

KIC 004471379

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})
004471379-01	OBS	No	0.685660	131.548032	62.0	1.793	10.0	8.2	2.28	8148	2.09	56645.30
004471379-02	OBS	No	0.932566	131.593773	60.1	6.647	8.6	8.1	2.28	8148	1.80	37589.73
004471379-04	OBS	No	17.189458	139.544273	782.8	1.345	13.0	10.6	2.28	8148	6.50	772.01
004471379-05	OBS	No	12.696187	137.618712	698.3	2.748	13.1	13.7	2.28	8148	6.62	1156.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004471379-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004471379-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004471379-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004471379-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

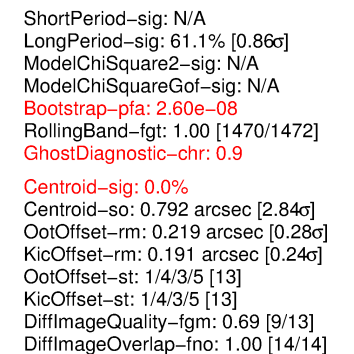
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

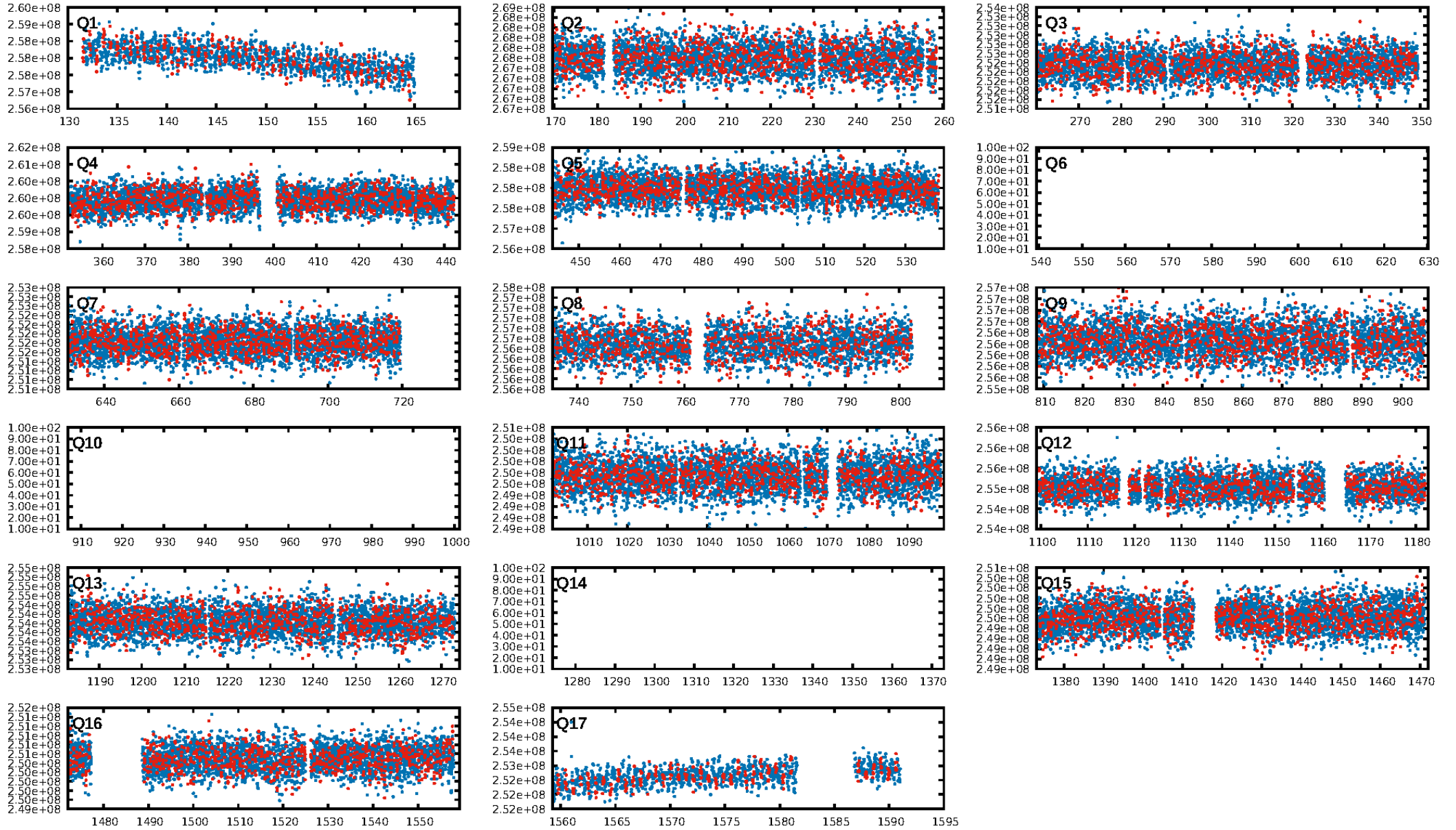
Ephemeris Match Information For 004471379-01

No Significant Match Found

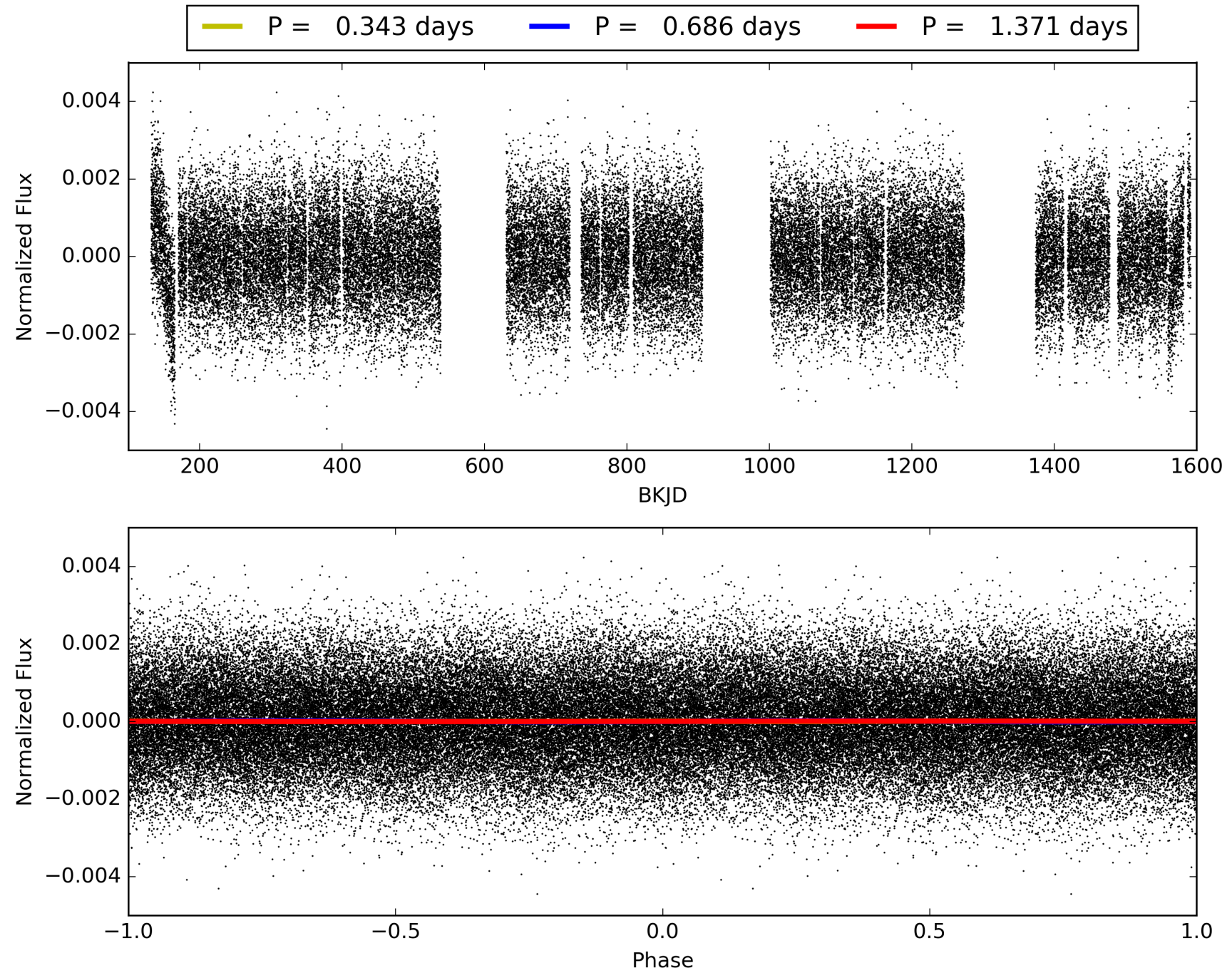
KIC: 4471379 Candidate: 1 of 5 Period: 0.686 d



TCE 004471379-01, PDC Light Curves

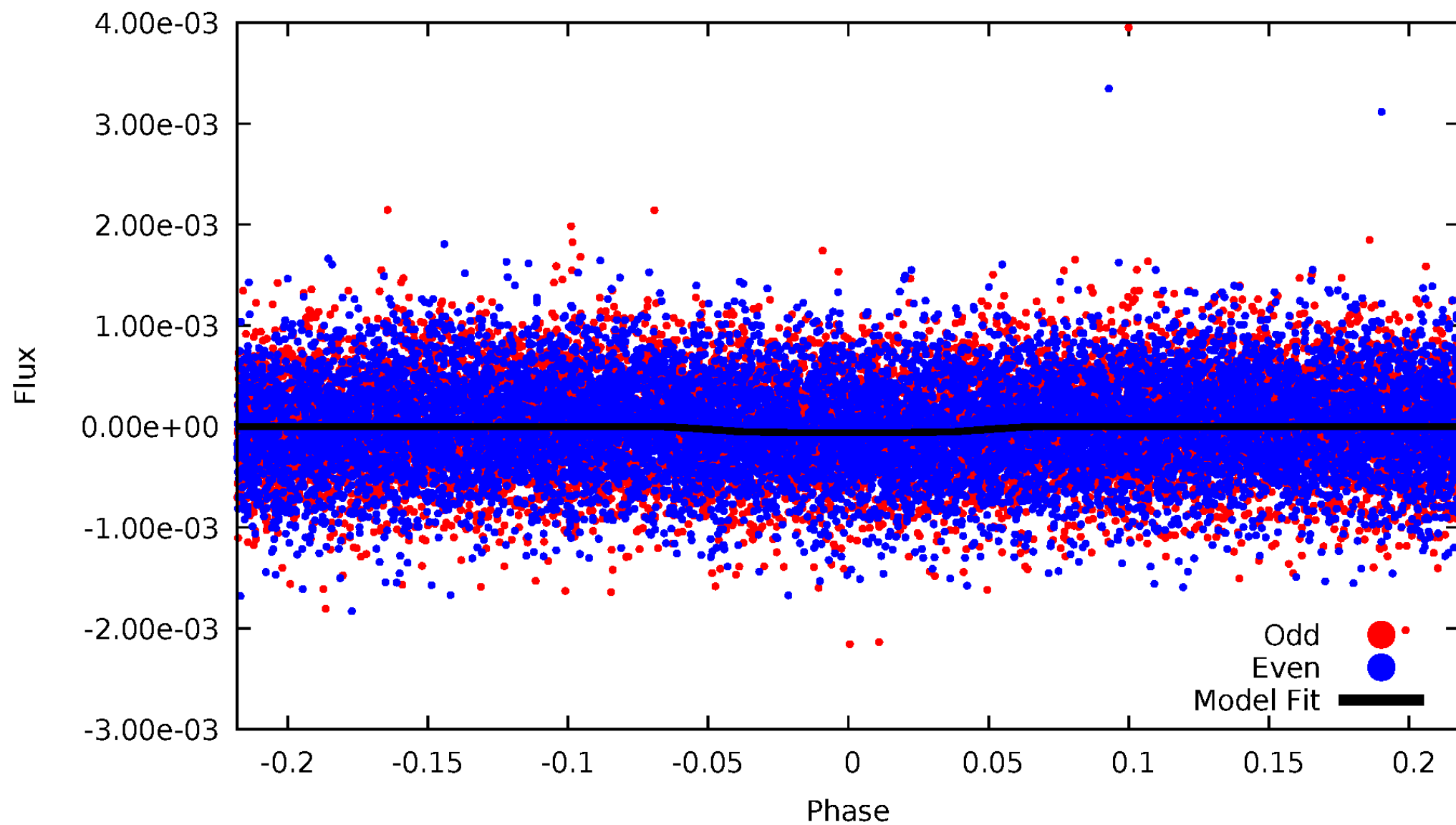


TCE 004471379-01



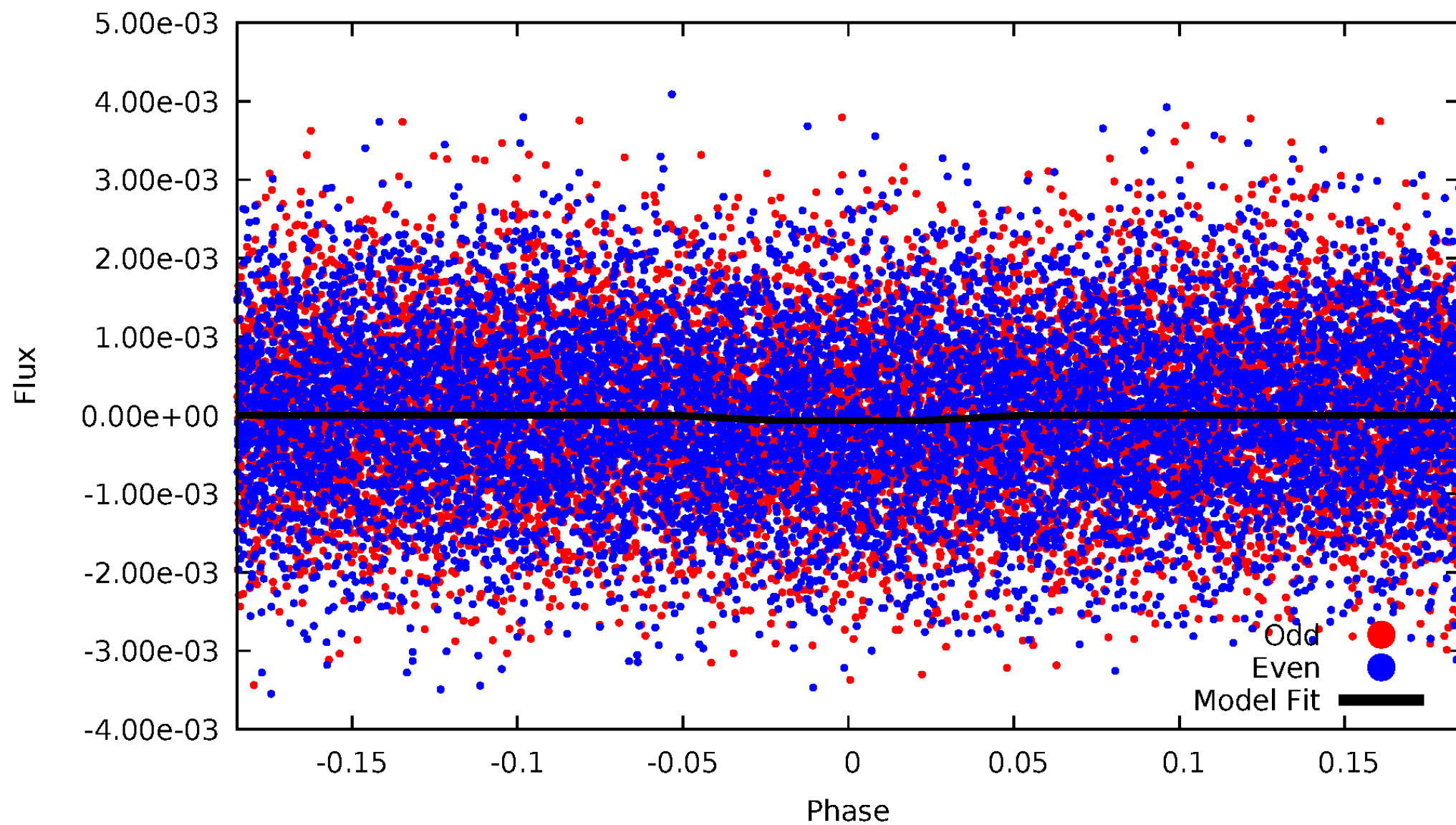
DV Odd/Even

TCE 004471379-01

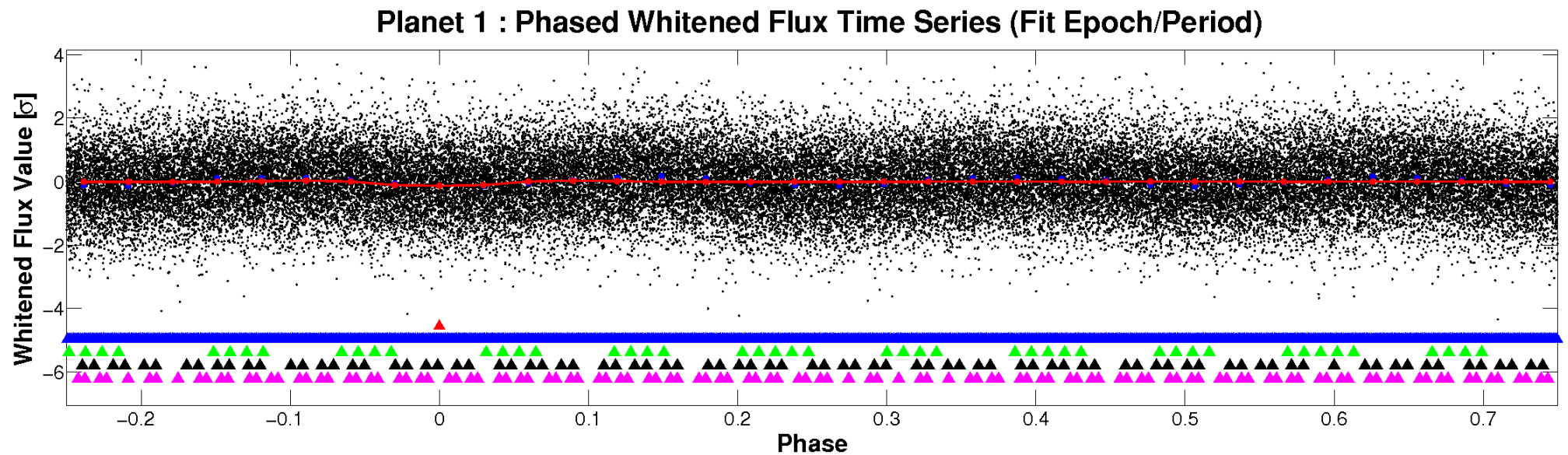
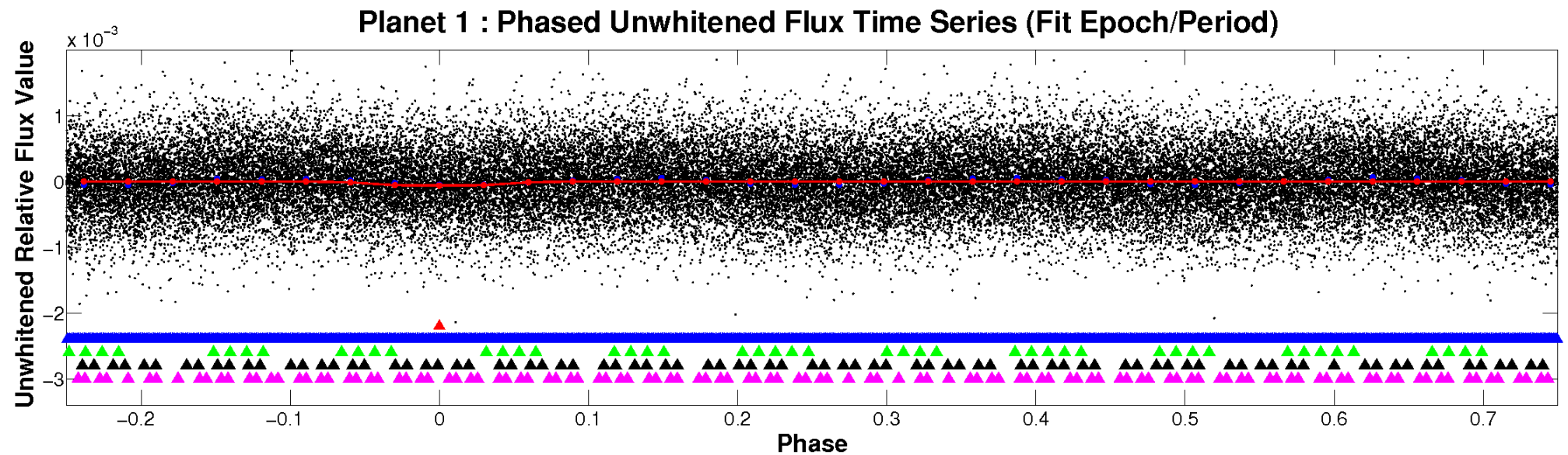


ALT Odd/Even

TCE 004471379-01

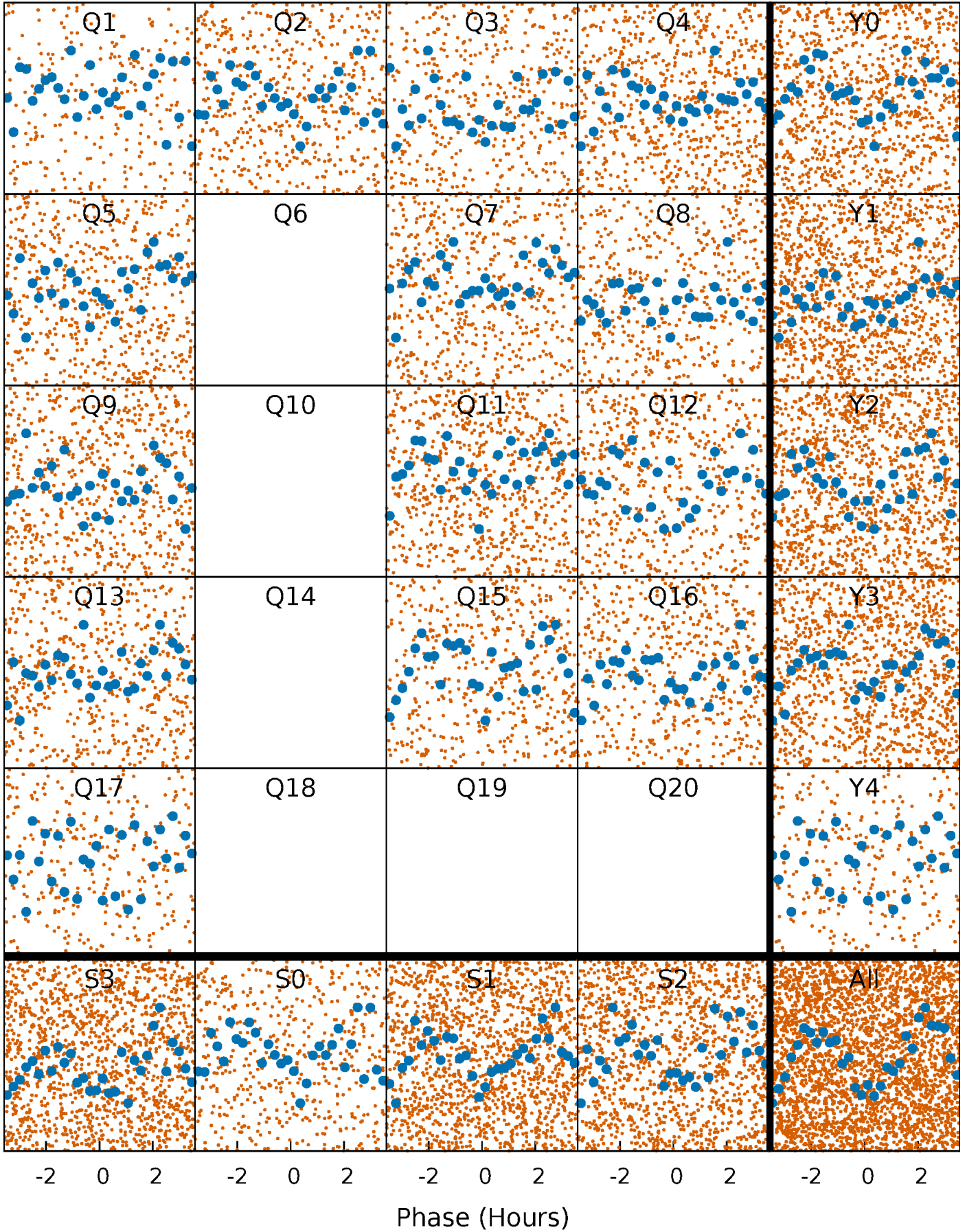


Non-Whitened Vs. Whitened Light Curve



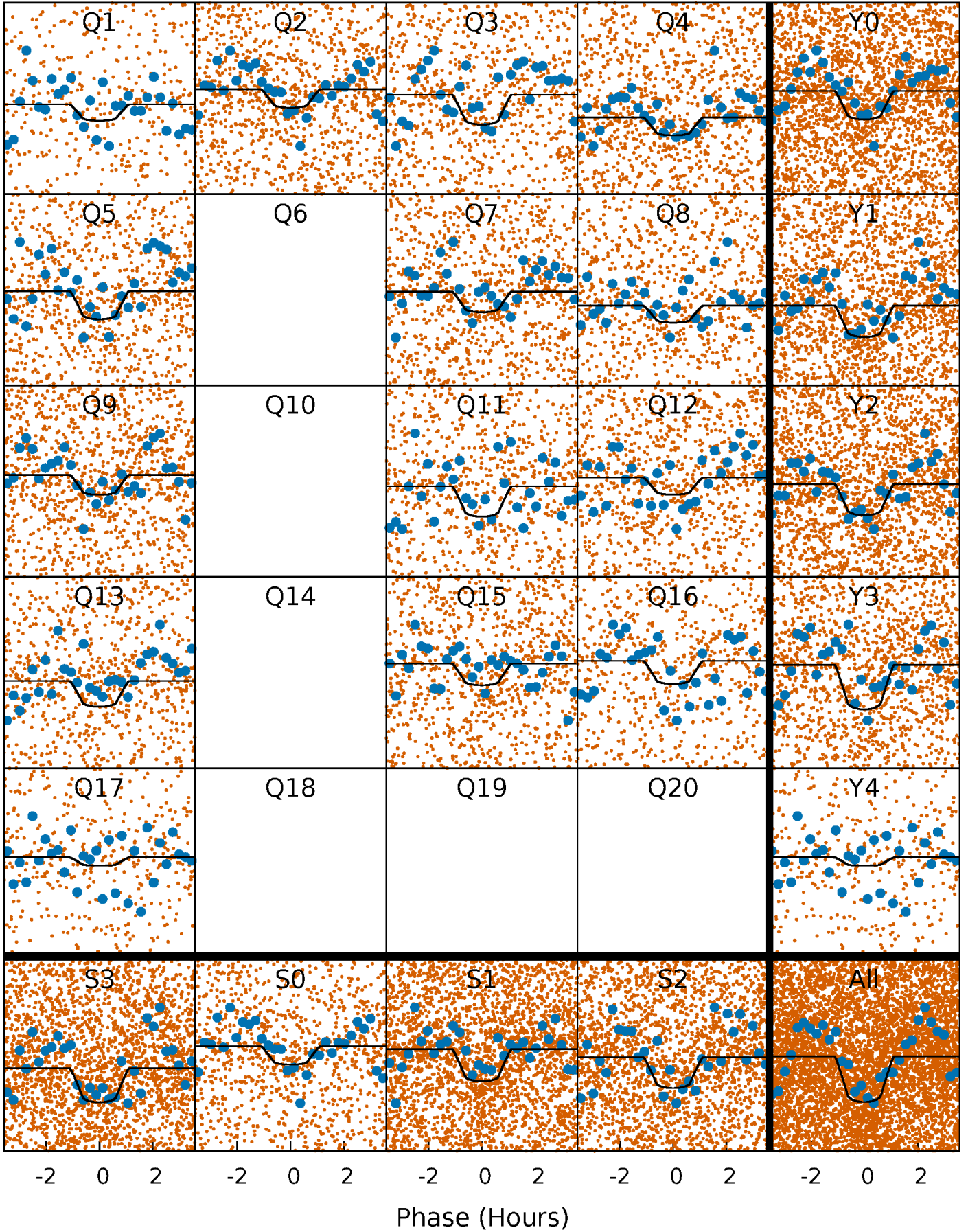
PDC Quarter-Phased Transit Curves

TCE 004471379-01 P= 0.685660 Days $T_0=131.548032$ (BKJD)



