

KIC 012257449

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})
012257449-01	OBS	No	0.967274	132.410092	264.9	1.034	13.1	14.9	3.00	8615	5.27	76480.95
012257449-02	OBS	No	4.646012	134.186753	136.0	27.009	11.3	12.8	3.00	8615	3.58	9437.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012257449-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
012257449-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

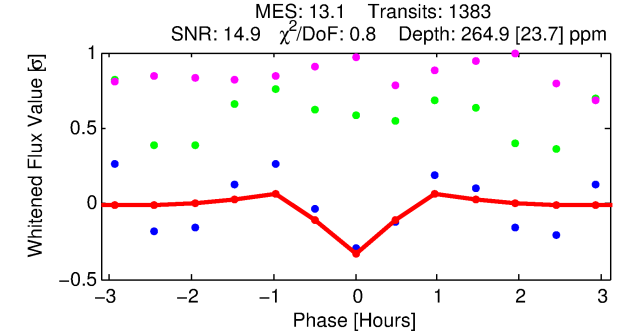
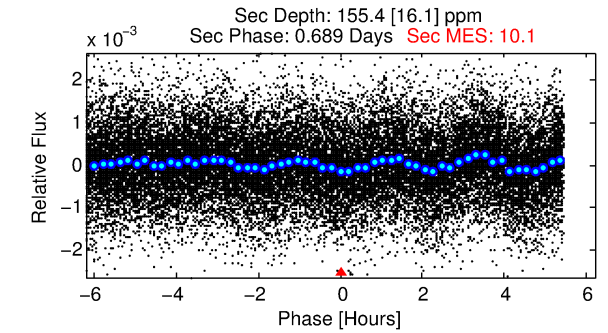
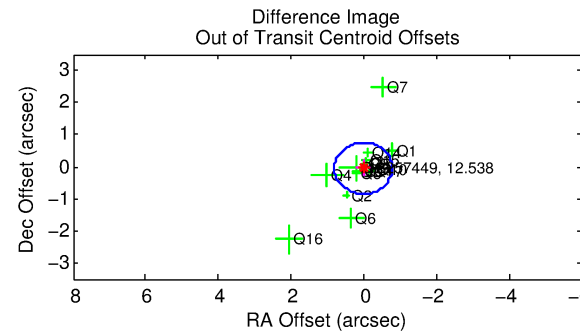
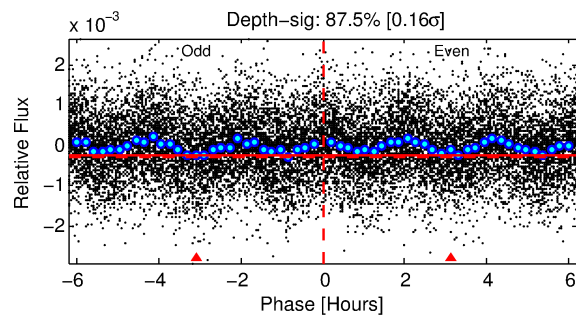
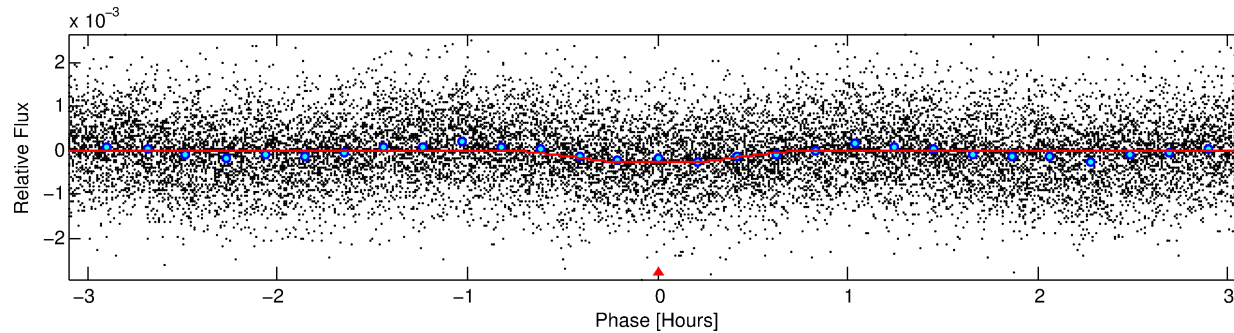
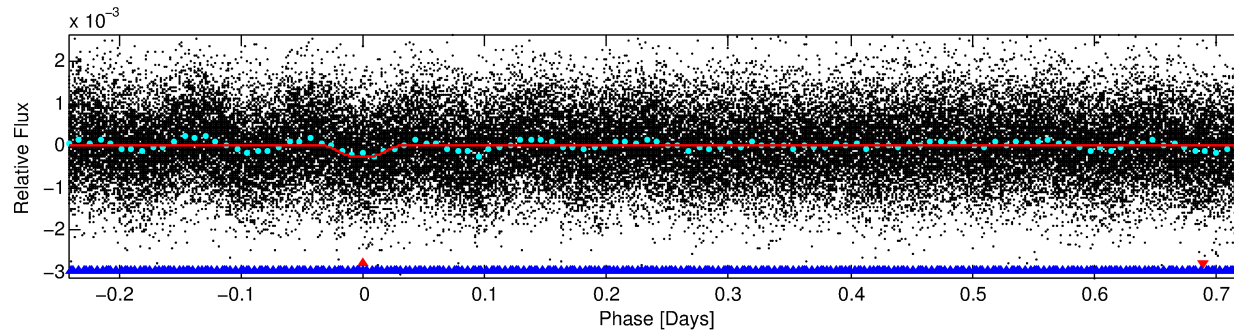
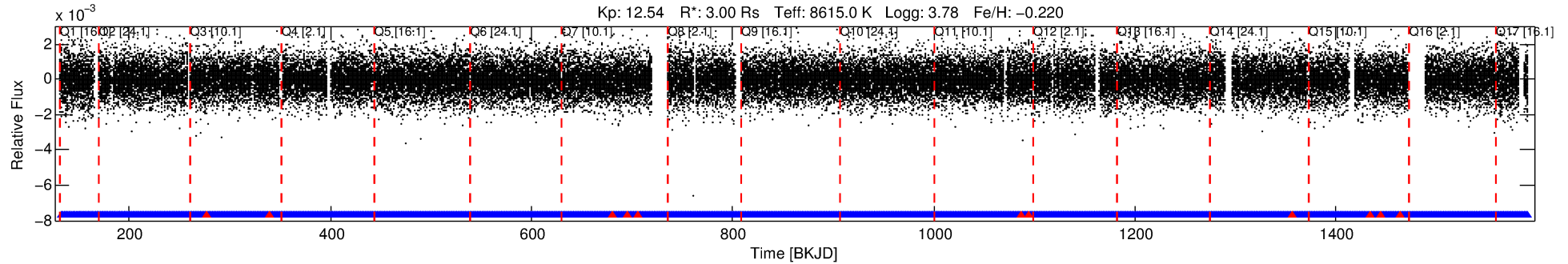
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012257449-01

No Significant Match Found

DV One-Page Summary

KIC: 12257449 Candidate: 1 of 2 Period: 0.967 d



DV Fit Results:

Period = 0.96727 [0.00001] d
Epoch = 132.4101 [0.0010] BKJD
Rp/R* = 0.0161 [0.0037]
a/R* = 5.38 [7.26]
b = 0.69 [1.06]
Seff = 76480.95 [56884.48]
Teff = 4240 [788] K
Rp = 5.27 [2.77] Re
a = 0.0241 [0.0109] AU
Ag = 1.79 [1.55] [0.51 σ]
Teffp = 7586 [954] K [2.70 σ]

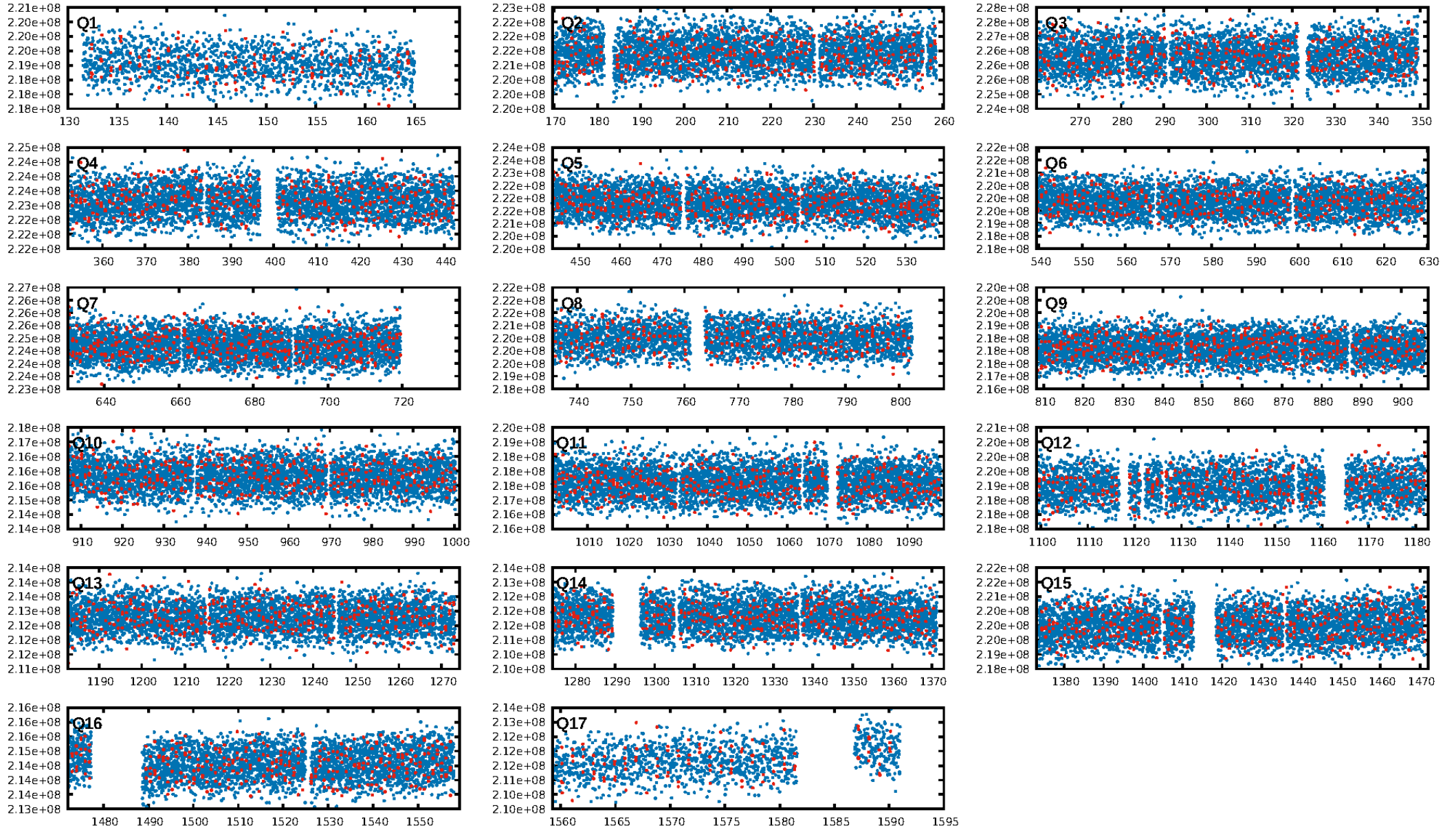
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 99.9% [3.27 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.67e-47
RollingBand-fgt: 0.99 [1311/1322]
GhostDiagnostic-chr: 1.287
Centroid-sig: 75.9%
Centroid-so: 0.059 arcsec [0.45 σ]
OotOffset-rm: 0.054 arcsec [0.20 σ]
KicOffset-rm: 0.115 arcsec [0.44 σ]
OotOffset-st: 4/4/3/5 [16]
KicOffset-st: 4/4/3/5 [16]
DiffImageQuality-fgm: 0.88 [14/16]
DiffImageOverlap-fno: 1.00 [17/17]

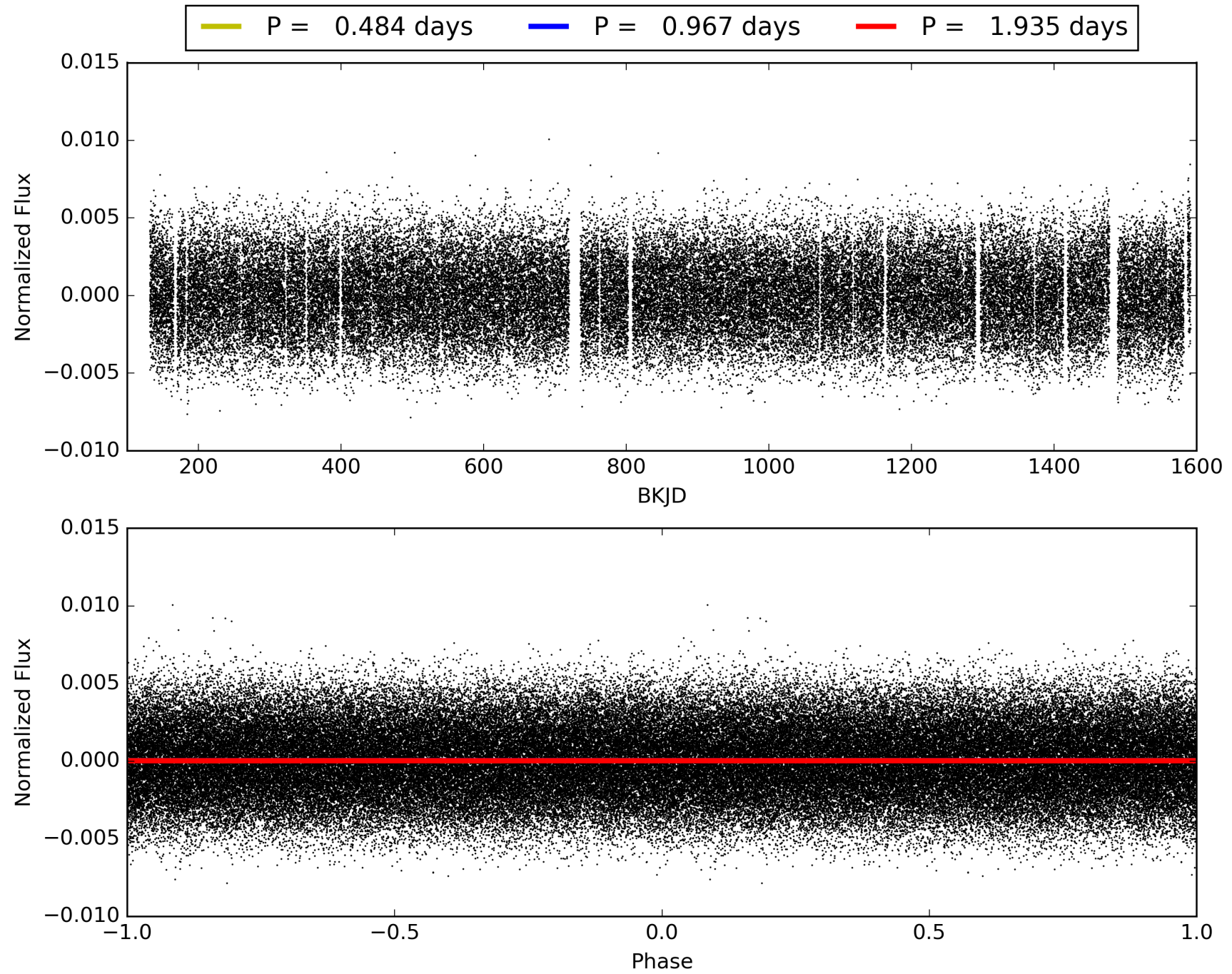
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:37:37 Z

