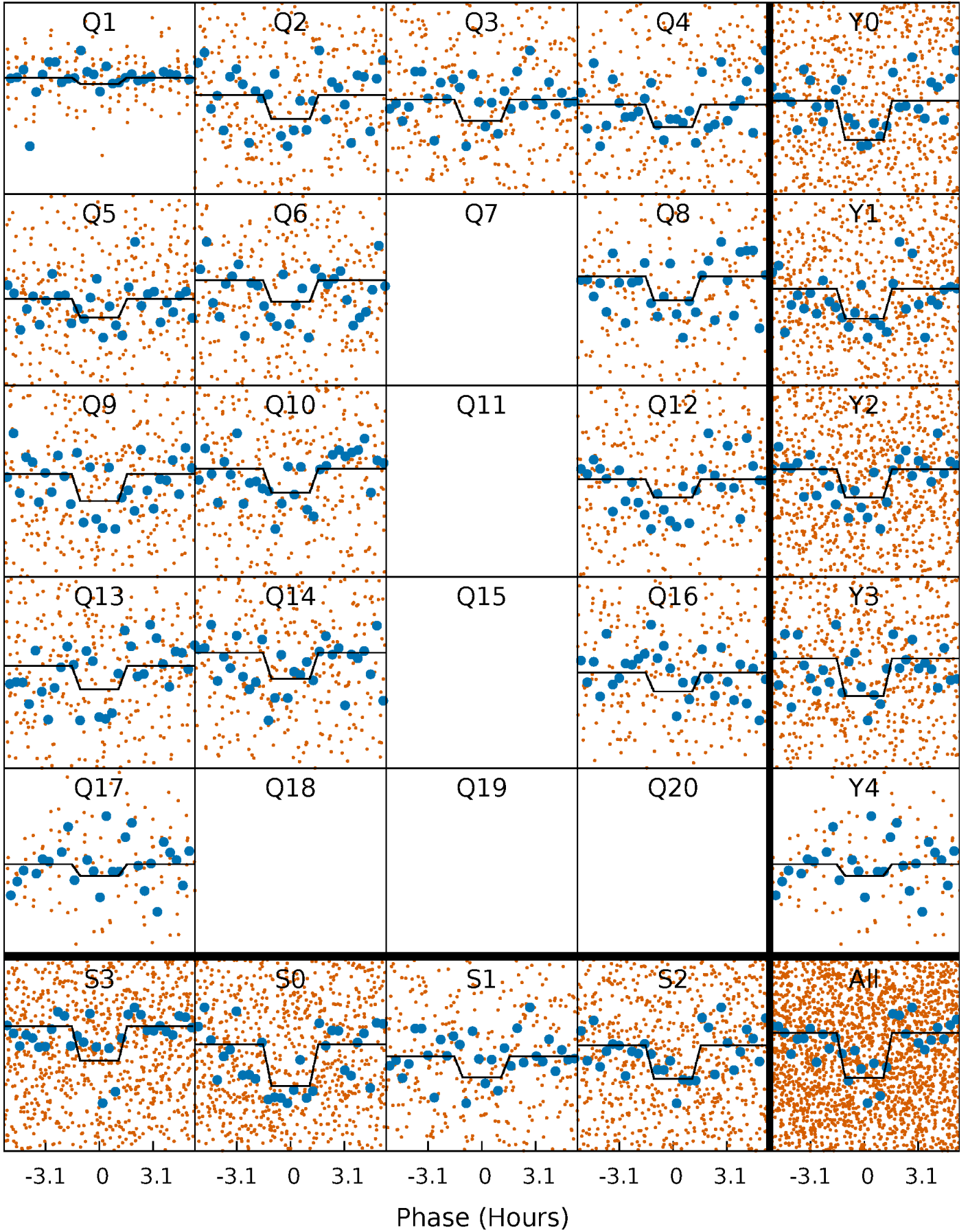
DV Quarter-Phased Transit Curves

TCE 010157458-02 P= 4.577947 Days $T_0=135.634369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

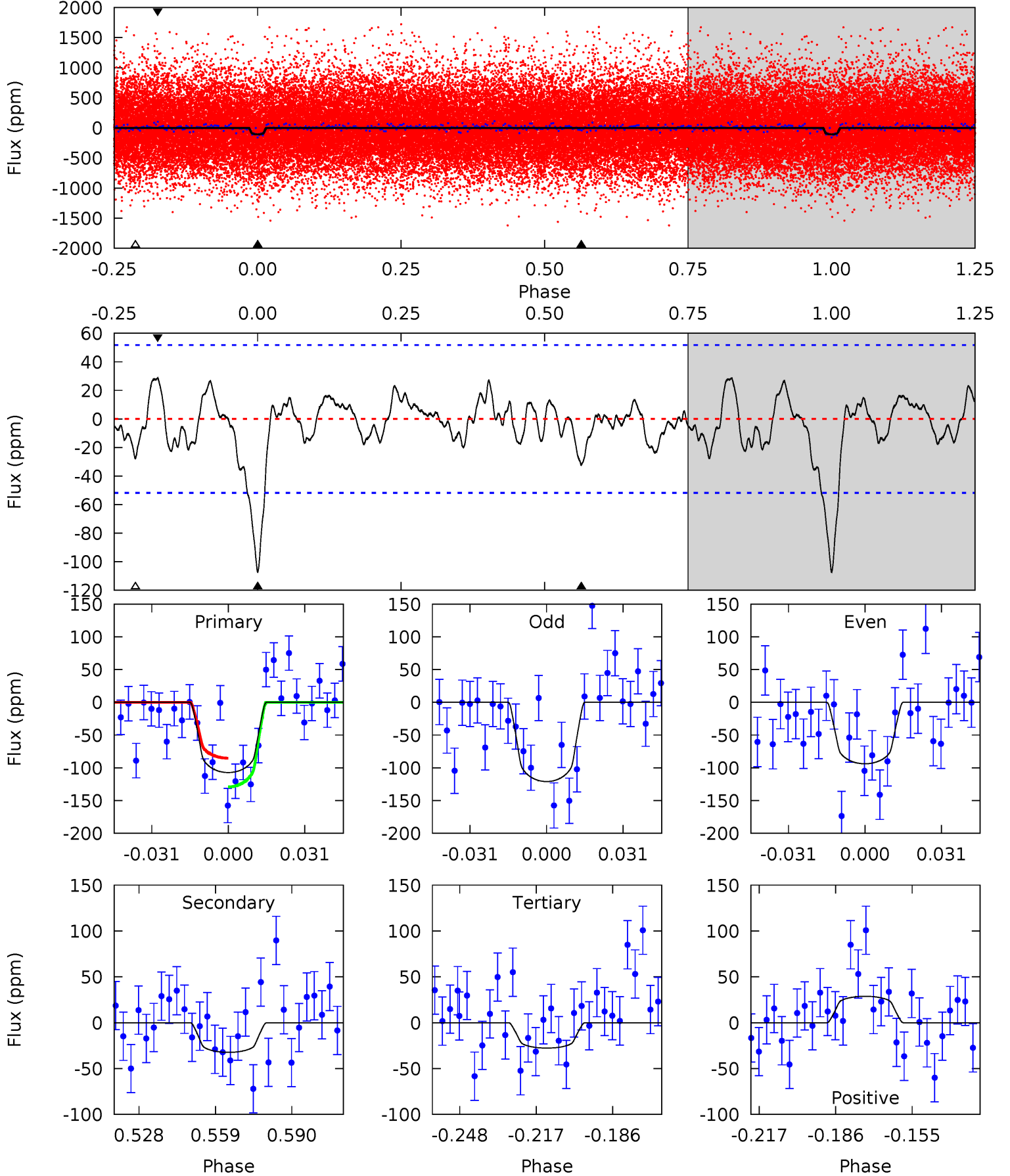
TCE 010157458-02 $P = 4.577974$ Days $T_0 = 135.631874$ (BKJD)