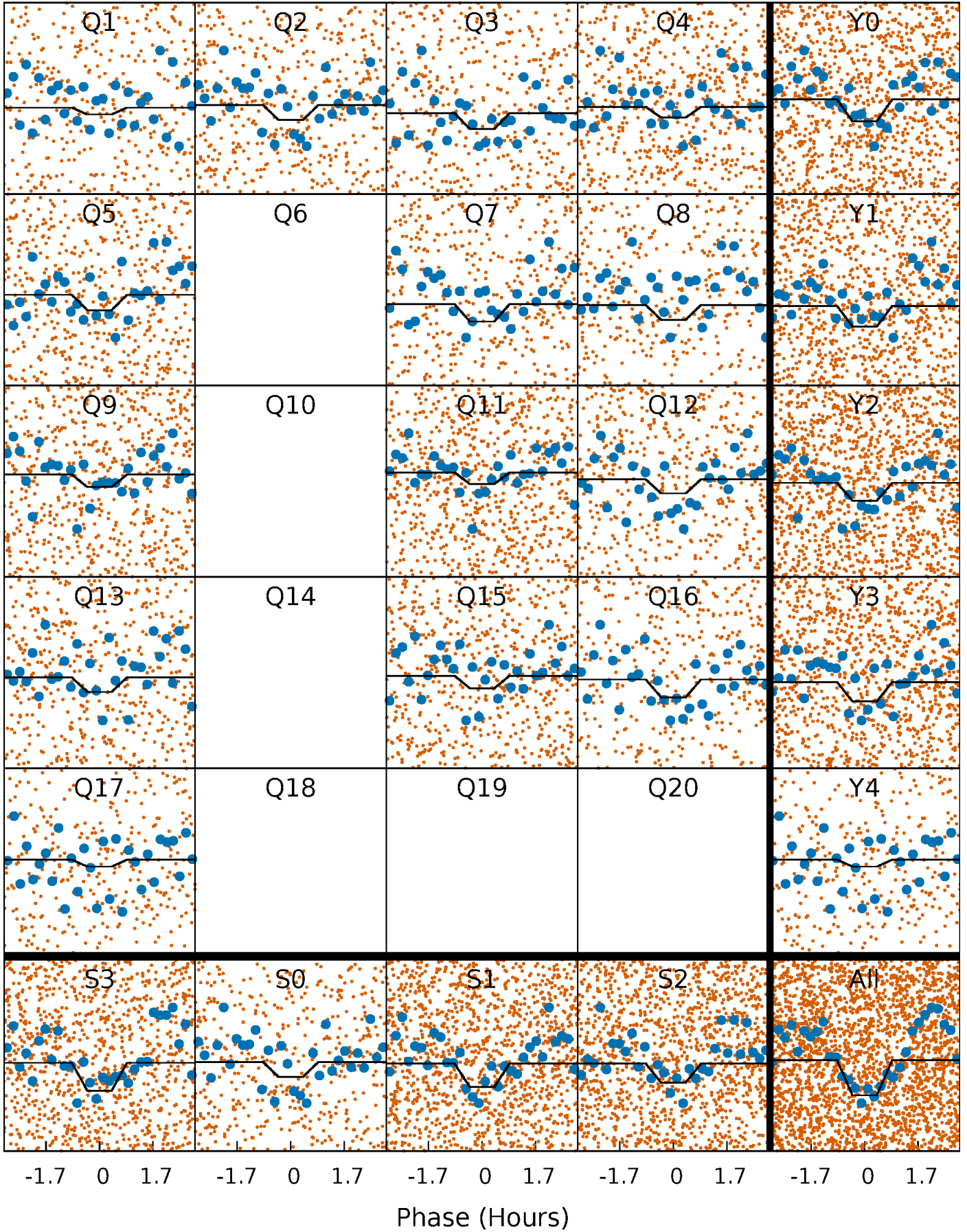
DV Quarter-Phased Transit Curves

TCE 004471379-01 P= 0.685660 Days $T_0=131.548032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

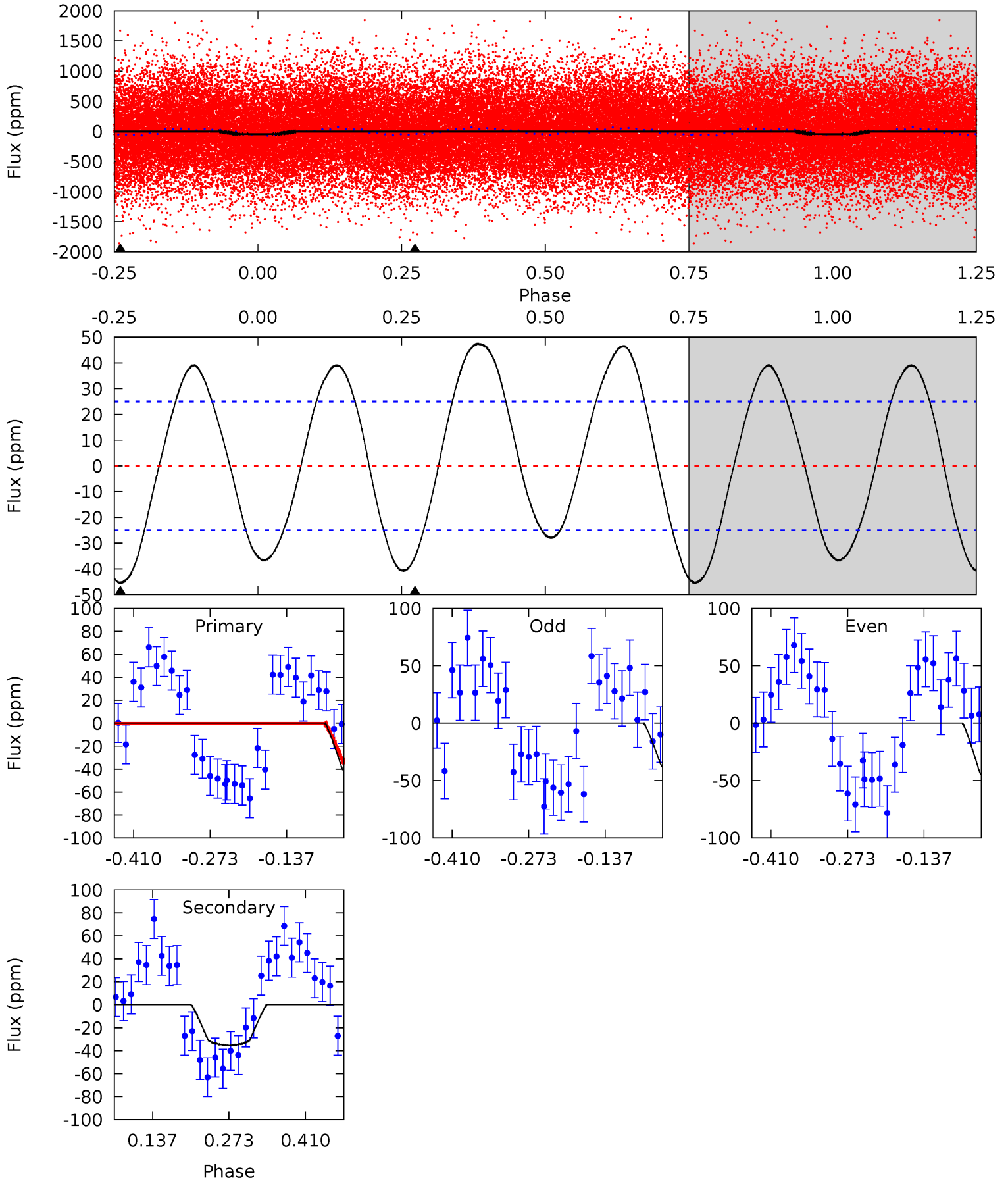
TCE 004471379-01 P= 0.685666 Days $T_0=131.546766$ (BKJD)



DV Model-Shift Uniqueness Test

004471379-01, P = 0.685660 Days, E = 130.862372 Days

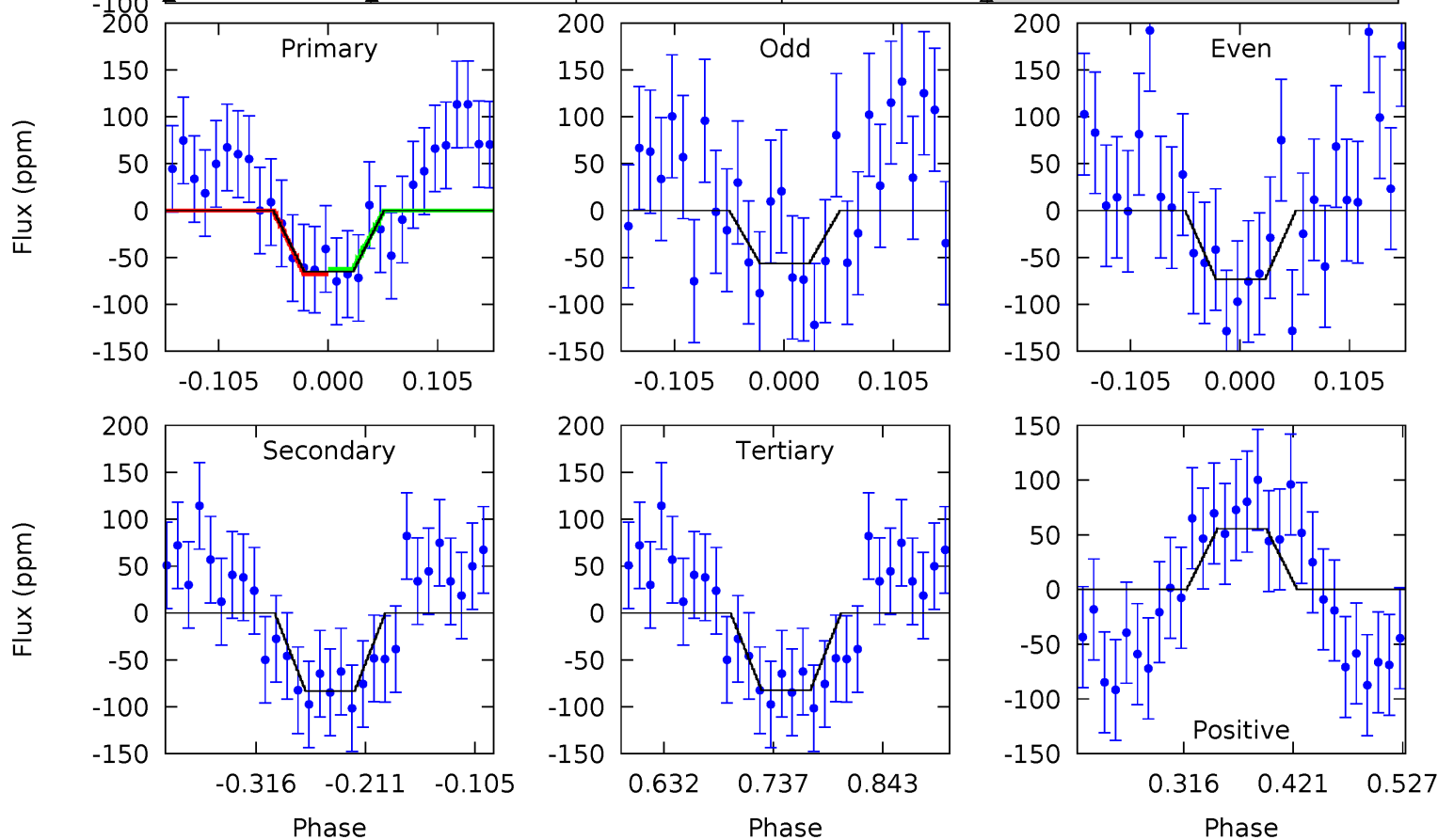
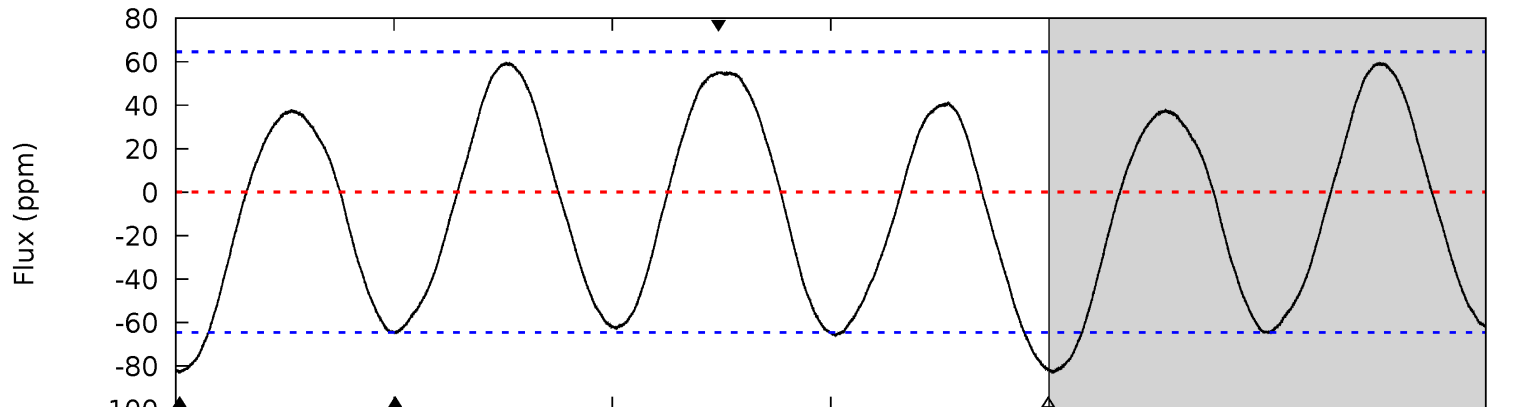
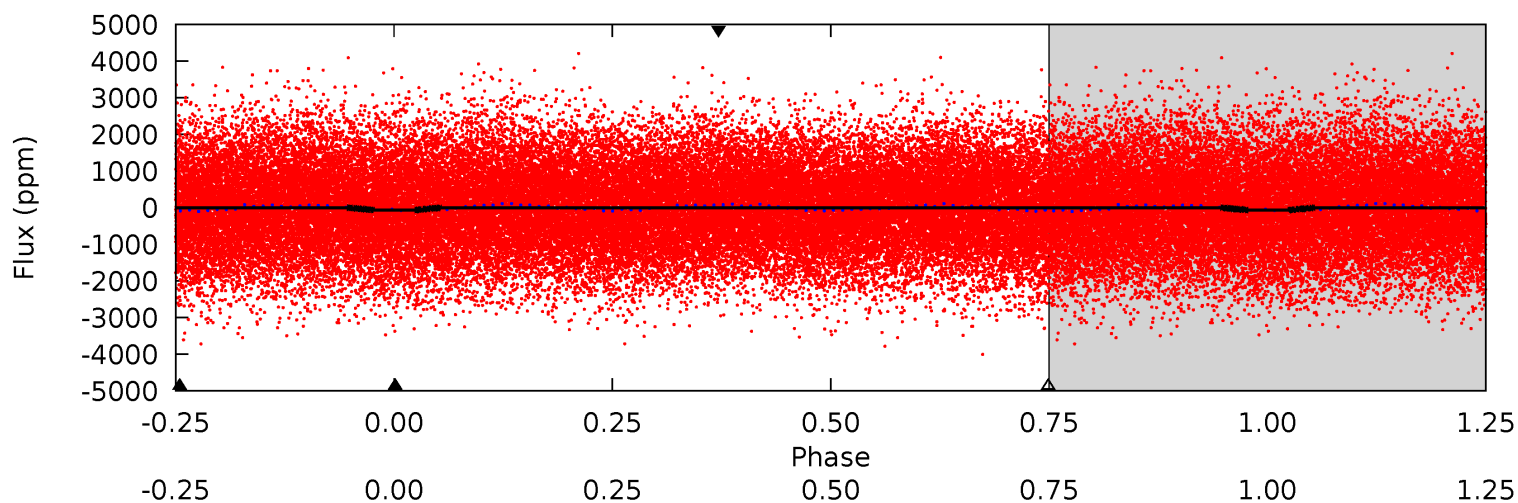
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.17	6.34	0	0	4.50	1.49	4.53	8.17	8.17	6.34	6.34	0.68	1.01	0.51	1.54



Alt Model-Shift Uniqueness Test

004471379-01, P = 0.685666 Days, E = 130.861100 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.59	5.87	5.80	3.91	4.55	1.62	3.06	-1.21	0.68	0.07	1.96	0.59	1.13	0.42	0.21



Stellar Parameters For KIC 004471379

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8148^{+226}_{-340}	$4.014^{+0.192}_{-0.128}$	$0.070^{+0.250}_{-0.500}$	$2.282^{+0.436}_{-0.654}$	$1.960^{+0.295}_{-0.405}$	$0.232^{+0.289}_{-0.081}$
	+3%/-4%	+5%/-3%	+357%/-714%	+19%/-29%	+15%/-21%	+124%/-35%
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 004471379-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-35 ± 6	$2.03^{+1.22}_{-1.00}$	5463^{+328}_{-370}	6230^{+3867}_{-1552}	$1.654^{+5.258}_{-1.003}$
Alt.	-83 ± 14	$2.01^{+1.11}_{-1.00}$	5447^{+350}_{-399}	8358^{+6126}_{-2056}	$4.083^{+11.577}_{-2.471}$

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

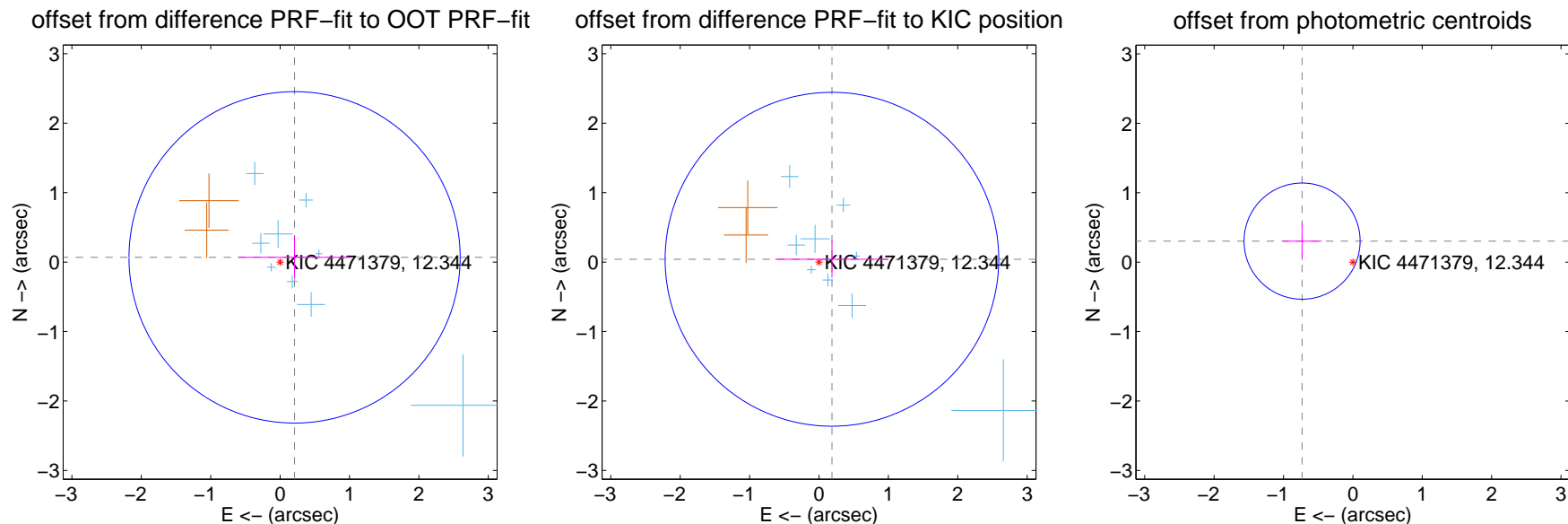
DV Centroid Data

Supplemental centroid analysis for 004471379-01. Kepler magnitude: 12.34. Transit SNR 8.24

There are 9 quarters with good PRF difference image offsets

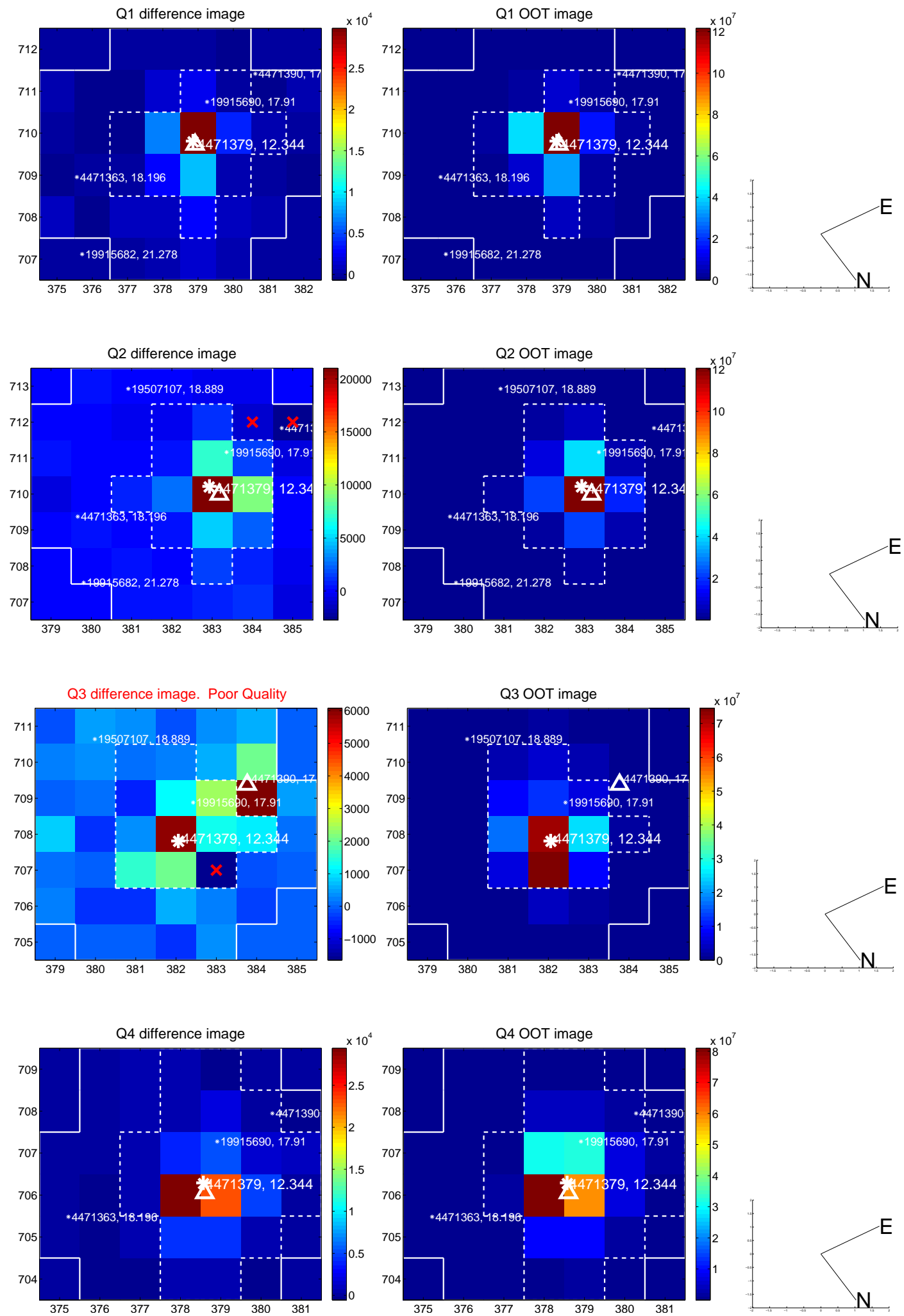
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.219 ± 0.795	0.28	-0.209 ± 0.817	0.068 ± 0.307
PRF-fit source offset from KIC position	0.191 ± 0.801	0.24	-0.187 ± 0.816	0.041 ± 0.265
photometric centroid source offset	0.79 ± 0.28	2.84	0.73 ± 0.28	0.30 ± 0.27