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

TCE 012257449-01, PDC Light Curves

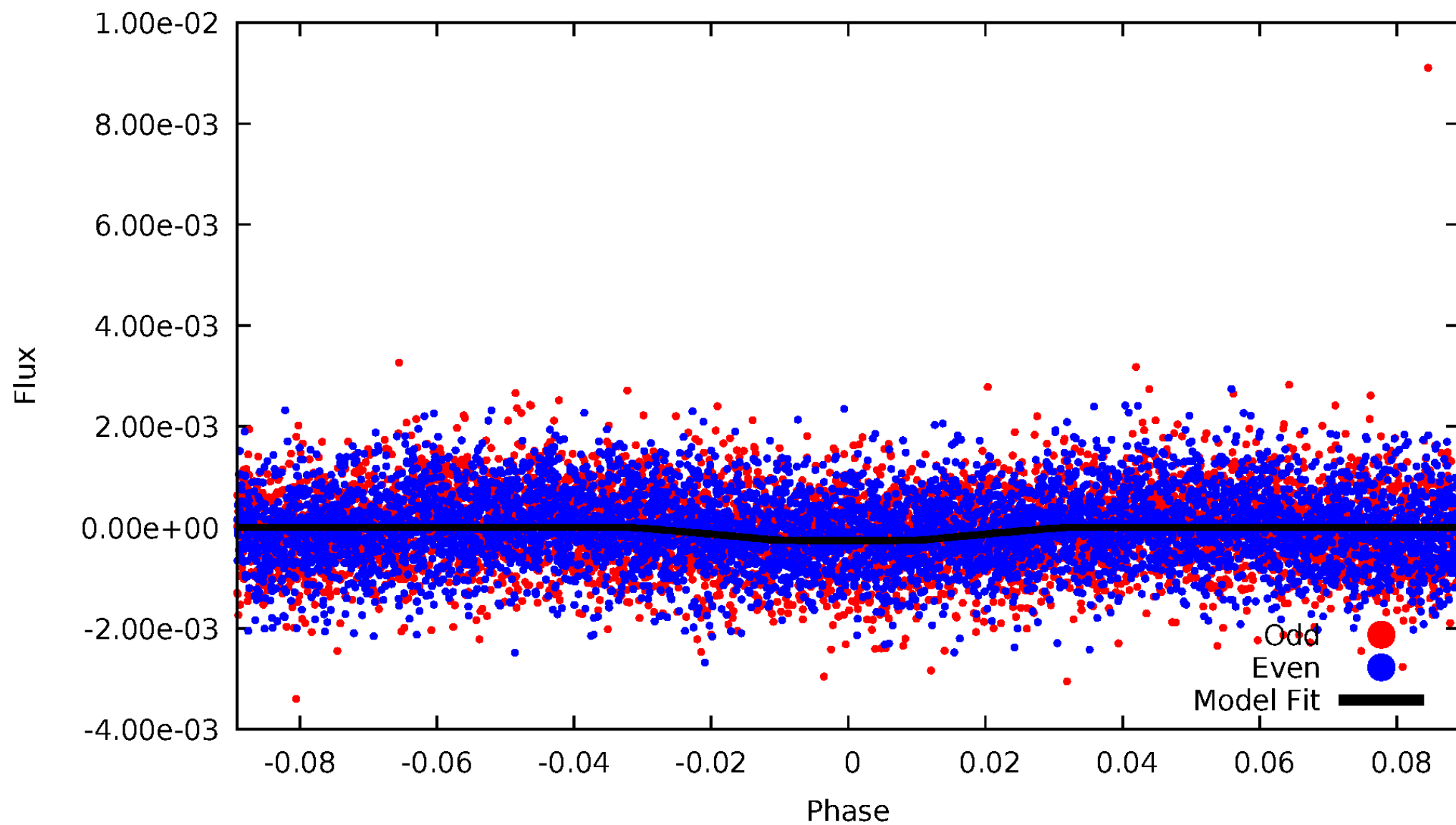


TCE 012257449-01



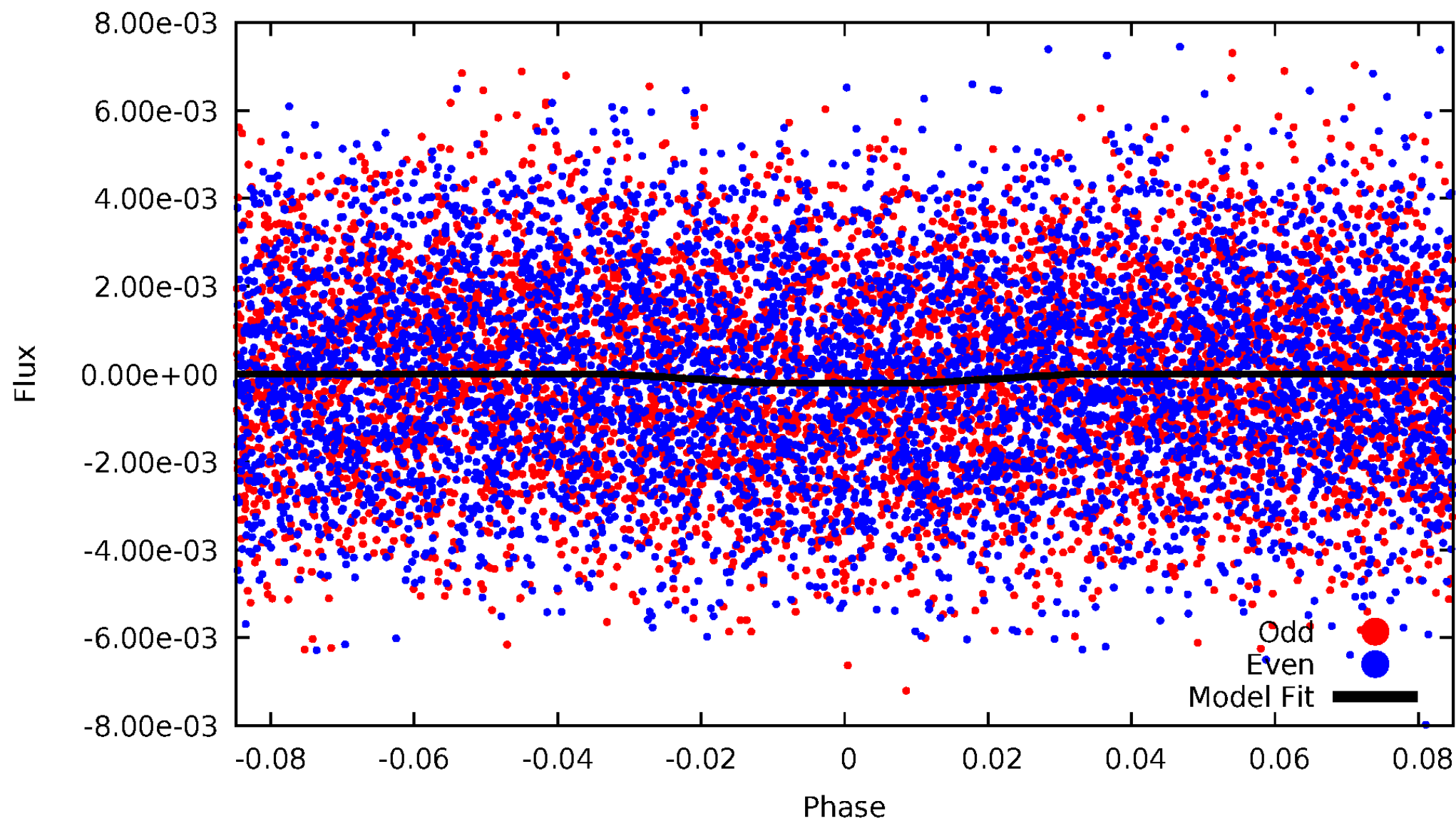
DV Odd/Even

TCE 012257449-01



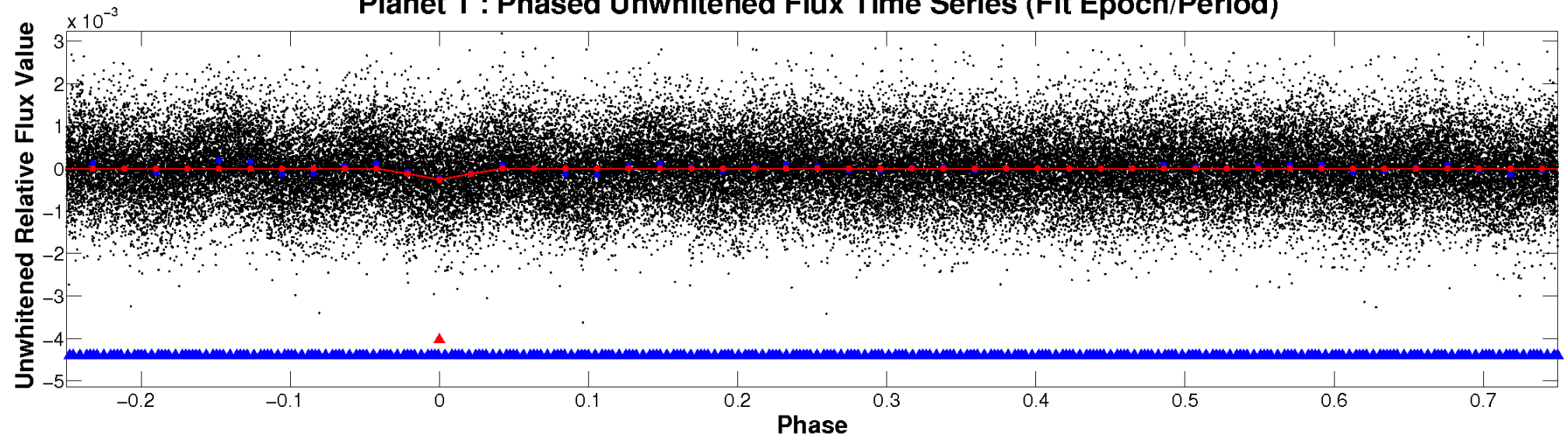
ALT Odd/Even

TCE 012257449-01

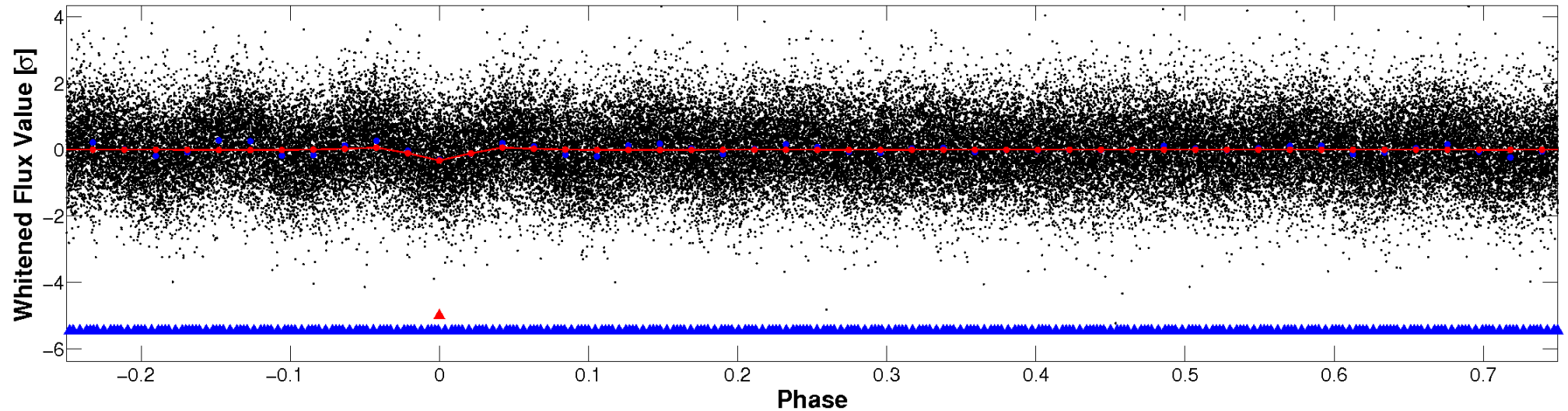


Non-Whitened Vs. Whitened Light Curve

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

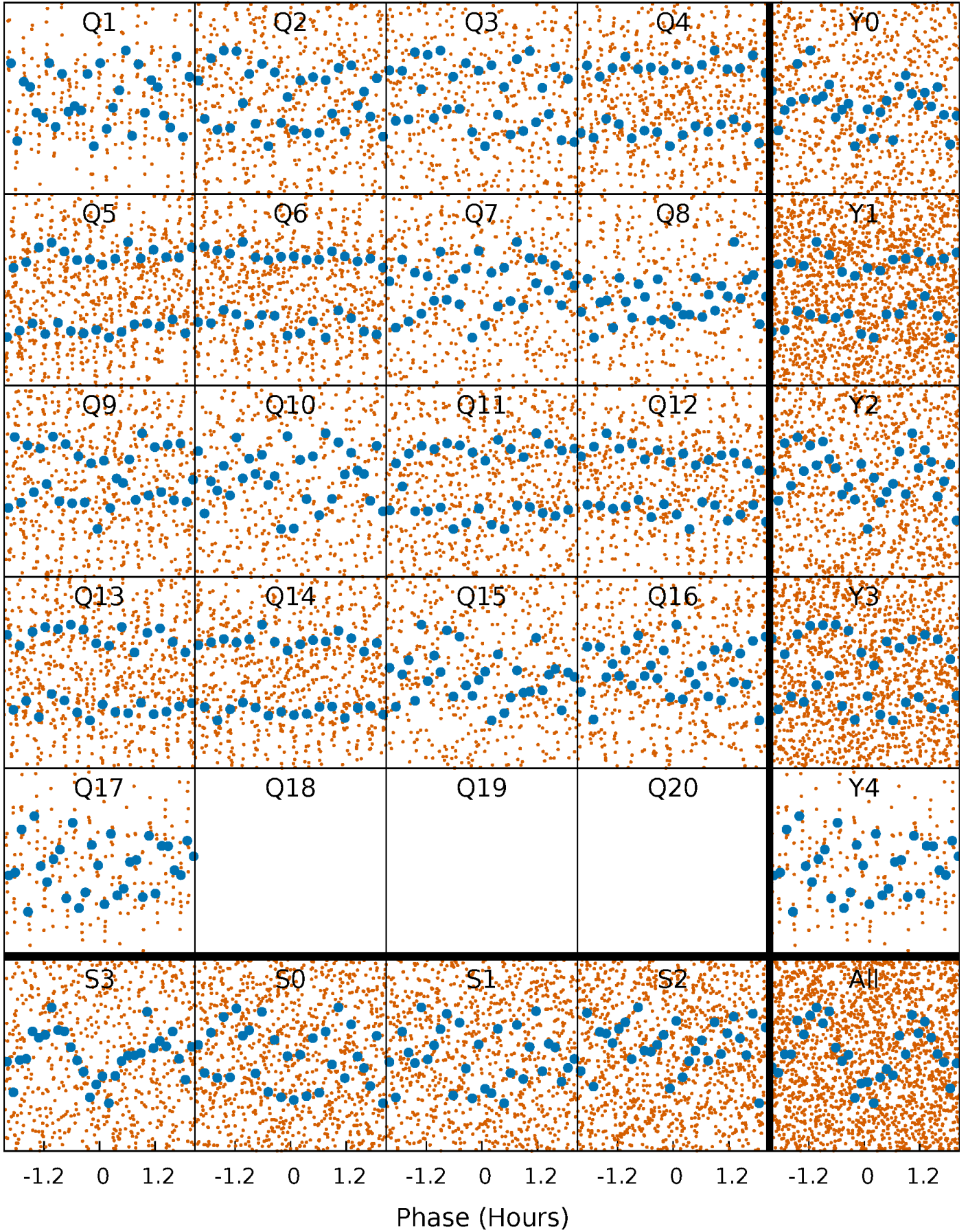


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



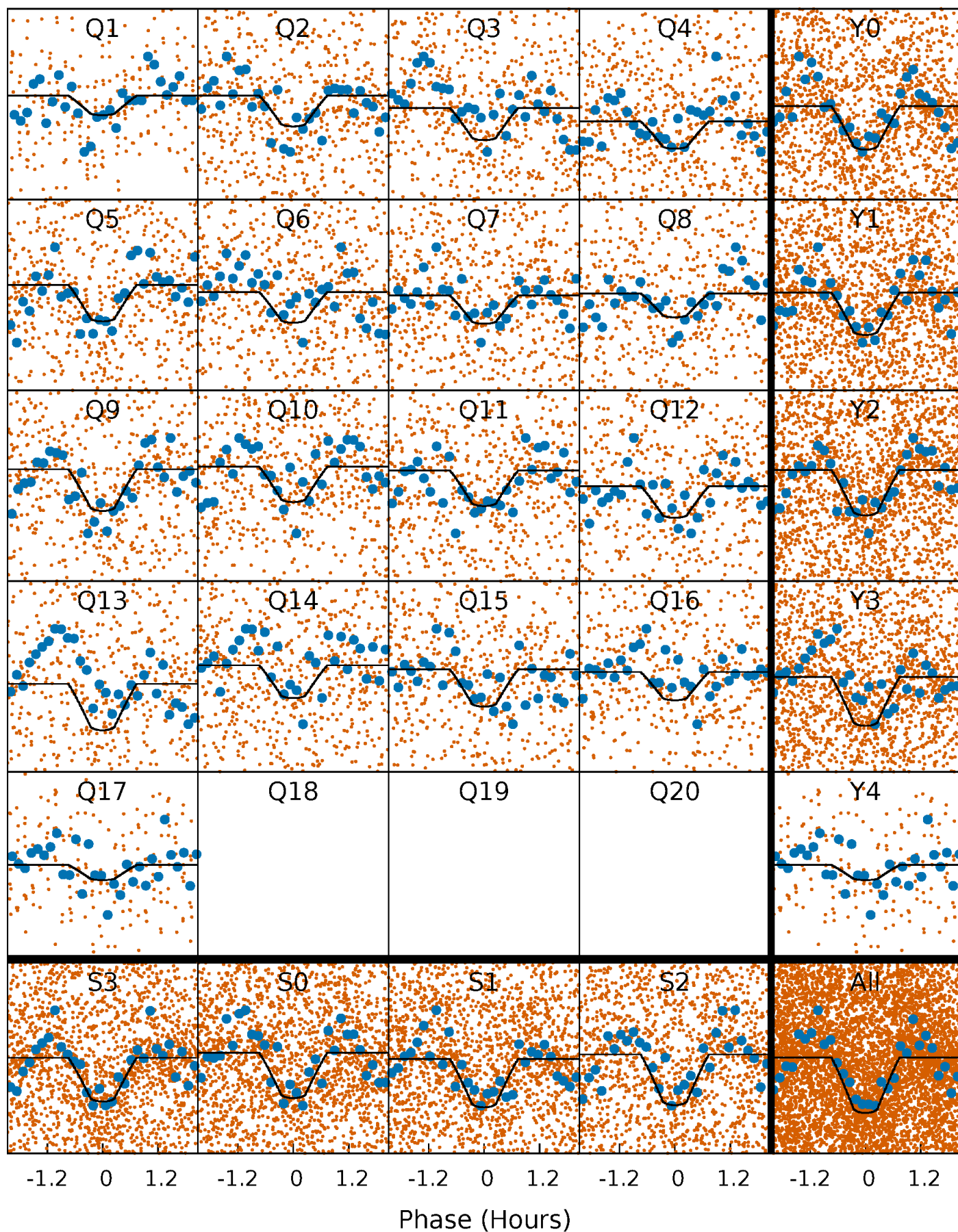
PDC Quarter-Phased Transit Curves

TCE 012257449-01 P= 0.967274 Days $T_0=132.410092$ (BKJD)



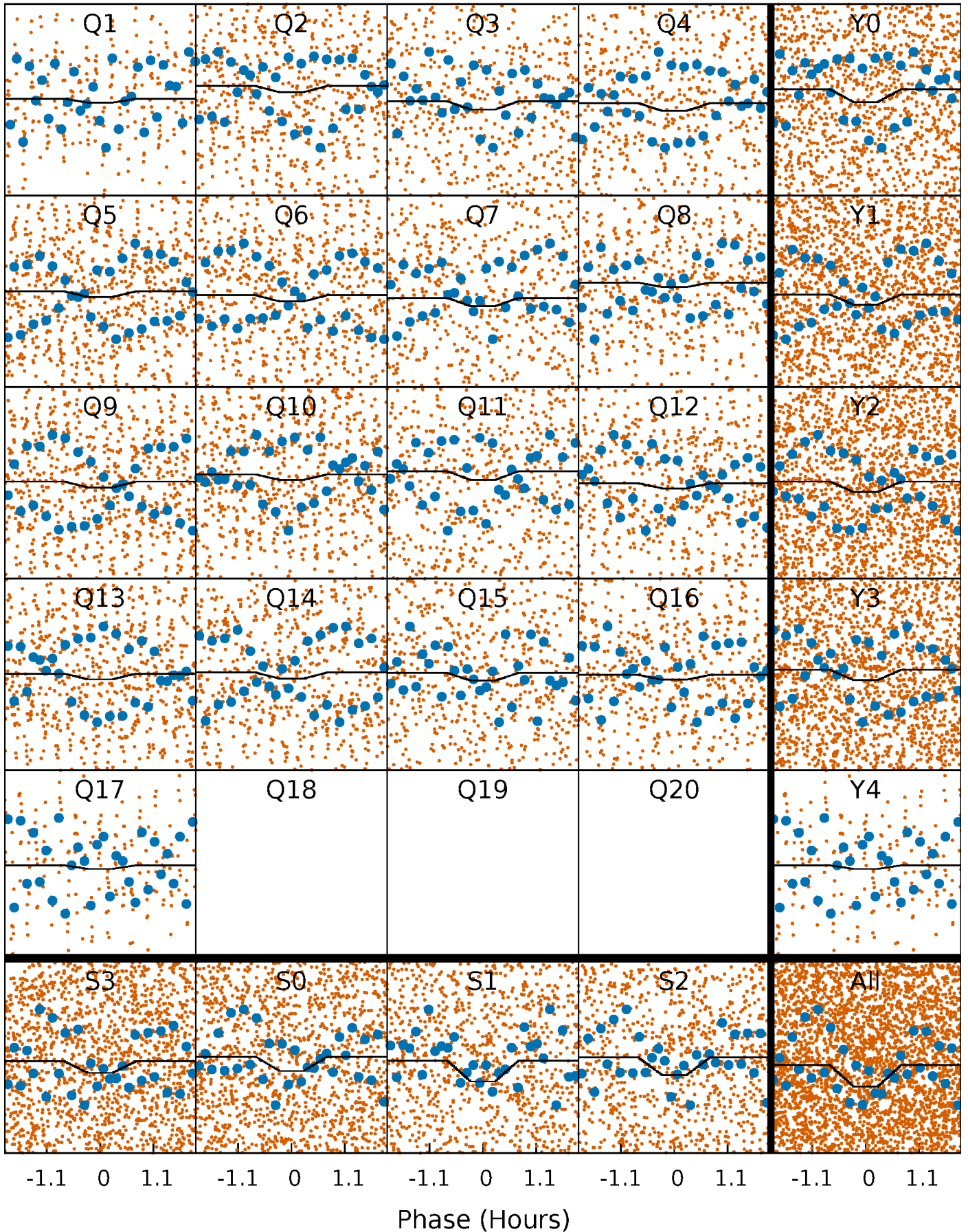
DV Quarter-Phased Transit Curves

TCE 012257449-01 P= 0.967274 Days $T_0=132.410092$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

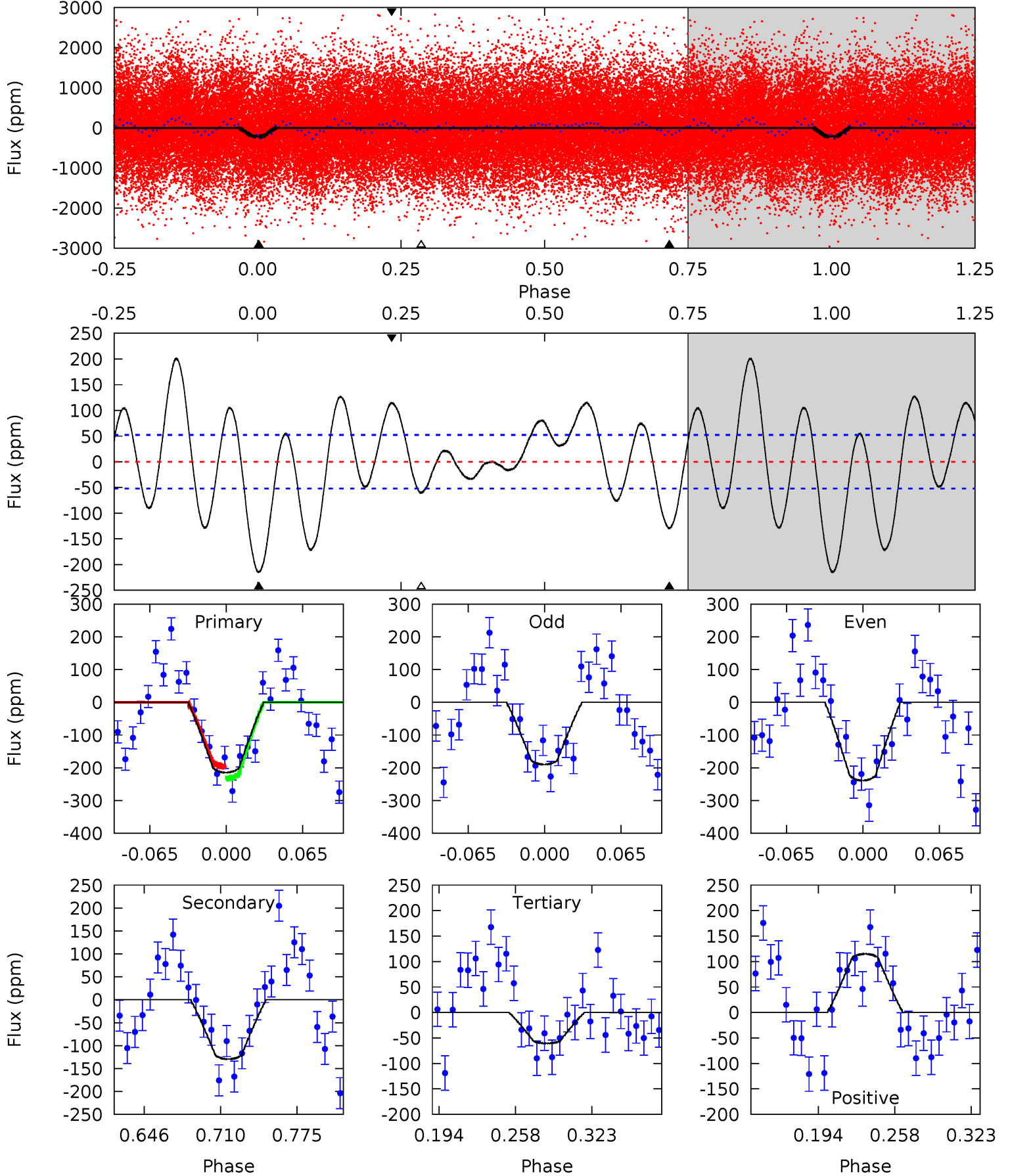
TCE 012257449-01 P= 0.967288 Days $T_0=132.400190$ (BKJD)