DV Model-Shift Uniqueness Test

010157458-02, P = 4.577947 Days, E = 131.056422 Days

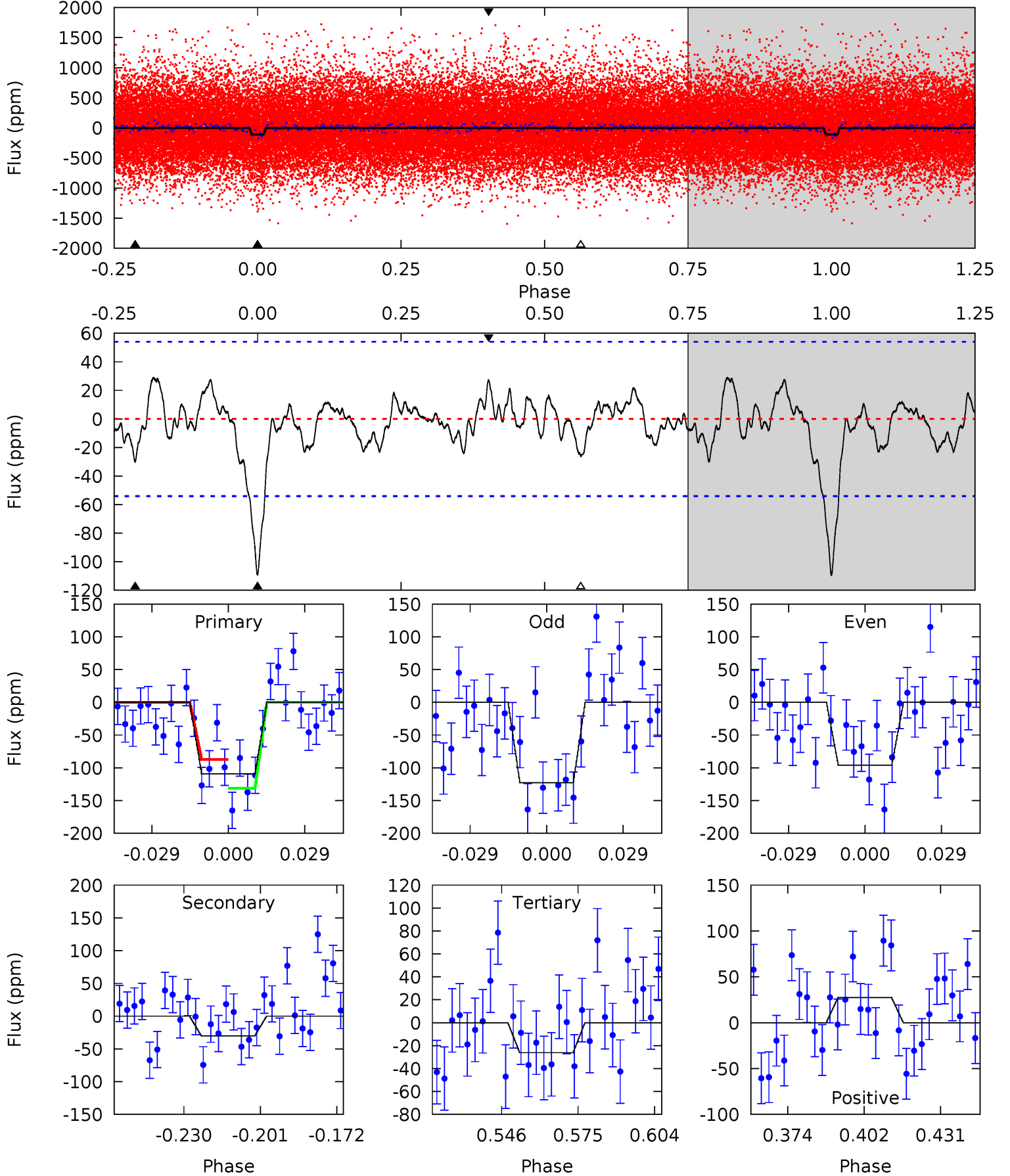
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.96	3.01	2.58	2.67	4.80	2.16	1.12	7.39	7.29	0.43	0.33	1.26	1.09	0.21	2.04



Alt Model-Shift Uniqueness Test

010157458-02, P = 4.577974 Days, E = 131.053900 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.76	2.69	2.33	2.45	4.82	2.19	1.04	7.42	7.30	0.36	0.24	1.20	1.05	0.21	1.98



Stellar Parameters For KIC 010157458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5795^{+155}_{-172}	$4.554^{+0.036}_{-0.192}$	$-0.200^{+0.300}_{-0.300}$	$0.848^{+0.252}_{-0.079}$	$0.938^{+0.098}_{-0.120}$	$2.167^{+0.420}_{-1.094}$
	+3%/-3%	+1%/-4%	+150%/-150%	+30%/-9%	+10%/-13%	+19%/-50%
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 010157458-02 / KOI 1083.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-32 ± 11	$1.28^{+0.93}_{-0.80}$	1464^{+94}_{-64}	4052^{+2270}_{-693}	29^{+180}_{-20}
Alt.	-30 ± 11	$1.24^{+0.99}_{-0.81}$	1469^{+95}_{-66}	4103^{+2157}_{-825}	29^{+192}_{-21}