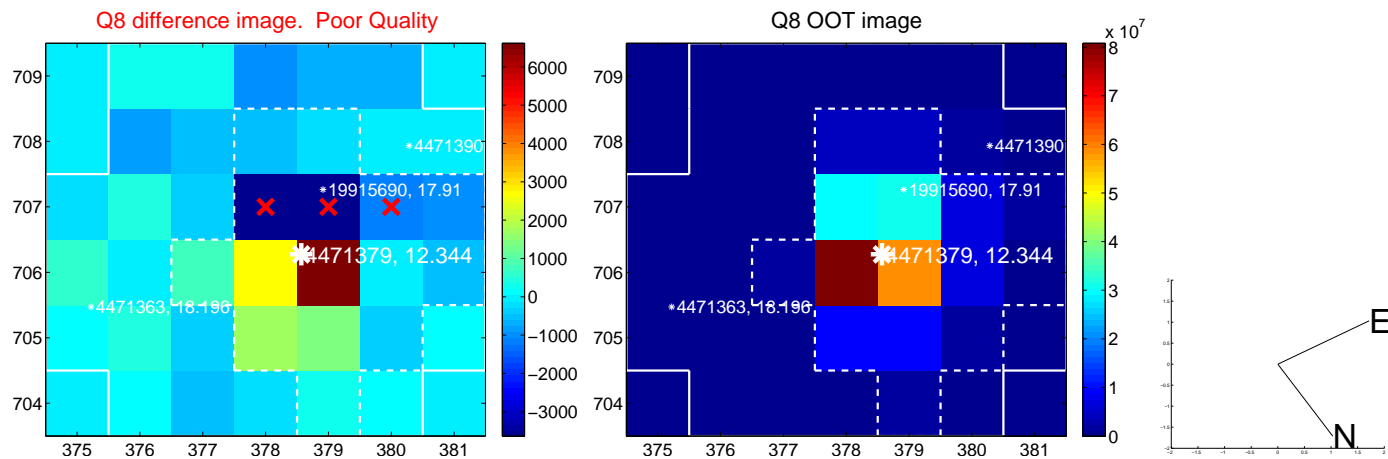
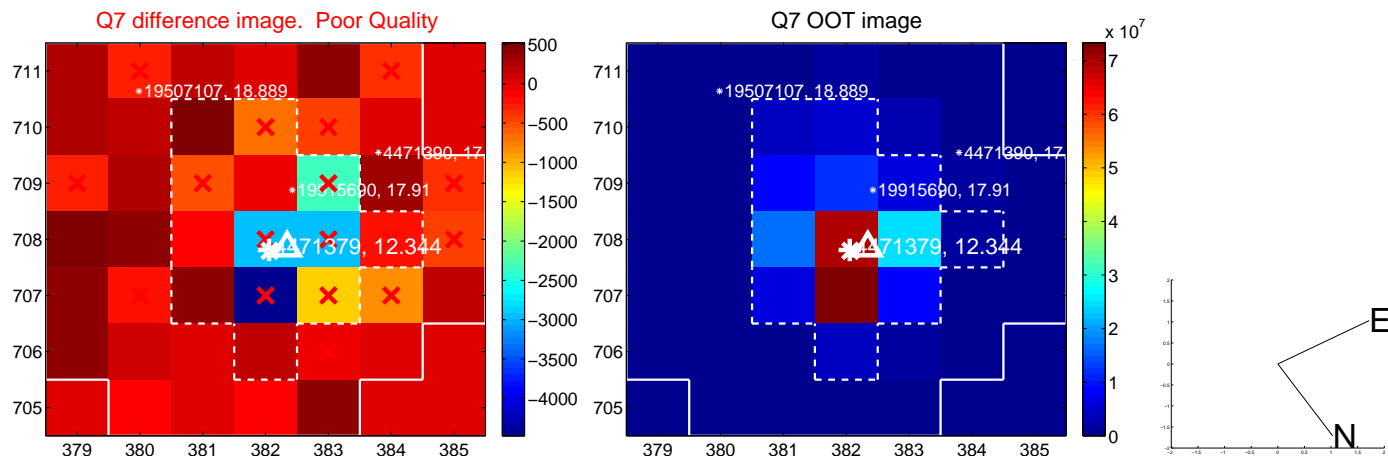
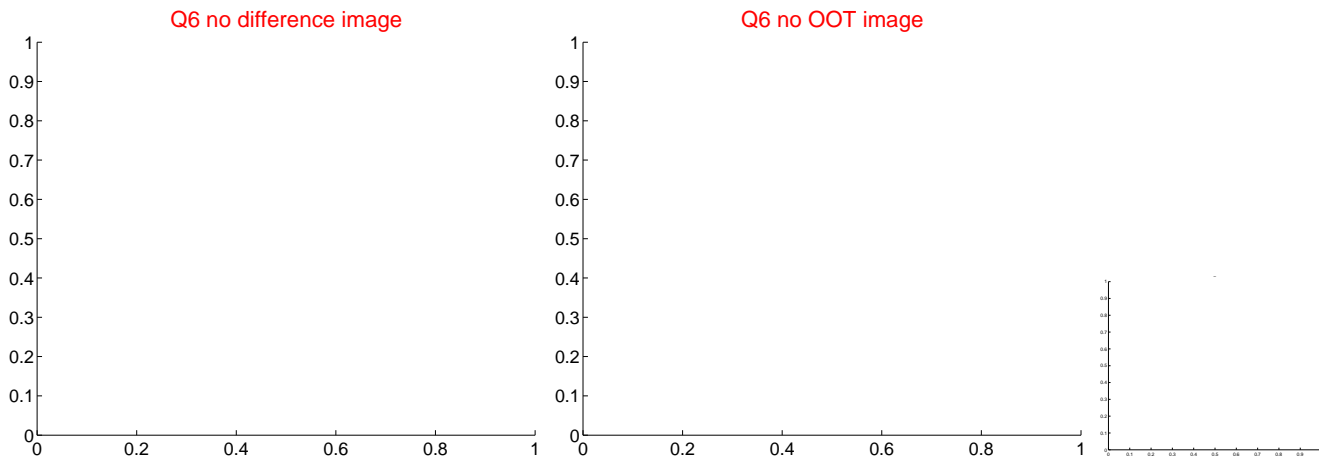
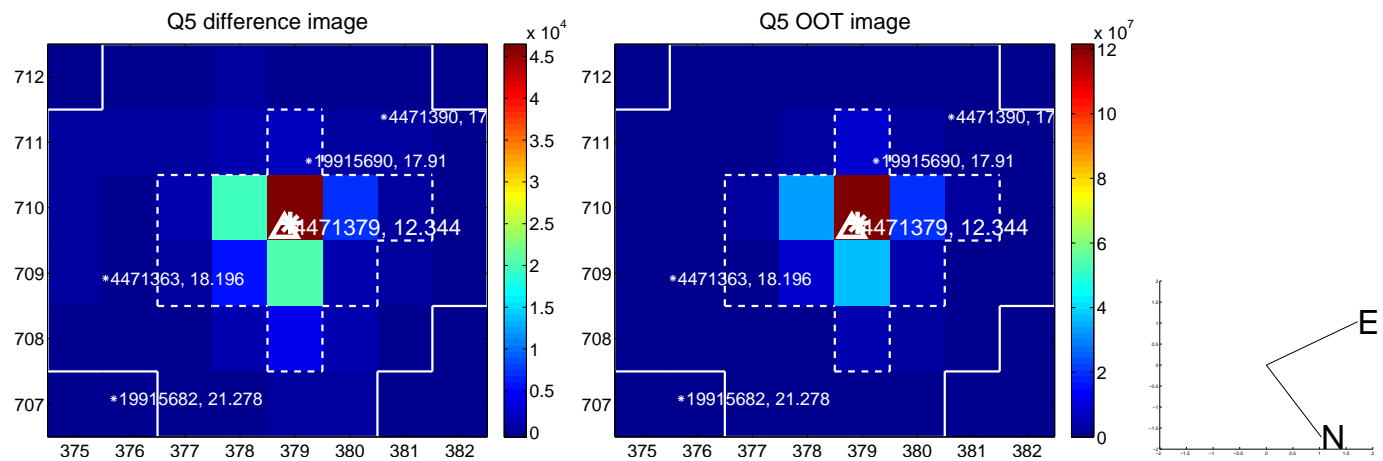


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

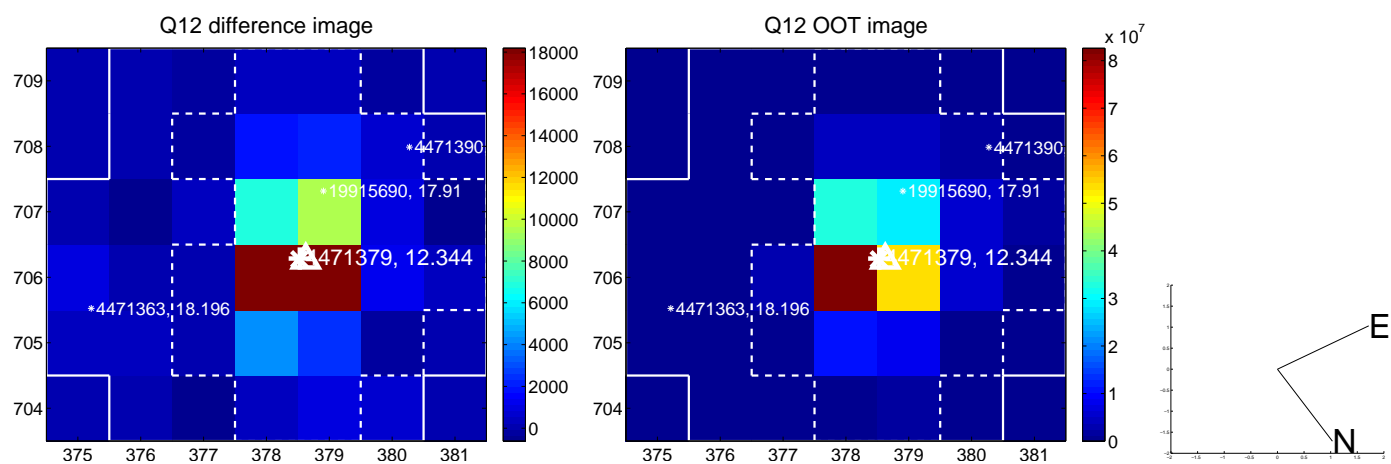
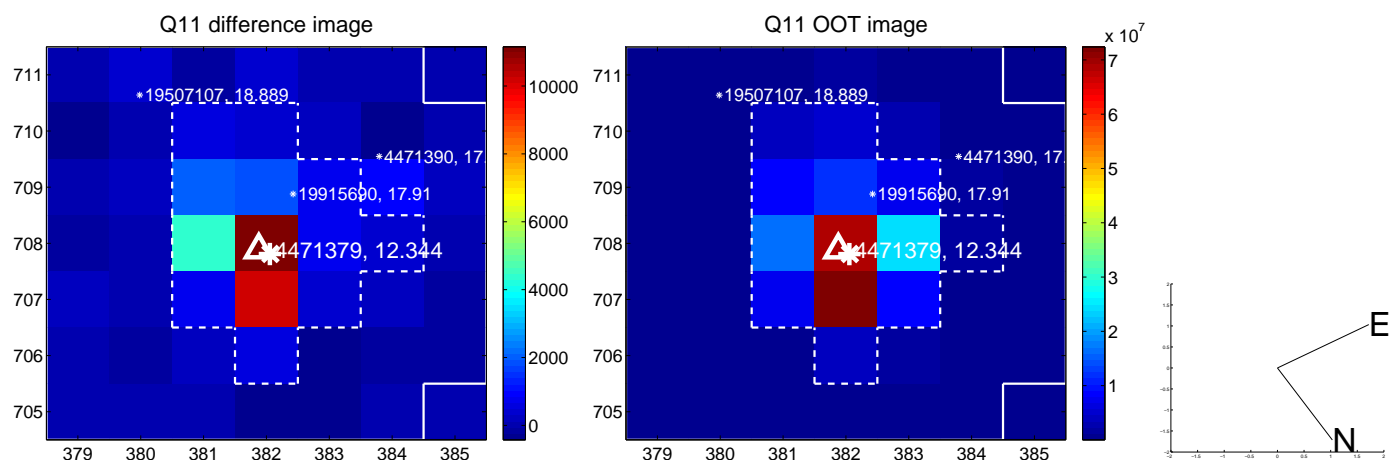
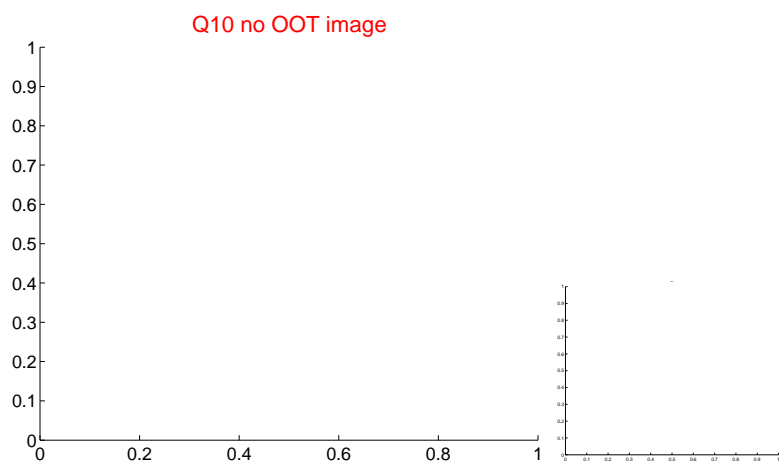
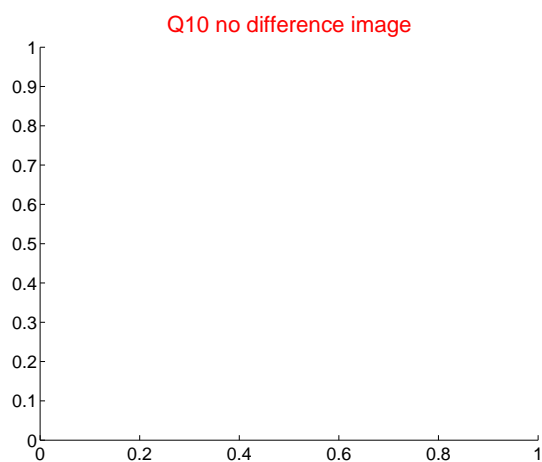
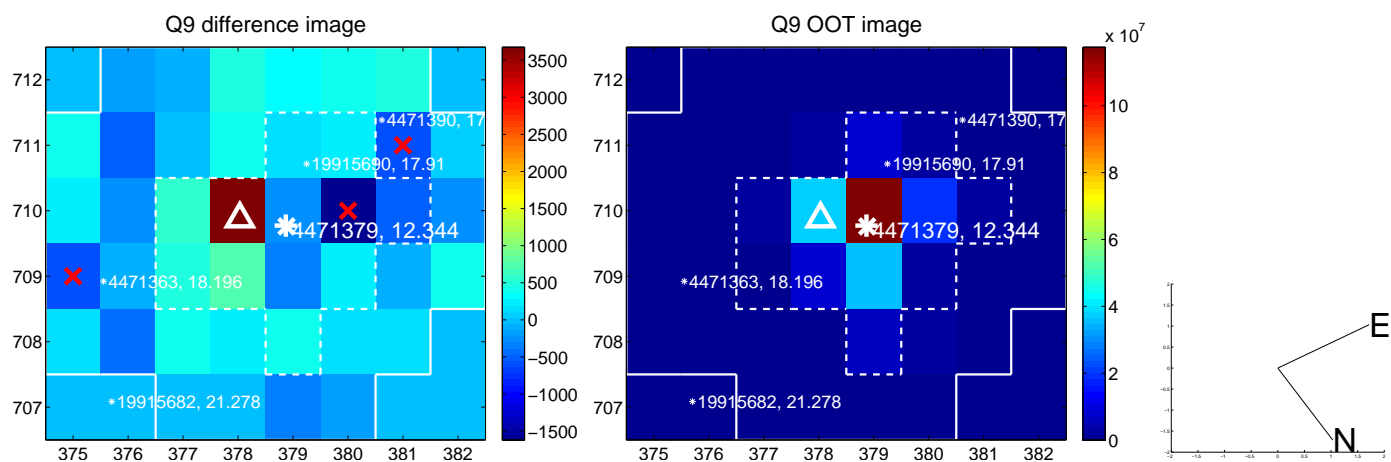
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



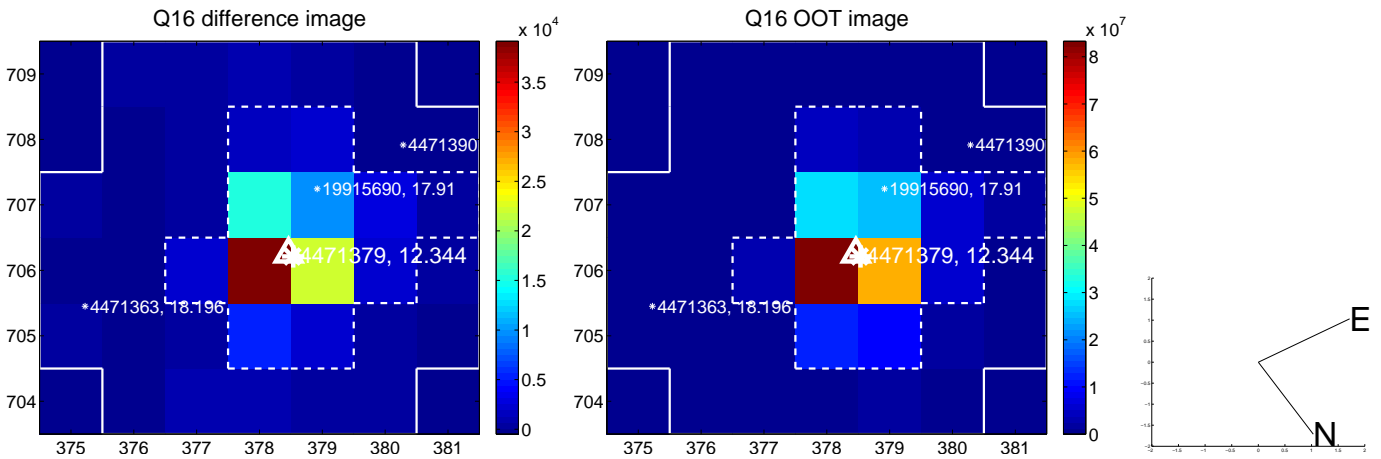
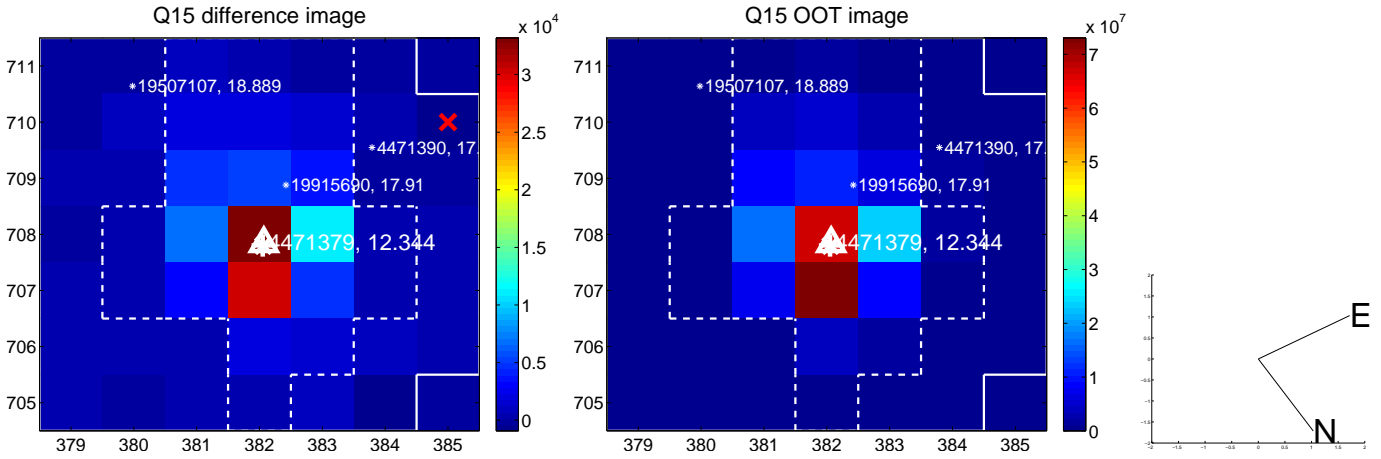
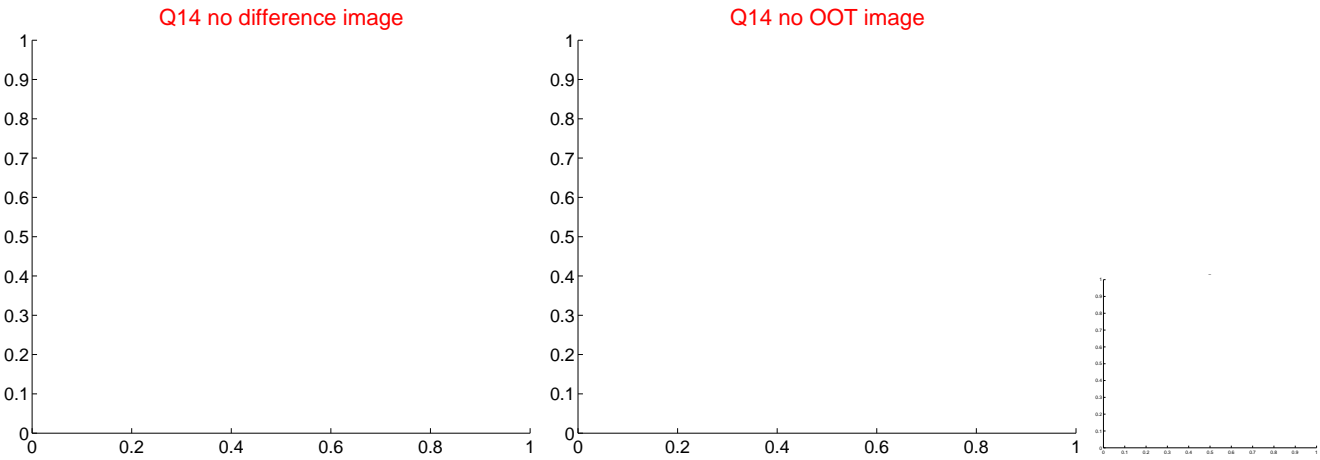
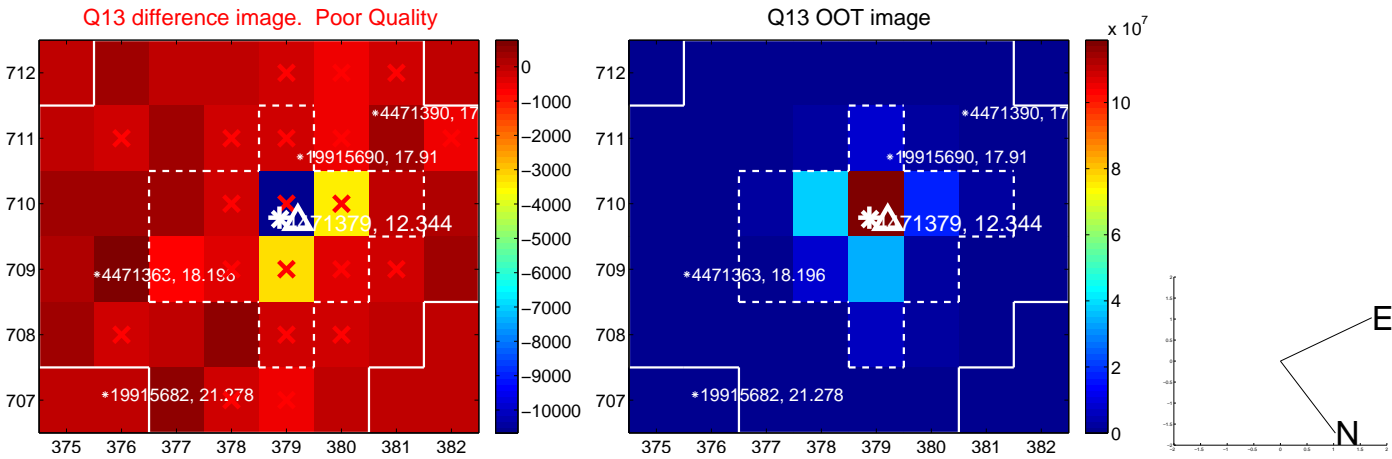
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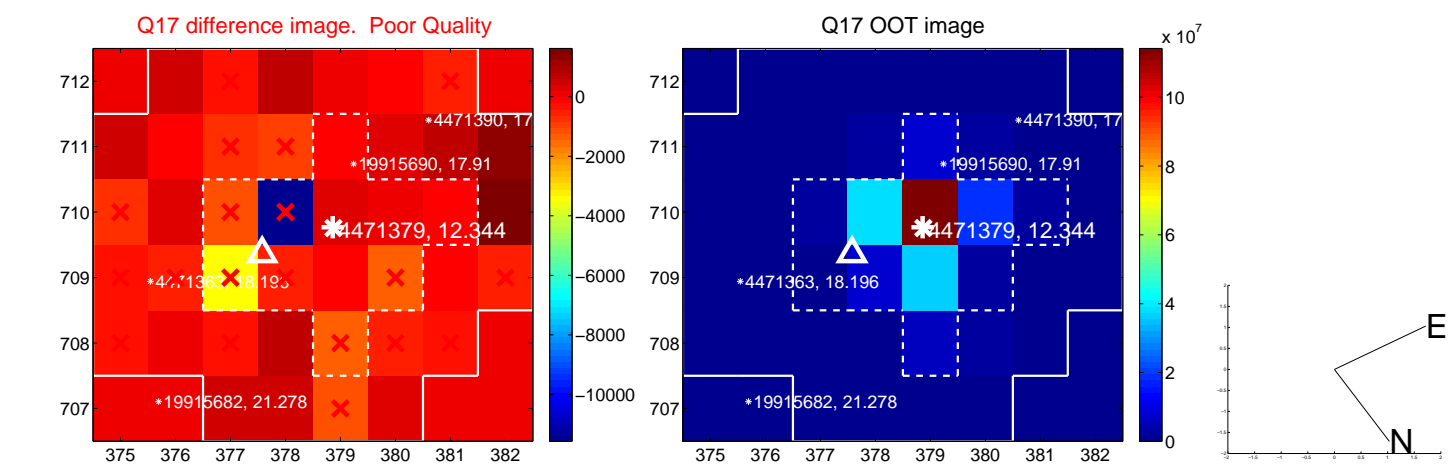
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



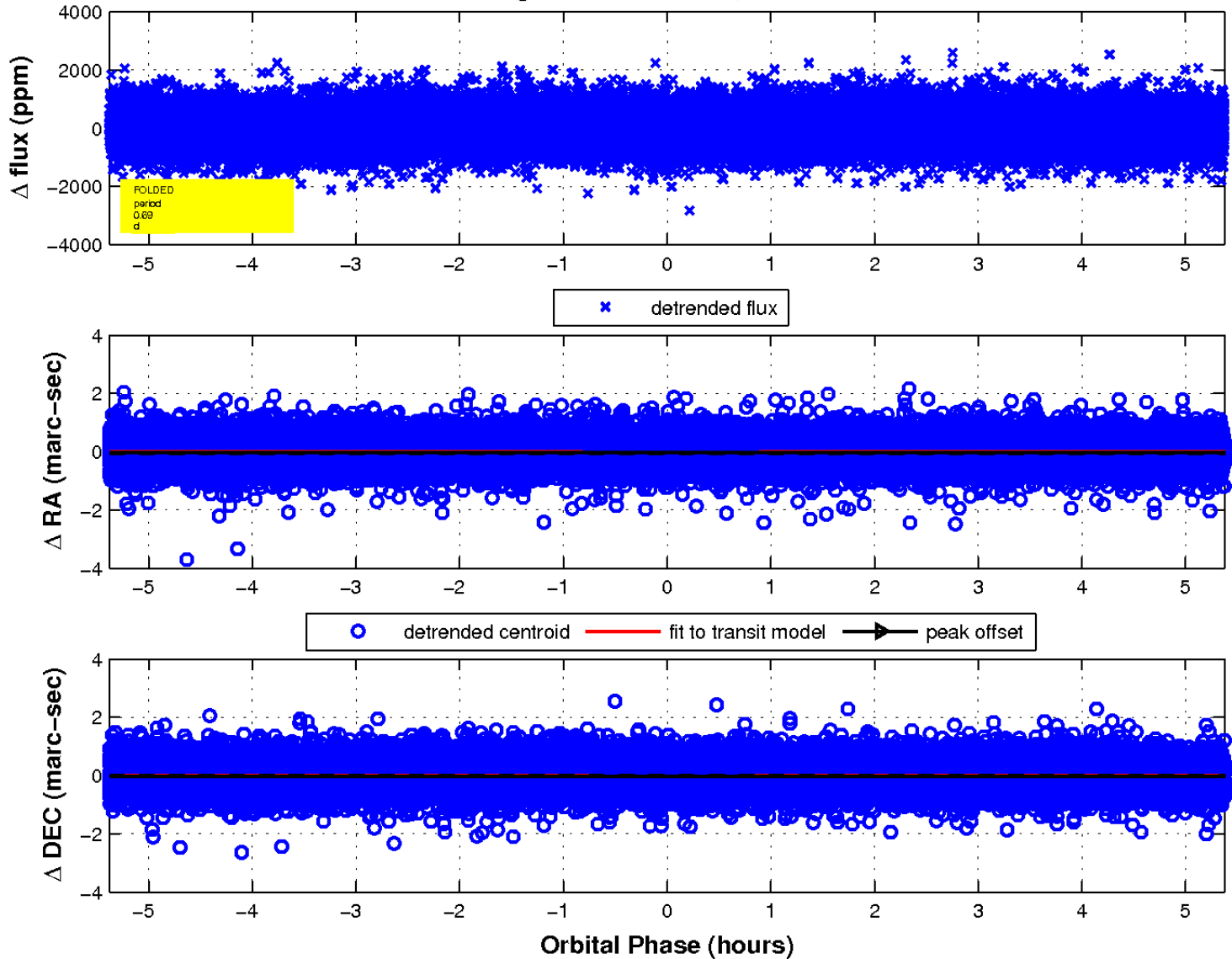
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