DV Model-Shift Uniqueness Test

012257449-01, P = 0.967274 Days, E = 131.442818 Days

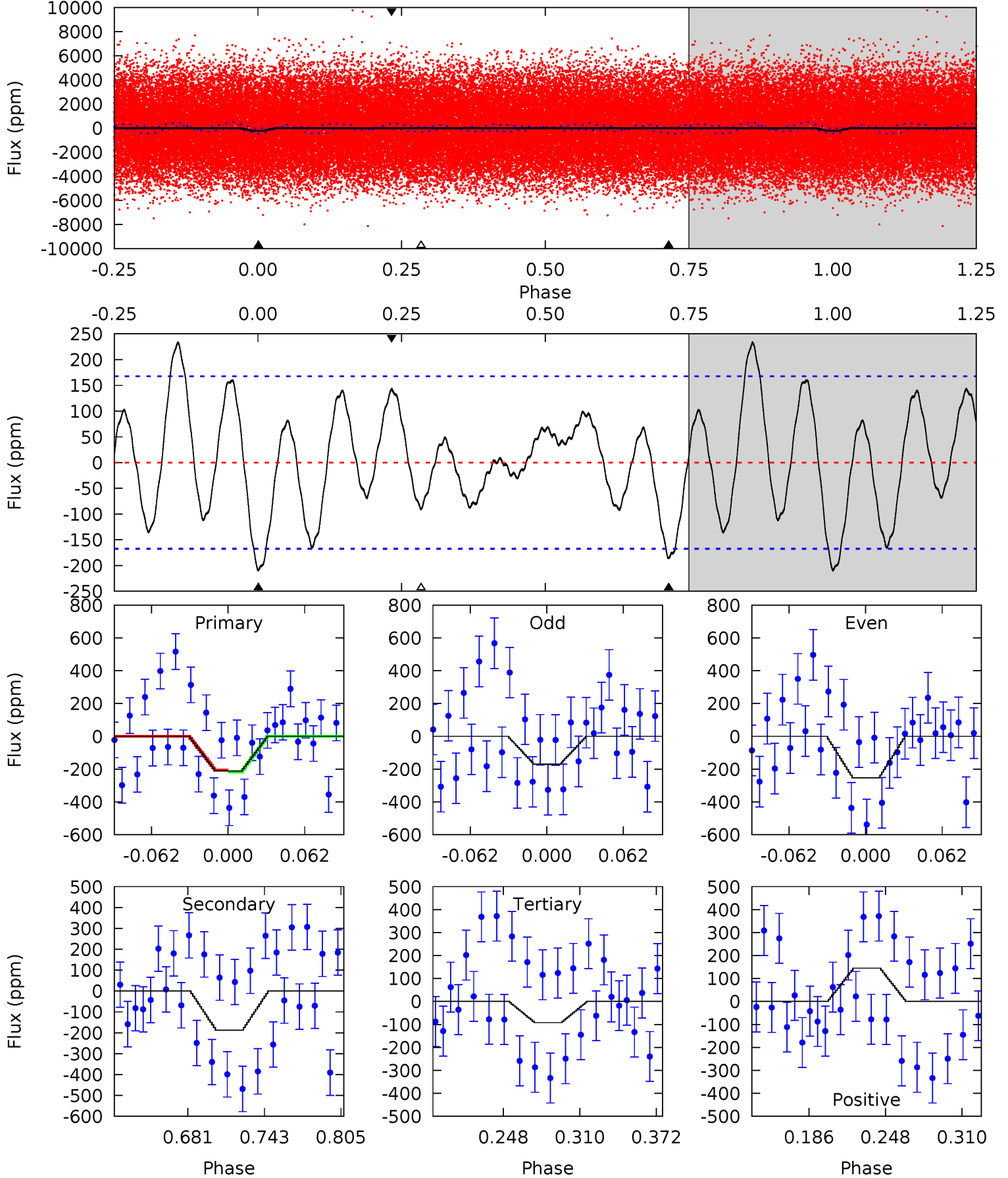
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	11.5	5.39	10.2	4.66	1.85	6.66	13.7	8.88	6.15	1.30	2.19	1.07	0.48	1.63



Alt Model-Shift Uniqueness Test

012257449-01, P = 0.967288 Days, E = 131.432902 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.89	5.21	2.56	4.04	4.66	1.87	2.24	3.32	1.85	2.65	1.18	1.16	0.84	0.53	0.16



Stellar Parameters For KIC 012257449

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8615^{+239}_{-376}	$3.784^{+0.424}_{-0.132}$	$-0.220^{+0.400}_{-0.350}$	$3.003^{+0.763}_{-1.418}$	$2.002^{+0.368}_{-0.491}$	$0.104^{+0.399}_{-0.043}$
	+3%/-4%	+11%/-3%	+182%/-159%	+25%/-47%	+18%/-25%	+383%/-41%
Source	KIC0	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 012257449-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-129 ± 11	$4.88^{+1.56}_{-1.47}$	5753^{+445}_{-674}	6581^{+1423}_{-910}	$1.744^{+1.836}_{-0.737}$
Alt.	-187 ± 36	$4.40^{+1.53}_{-1.51}$	5762^{+475}_{-696}	7897^{+2145}_{-1191}	$3.077^{+3.859}_{-1.435}$

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 $A_{obs} \gg 1.0$

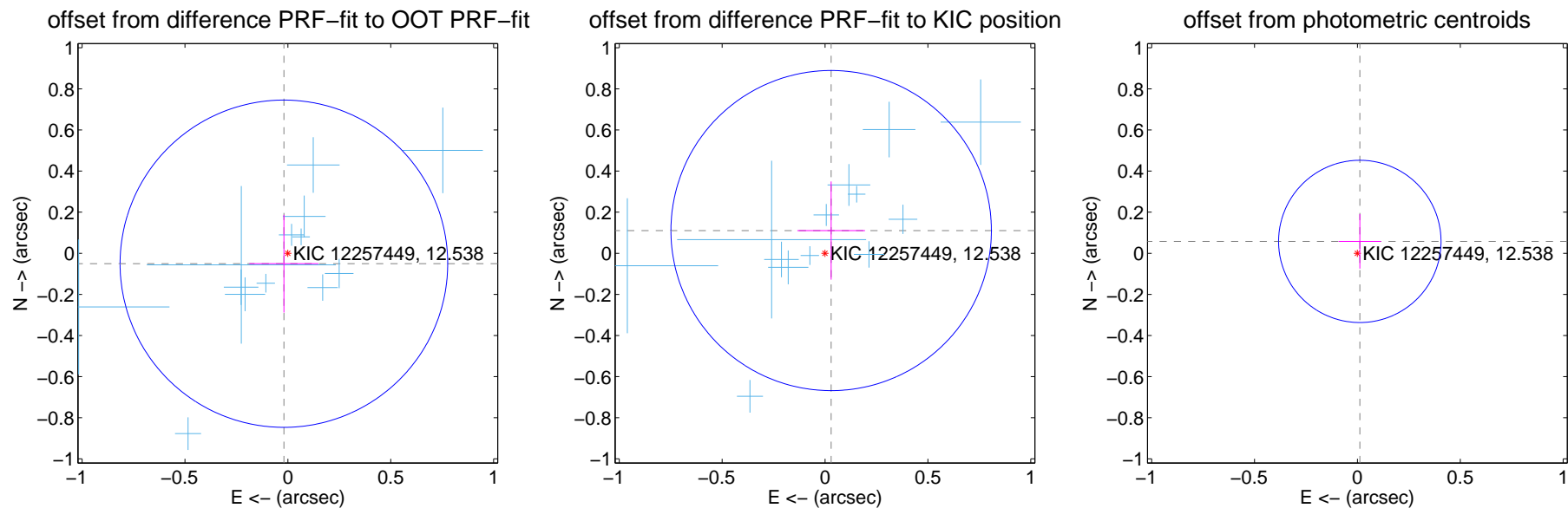
DV Centroid Data

Supplemental centroid analysis for 012257449-01. Kepler magnitude: 12.54. Transit SNR 14.85

There are 14 quarters with good PRF difference image offsets

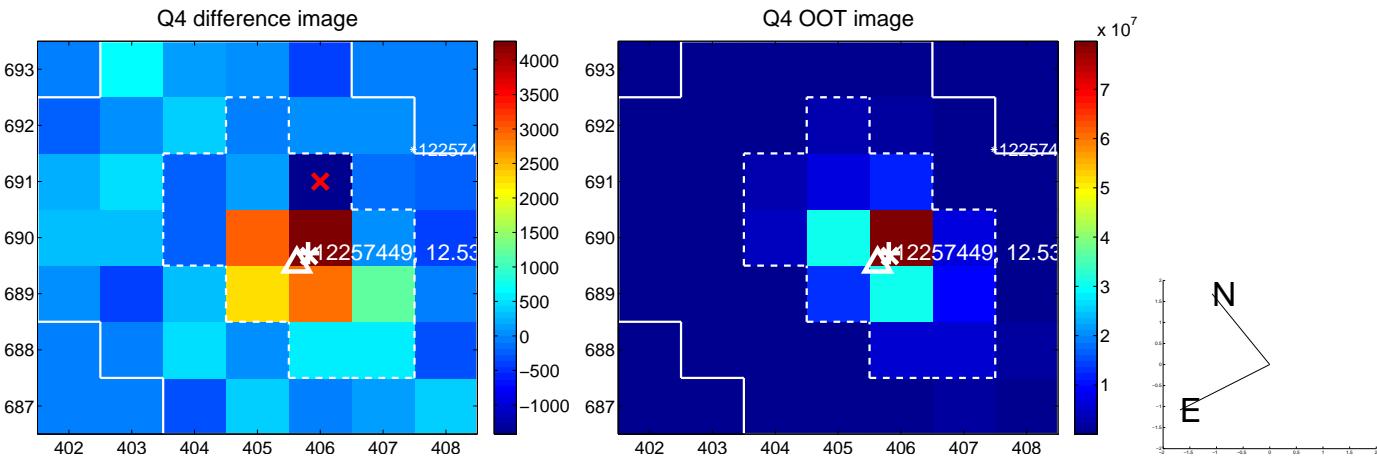
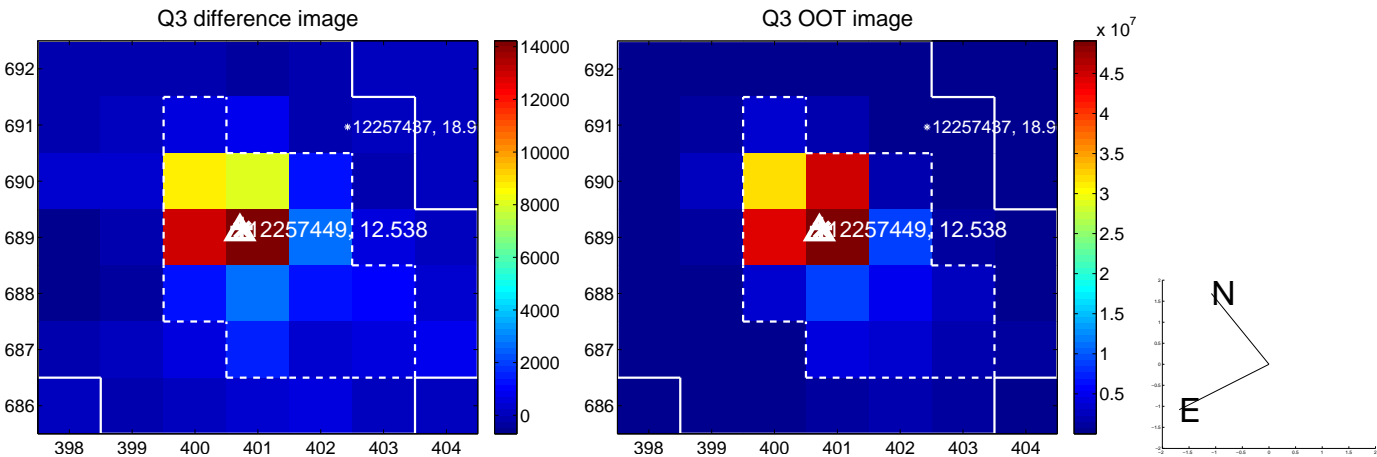
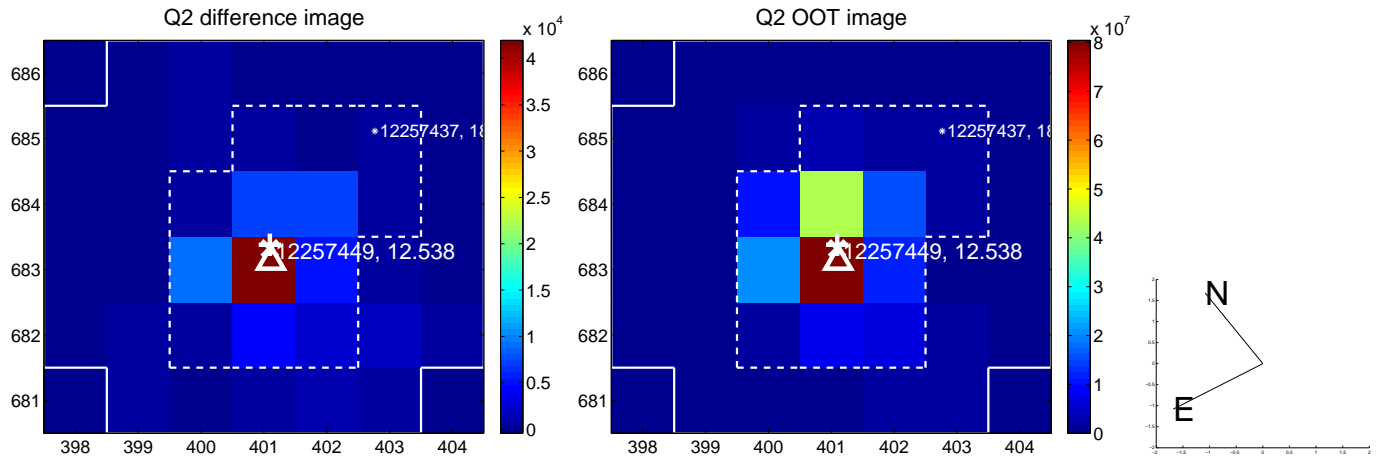
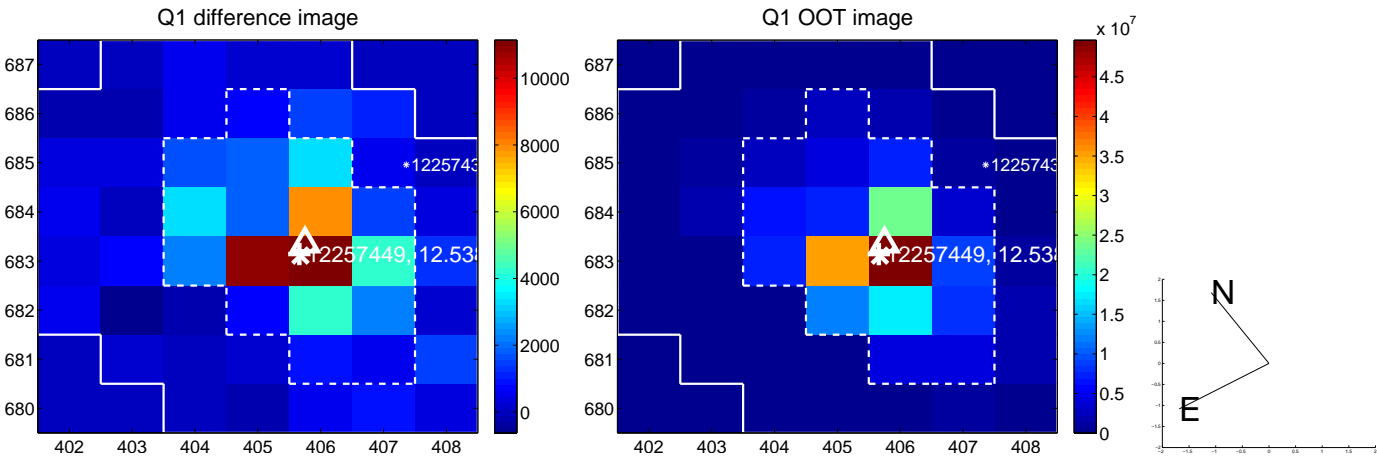
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.054 ± 0.265	0.20	0.019 ± 0.168	-0.051 ± 0.238
PRF-fit source offset from KIC position	0.115 ± 0.260	0.44	-0.030 ± 0.164	0.111 ± 0.239
photometric centroid source offset	0.06 ± 0.13	0.45	-0.01 ± 0.10	0.06 ± 0.13

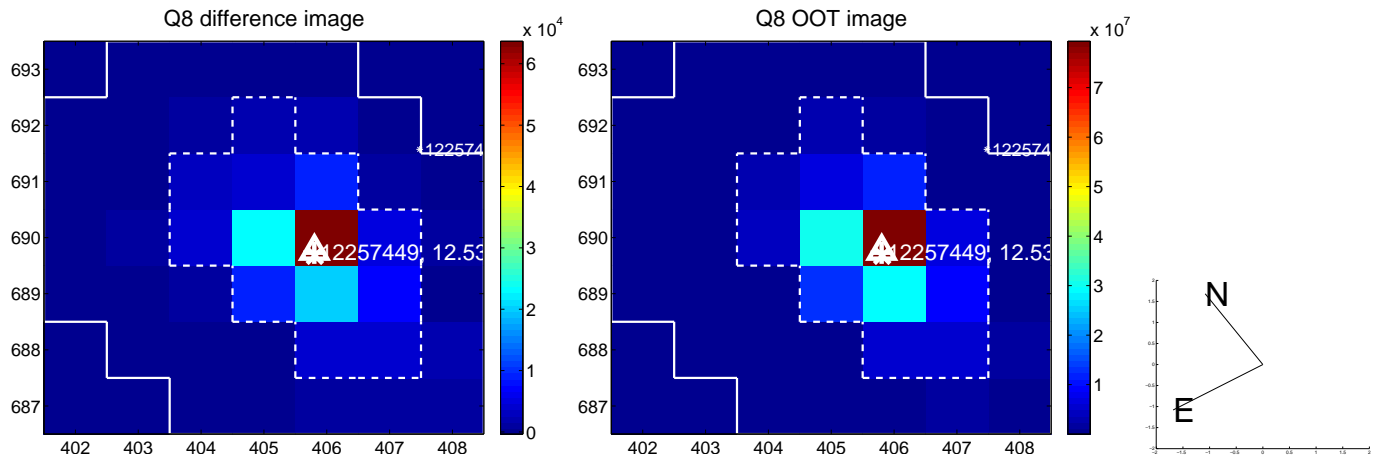
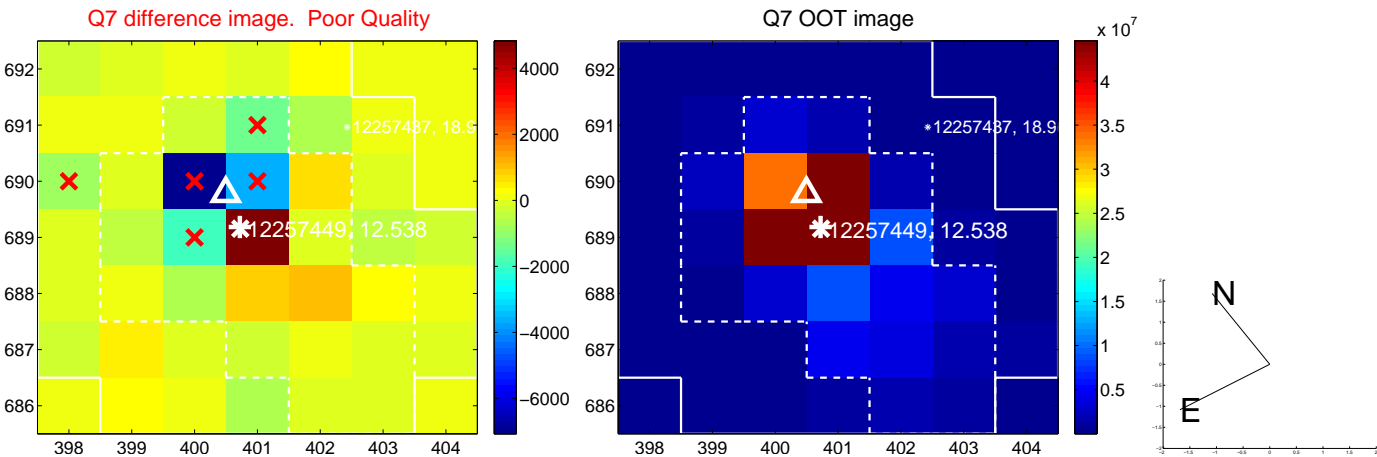
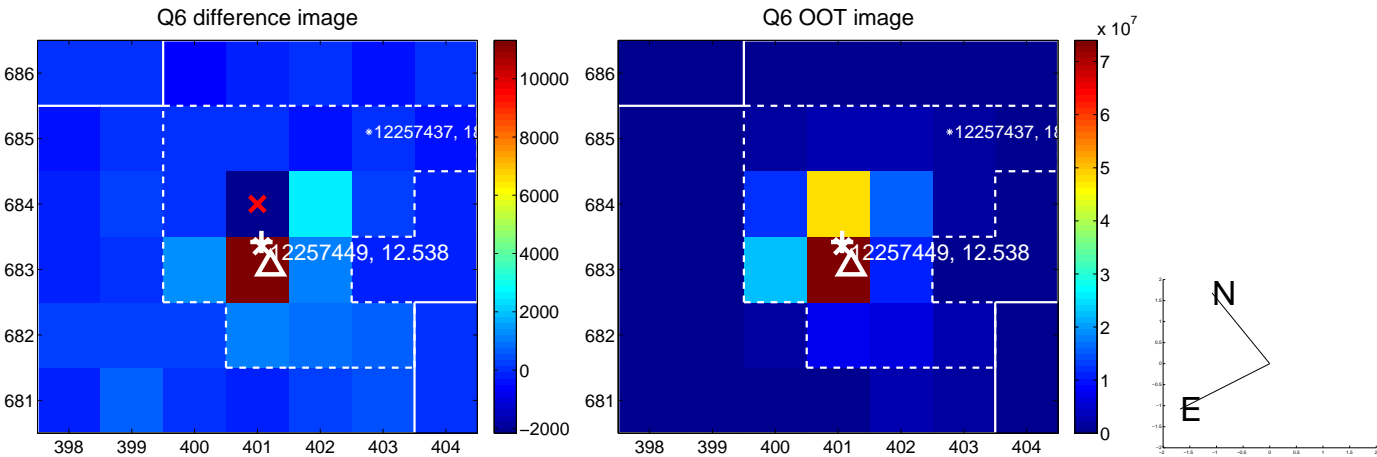
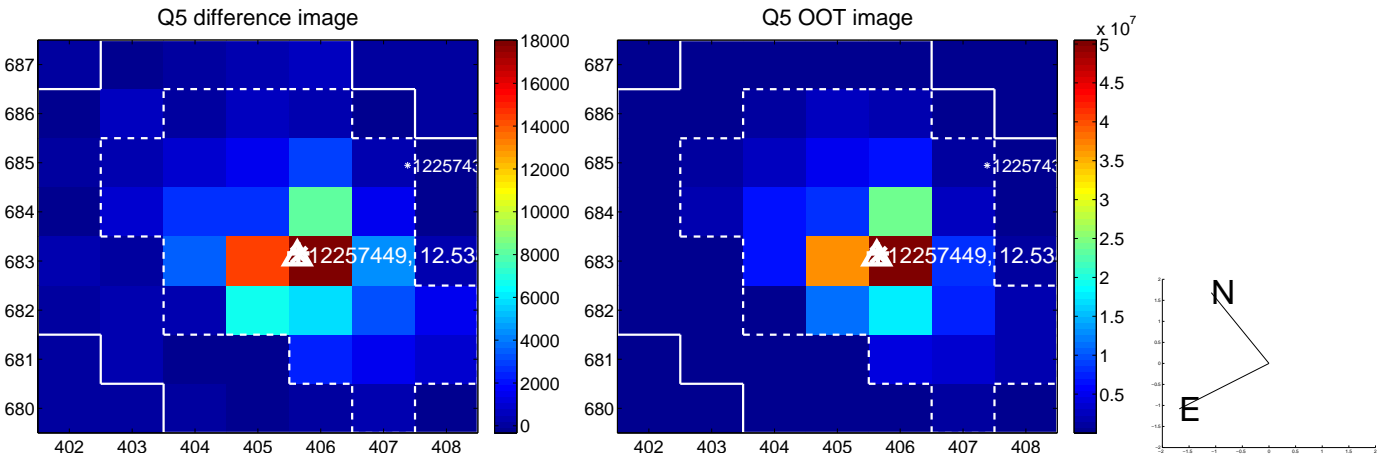