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 $A_{obs} \gg 1.0$

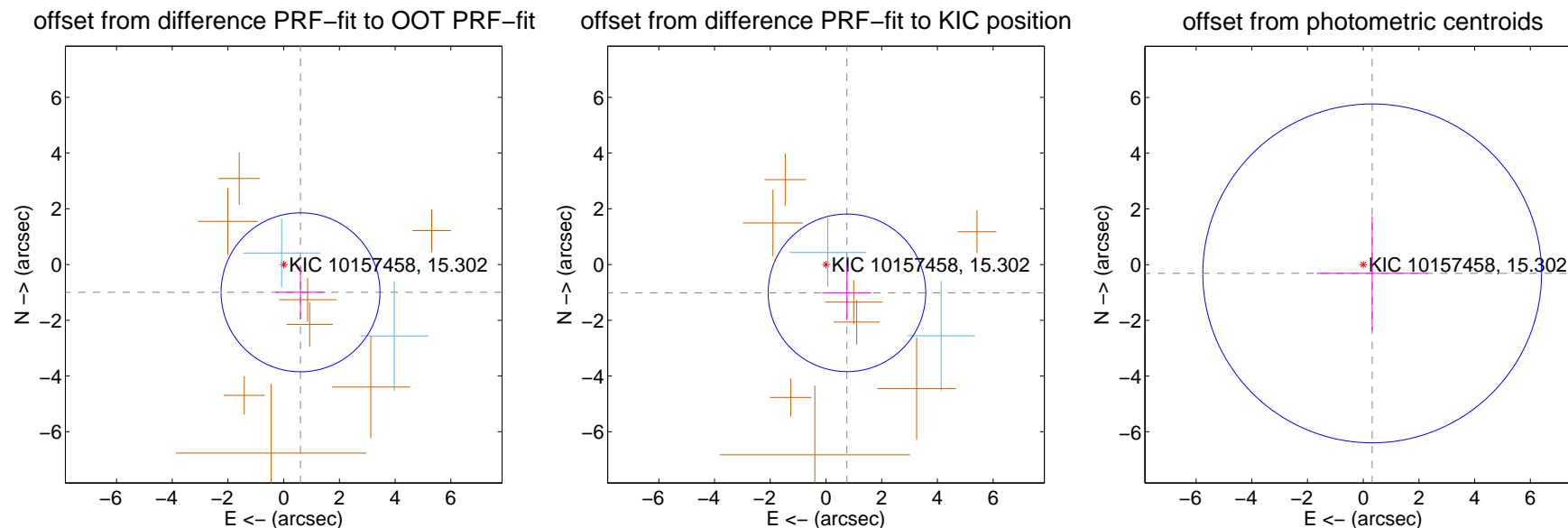
DV Centroid Data

Supplemental centroid analysis for 010157458-02. Kepler magnitude: 15.30. Transit SNR 7.70

There are 2 quarters with good PRF difference image offsets

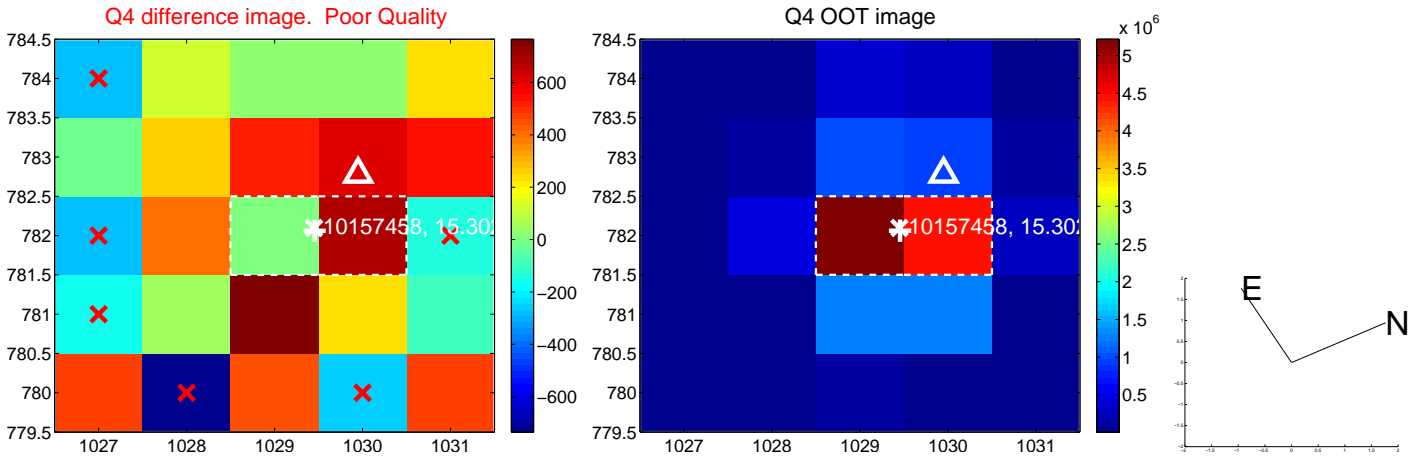
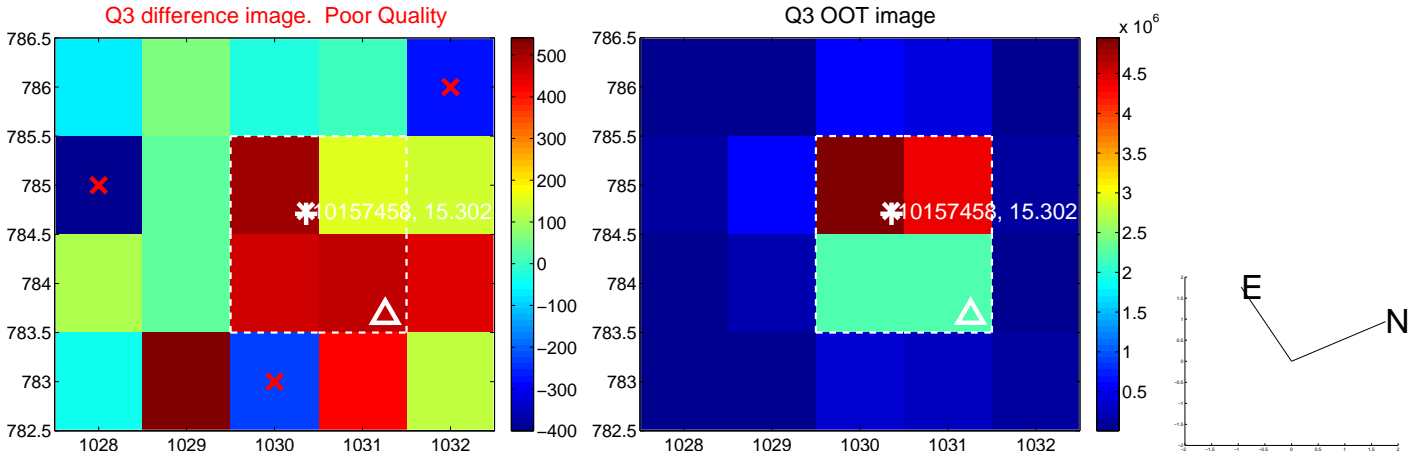