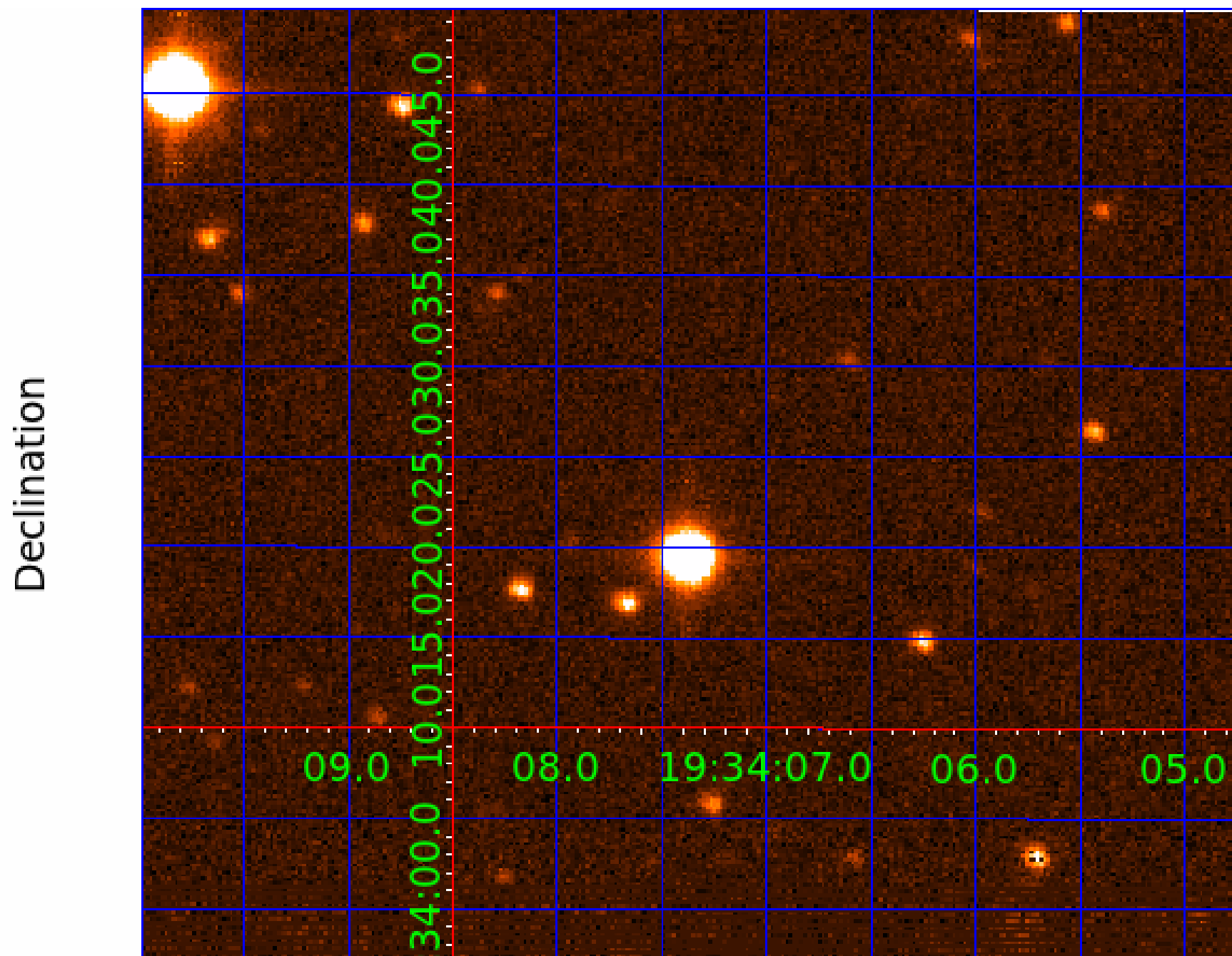
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 5



UKIRT Image



KIC 004471379

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})
004471379-01	OBS	No	0.685660	131.548032	62.0	1.793	10.0	8.2	2.28	8148	2.09	56645.30
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004471379-04	OBS	No	17.189458	139.544273	782.8	1.345	13.0	10.6	2.28	8148	6.50	772.01
004471379-05	OBS	No	12.696187	137.618712	698.3	2.748	13.1	13.7	2.28	8148	6.62	1156.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004471379-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004471379-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004471379-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004471379-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

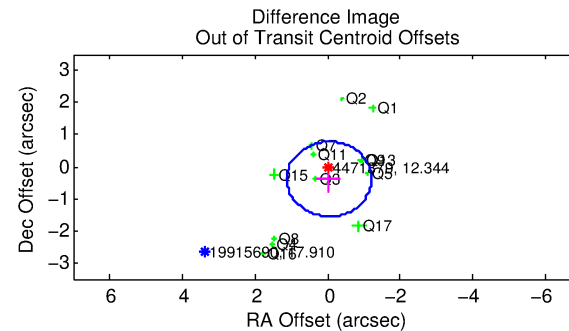
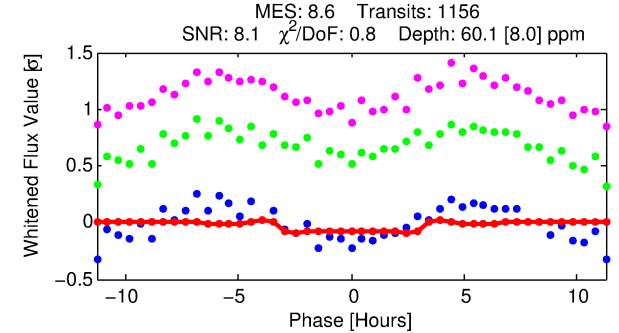
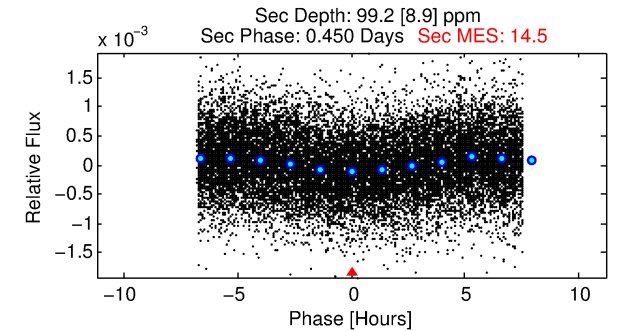
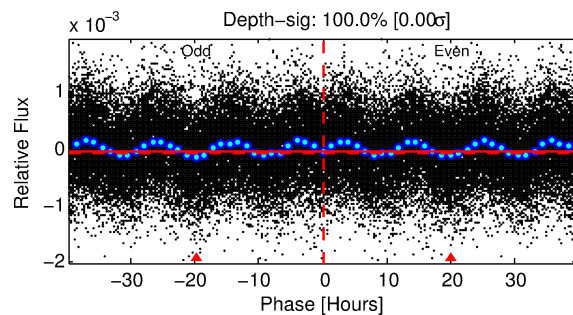
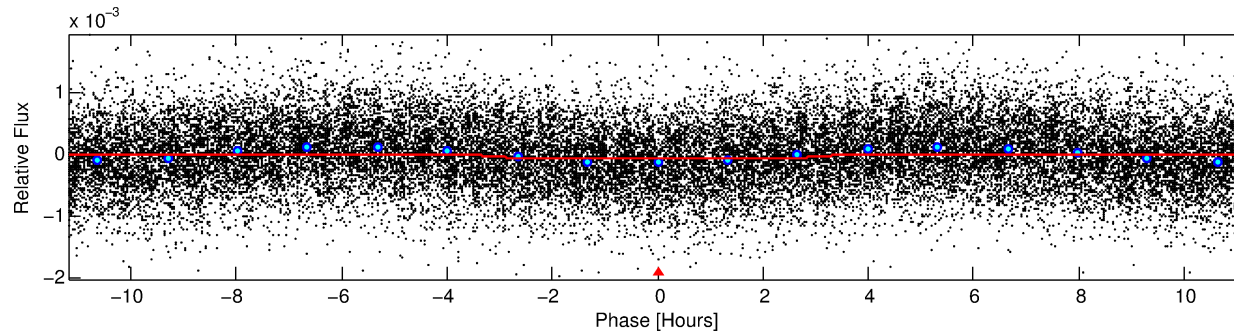
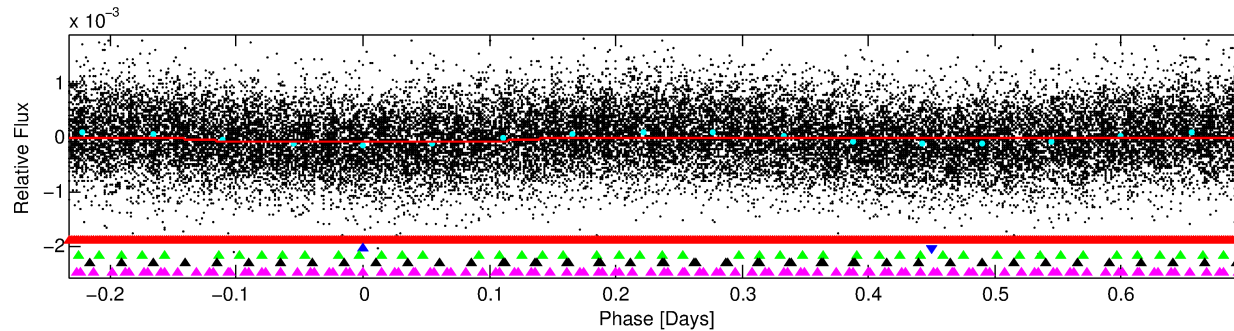
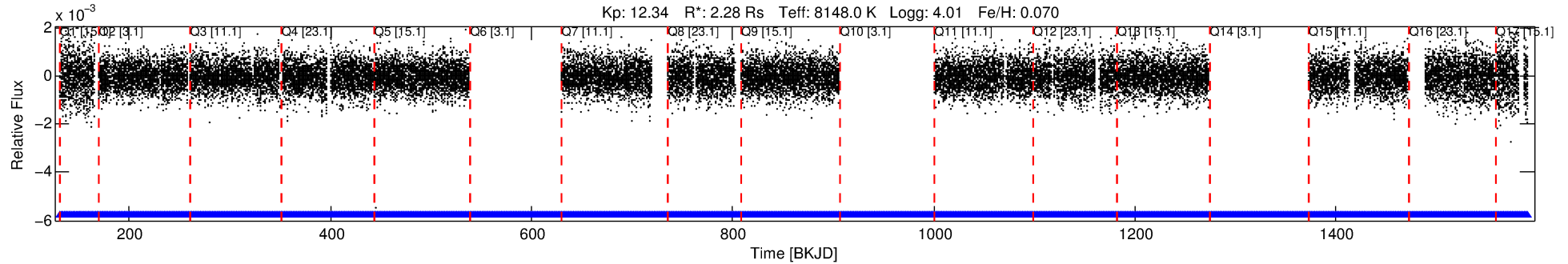
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004471379-02

No Significant Match Found

DV One-Page Summary

KIC: 4471379 Candidate: 2 of 5 Period: 0.933 d



DV Fit Results:

Period = 0.93257 [0.00002] d
Epoch = 131.5938 [0.0058] BKJD
Rp/R* = 0.0072 [0.0102]
a/R* = 1.23 [3.48]
b = 0.30 [25.26]
Seff = 37589.73 [14618.01]
Teq = 3551 [345] K
Rp = 1.80 [2.60] Re
a = 0.0234 [0.0056] AU
Ag = 9.18 [26.17] [0.31σ]
Teffp = 9554 [6773] K [0.89σ]

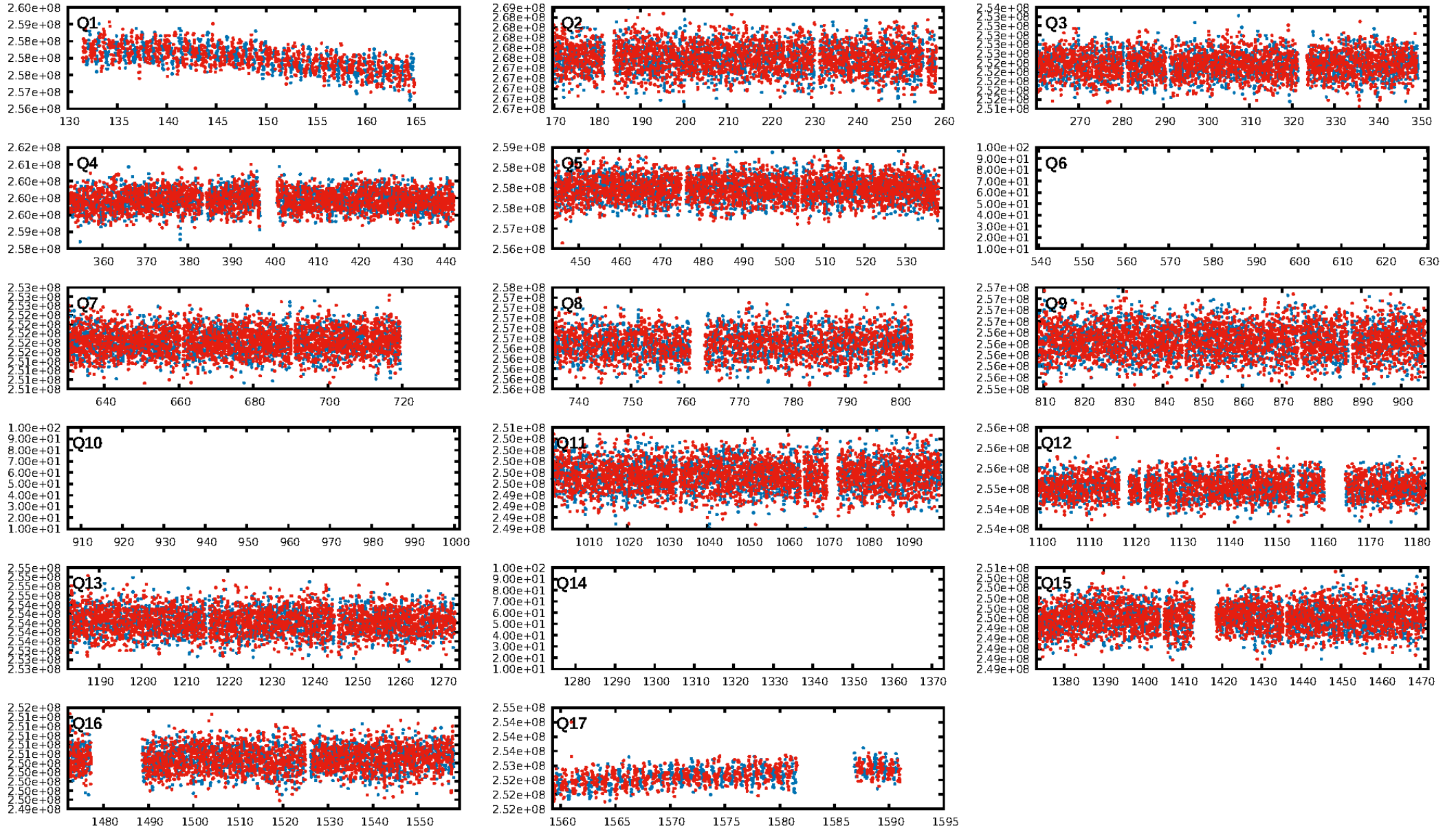
DV Diagnostic Results:

ShortPeriod-sig: 61.1% [0.86σ]
LongPeriod-sig: 100.0% [39.25σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.80e-12
RollingBand-fgt: 1.00 [1091/1091]
GhostDiagnostic-chr: 1.22
Centroid-sig: 9.2%
Centroid-so: 0.179 arcsec [1.00σ]
OotOffset-rm: 0.391 arcsec [1.01σ]
KicOffset-rm: 0.439 arcsec [1.18σ]
OotOffset-st: 1/4/3/5 [13]
KicOffset-st: 1/4/3/5 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 0.00 [0/14]

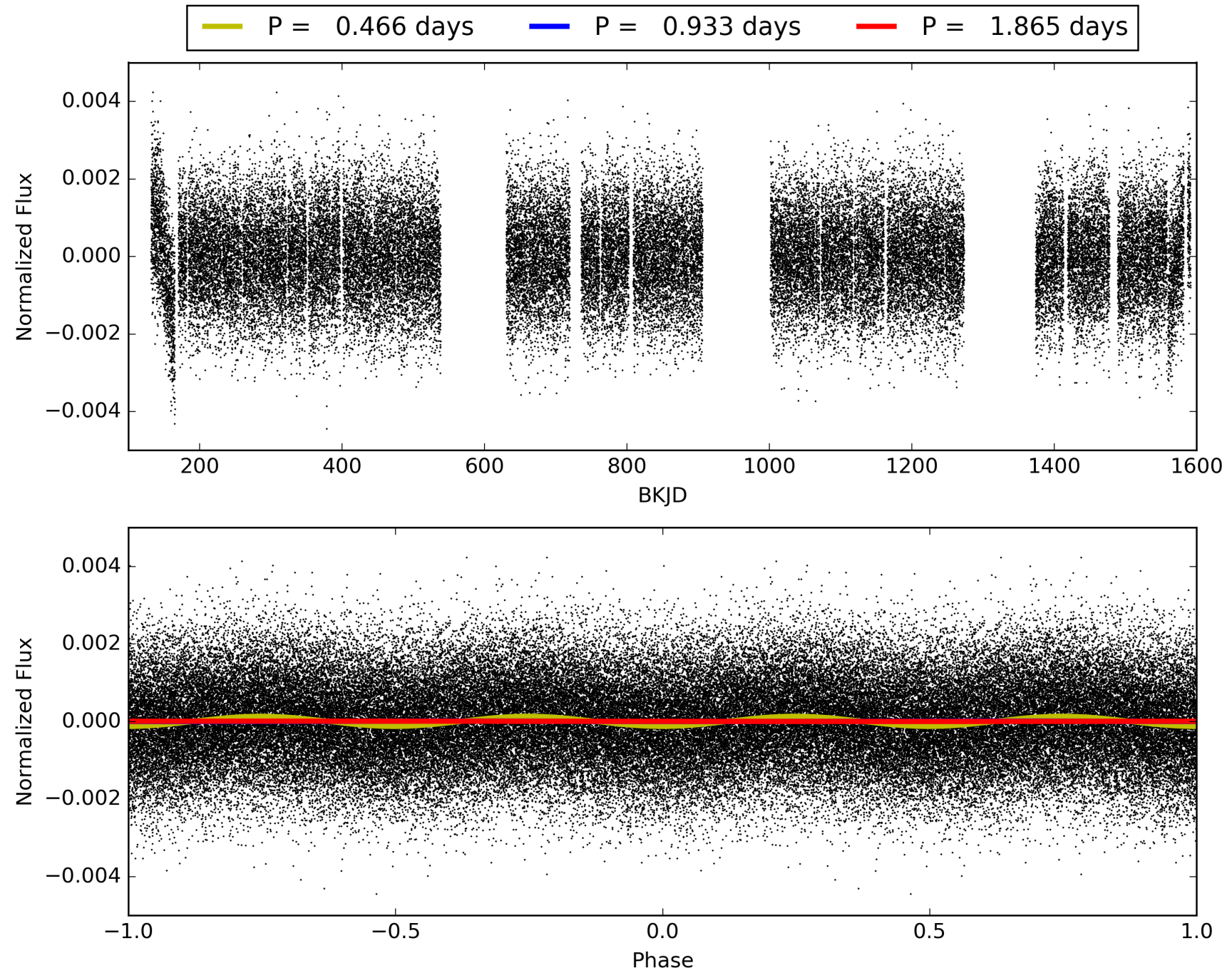
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:14:22 Z