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

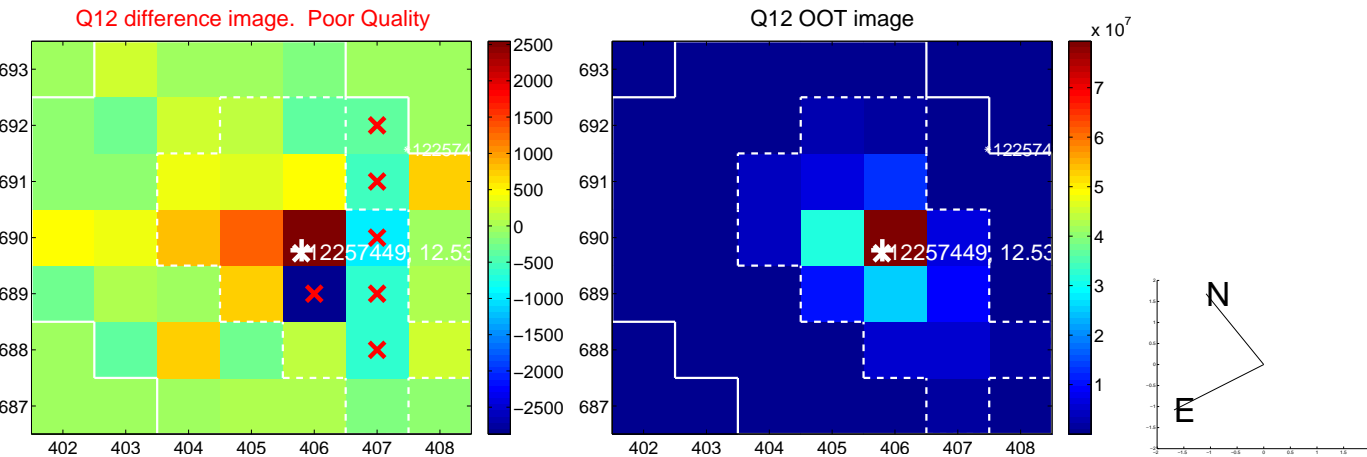
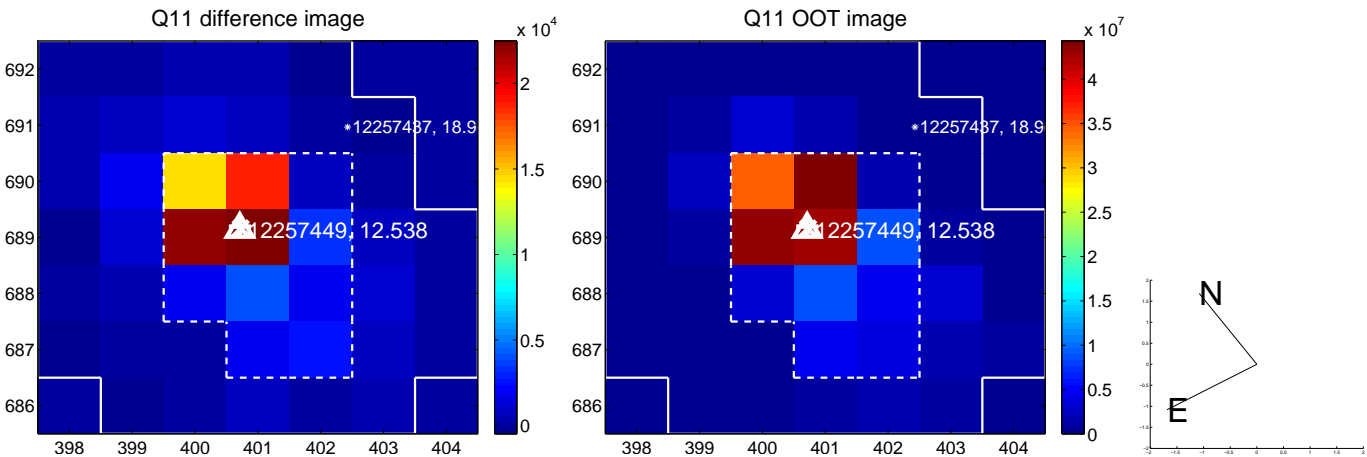
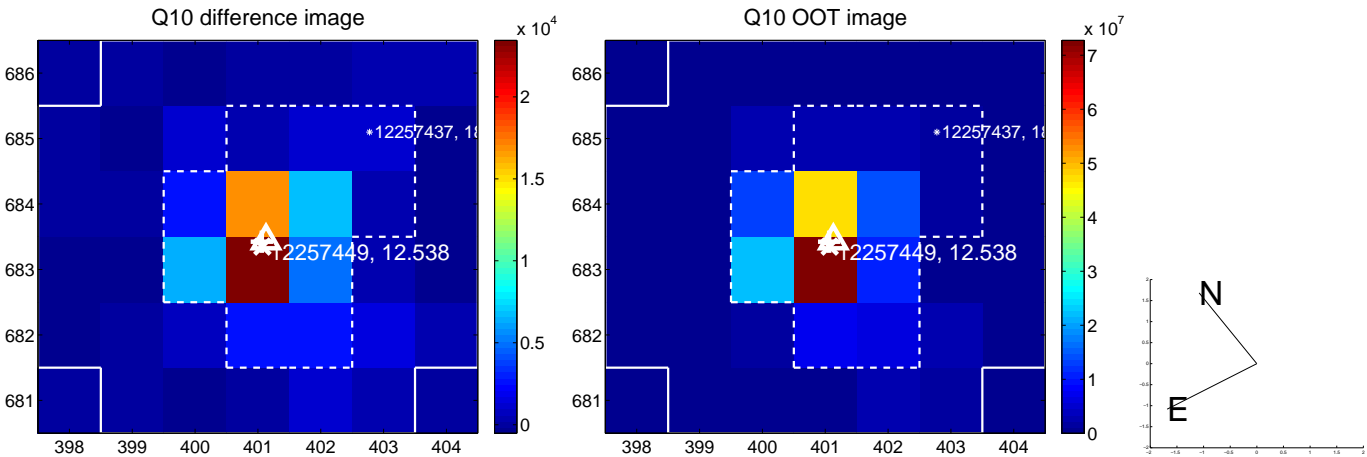
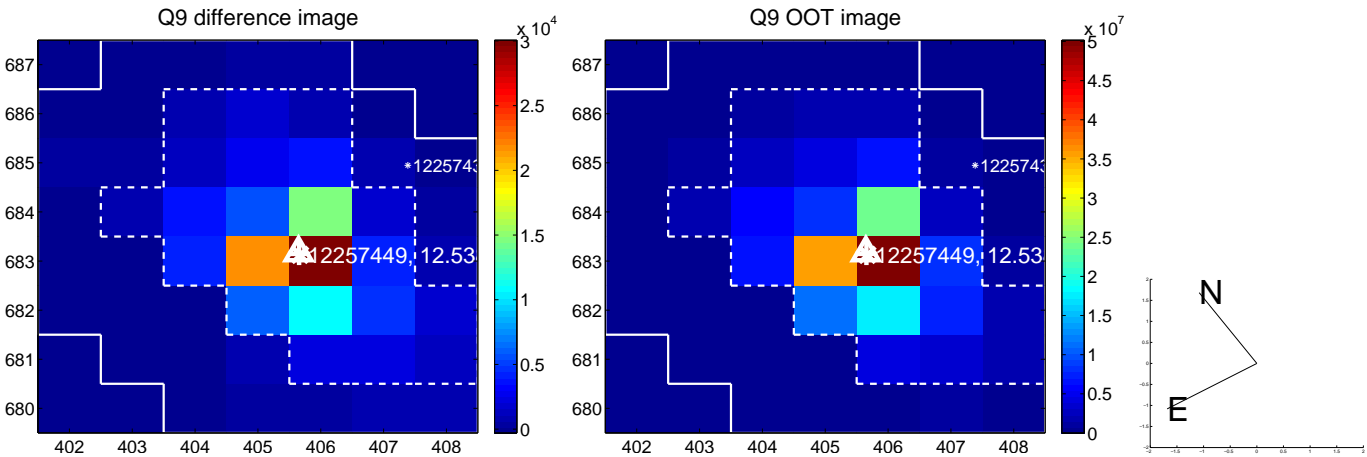
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



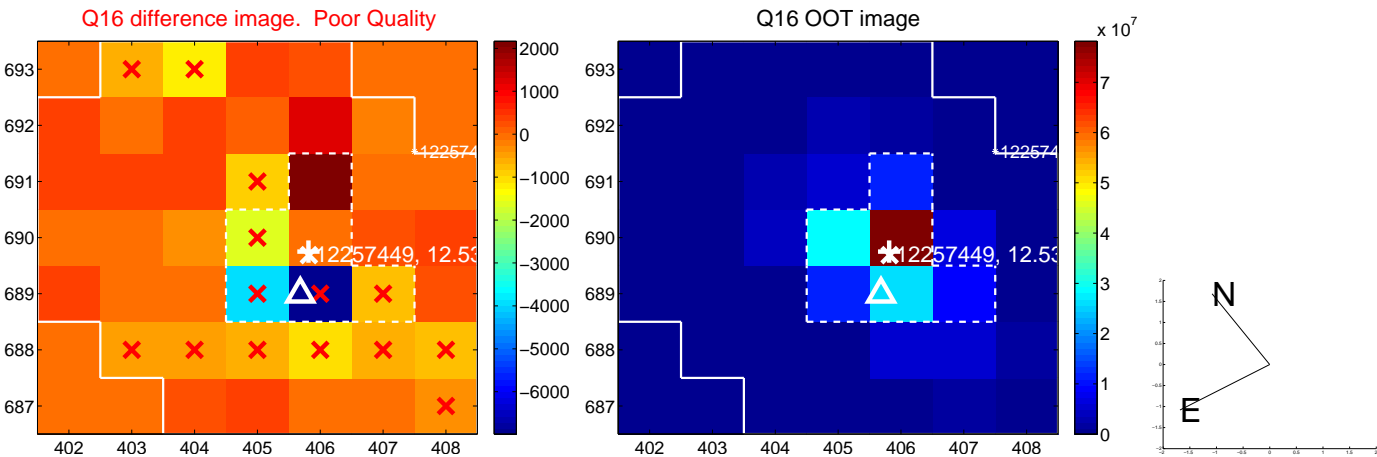
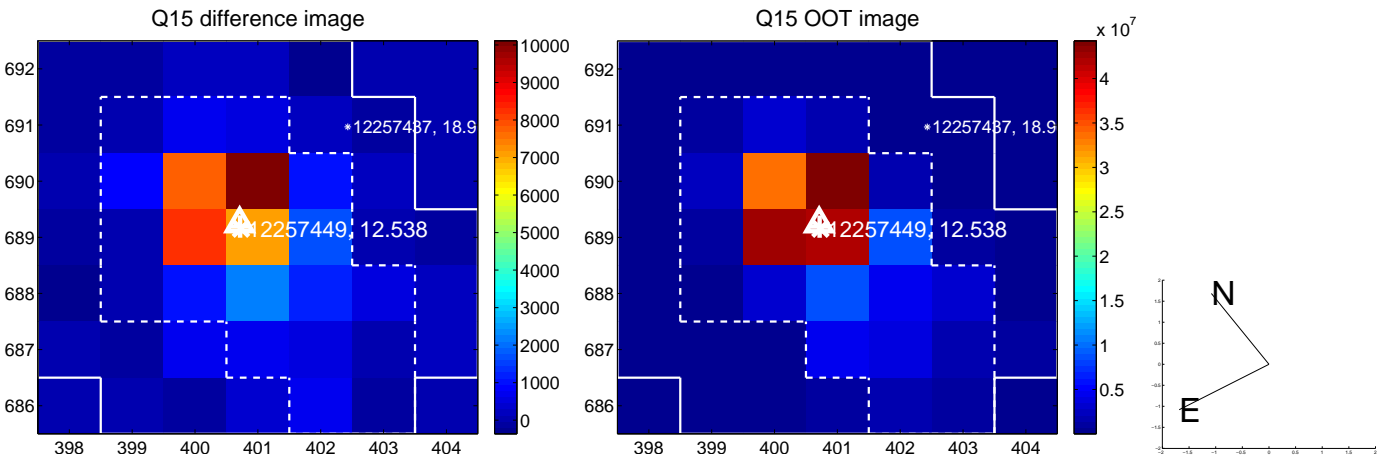
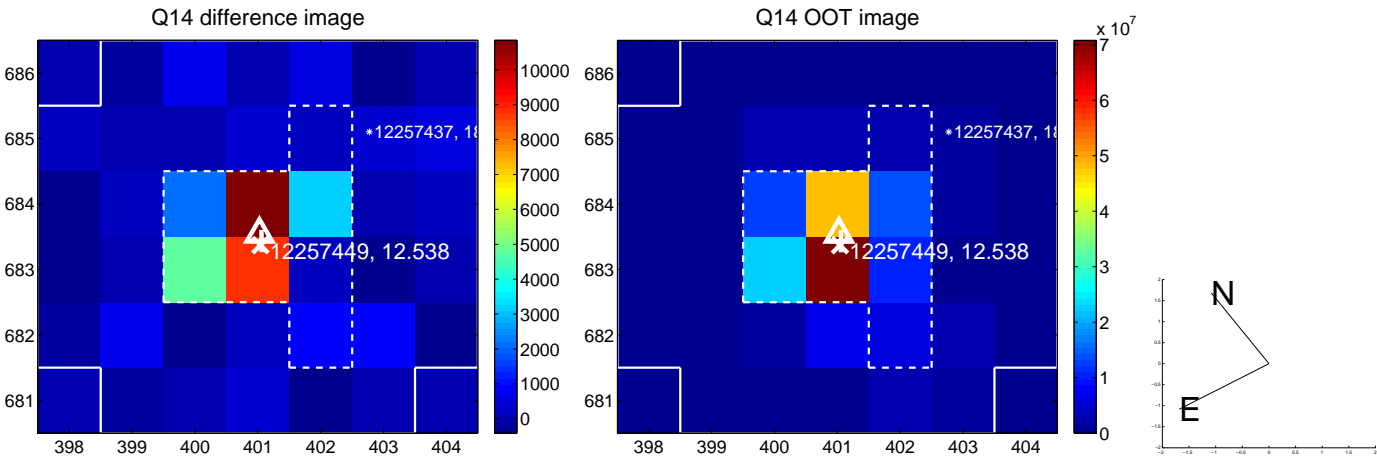
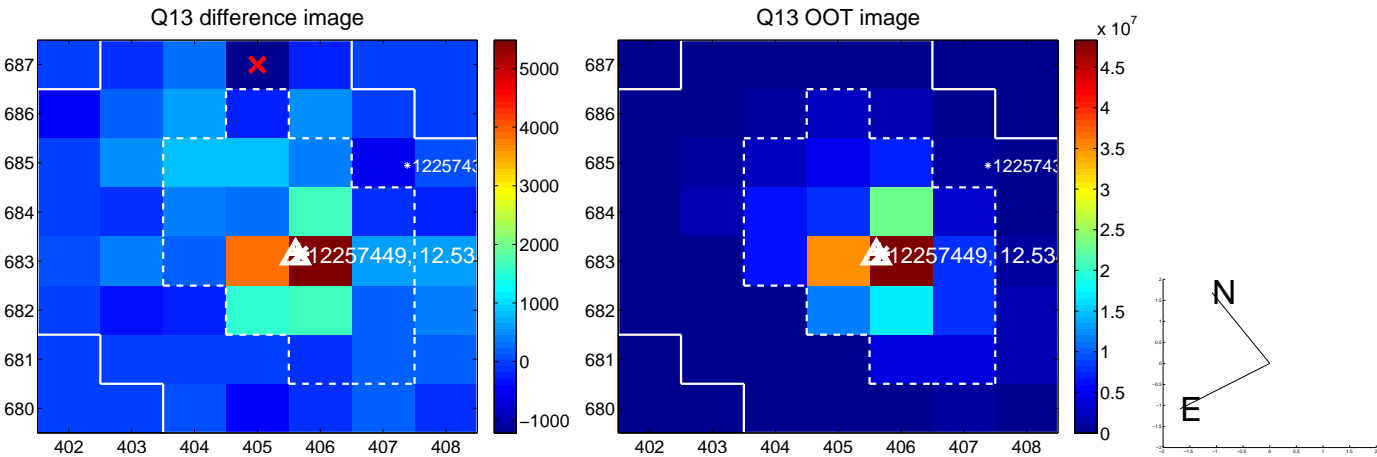
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



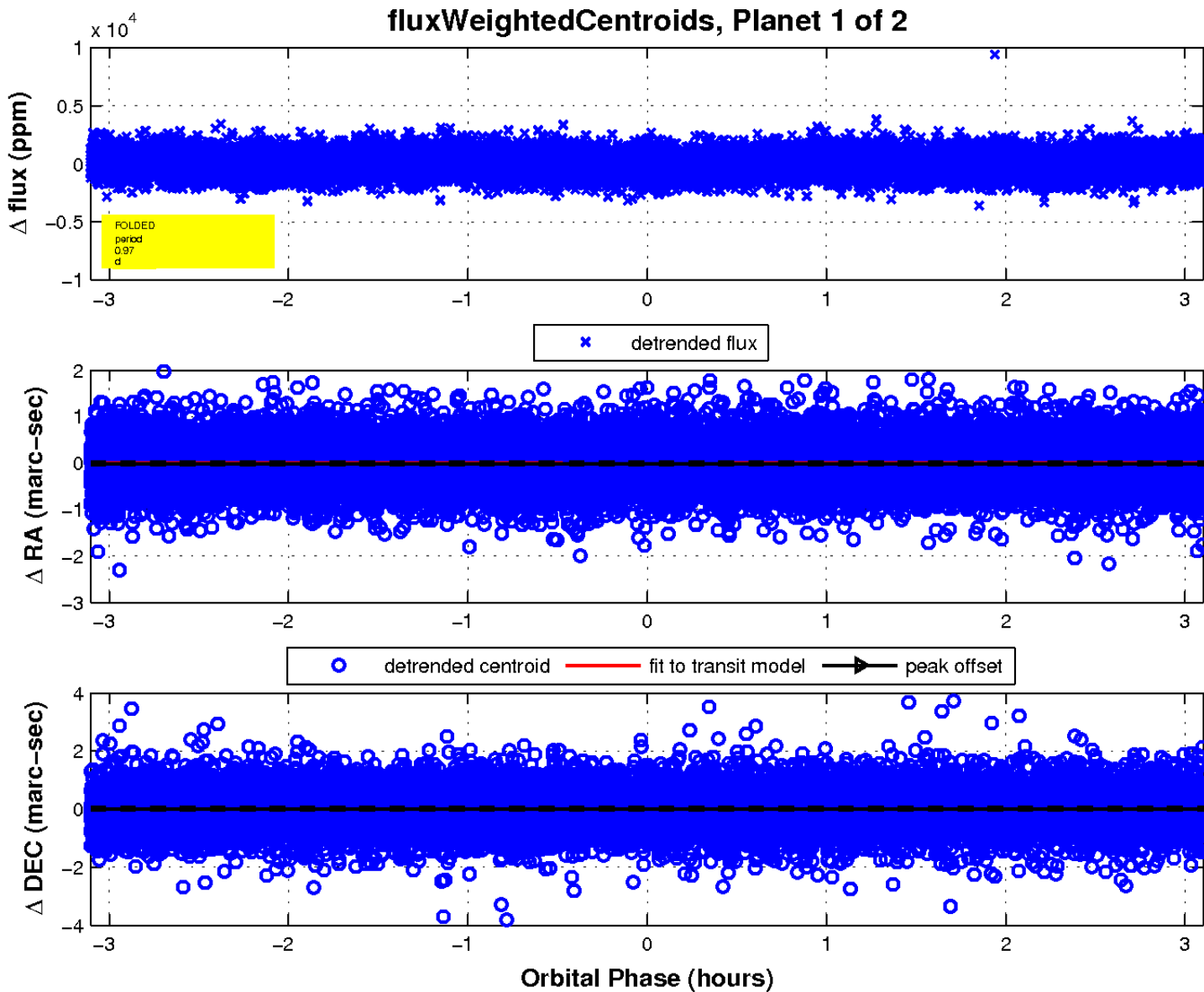
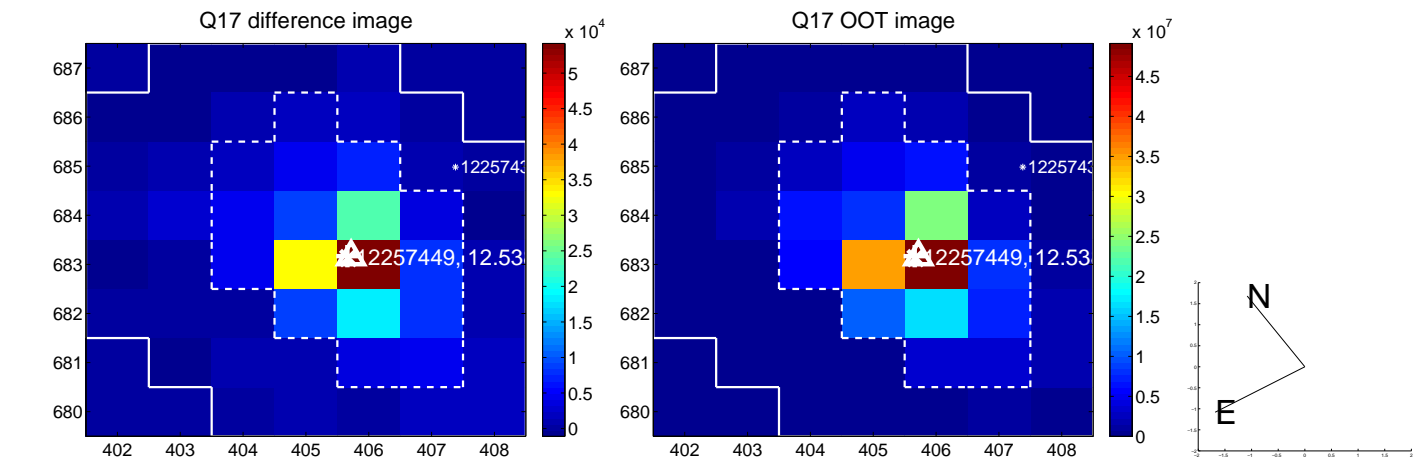
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