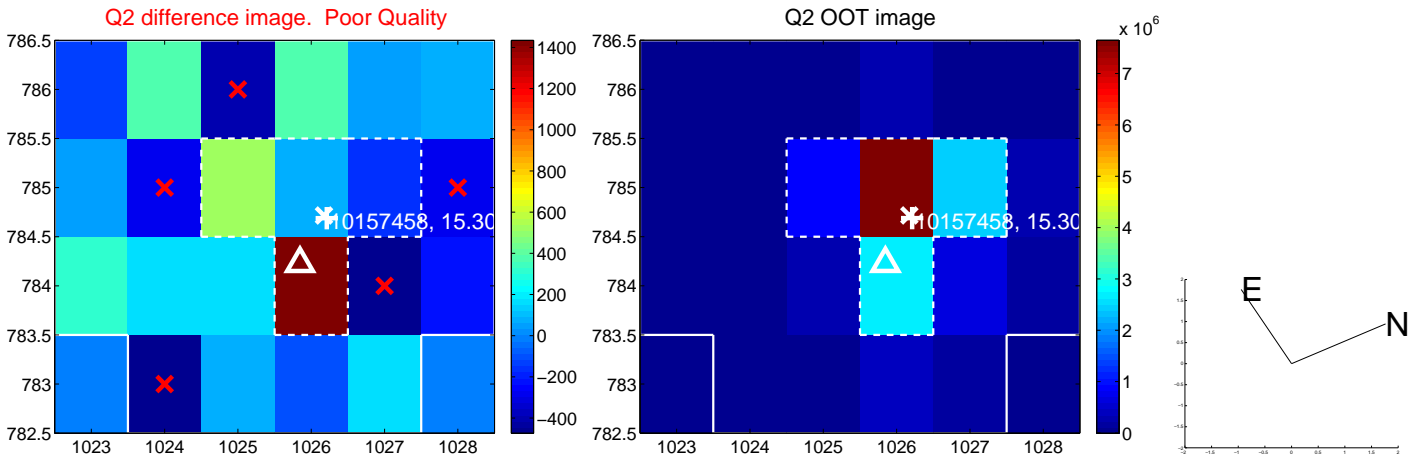
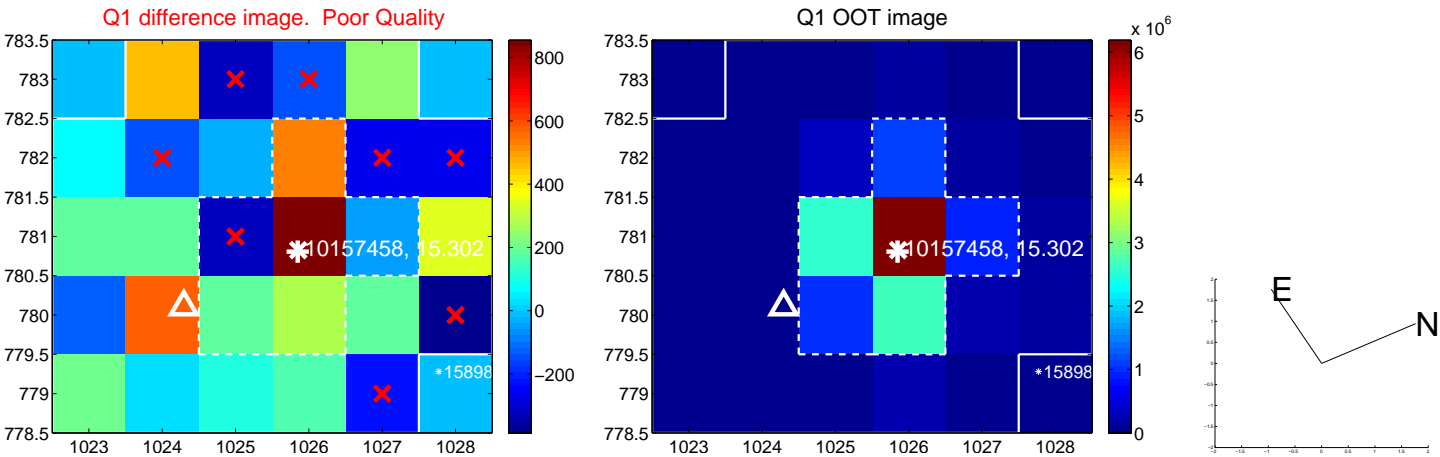
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.166 ± 0.951	1.23	-0.605 ± 0.884	-0.997 ± 0.974
PRF-fit source offset from KIC position	1.265 ± 0.943	1.34	-0.753 ± 0.886	-1.016 ± 0.972
photometric centroid source offset	0.45 ± 2.03	0.22	-0.32 ± 2.00	-0.32 ± 2.06