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

TCE 004471379-02, PDC Light Curves

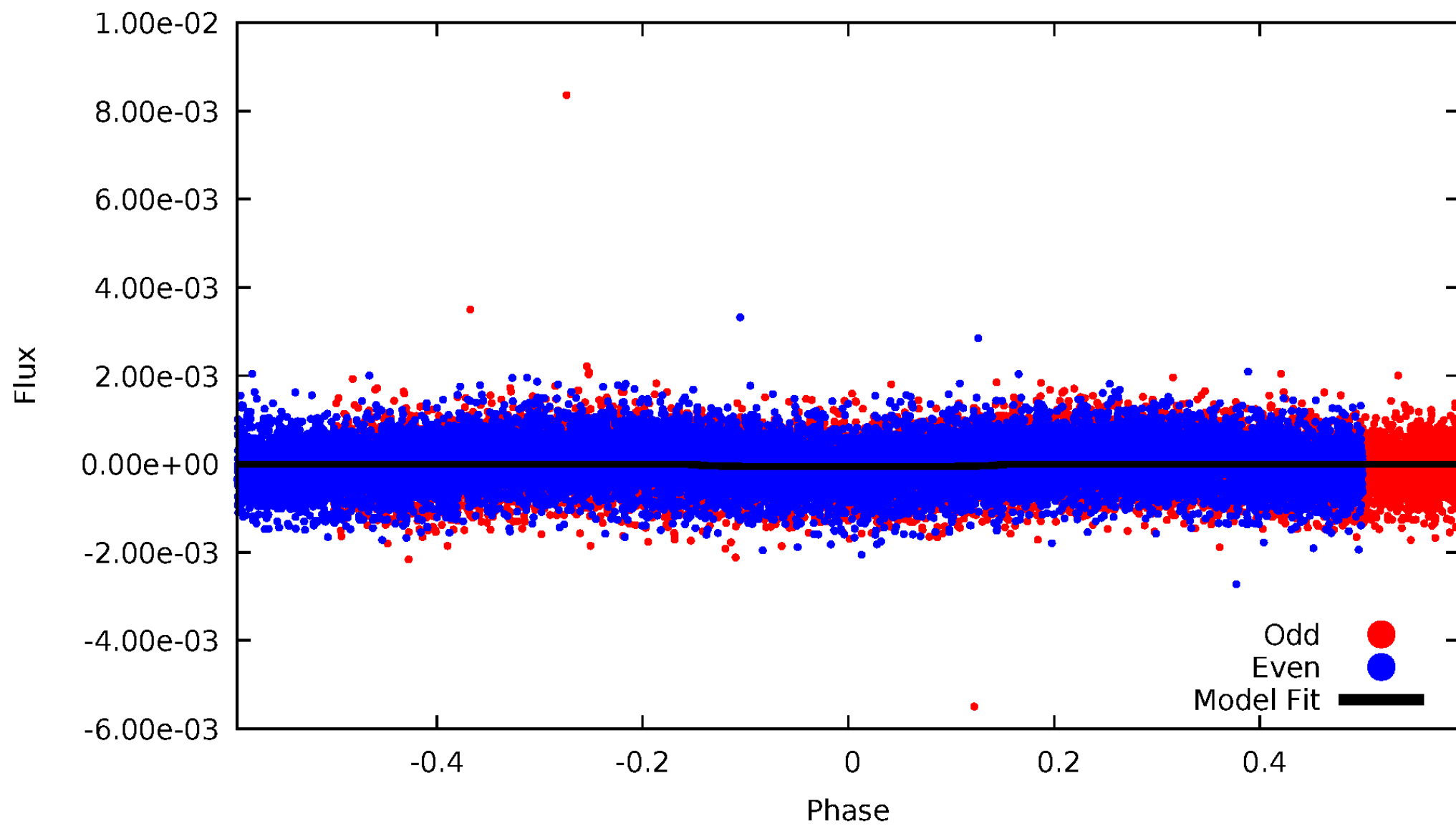


TCE 004471379-02



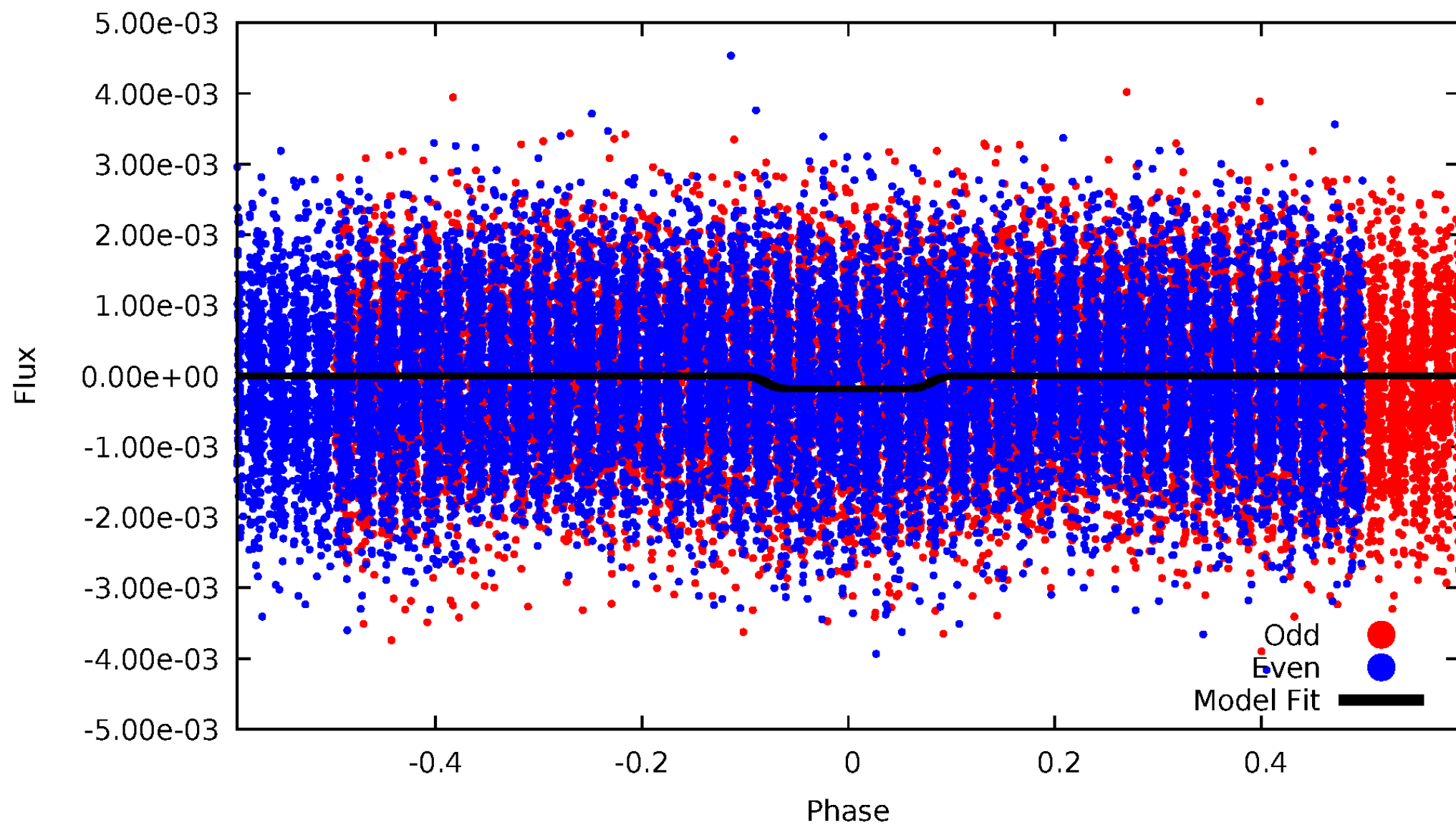
DV Odd/Even

TCE 004471379-02



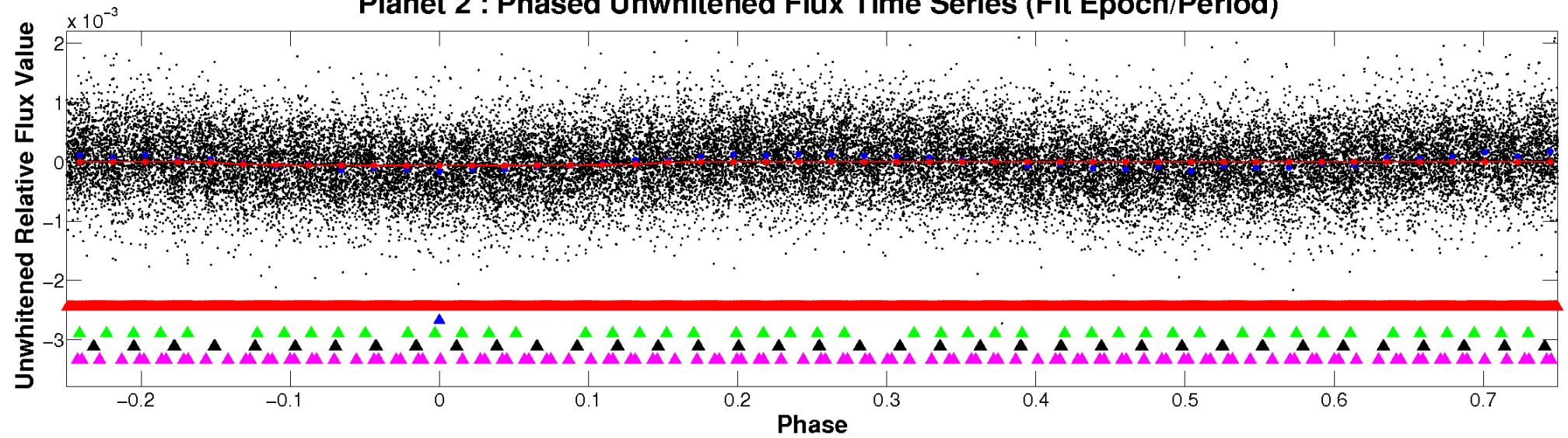
ALT Odd/Even

TCE 004471379-02

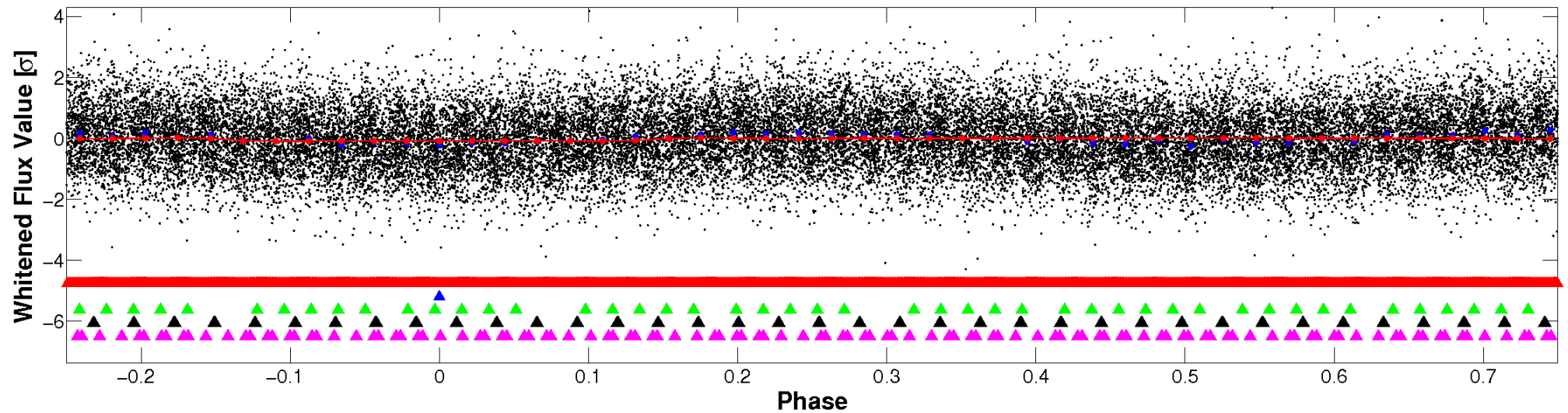


Non-Whitened Vs. Whitened Light Curve

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

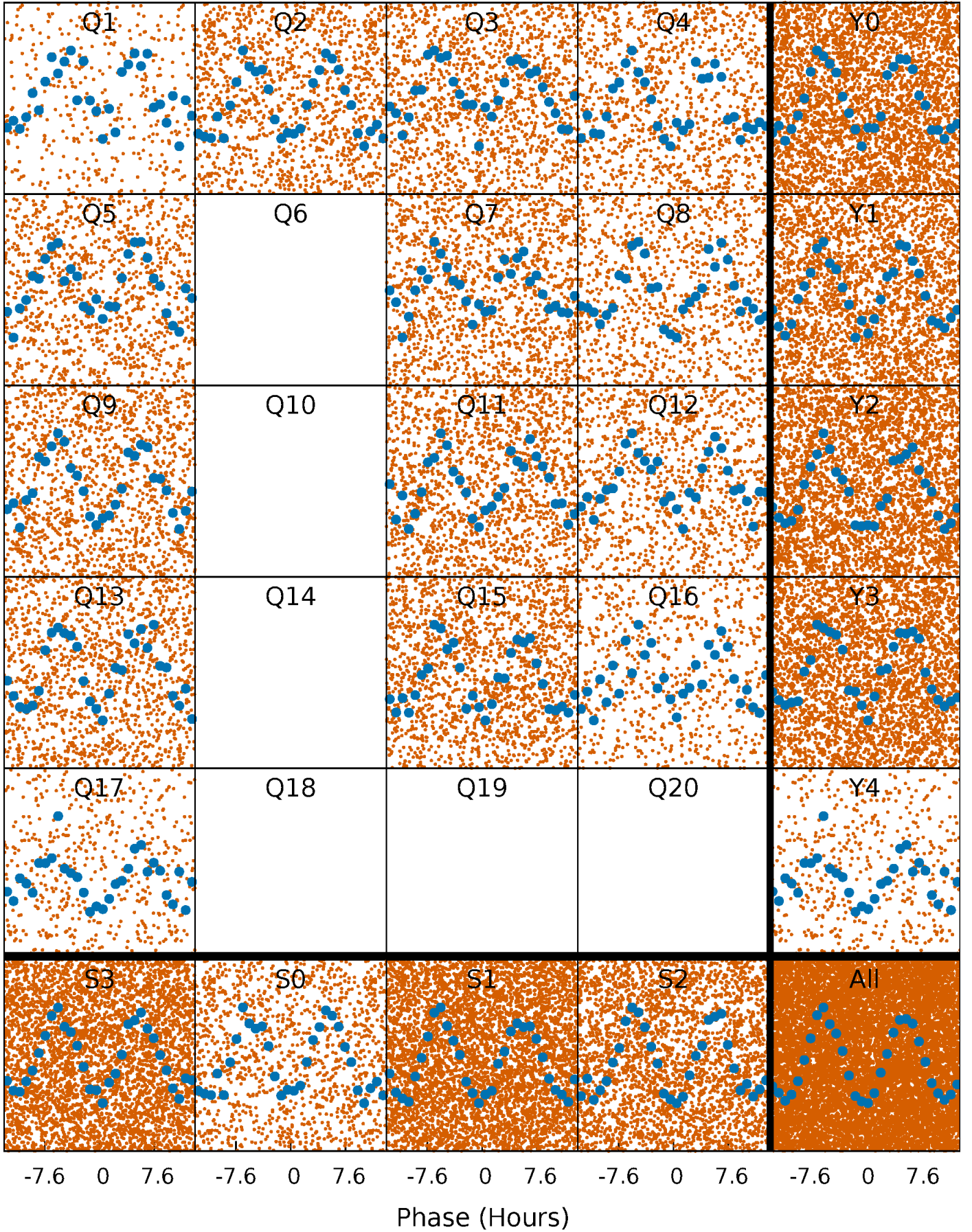


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



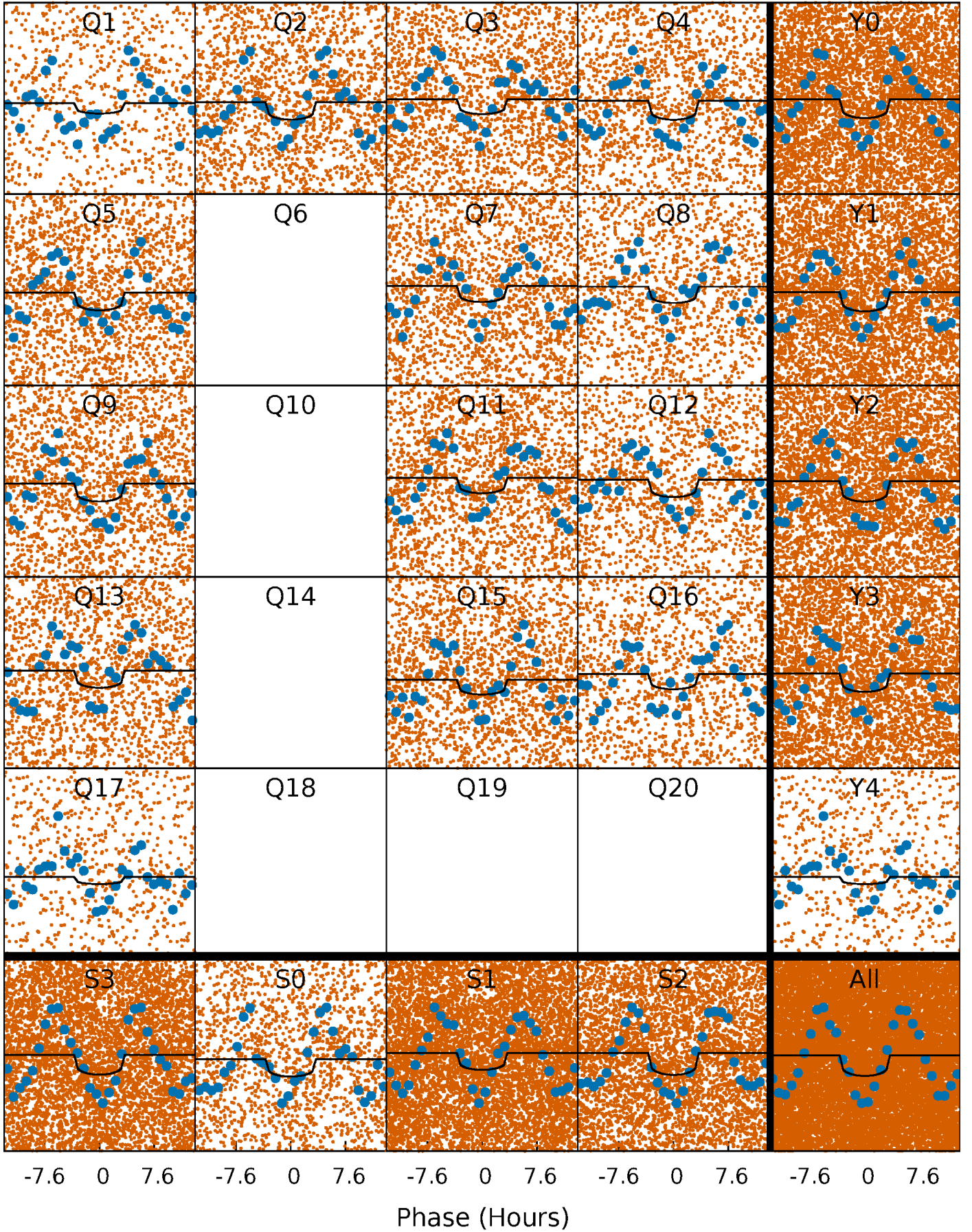
PDC Quarter-Phased Transit Curves

TCE 004471379-02 P= 0.932566 Days $T_0=131.593773$ (BKJD)



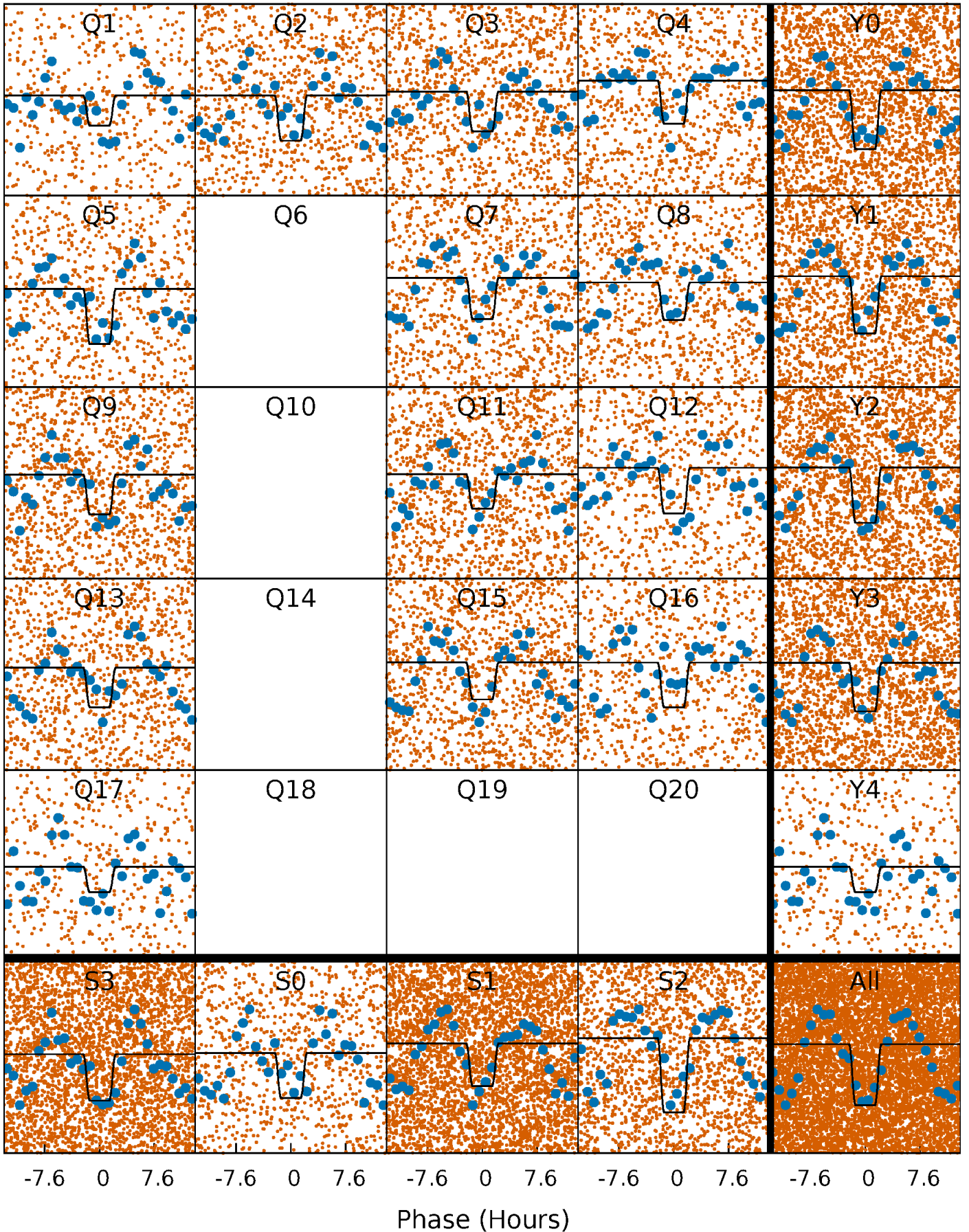
DV Quarter-Phased Transit Curves

TCE 004471379-02 P= 0.932566 Days $T_0=131.593773$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

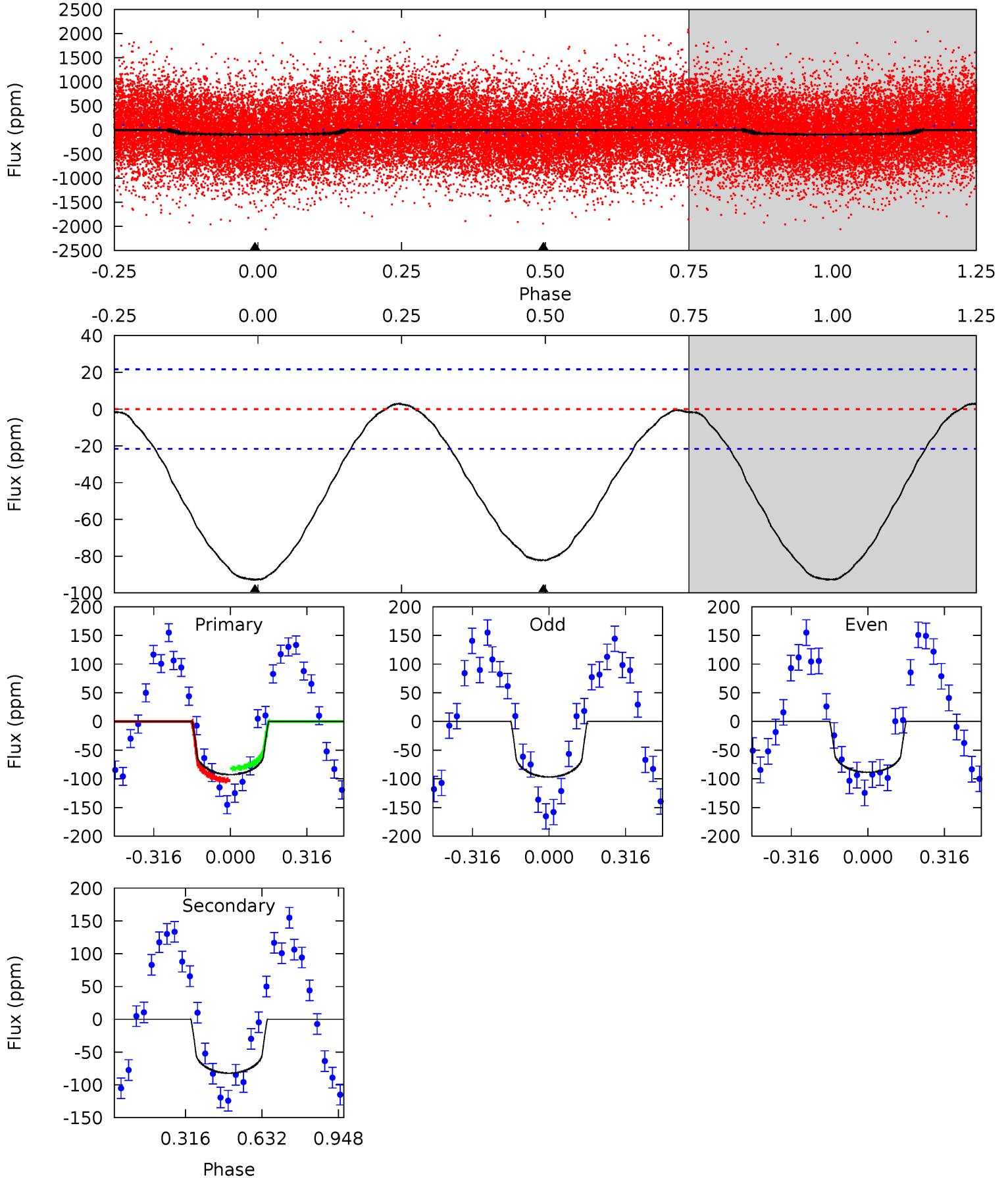
TCE 004471379-02 P= 0.932585 Days $T_0=131.582568$ (BKJD)



DV Model-Shift Uniqueness Test

004471379-02, P = 0.932566 Days, E = 131.593773 Days

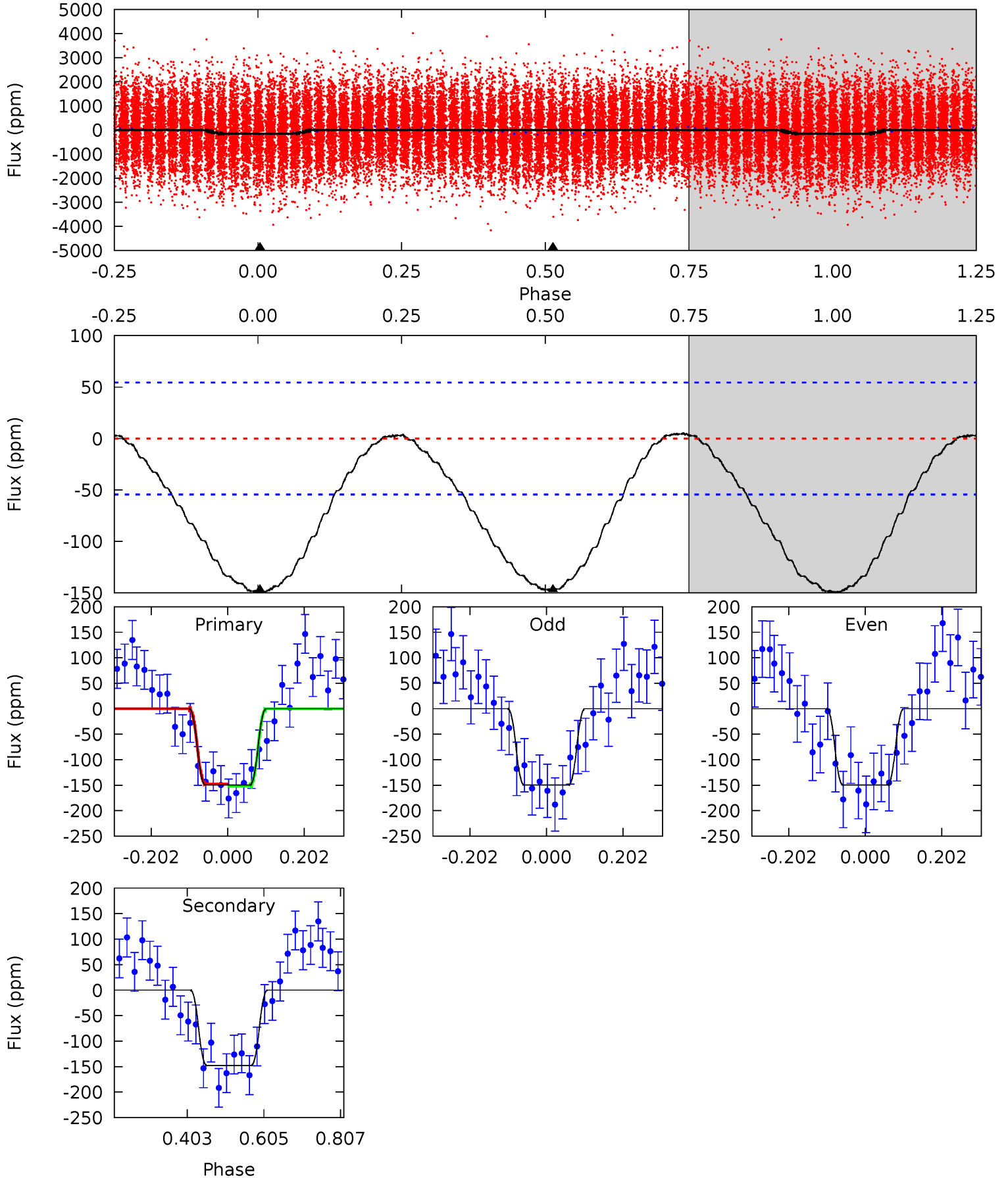
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	16.4	0	0	4.32	1.00	0.35	18.5	18.5	16.4	16.4	0.82	0.95	0.03	2.17



Alt Model-Shift Uniqueness Test

004471379-02, P = 0.932585 Days, E = 131.582568 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	12.0	0	0	4.42	1.28	0.61	12.1	12.1	12.0	12.0	0.00	1.09	0.03	0.16



Stellar Parameters For KIC 004471379

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8148^{+226}_{-340}	$4.014^{+0.192}_{-0.128}$	$0.070^{+0.250}_{-0.500}$	$2.282^{+0.436}_{-0.654}$	$1.960^{+0.295}_{-0.405}$	$0.232^{+0.289}_{-0.081}$
	+3%/-4%	+5%/-3%	+357%/-714%	+19%/-29%	+15%/-21%	+124%/-35%
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 004471379-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 5	$2.48^{+2.25}_{-1.66}$	4913^{+312}_{-366}	7369^{+10742}_{-2315}	$4.065^{+32.693}_{-2.983}$
Alt.	-148 ± 12	$3.58^{+2.76}_{-2.12}$	4933^{+280}_{-370}	7084^{+7074}_{-1965}	$3.338^{+18.109}_{-2.203}$

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

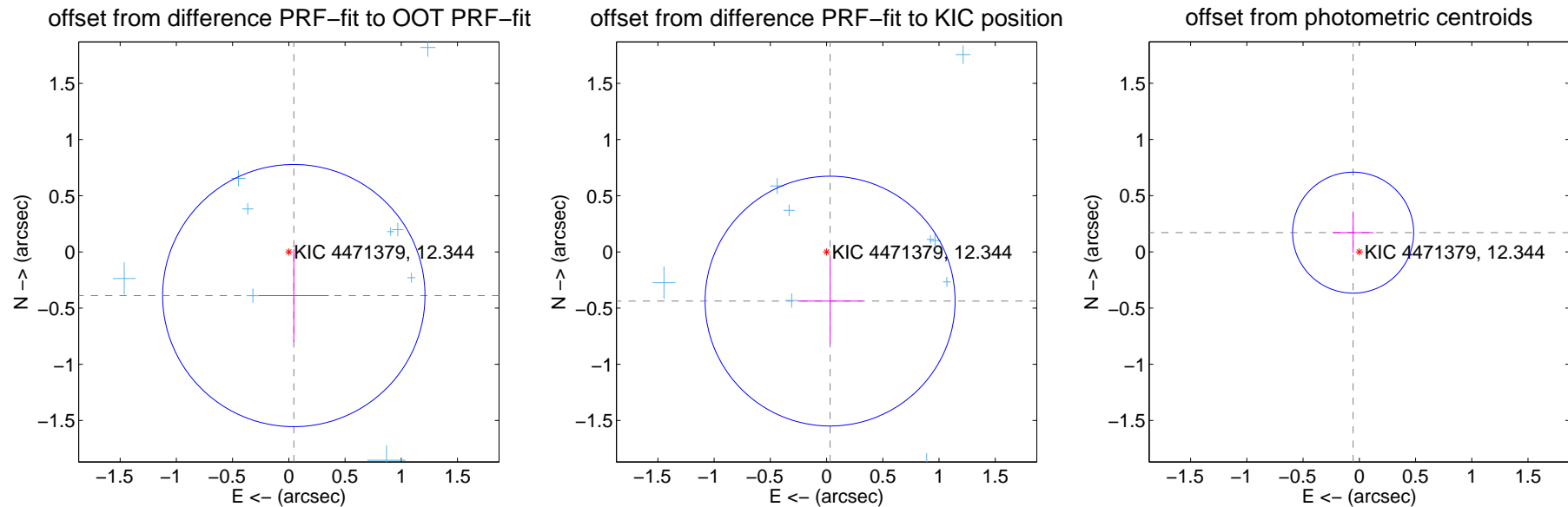
DV Centroid Data

Supplemental centroid analysis for 004471379-02. Kepler magnitude: 12.34. Transit SNR 8.13

There are 13 quarters with good PRF difference image offsets

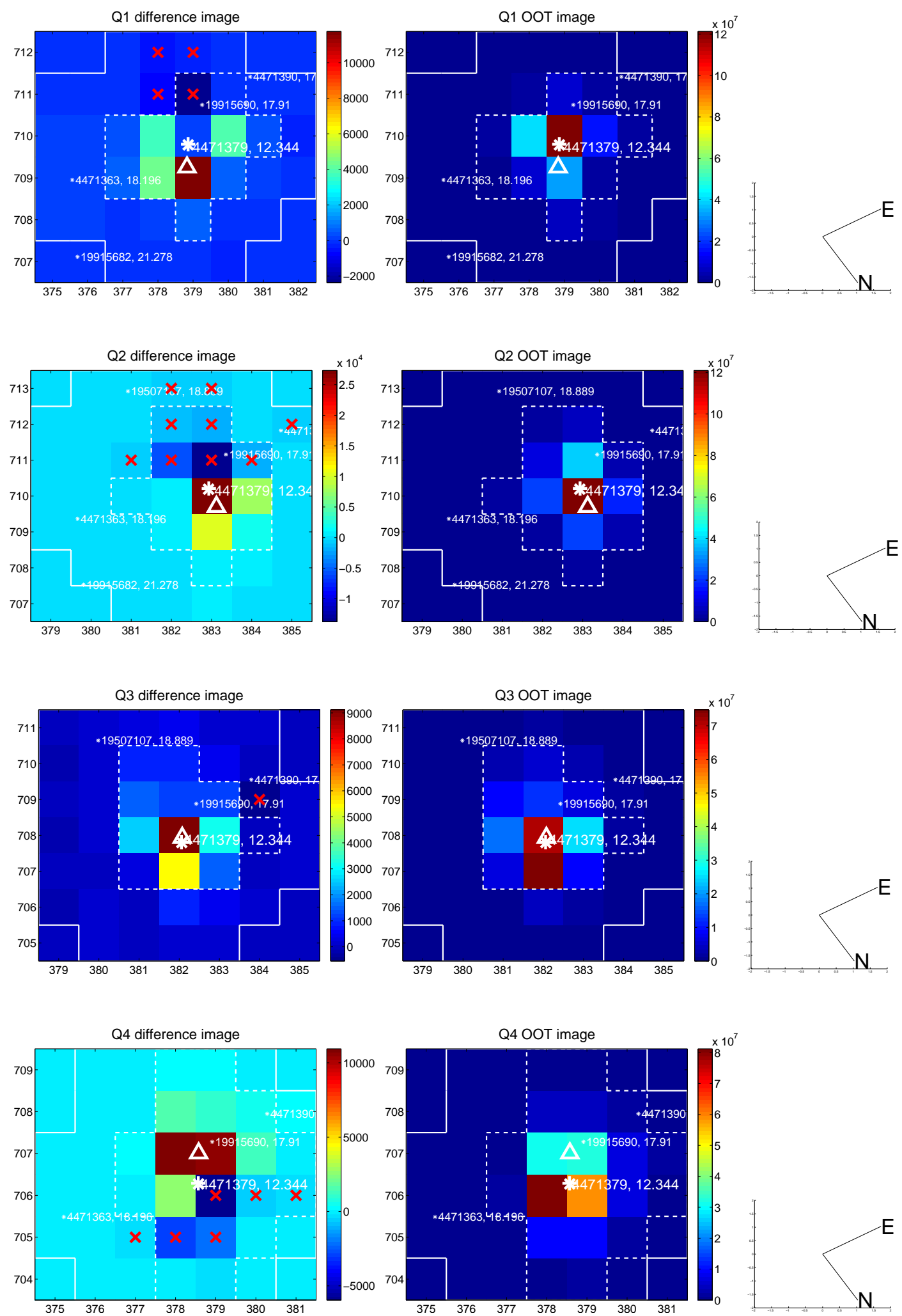
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.391 ± 0.389	1.01	-0.044 ± 0.311	-0.389 ± 0.414
PRF-fit source offset from KIC position	0.439 ± 0.371	1.18	-0.031 ± 0.289	-0.438 ± 0.383
photometric centroid source offset	0.18 ± 0.18	1.00	0.05 ± 0.18	0.17 ± 0.18