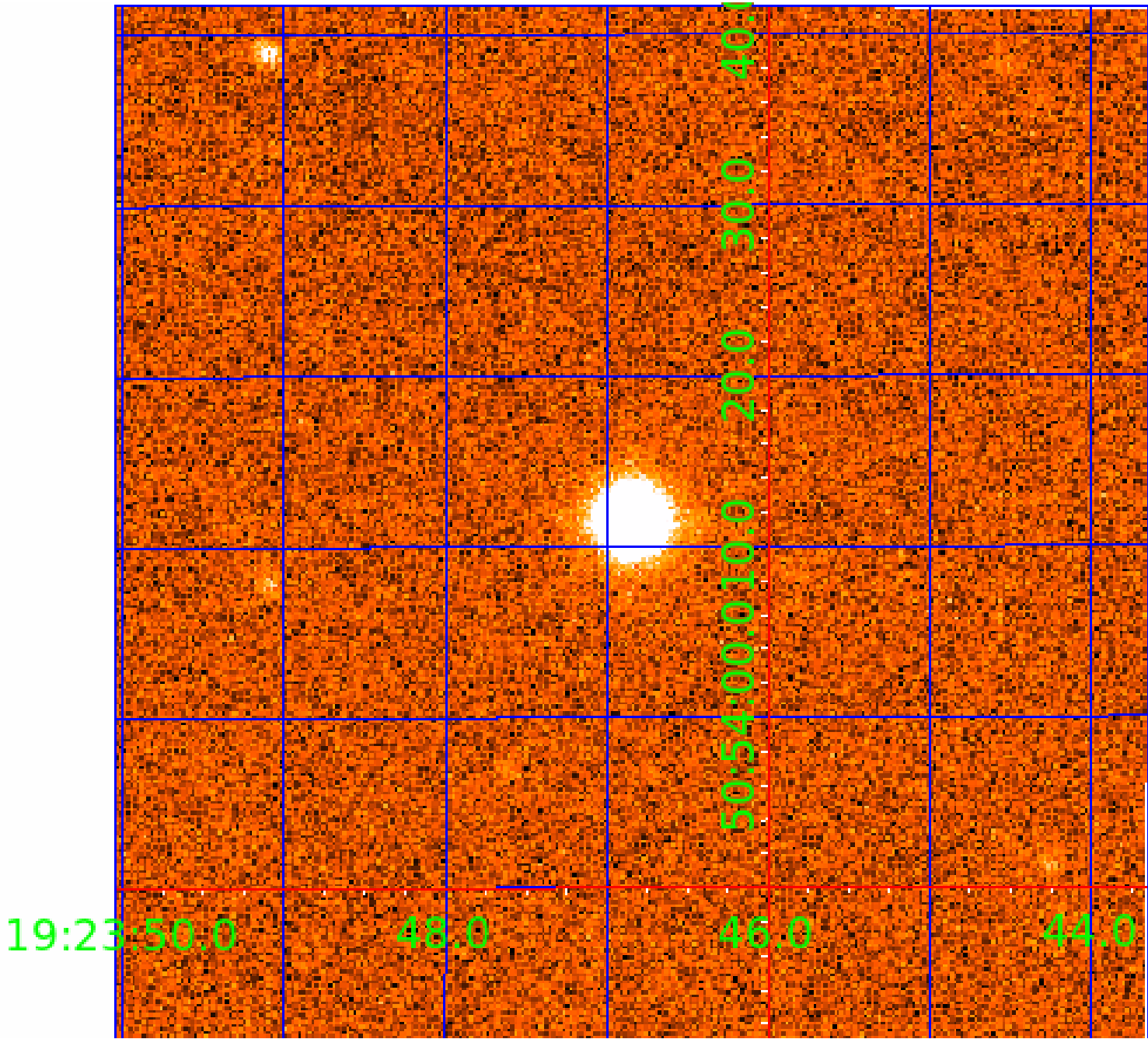


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012257449

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})
012257449-01	OBS	No	0.967274	132.410092	264.9	1.034	13.1	14.9	3.00	8615	5.27	76480.95
012257449-02	OBS	No	4.646012	134.186753	136.0	27.009	11.3	12.8	3.00	8615	3.58	9437.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012257449-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
012257449-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

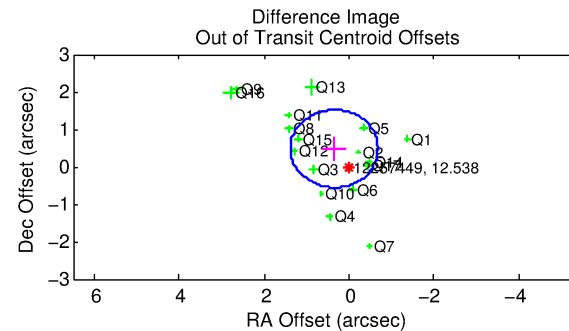
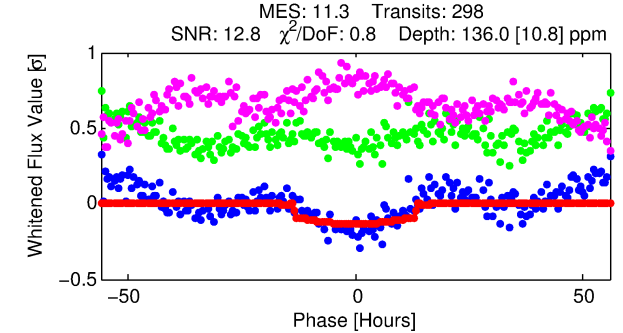
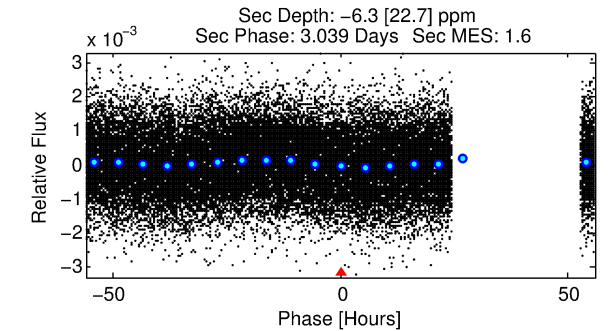
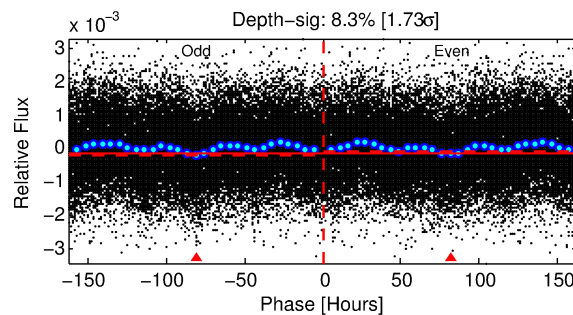
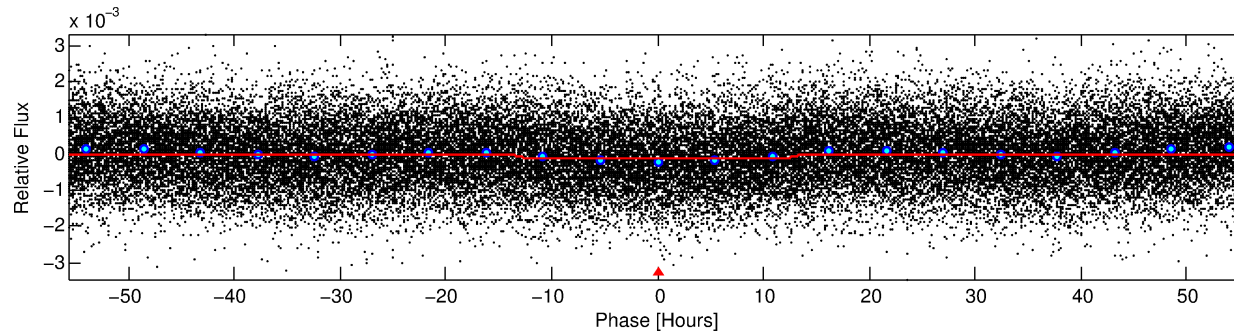
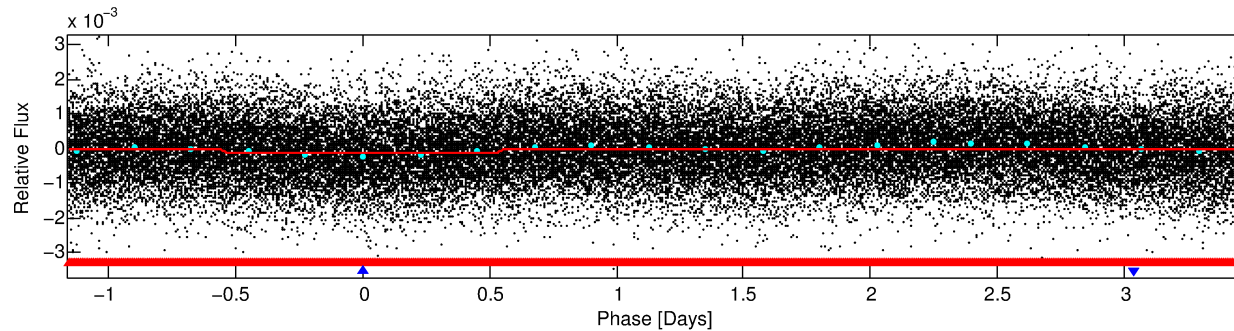
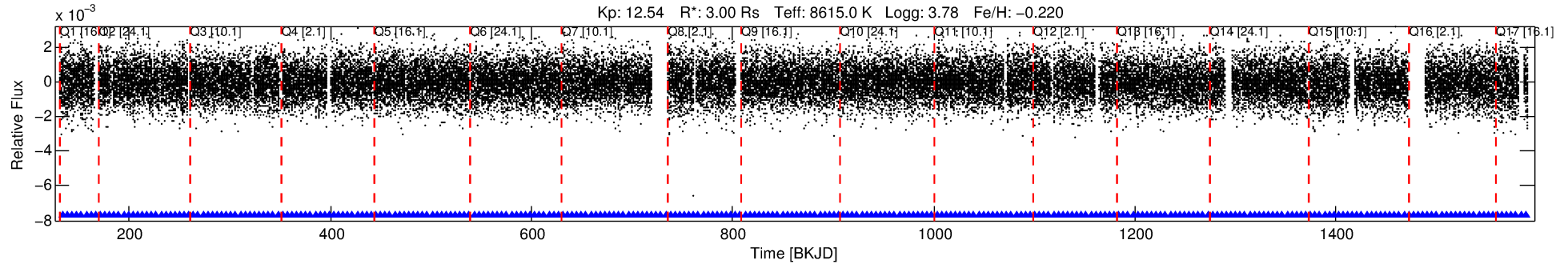
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012257449-02

No Significant Match Found

DV One-Page Summary

KIC: 12257449 Candidate: 2 of 2 Period: 4.646 d



DV Fit Results:

Period = 4.64601 [0.00009] d
Epoch = 134.1868 [0.0135] BKJD
Rp/R* = 0.0109 [0.0048]
a/R* = 1.44 [2.00]
b = 0.28 [8.98]
Seff = 9437.25 [7019.17]
Teq = 2513 [467] K
Rp = 3.58 [2.31] Re
a = 0.0687 [0.0311] AU
Ag = N/A
Teffp = N/A

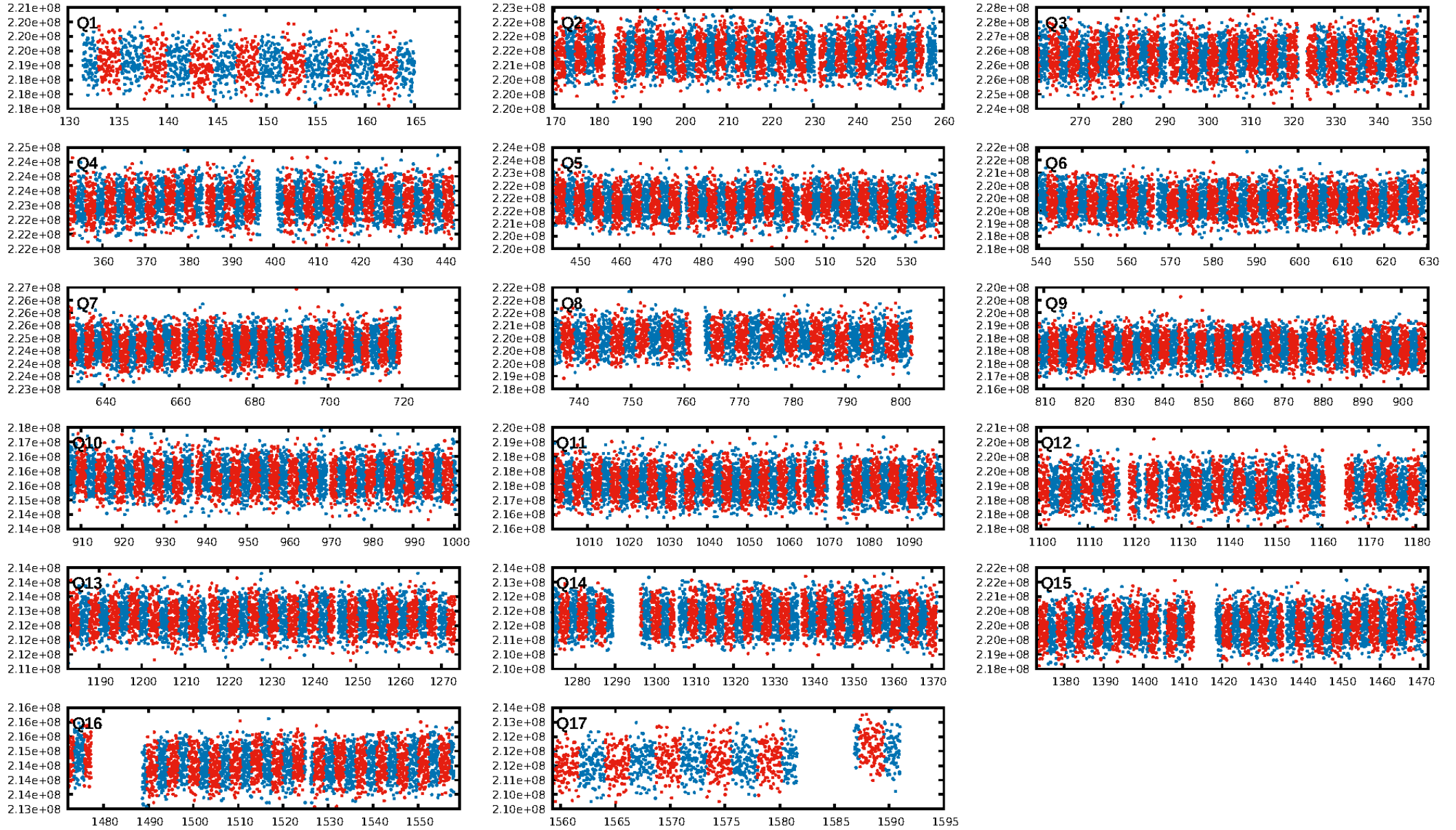
DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.27σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.69e-34
RollingBand-fgt: 1.00 [285/285]
GhostDiagnostic-chr: 1.247
Centroid-sig: 6.2%
Centroid-so: 0.288 arcsec [2.48σ]
OotOffset-rm: 0.590 arcsec [1.71σ]
KicOffset-rm: 0.698 arcsec [2.05σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 0.00 [0/17]

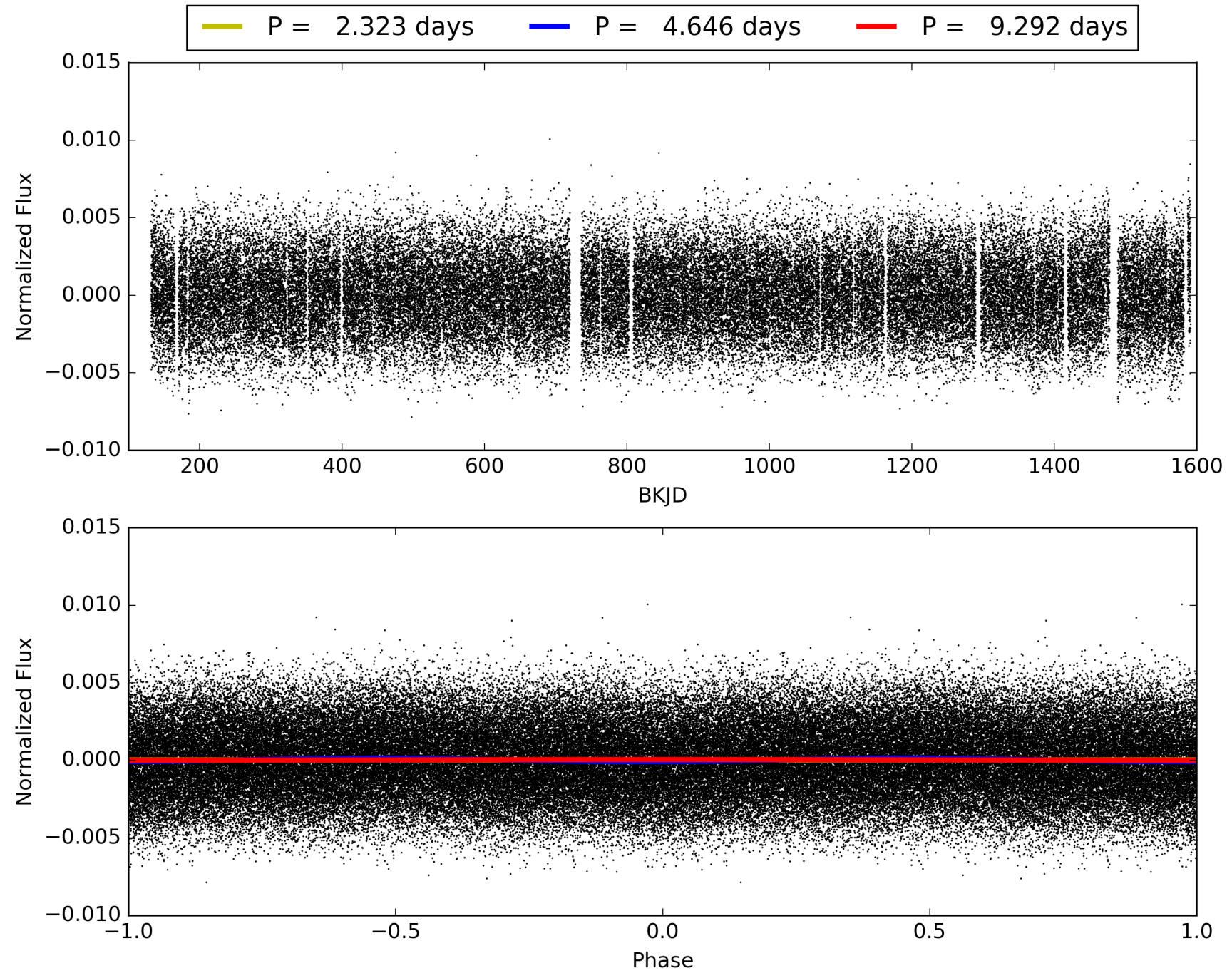
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:37:48 Z