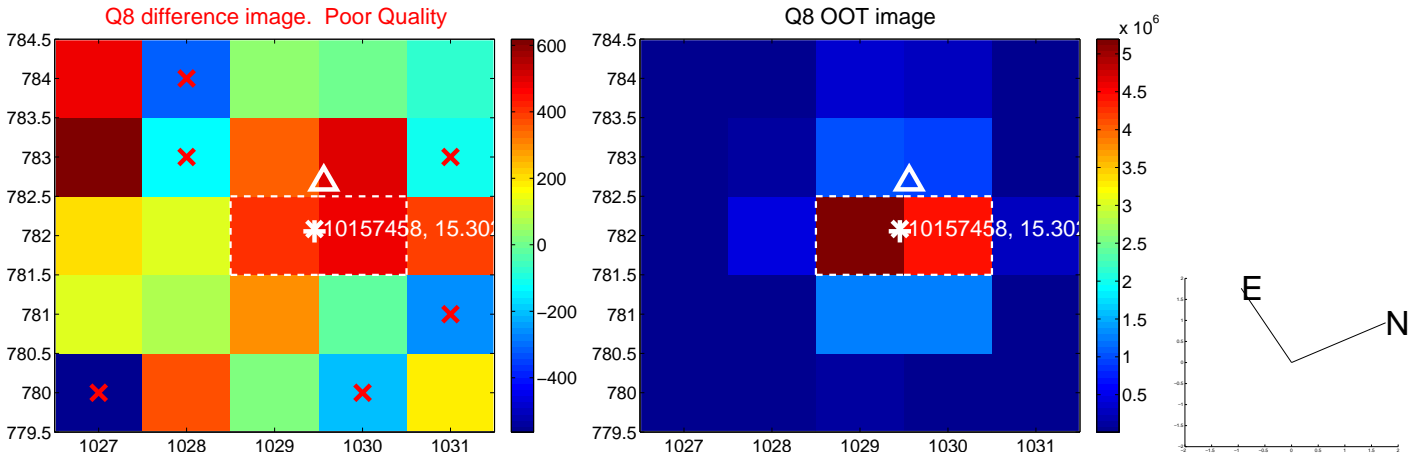
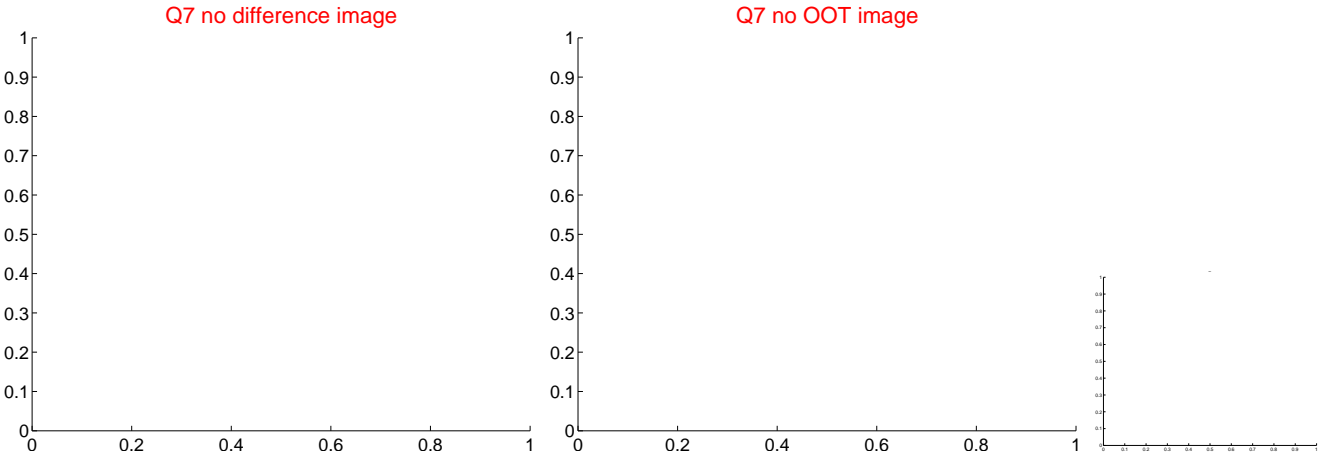
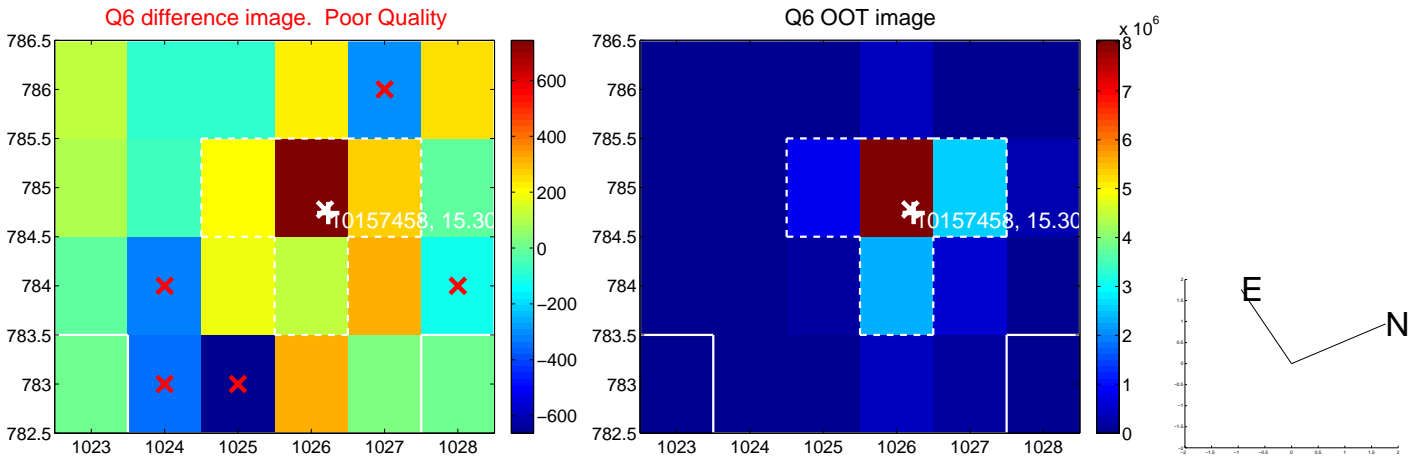
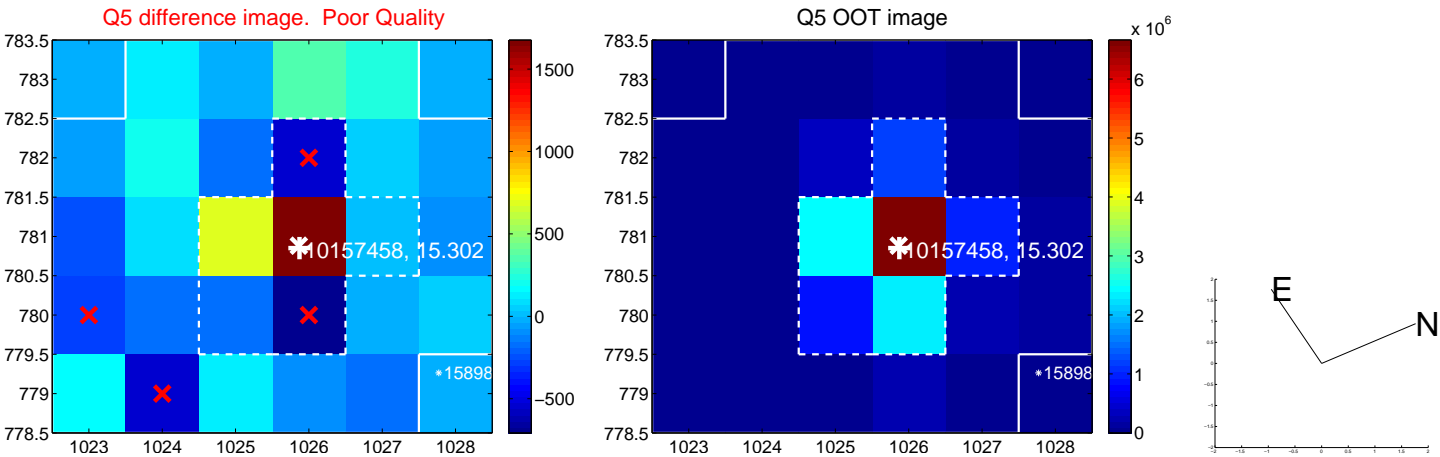