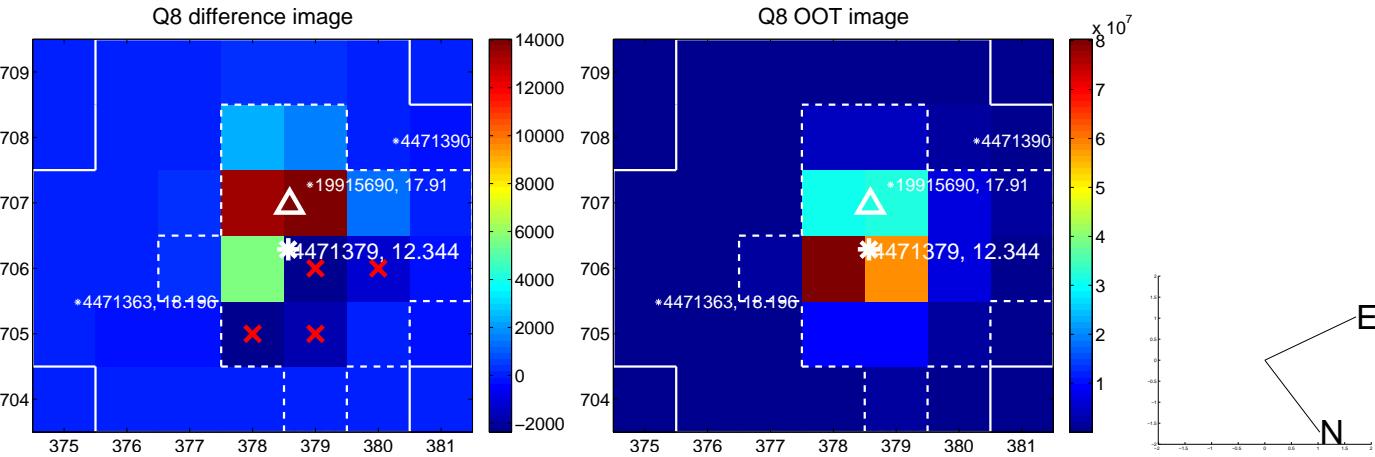
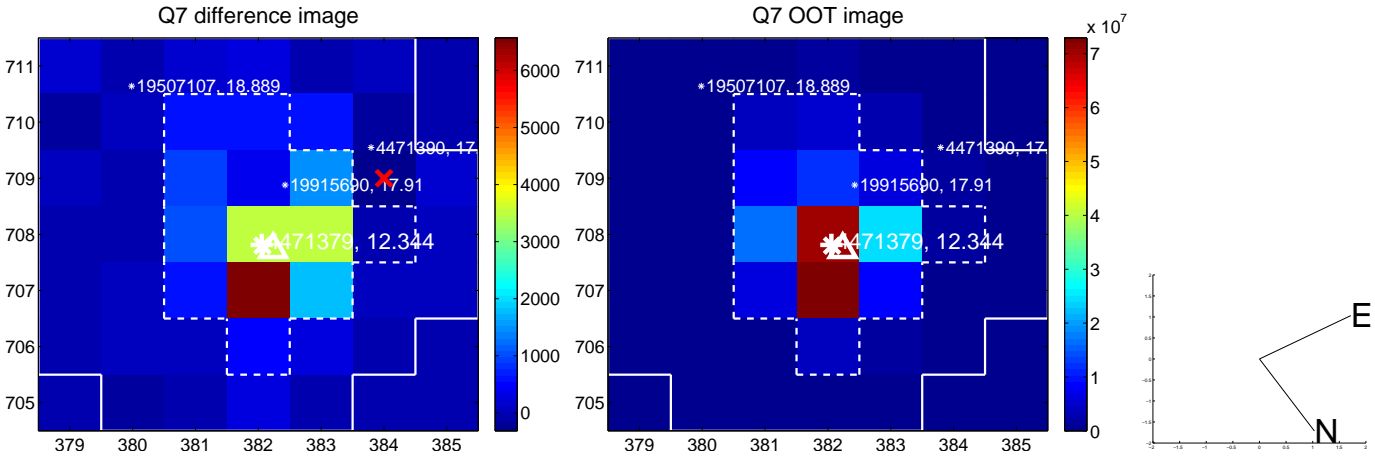
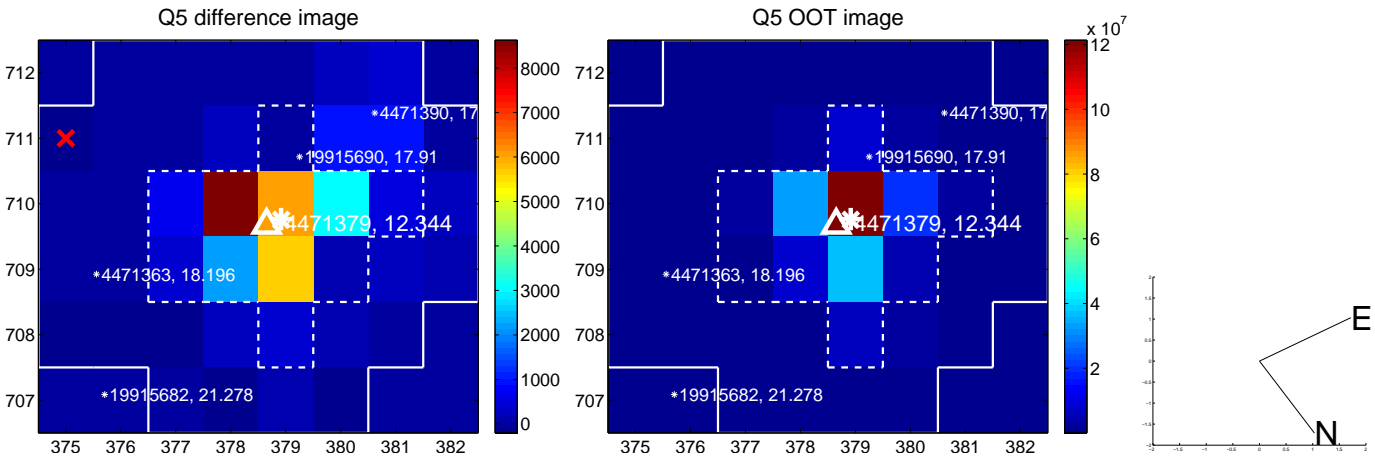


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

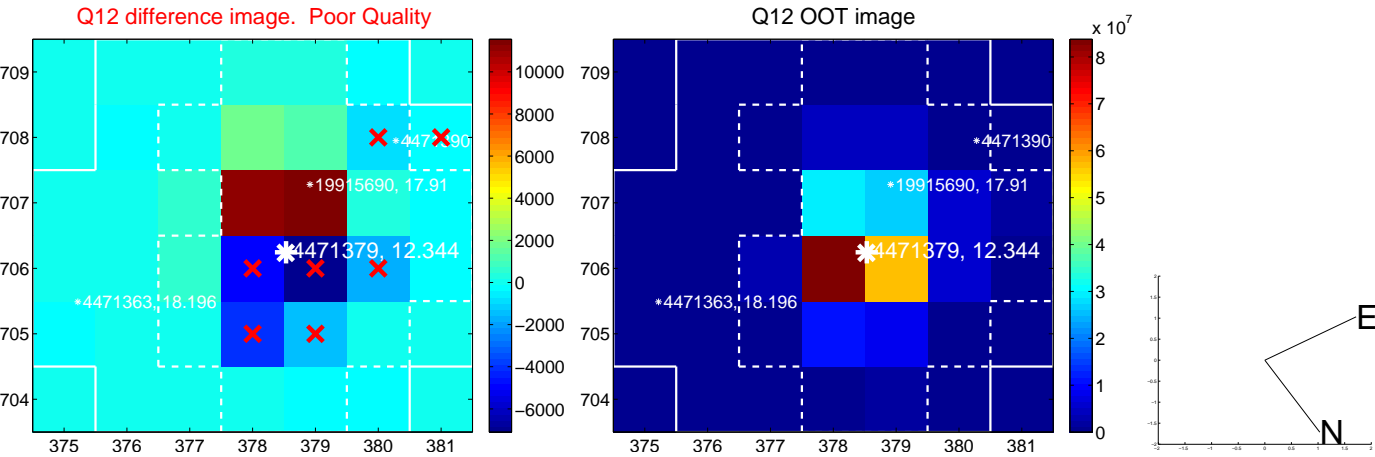
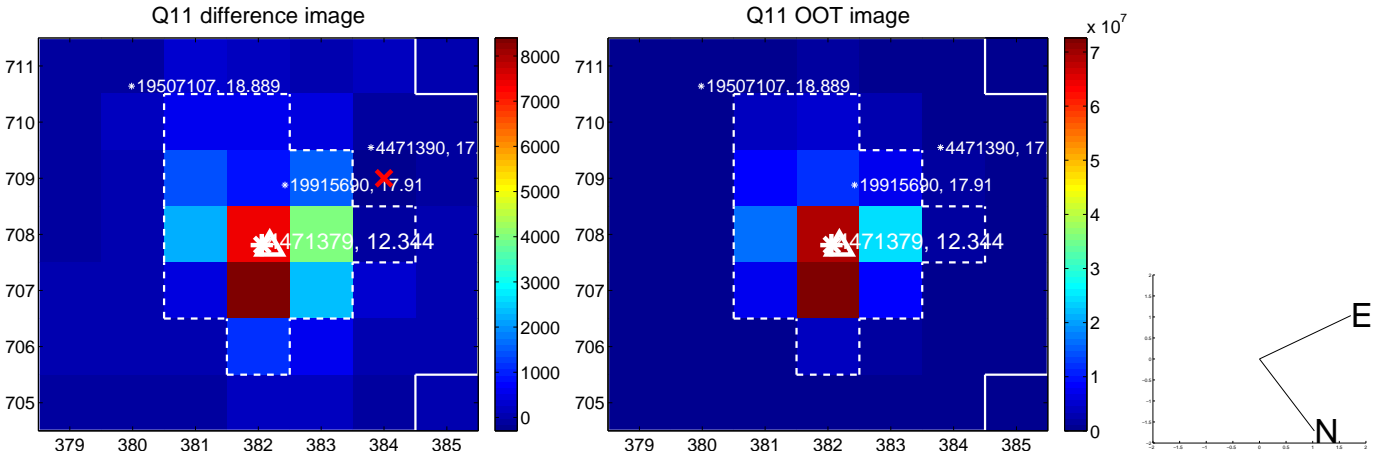
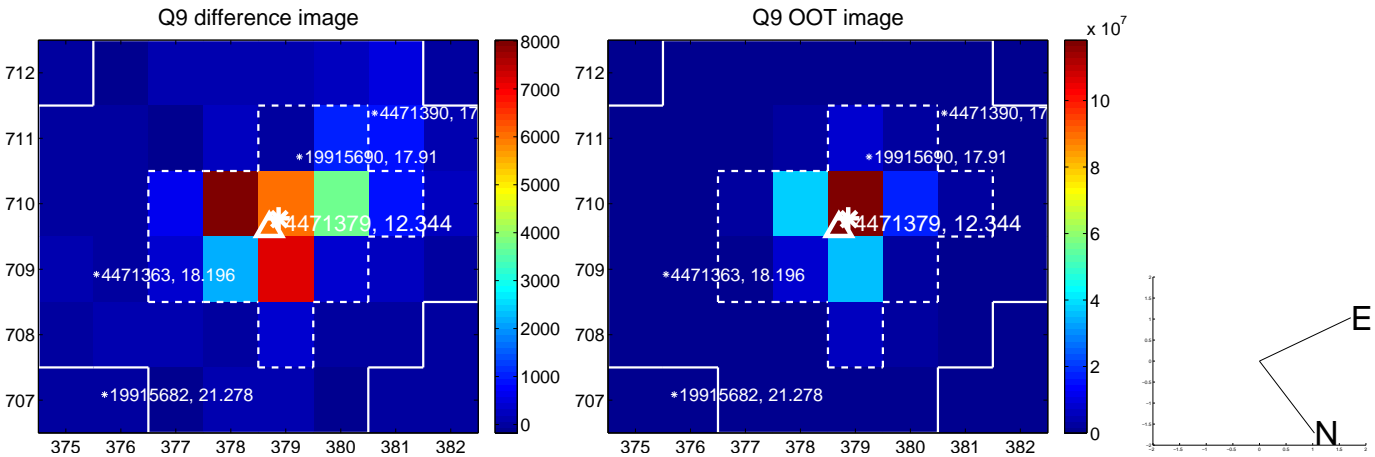
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



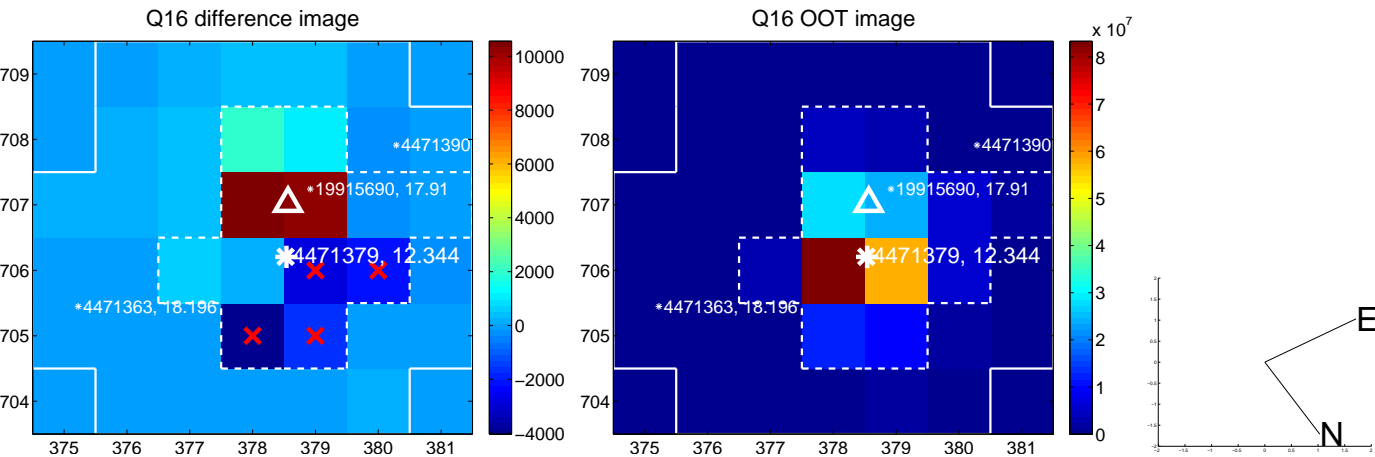
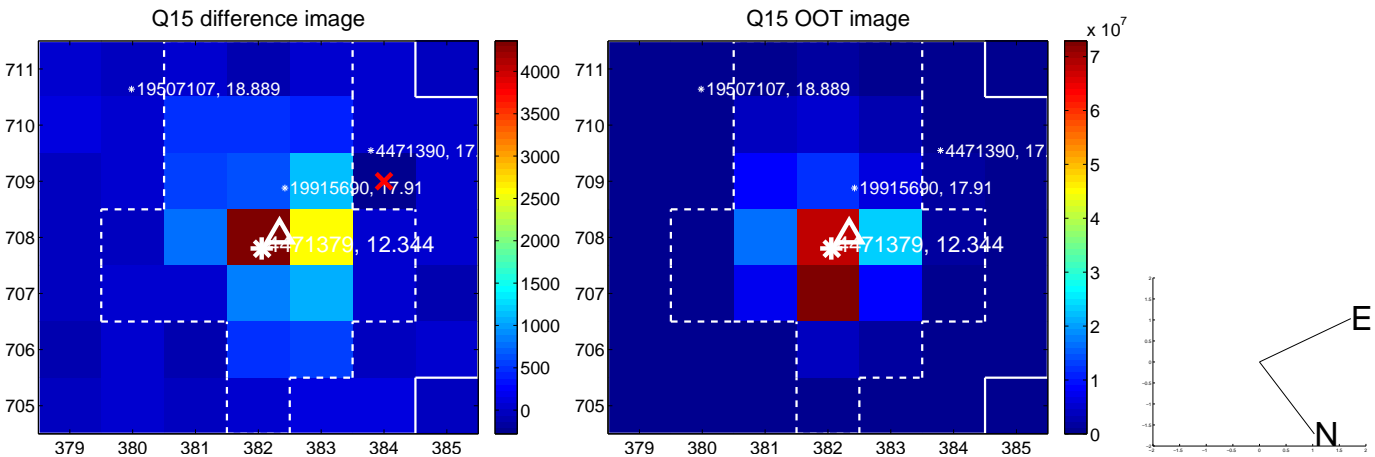
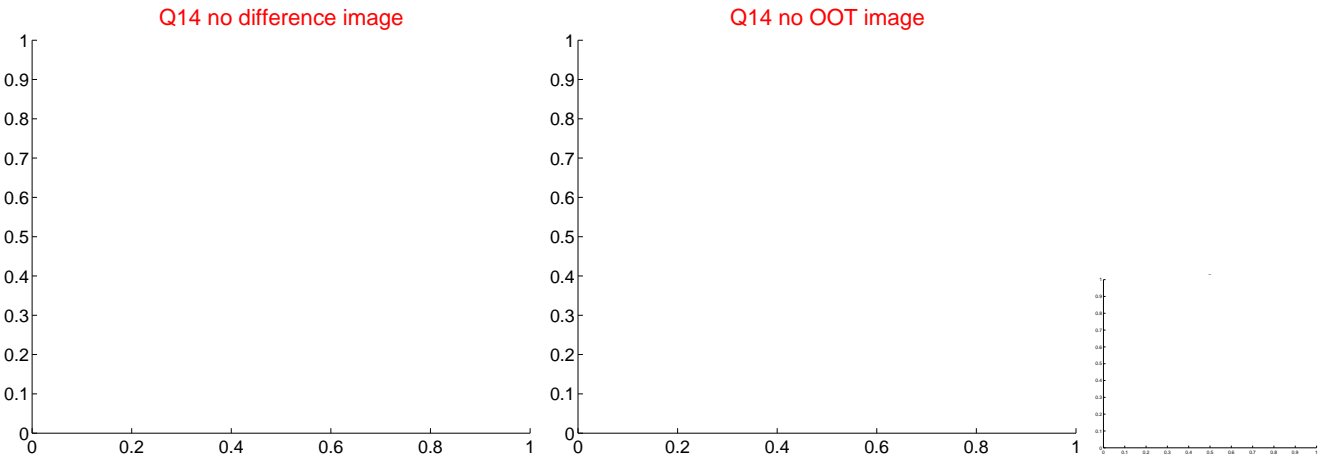
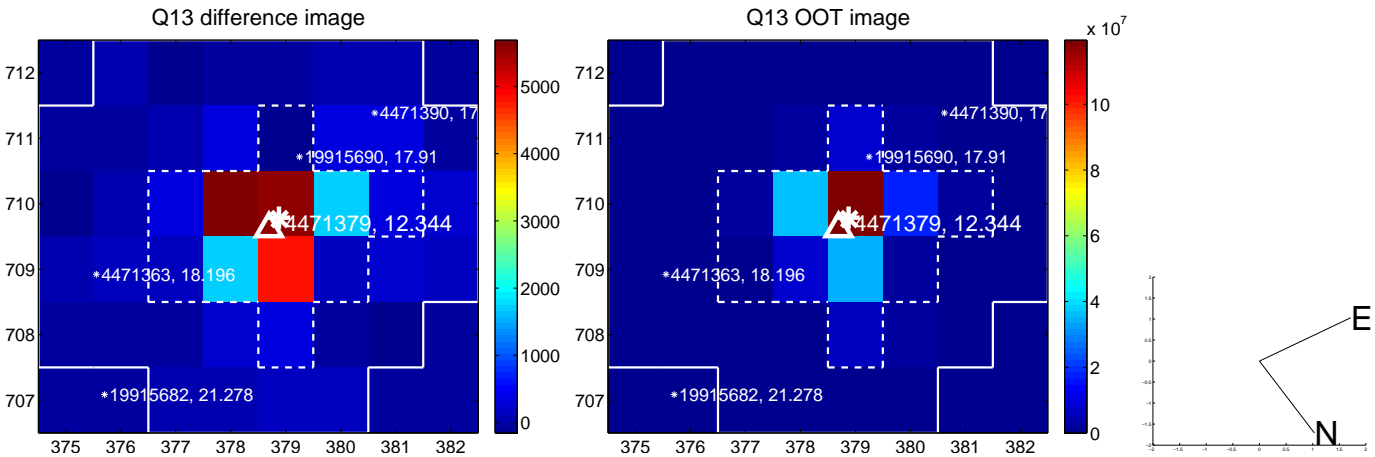
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



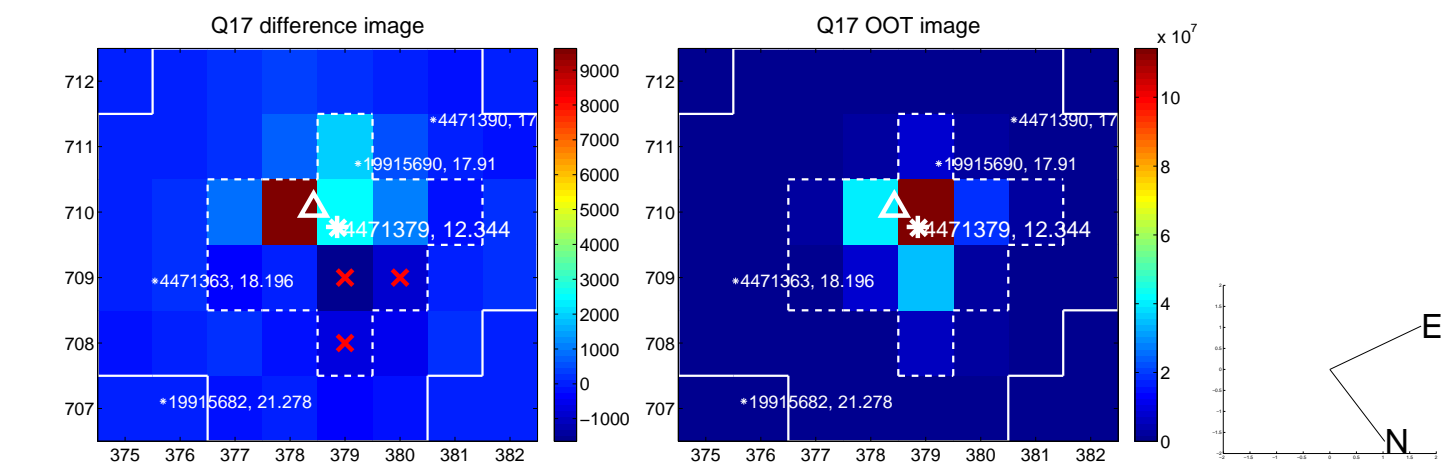
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



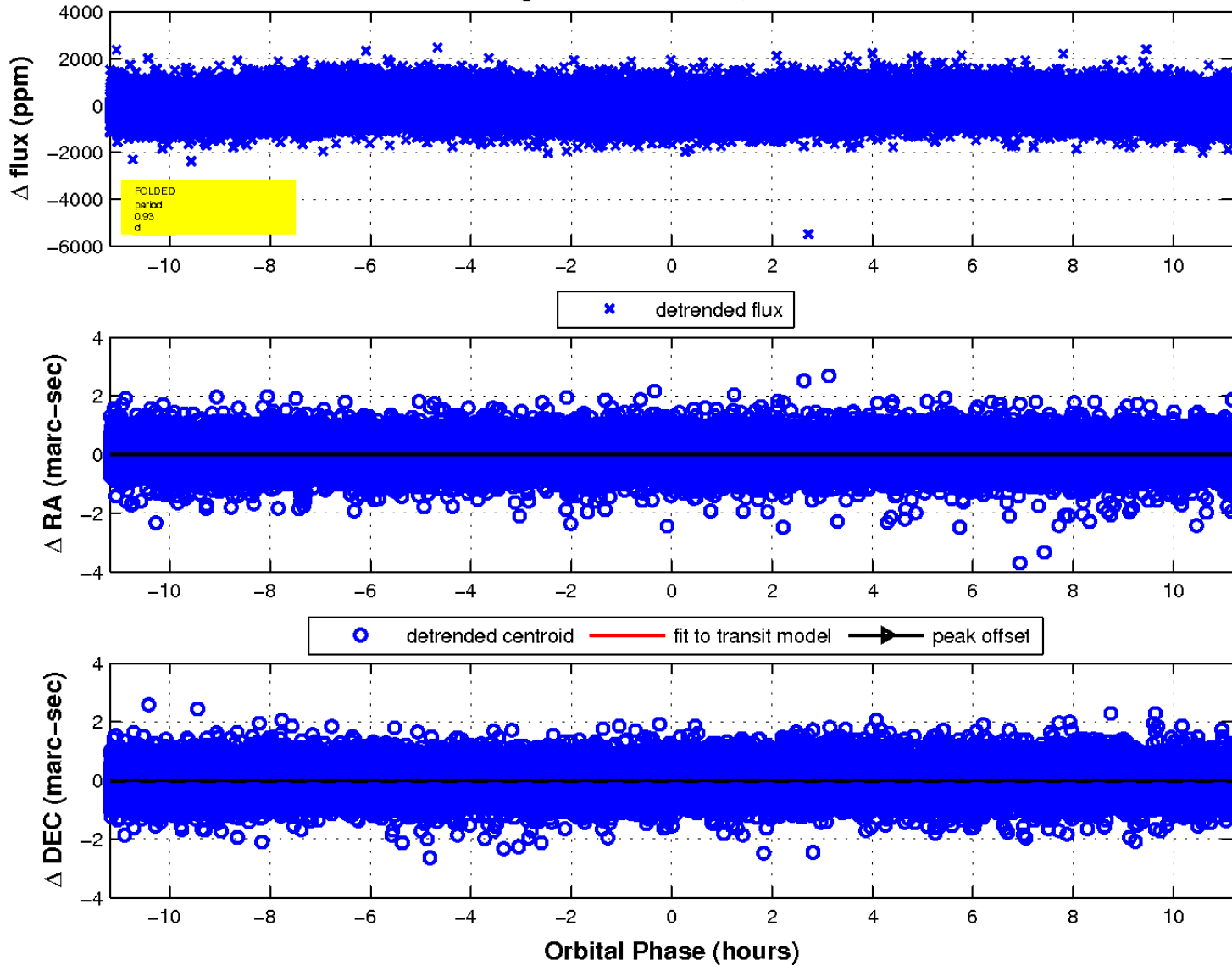
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