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

TCE 012257449-02, PDC Light Curves

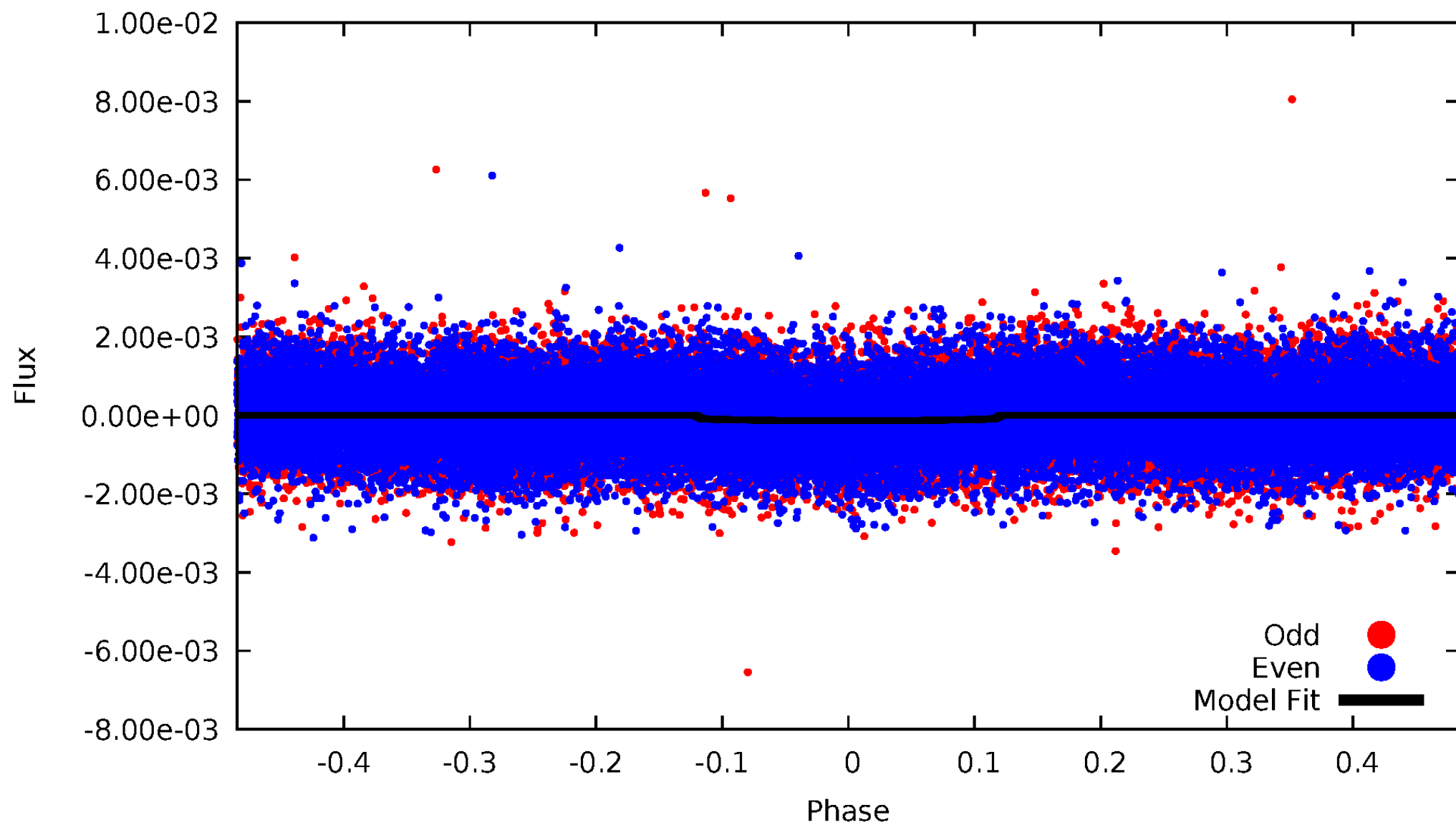


TCE 012257449-02



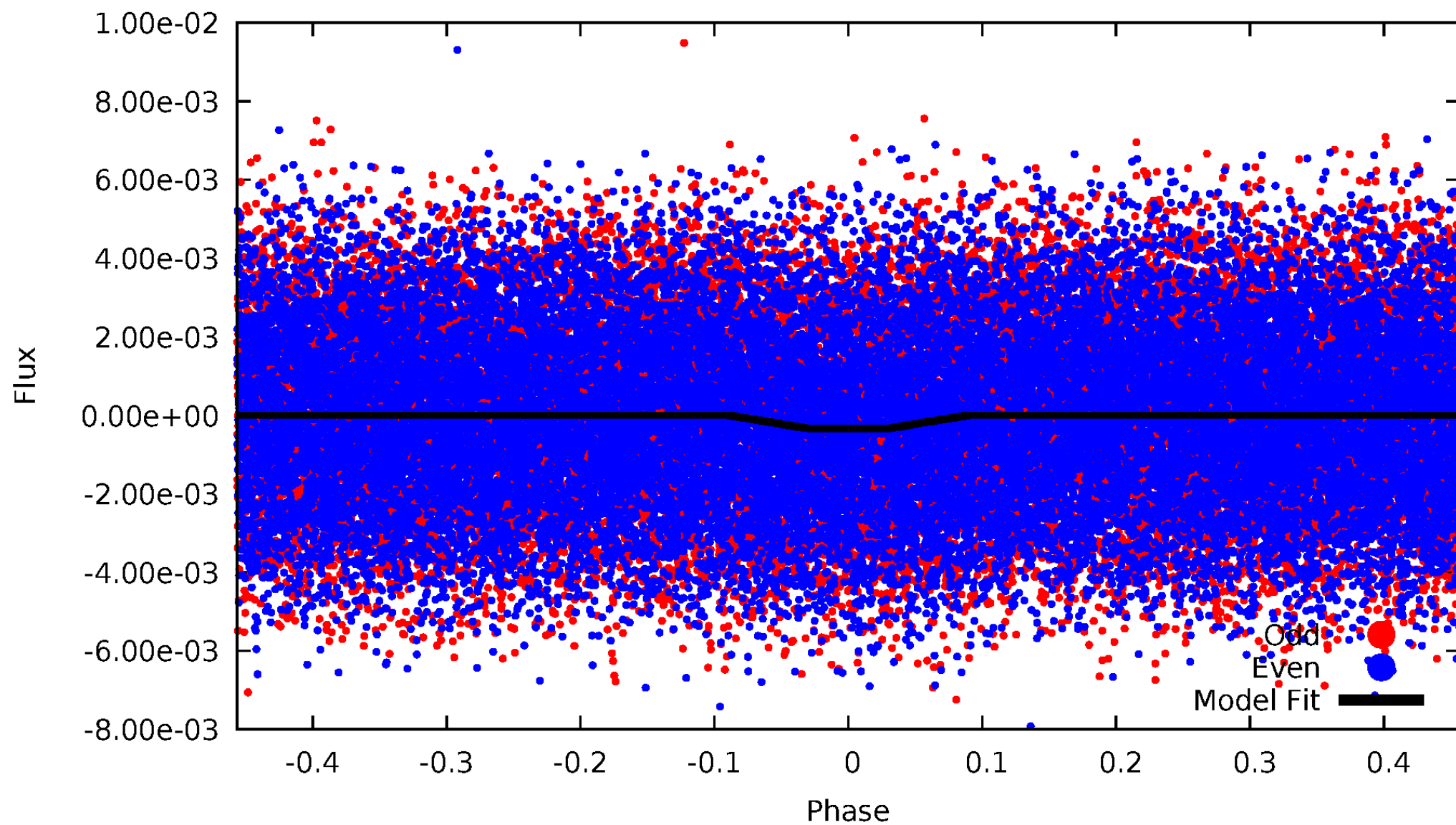
DV Odd/Even

TCE 012257449-02



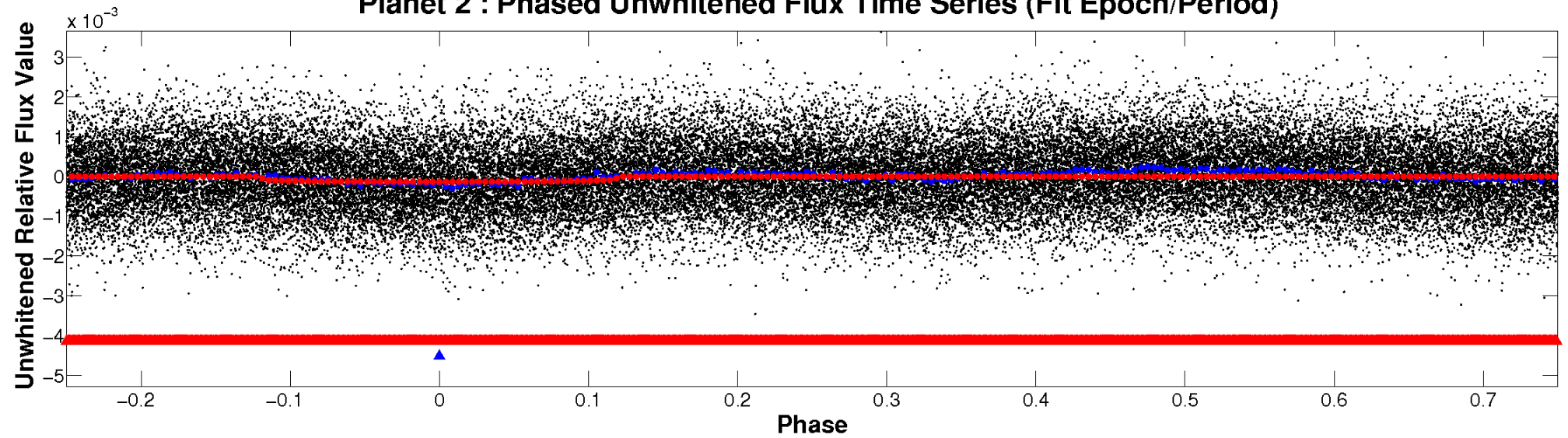
ALT Odd/Even

TCE 012257449-02

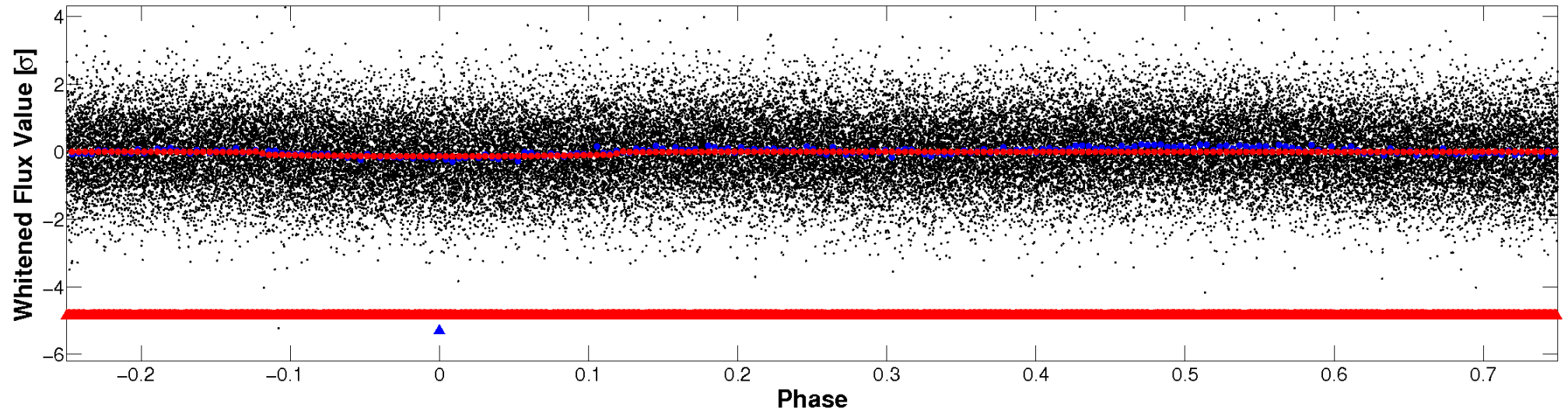


Non-Whitened Vs. Whitened Light Curve

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

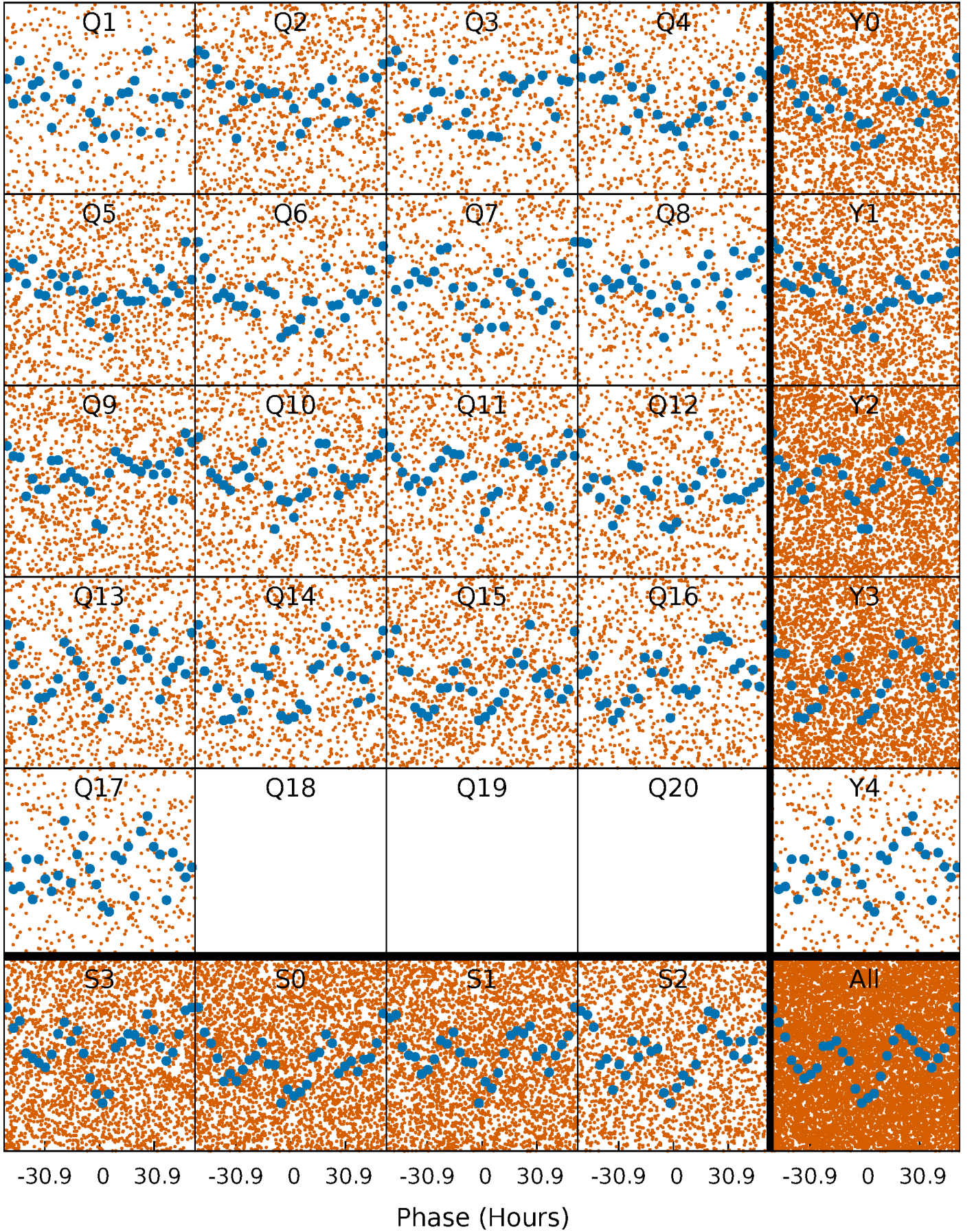


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



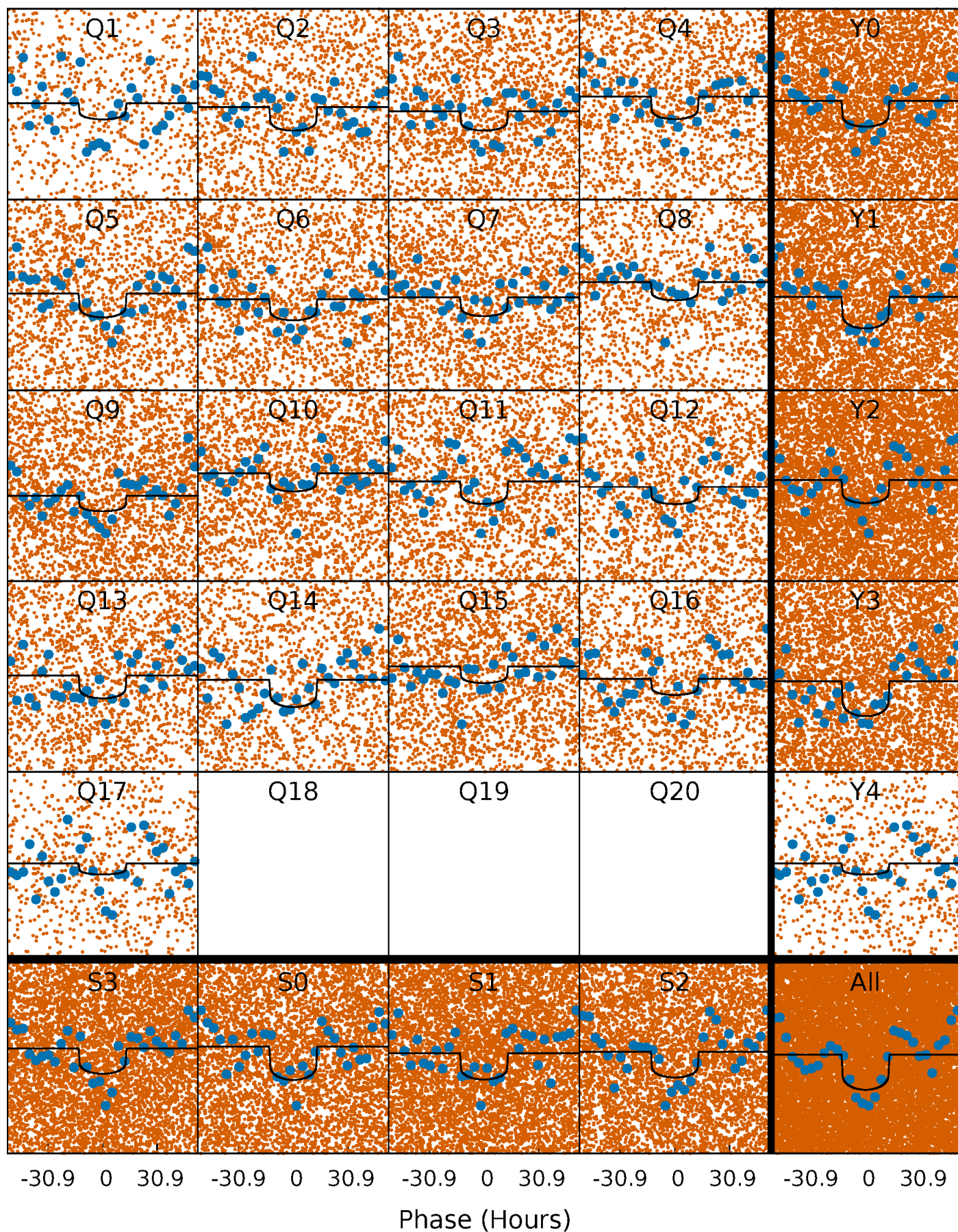
PDC Quarter-Phased Transit Curves

TCE 012257449-02 P= 4.646012 Days $T_0=134.186754$ (BKJD)



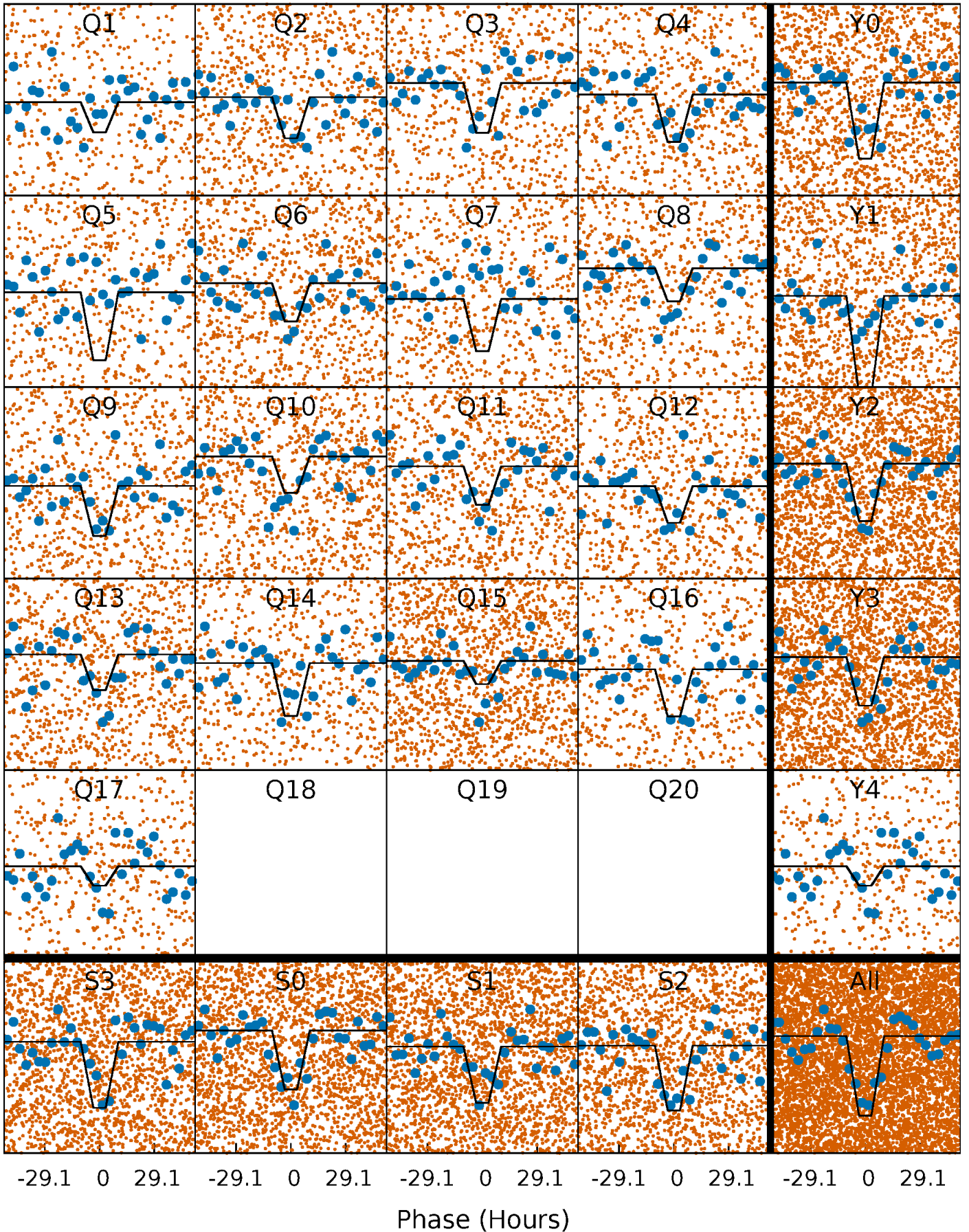
DV Quarter-Phased Transit Curves

TCE 012257449-02 P= 4.646012 Days $T_0=134.186754$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