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

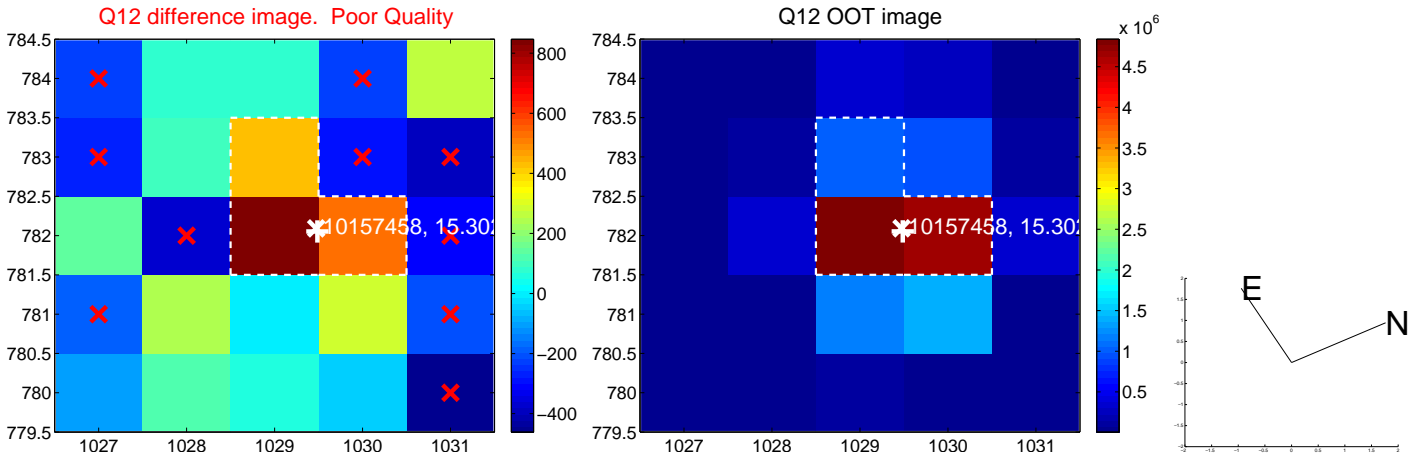
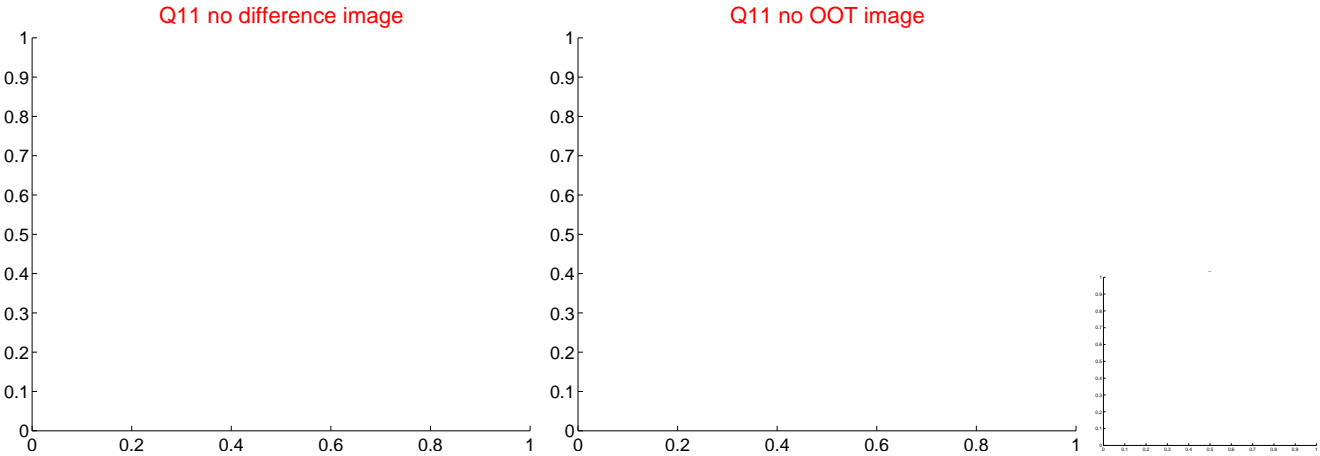
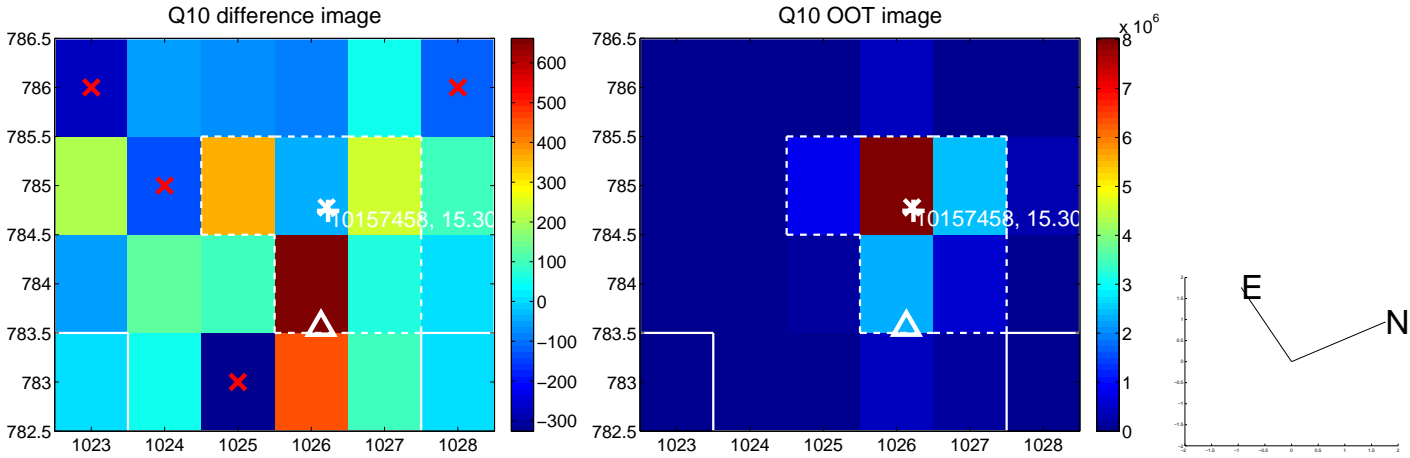
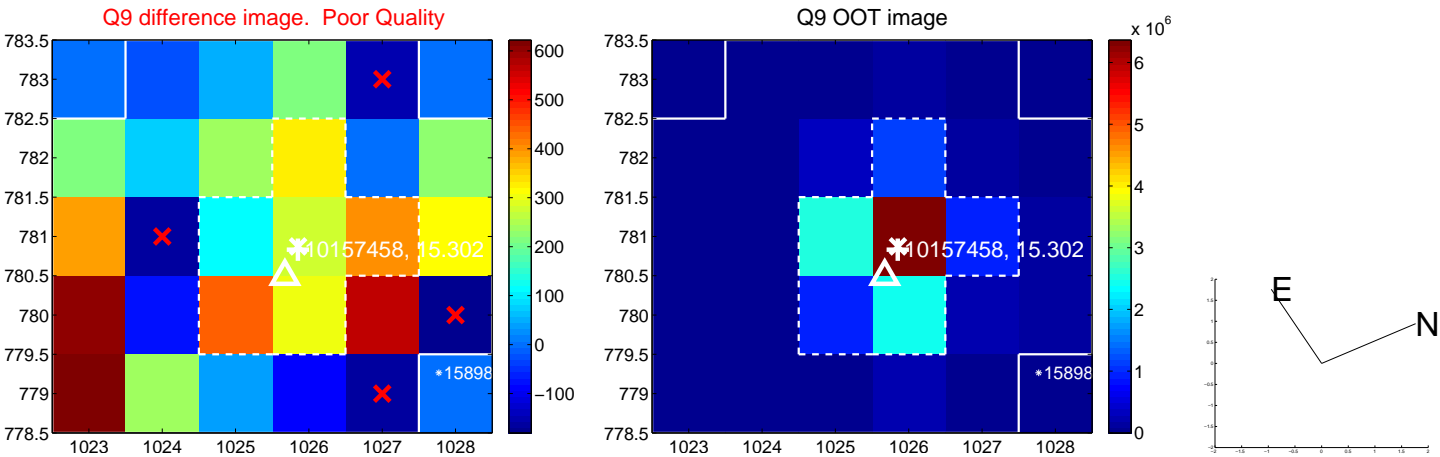
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