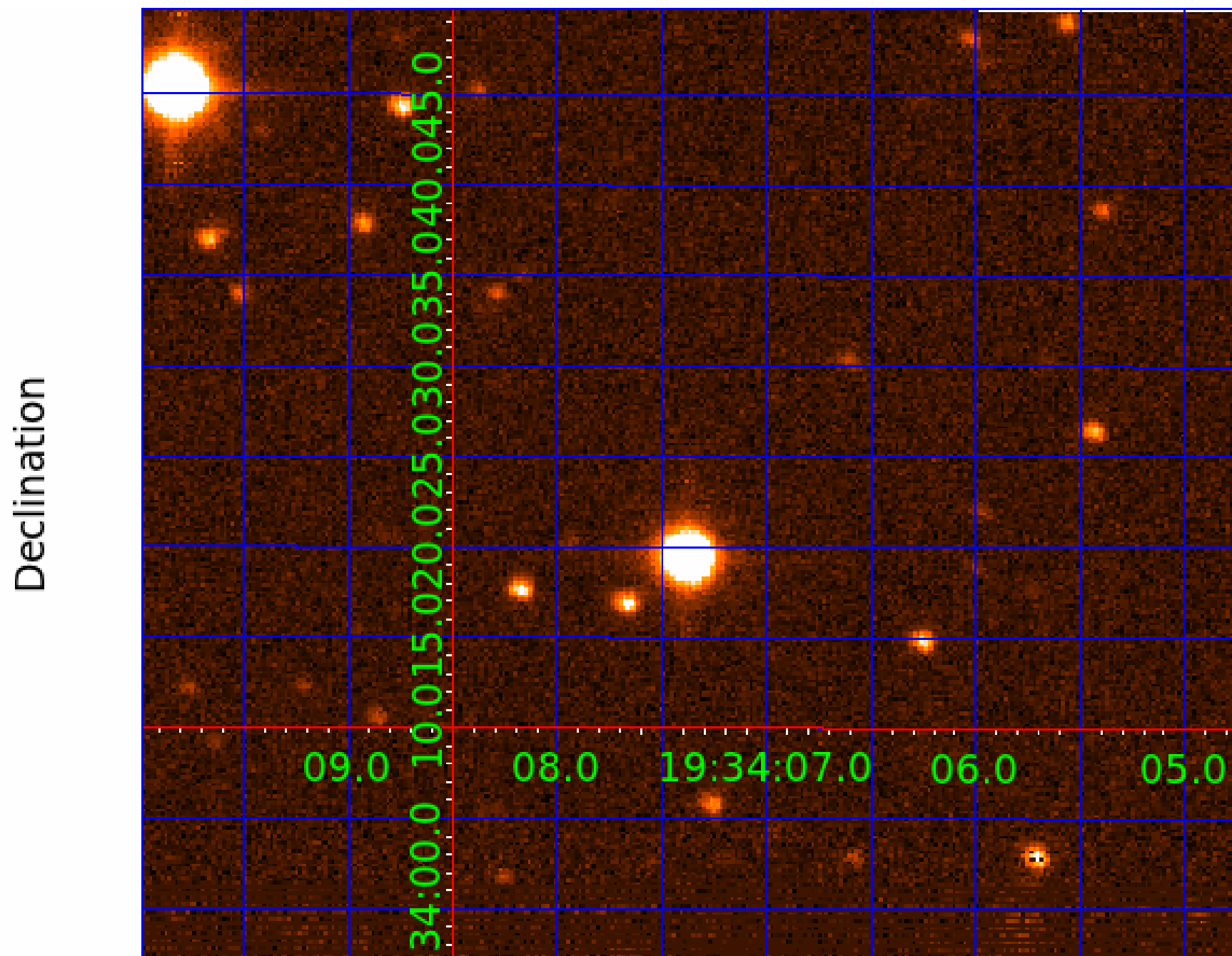
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 5



UKIRT Image



KIC 004471379

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})
004471379-01	OBS	No	0.685660	131.548032	62.0	1.793	10.0	8.2	2.28	8148	2.09	56645.30
004471379-02	OBS	No	0.932566	131.593773	60.1	6.647	8.6	8.1	2.28	8148	1.80	37589.73
004471379-04	OBS	No	17.189458	139.544273	782.8	1.345	13.0	10.6	2.28	8148	6.50	772.01
004471379-05	OBS	No	12.696187	137.618712	698.3	2.748	13.1	13.7	2.28	8148	6.62	1156.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004471379-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004471379-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004471379-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004471379-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

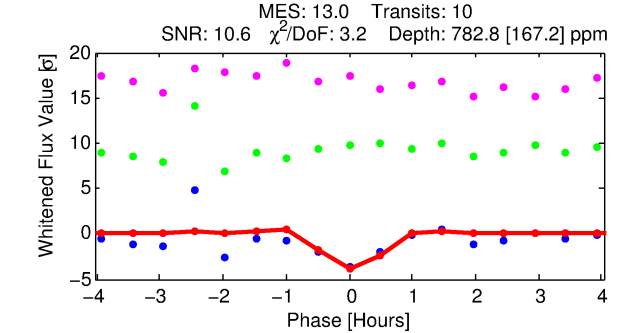
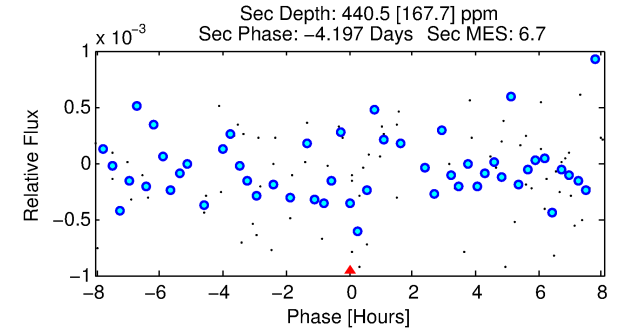
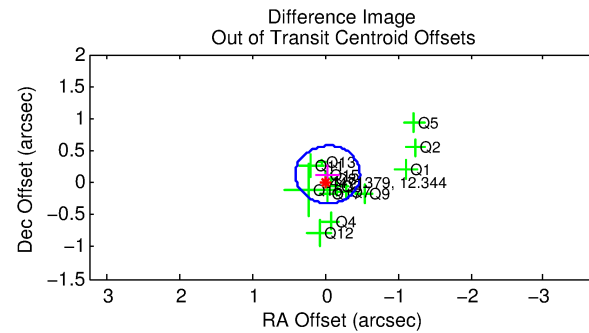
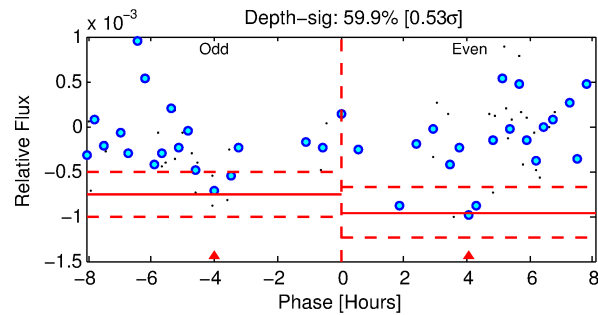
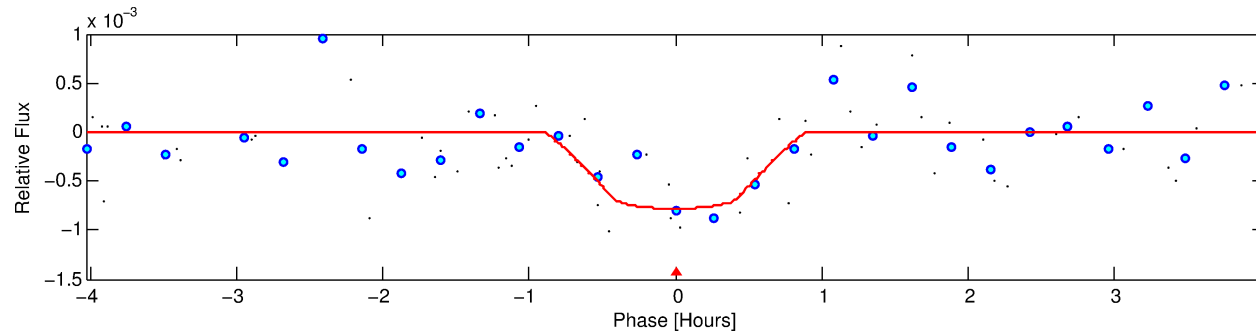
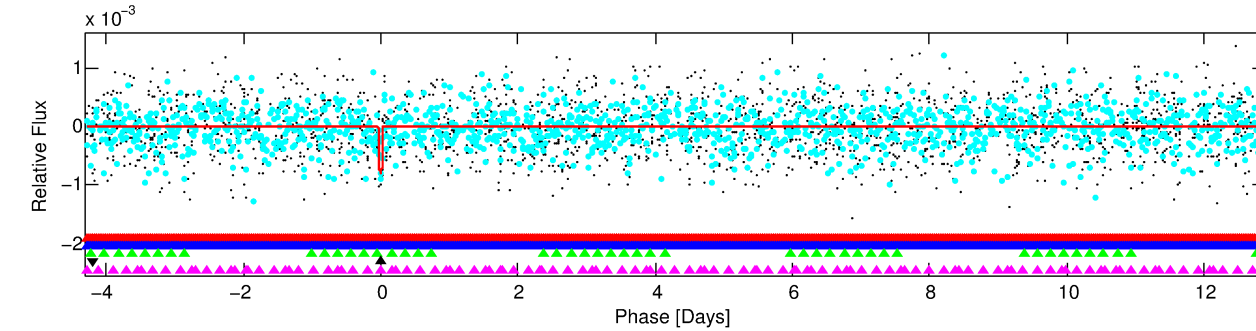
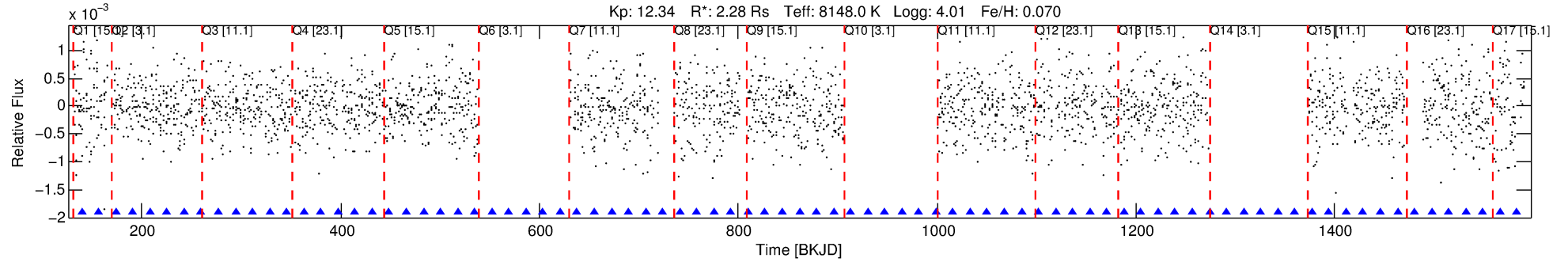
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004471379-04

No Significant Match Found

DV One-Page Summary

KIC: 4471379 Candidate: 4 of 5 Period: 17.189 d



DV Fit Results:

Period = 17.18946 [0.00015] d
Epoch = 139.5443 [0.0064] BKJD
Rp/R* = 0.0261 [0.0324]
a/R* = 98.55 [708.03]
b = 0.18 [38.06]
Seff = 772.02 [300.22]
Teff = 1344 [131] K
Rp = 6.50 [8.28] Re
a = 0.1632 [0.0394] AU
Ag = 152.73 [387.22] [0.39 σ]
Teffp = 7306 [4596] K [1.30 σ]

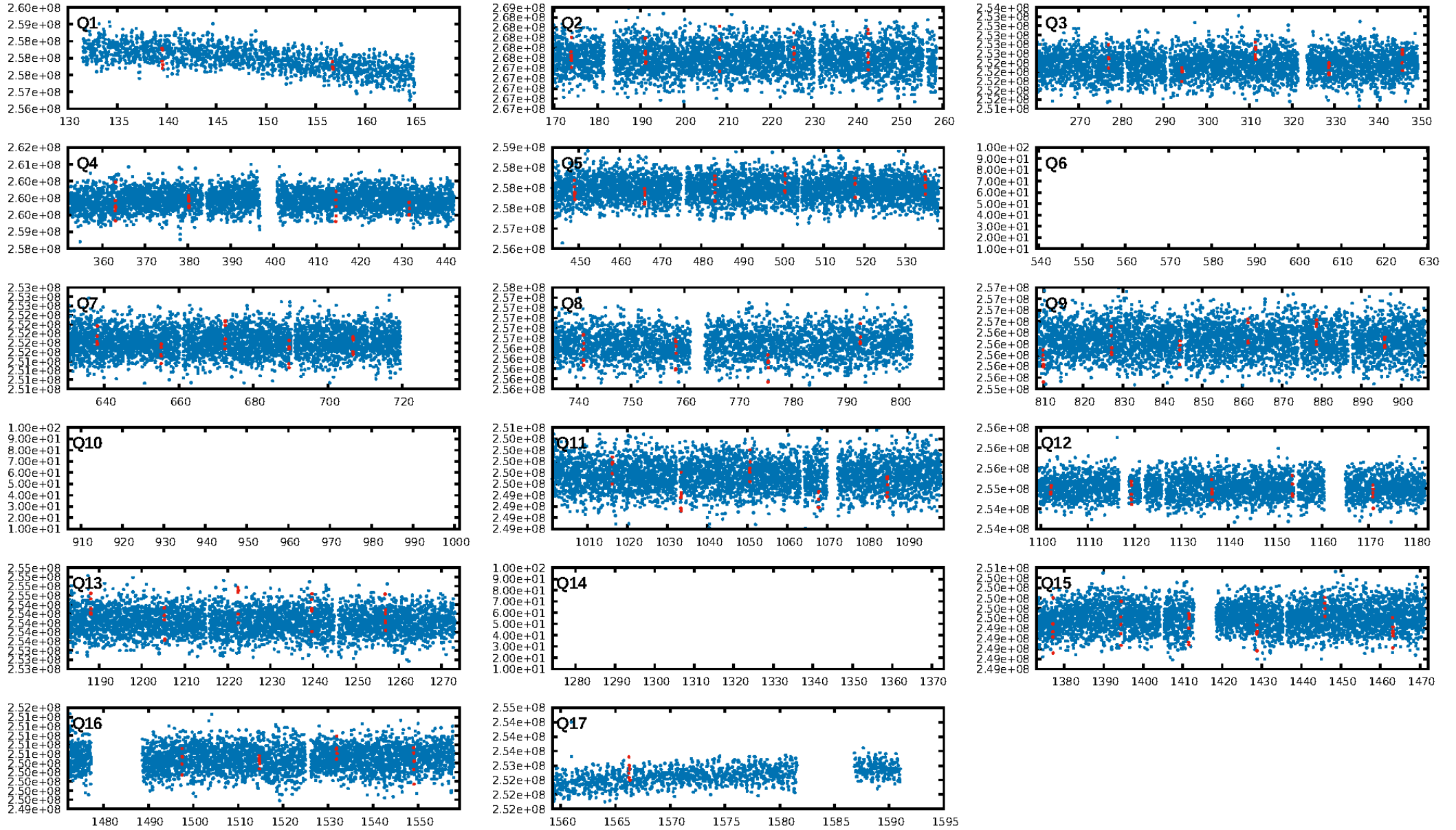
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.25 σ]
LongPeriod-sig: 100.0% [168.45 σ]
ModelChiSquare2-sig: 36.3%
ModelChiSquareGof-sig: 96.7%
Bootstrap-pfa: 4.65e-12
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.8868
Centroid-sig: 65.7%
Centroid-so: 0.133 arcsec [1.07 σ]
OotOffset-rm: 0.132 arcsec [0.88 σ]
KicOffset-rm: 0.092 arcsec [0.54 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.07 [1/14]

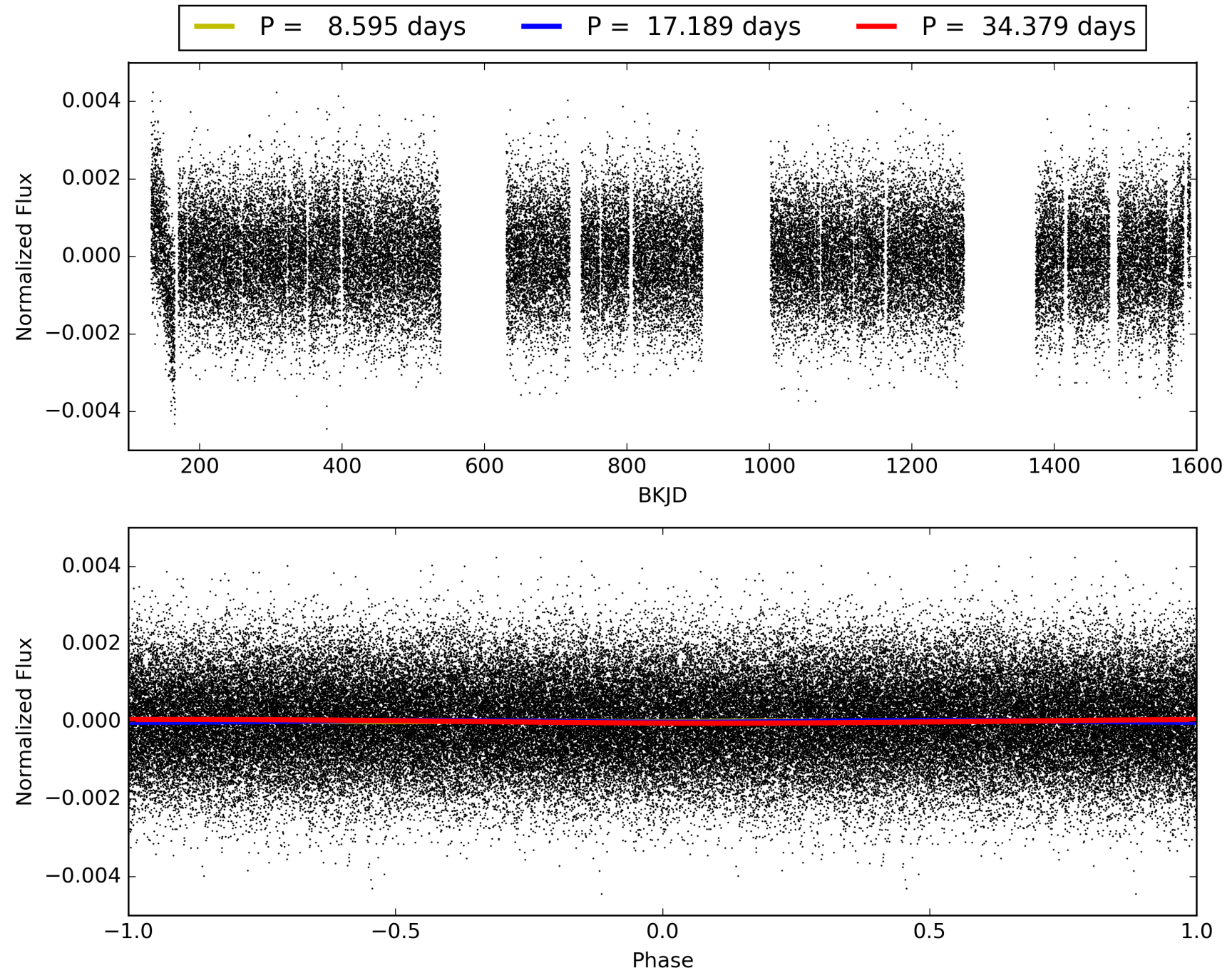
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:14:33 Z

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

TCE 004471379-04, PDC Light Curves

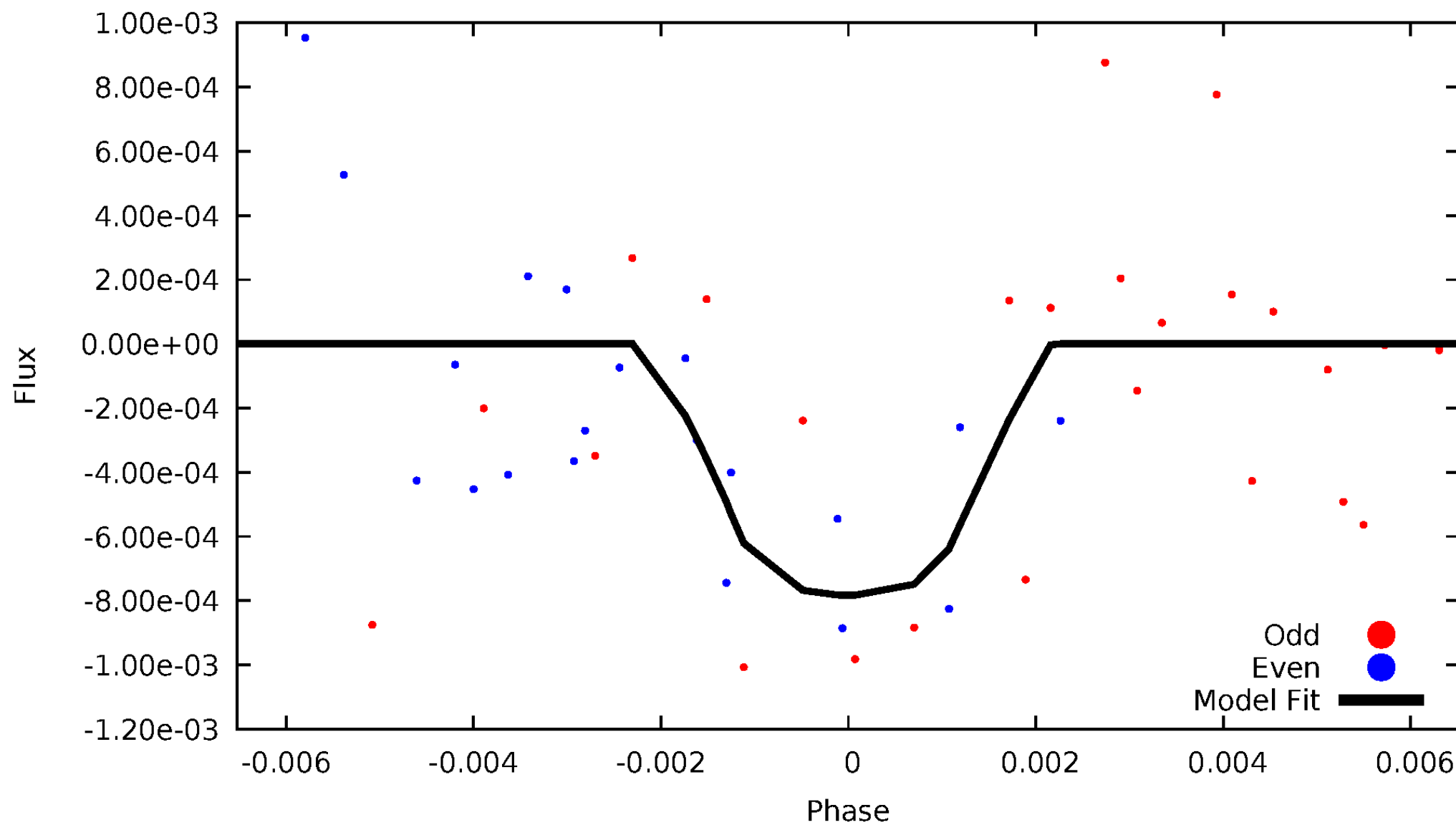


TCE 004471379-04



DV Odd/Even

TCE 004471379-04

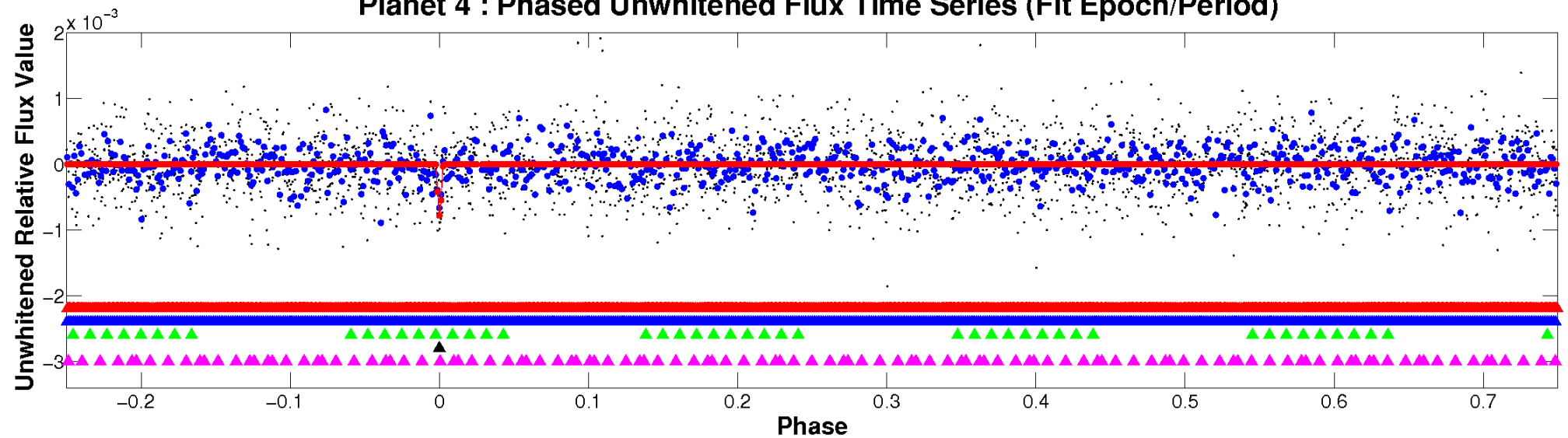


ALT Odd/Even

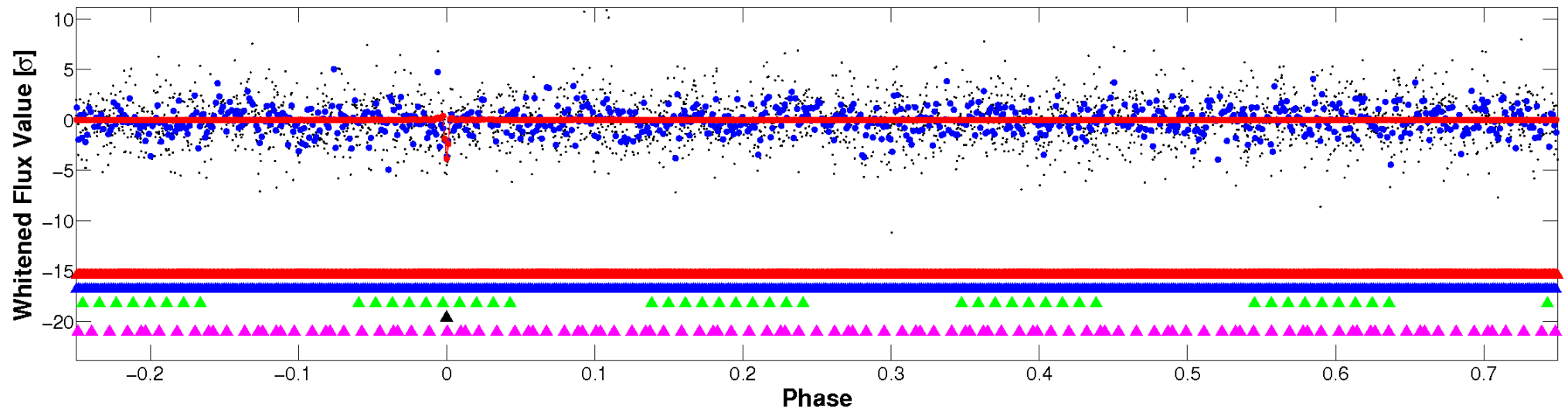
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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