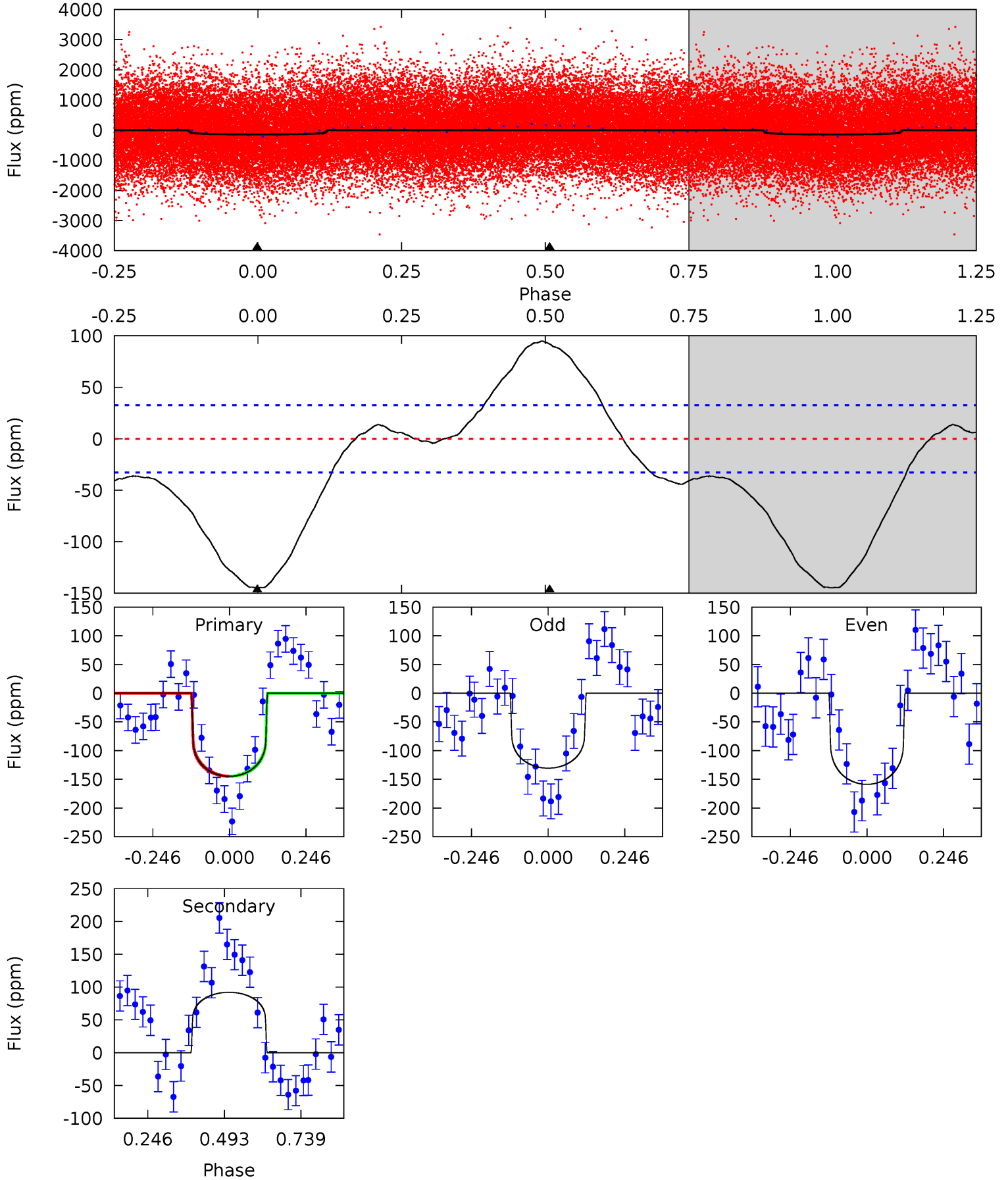
TCE 012257449-02 P= 4.645990 Days $T_0=134.233465$ (BKJD)



DV Model-Shift Uniqueness Test

012257449-02, P = 4.646012 Days, E = 129.540742 Days

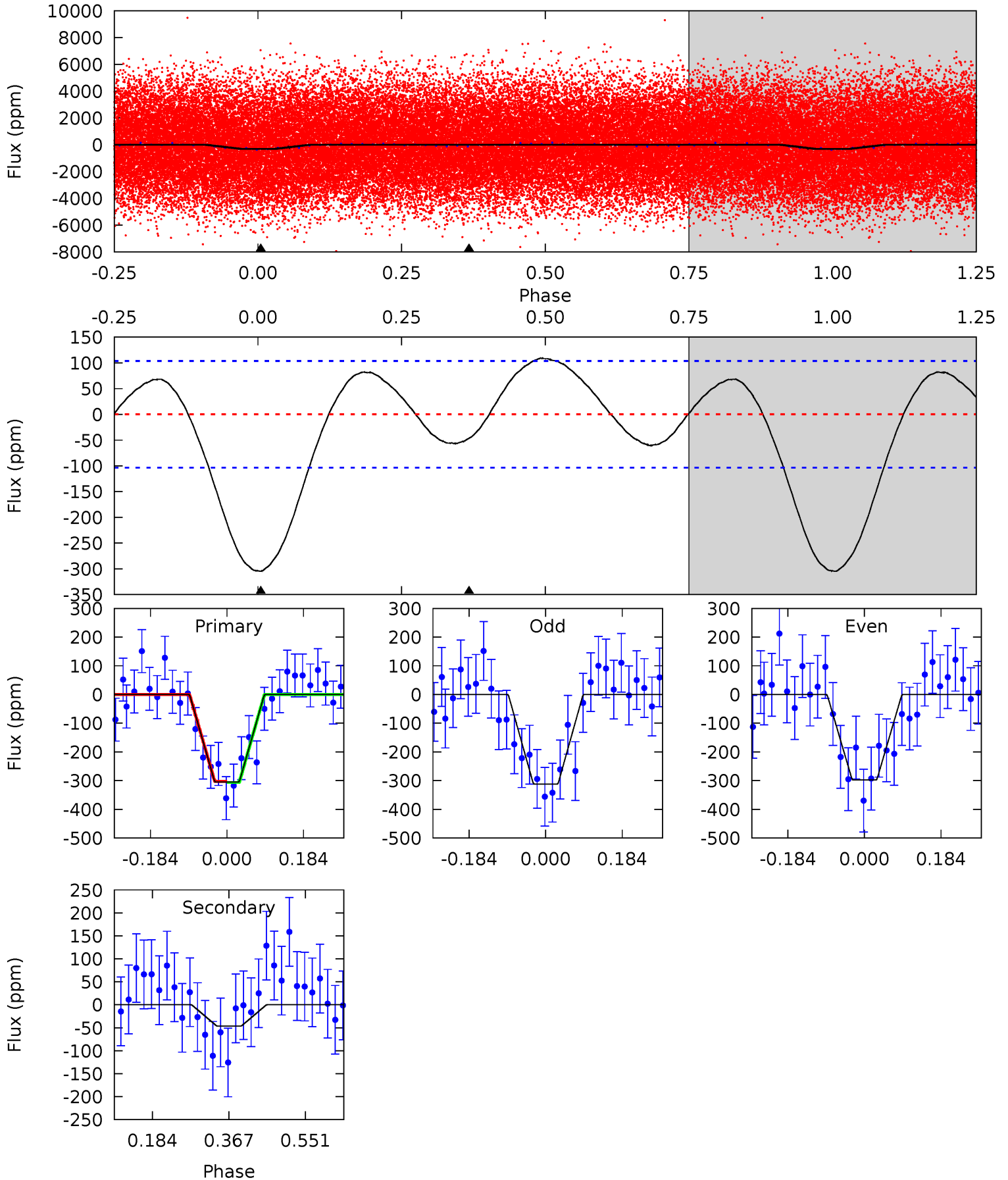
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	-12.3	0	0	4.37	1.16	2.99	19.4	19.4	-12.3	-12.3	1.88	1.04	0.40	0.01



Alt Model-Shift Uniqueness Test

012257449-02, P = 4.645990 Days, E = 129.587475 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	1.98	0	0	4.44	1.33	1.91	13.0	13.0	1.98	1.98	0.31	0.92	0.26	0.08



Stellar Parameters For KIC 012257449

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8615^{+239}_{-376}	$3.784^{+0.424}_{-0.132}$	$-0.220^{+0.400}_{-0.350}$	$3.003^{+0.763}_{-1.418}$	$2.002^{+0.368}_{-0.491}$	$0.104^{+0.399}_{-0.043}$
	+3%/-4%	+11%/-3%	+182%/-159%	+25%/-47%	+18%/-25%	+383%/-41%
Source	KIC0	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 012257449-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	92 ± 7	$3.21^{+1.73}_{-1.47}$	3416^{+281}_{-433}	-7966^{+1469}_{-3721}	$-22.855^{+12.910}_{-55.075}$
Alt.	-46 ± 23	$5.55^{+1.88}_{-1.78}$	3397^{+293}_{-353}	4980^{+926}_{-913}	$3.590^{+5.161}_{-2.098}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

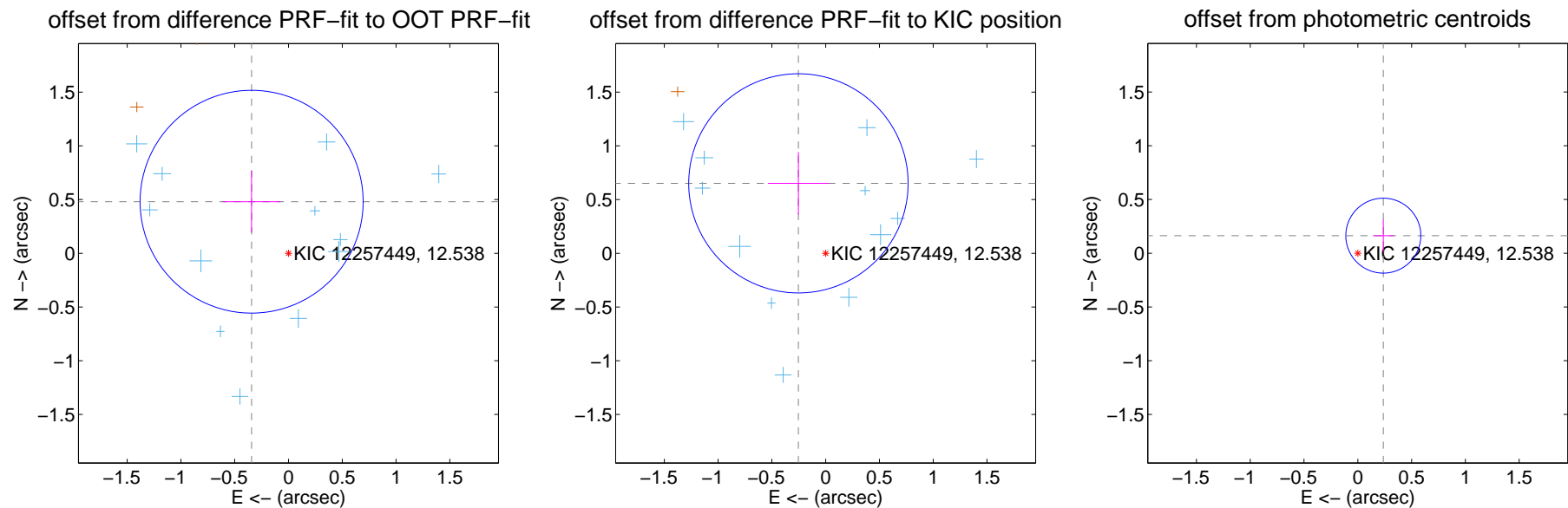
DV Centroid Data

Supplemental centroid analysis for 012257449-02. Kepler magnitude: 12.54. Transit SNR 12.75

There are 13 quarters with good PRF difference image offsets

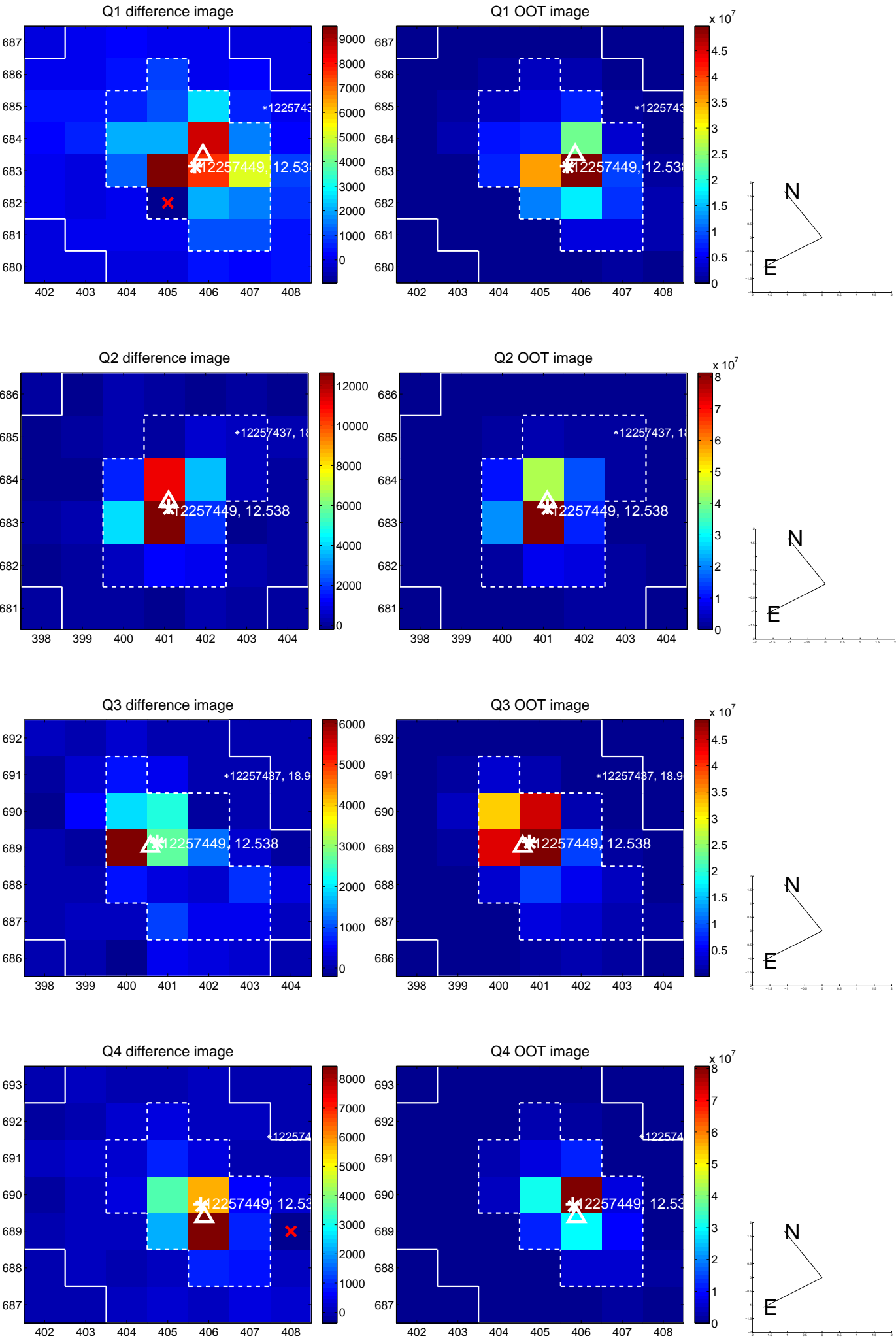
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.590 ± 0.346	1.71	0.343 ± 0.270	0.480 ± 0.287
PRF-fit source offset from KIC position	0.698 ± 0.340	2.05	0.253 ± 0.284	0.651 ± 0.291
photometric centroid source offset	0.29 ± 0.12	2.48	-0.24 ± 0.10	0.16 ± 0.15