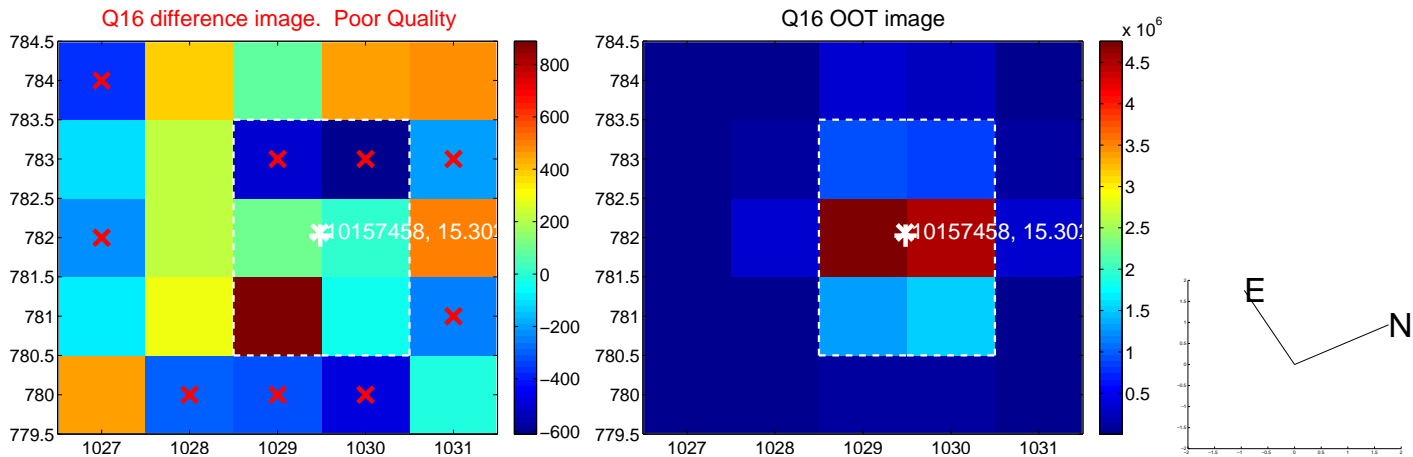
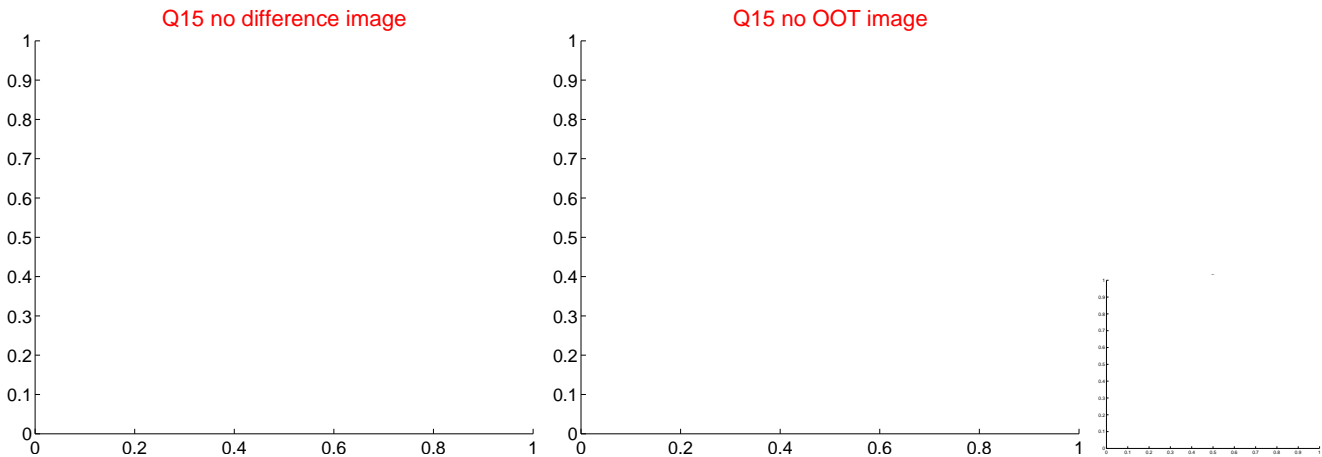
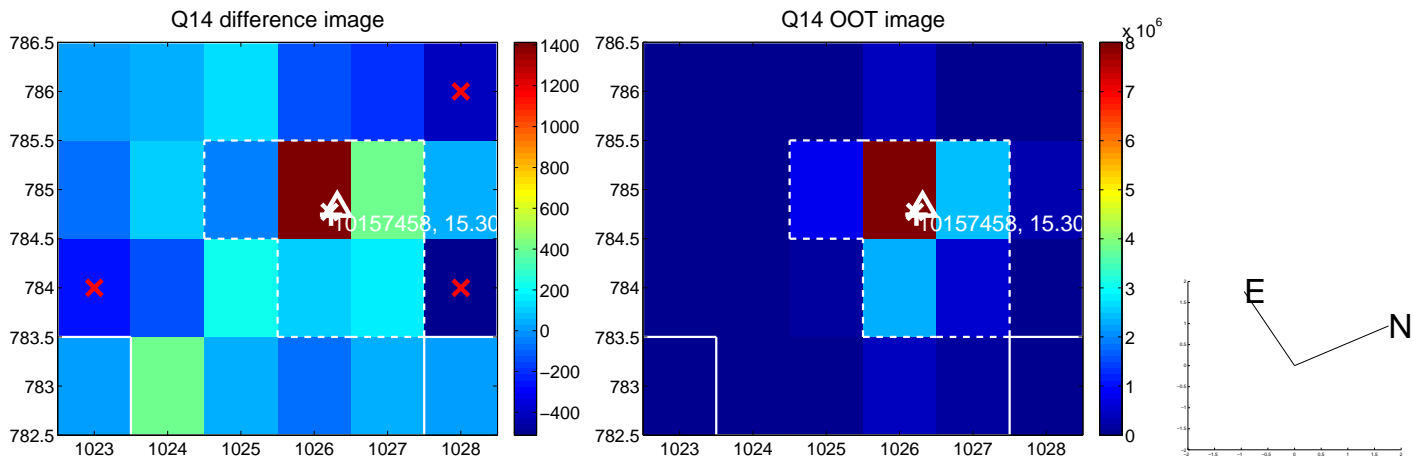
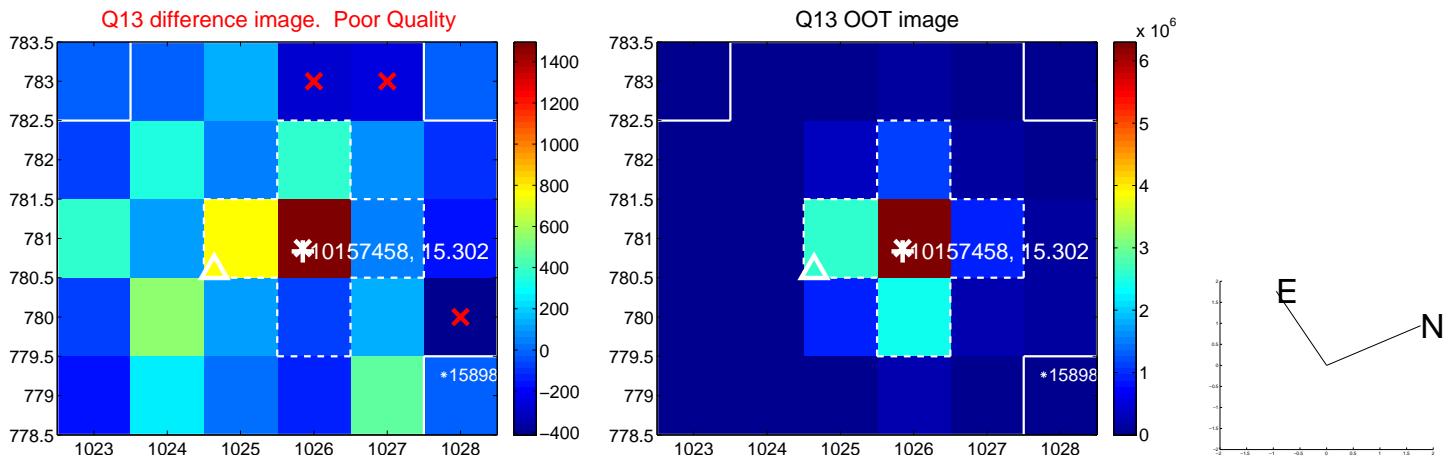
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