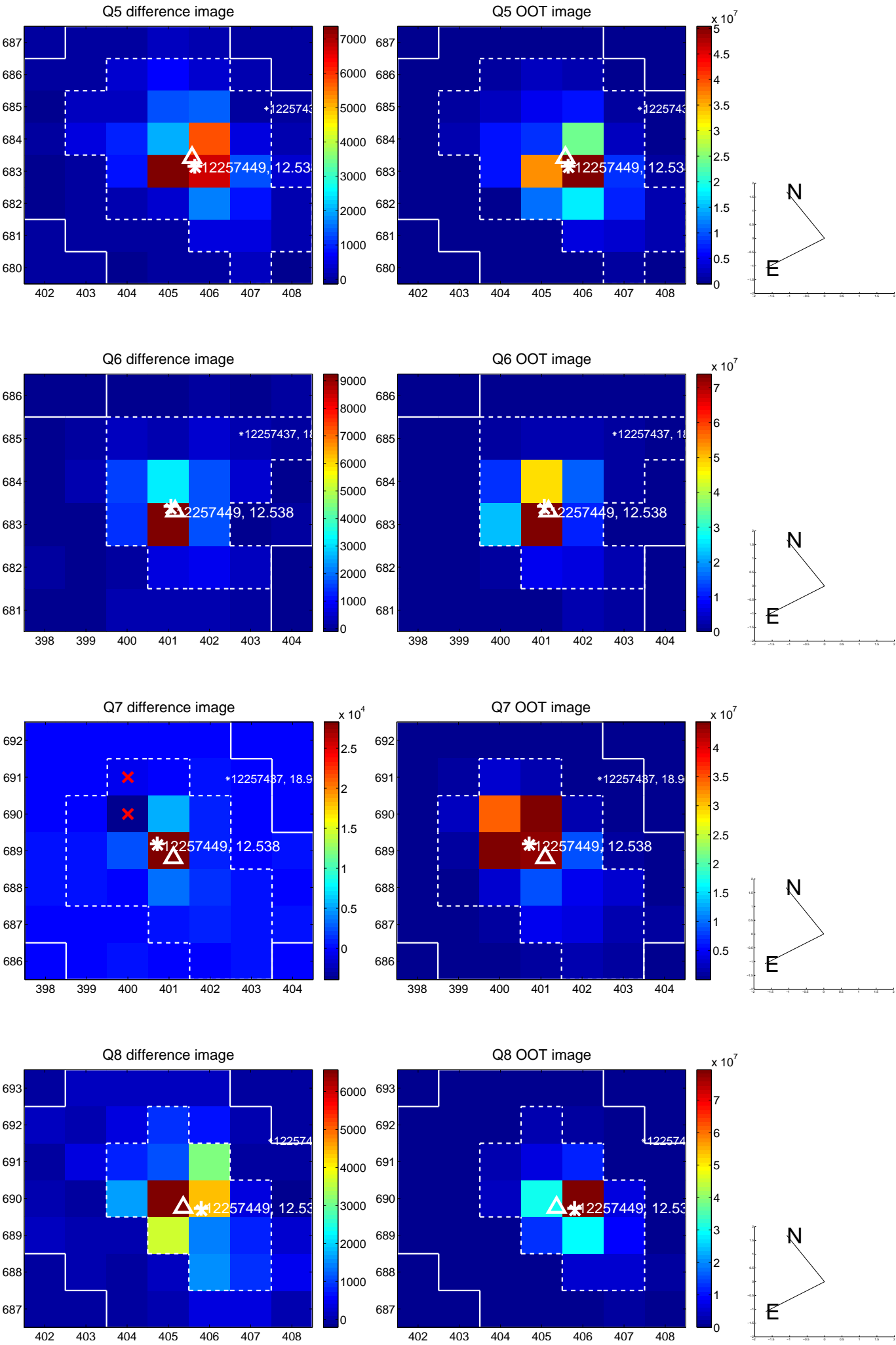


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

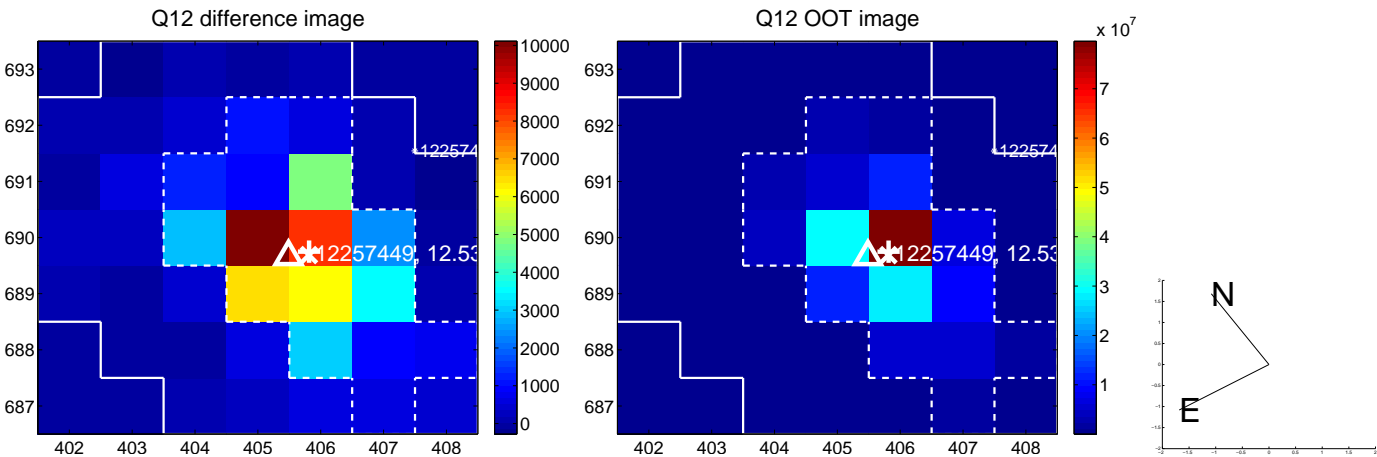
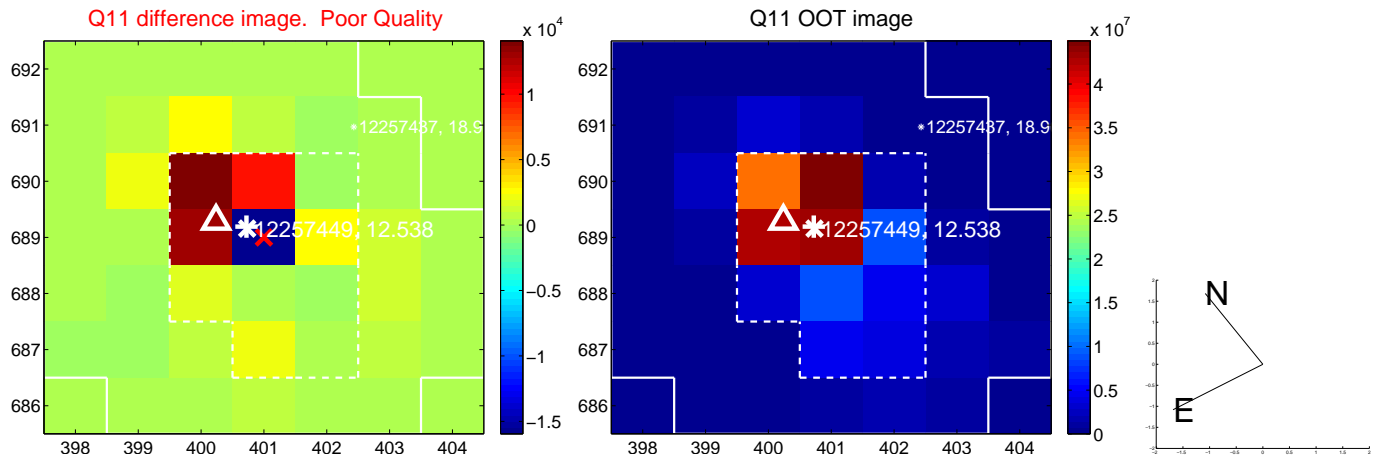
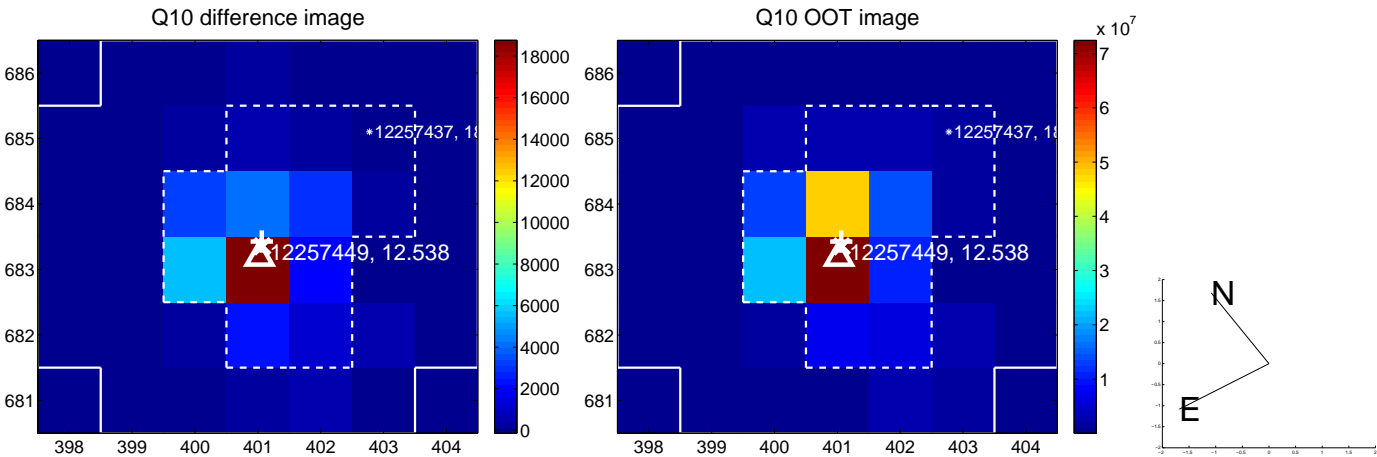
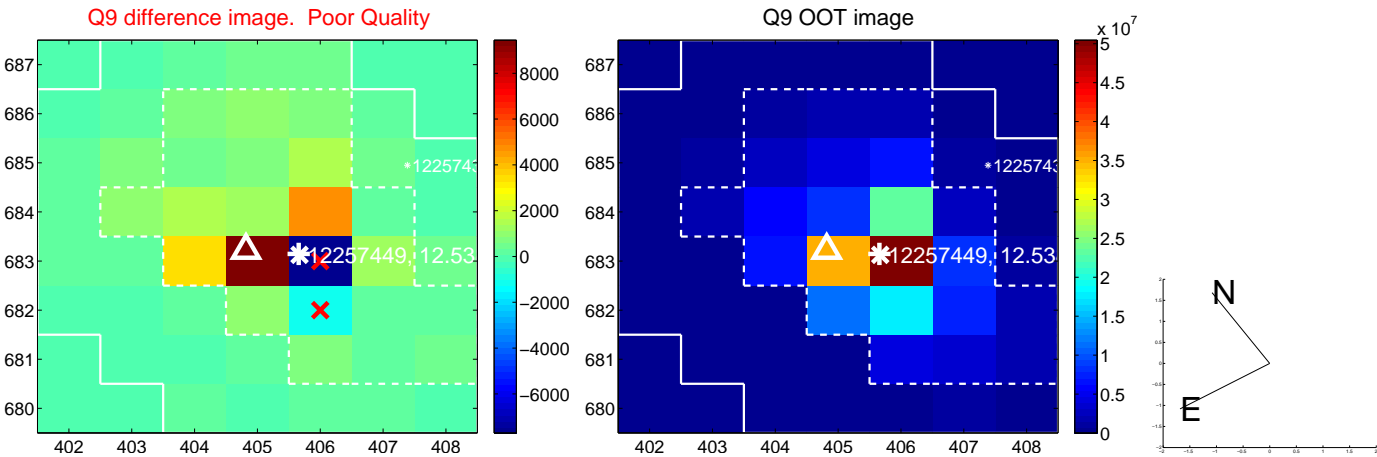
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



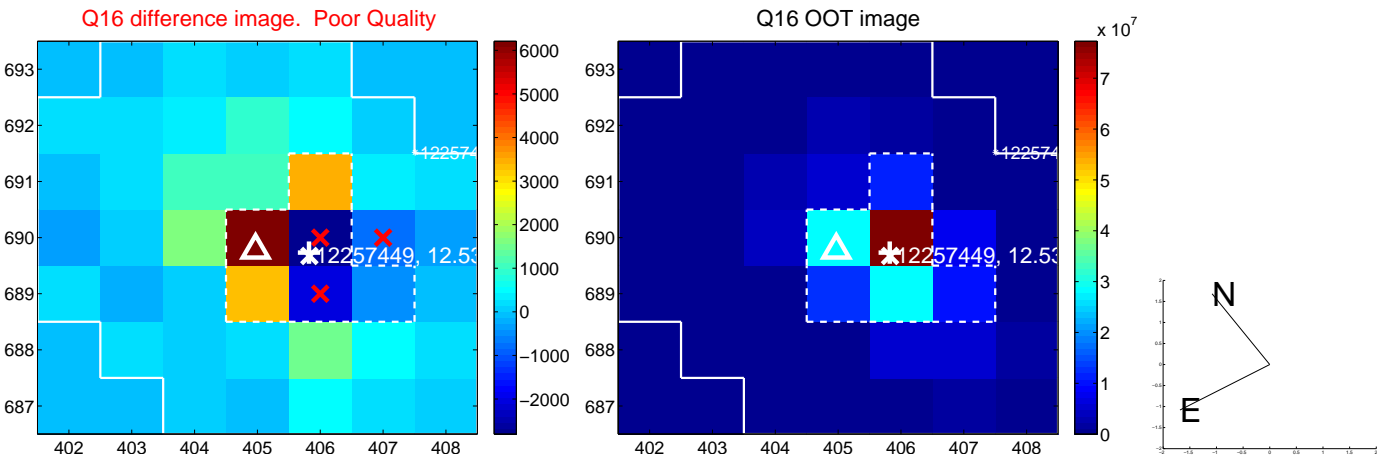
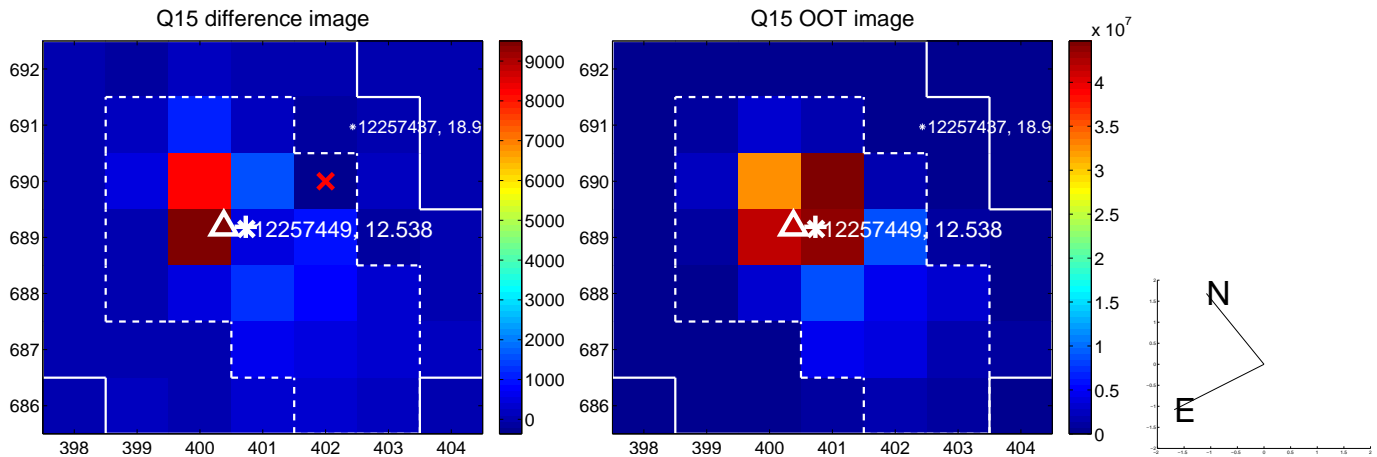
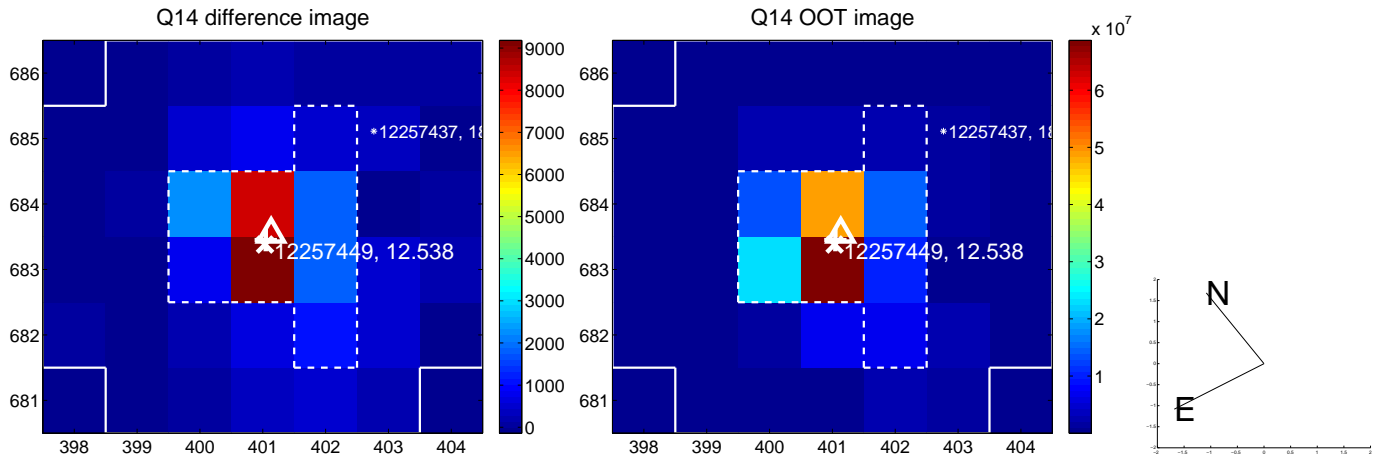
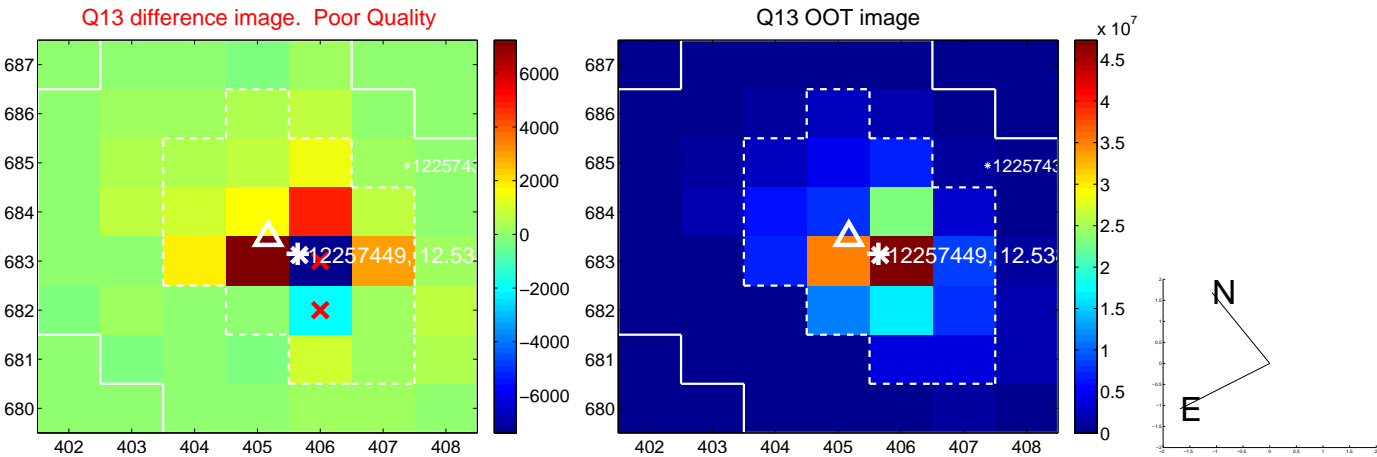
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



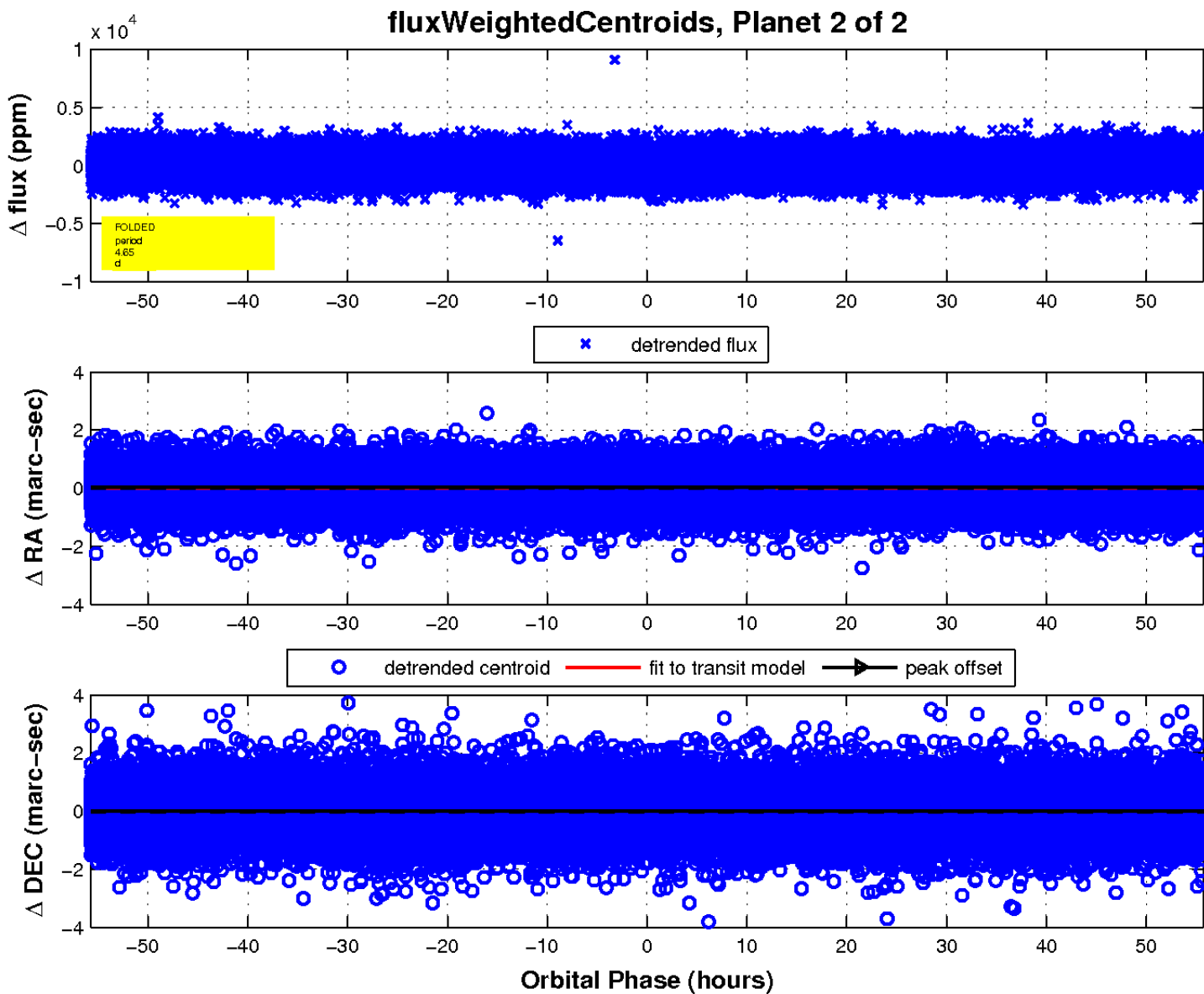
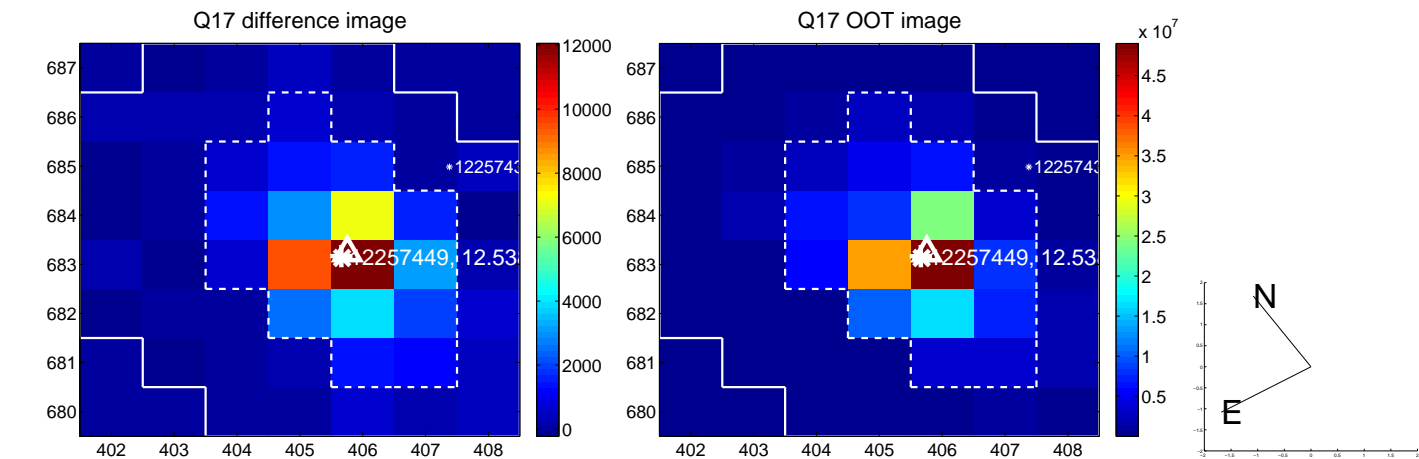
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