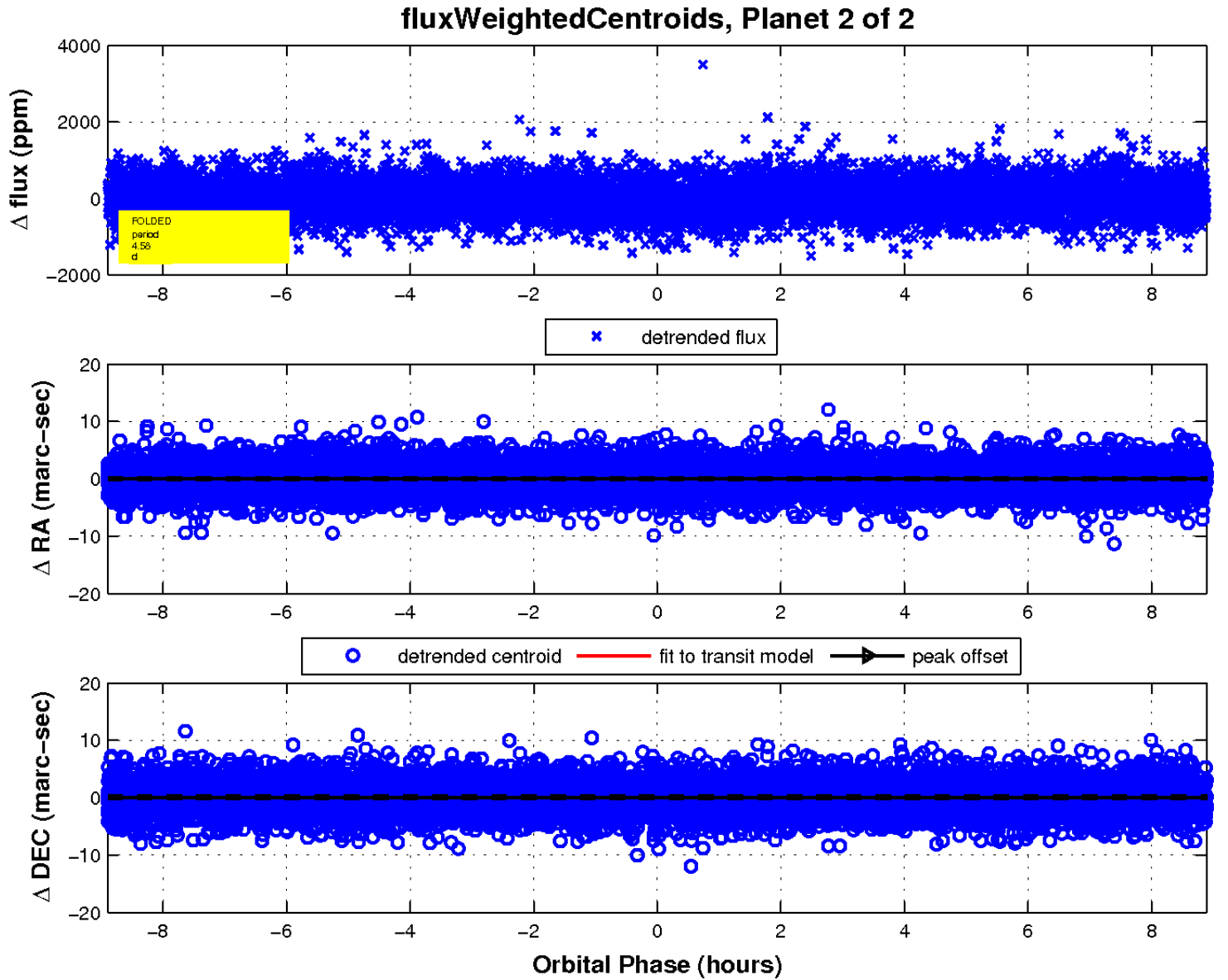
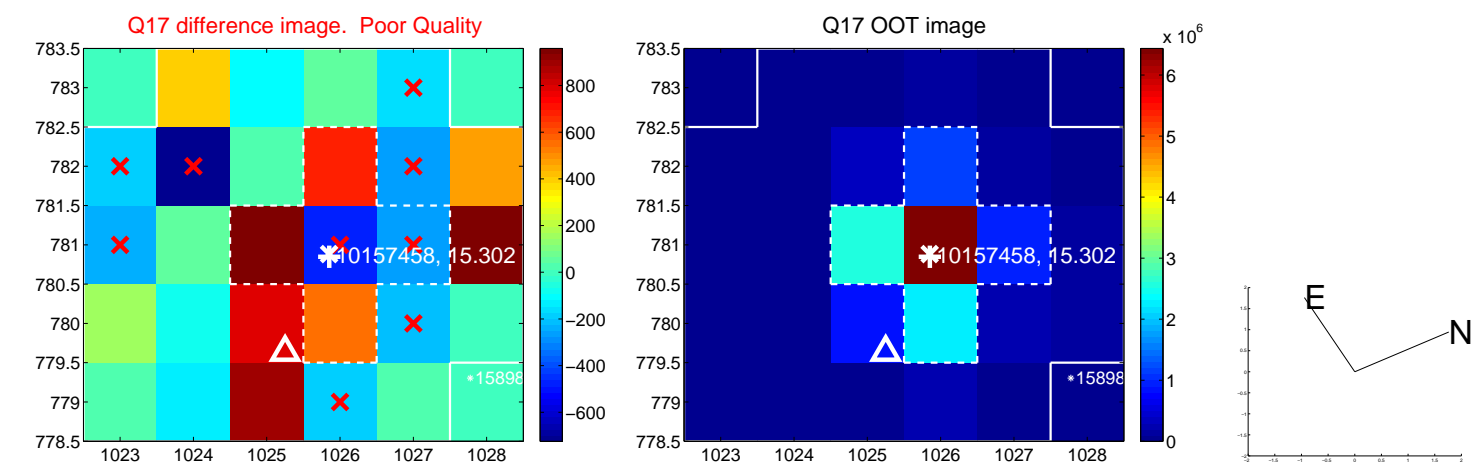
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