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



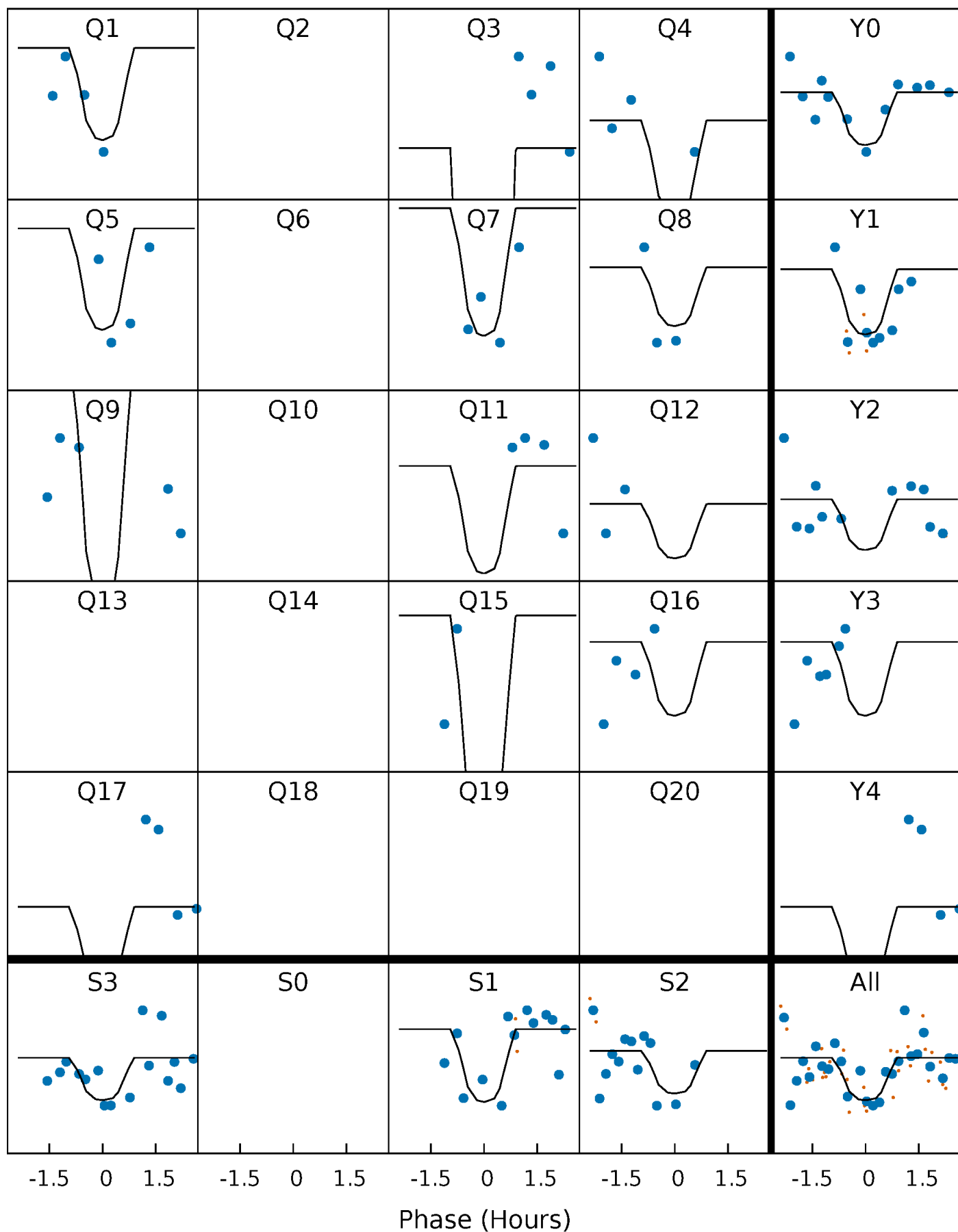
PDC Quarter-Phased Transit Curves

TCE 004471379-04 P= 17.189458 Days $T_0=139.544273$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004471379-04 P= 17.189458 Days $T_0=139.544273$ (BKJD)

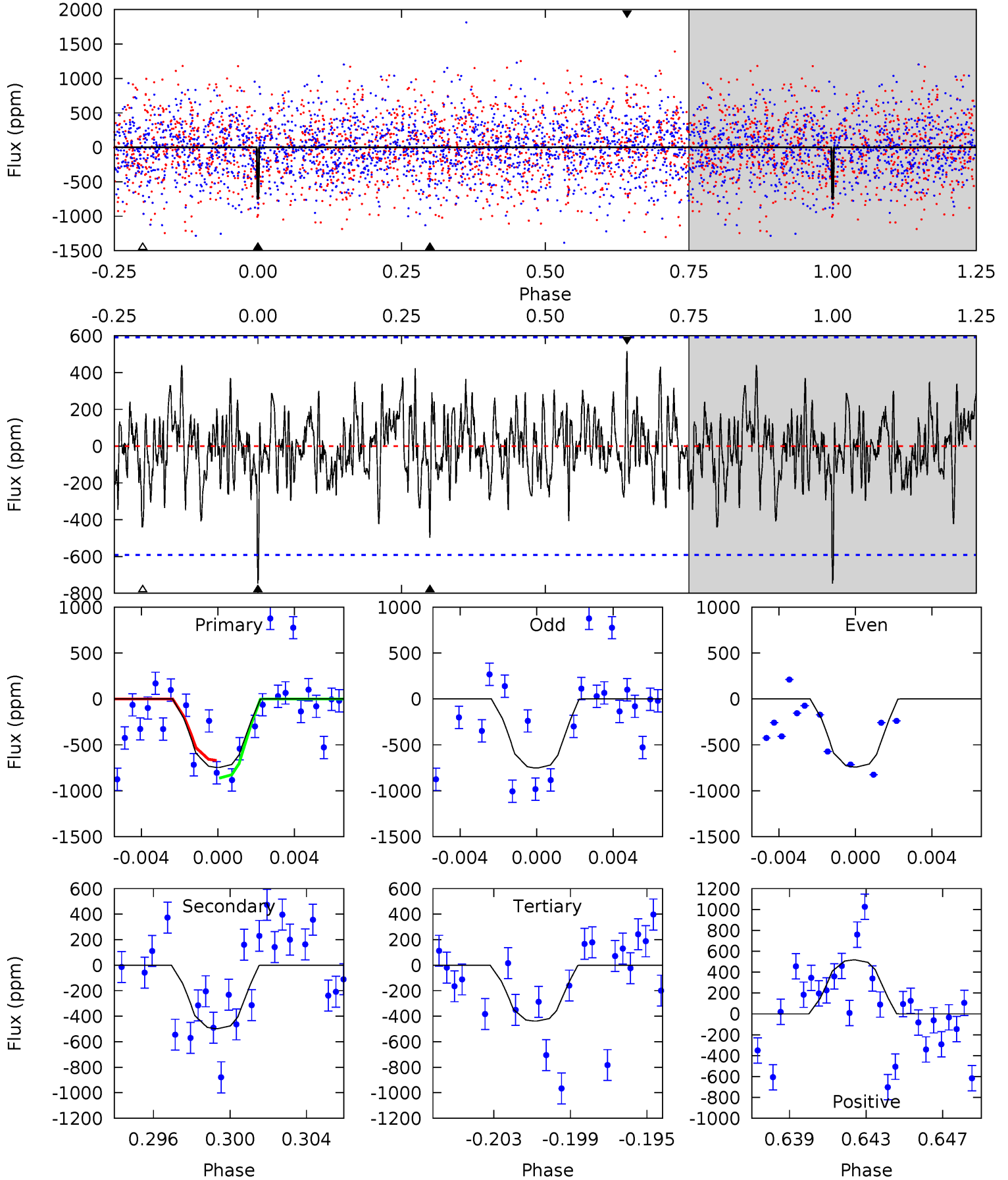


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004471379-04, P = 17.189458 Days, E = 122.354815 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.56	4.37	3.85	4.54	5.20	2.89	1.32	2.71	2.02	0.52	-0.17	0.05	1.04	0.41	0.85



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004471379

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8148^{+226}_{-340}	$4.014^{+0.192}_{-0.128}$	$0.070^{+0.250}_{-0.500}$	$2.282^{+0.436}_{-0.654}$	$1.960^{+0.295}_{-0.405}$	$0.232^{+0.289}_{-0.081}$
	+3%/-4%	+5%/-3%	+357%/-714%	+19%/-29%	+15%/-21%	+124%/-35%
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 004471379-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-497 ± 114	$8.88^{+7.02}_{-5.93}$	1865^{+122}_{-119}	6226^{+6659}_{-1498}	94^{+698}_{-66}
Alt.	N/A	N/A	N/A	N/A	N/A

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

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

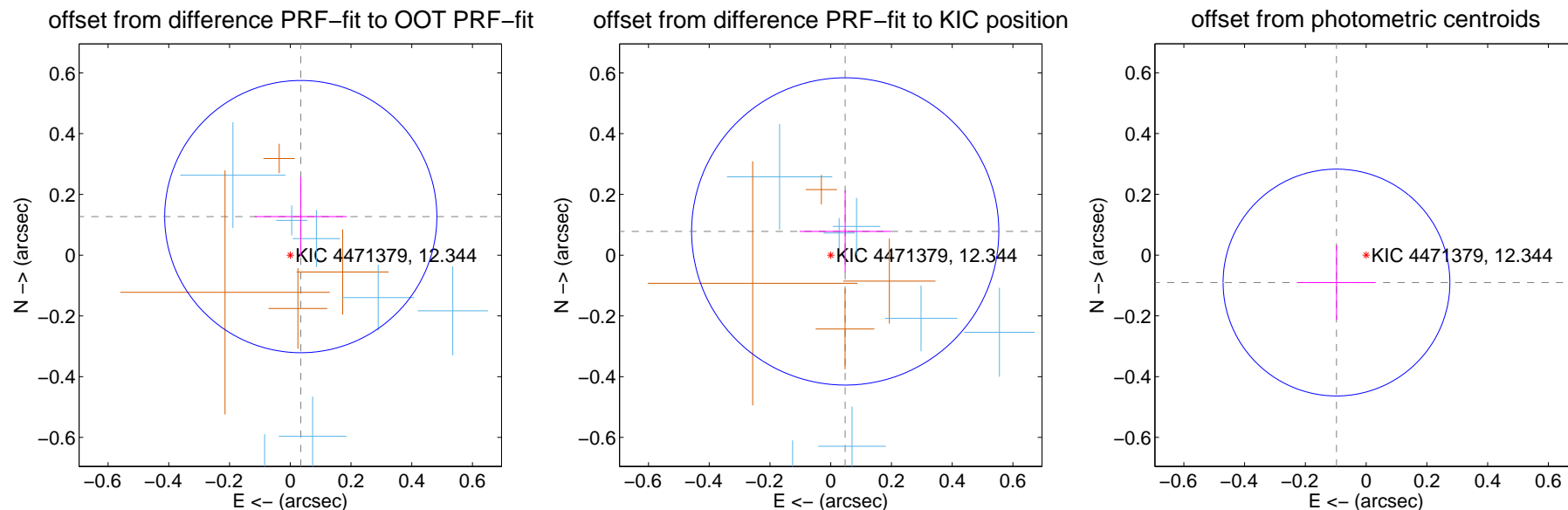
DV Centroid Data

Supplemental centroid analysis for 004471379-04. Kepler magnitude: 12.34. Transit SNR 10.62

There are 8 quarters with good PRF difference image offsets

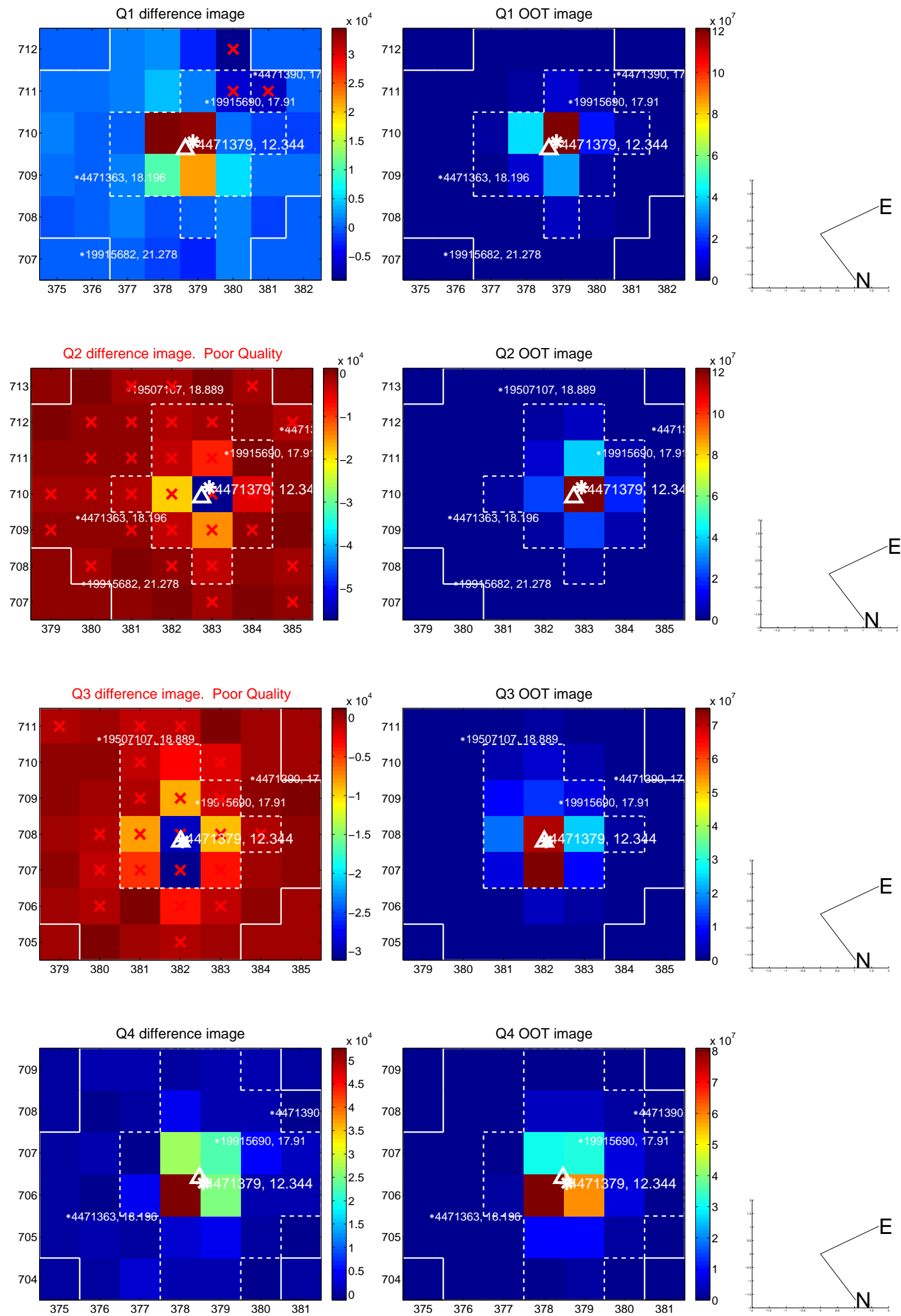
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.132 ± 0.149	0.88	-0.035 ± 0.152	0.127 ± 0.130
PRF-fit source offset from KIC position	0.092 ± 0.169	0.54	-0.048 ± 0.150	0.078 ± 0.135
photometric centroid source offset	0.13 ± 0.12	1.07	0.10 ± 0.13	-0.09 ± 0.12

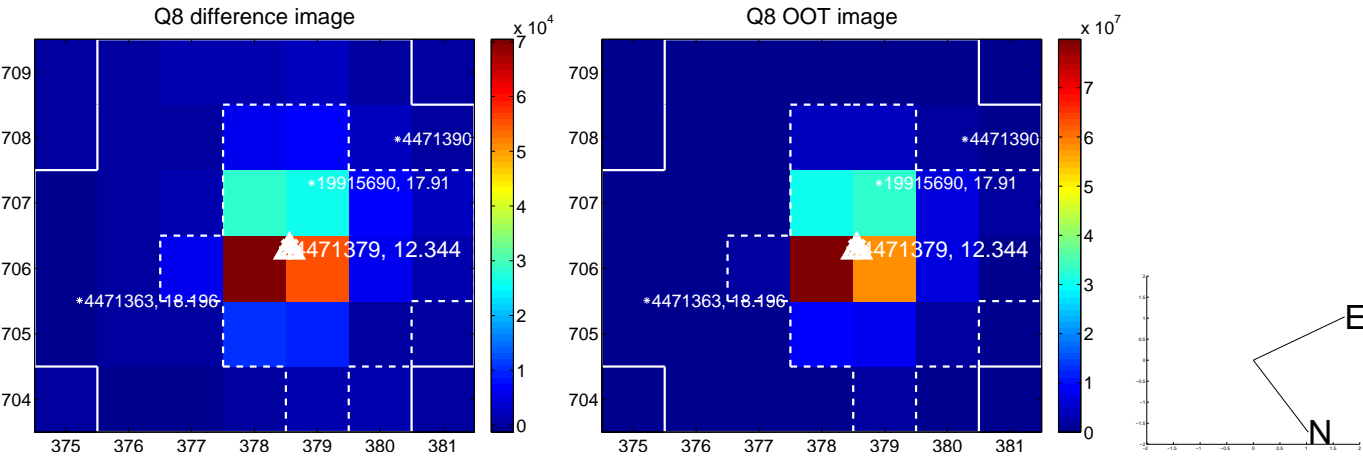
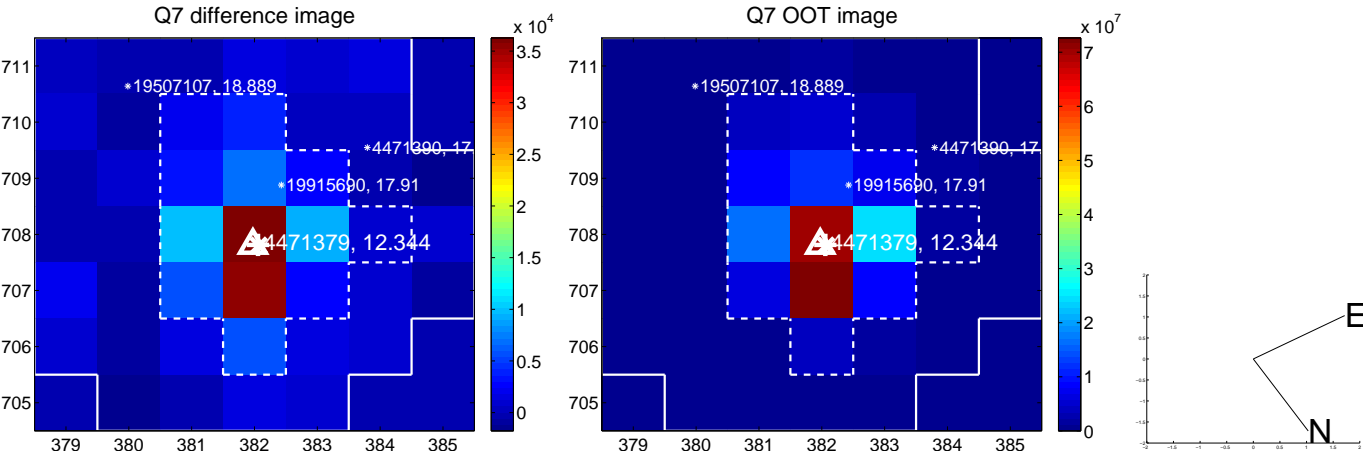
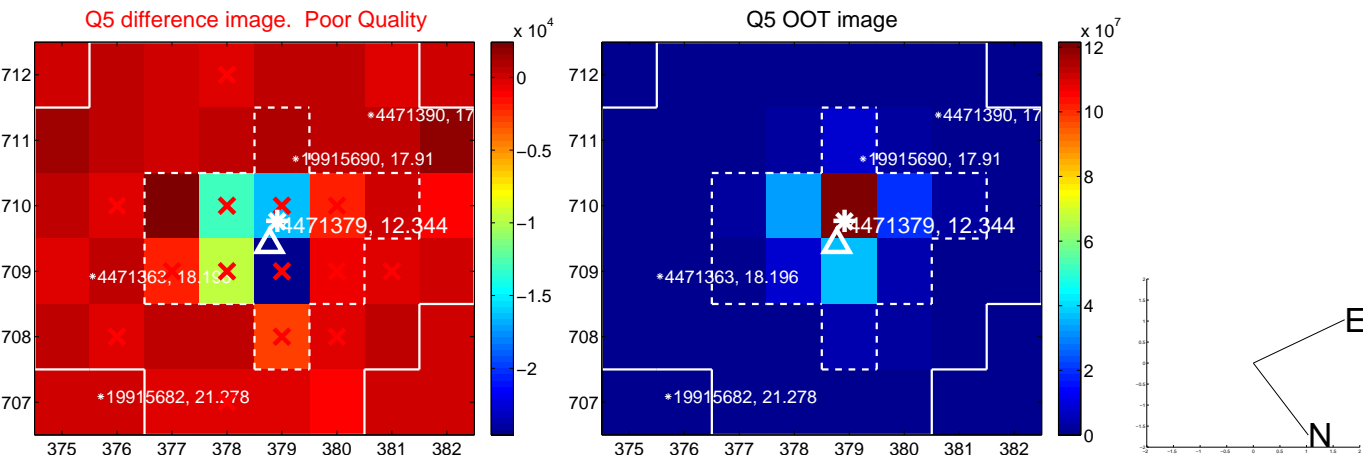


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

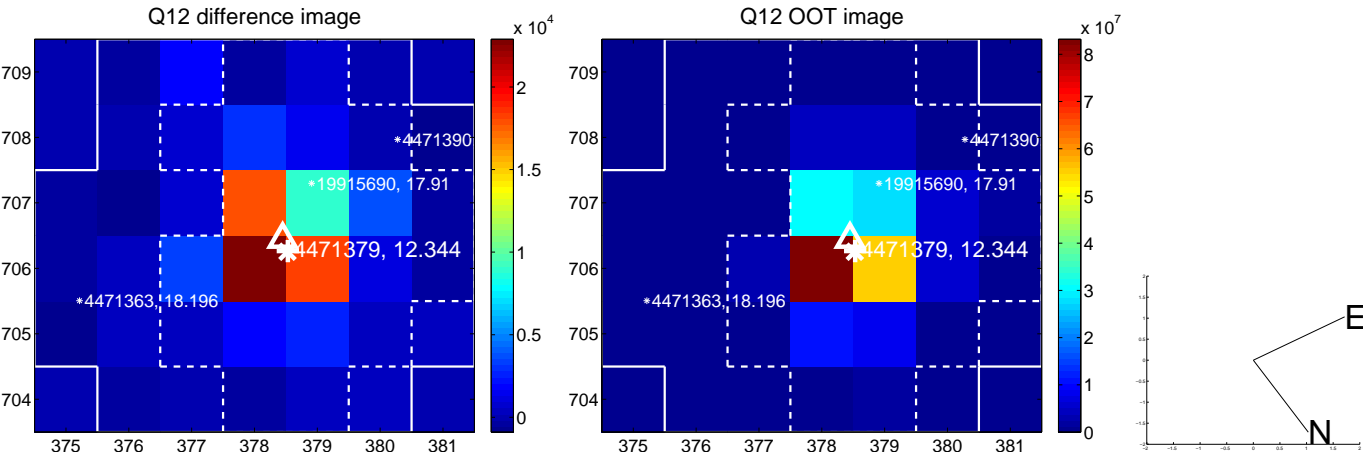
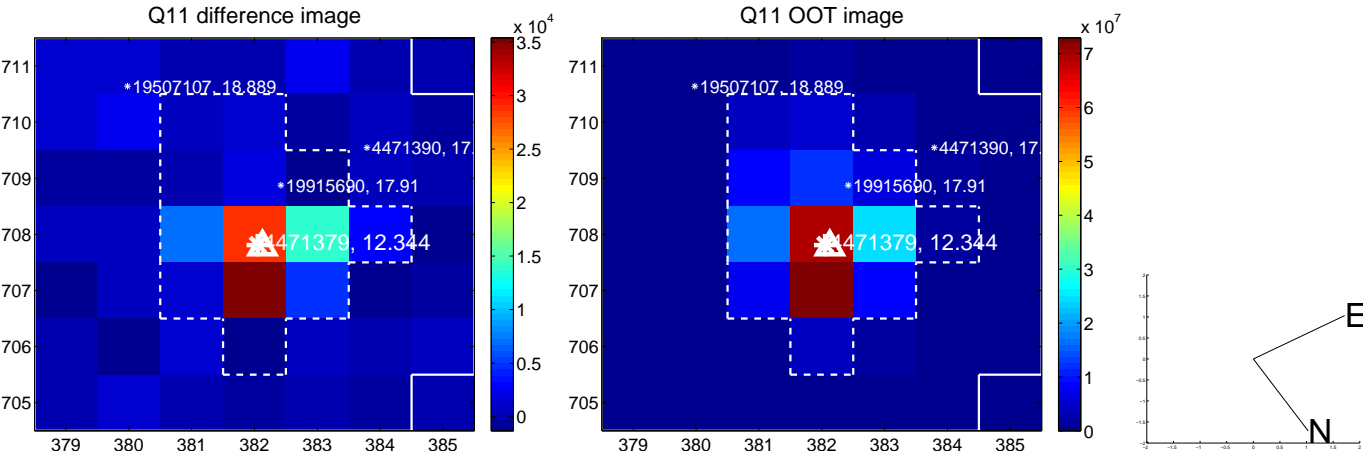
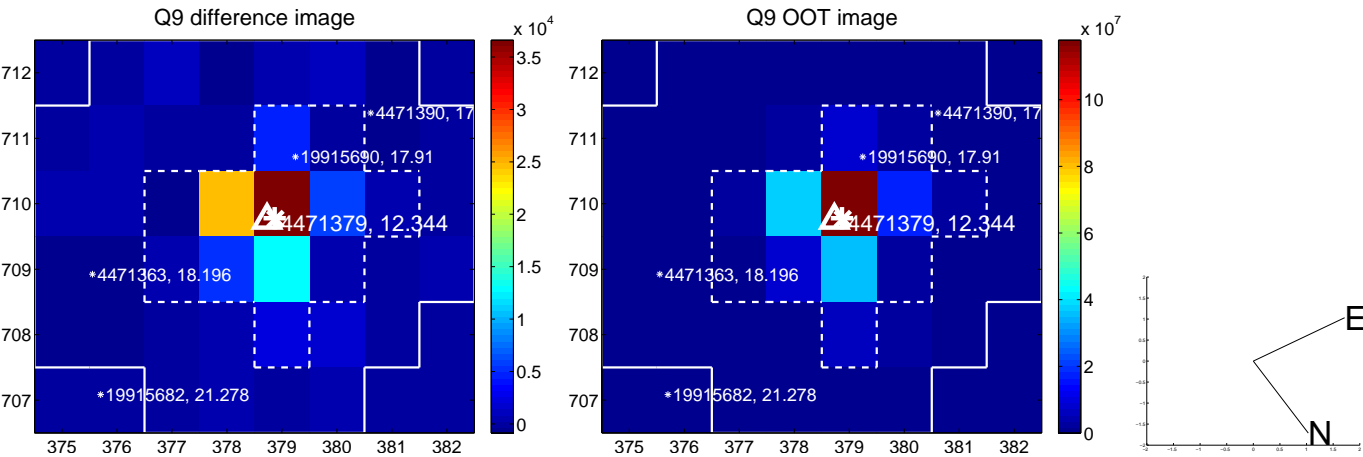
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



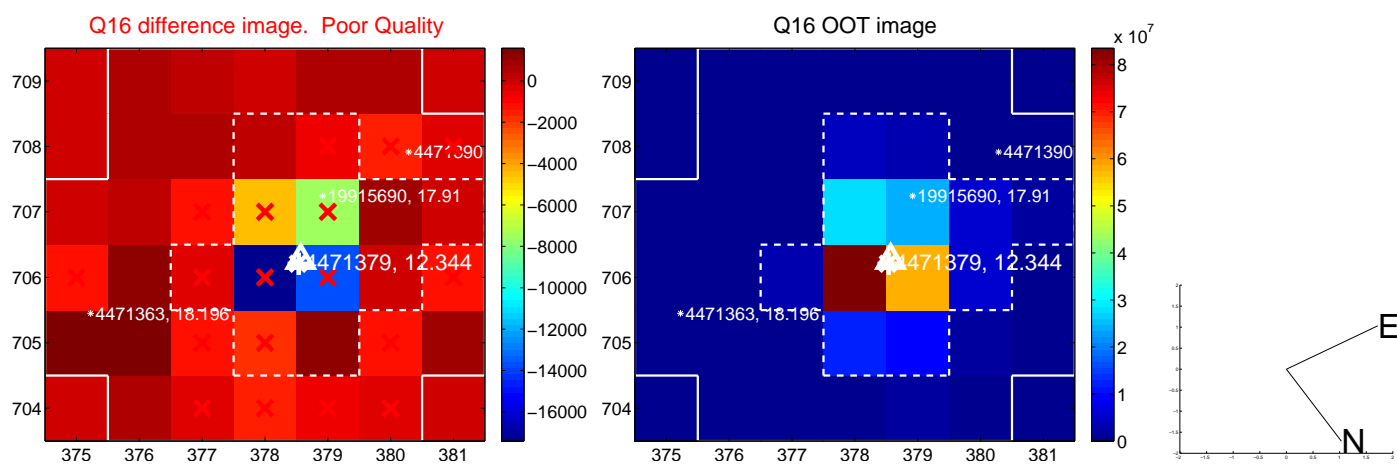
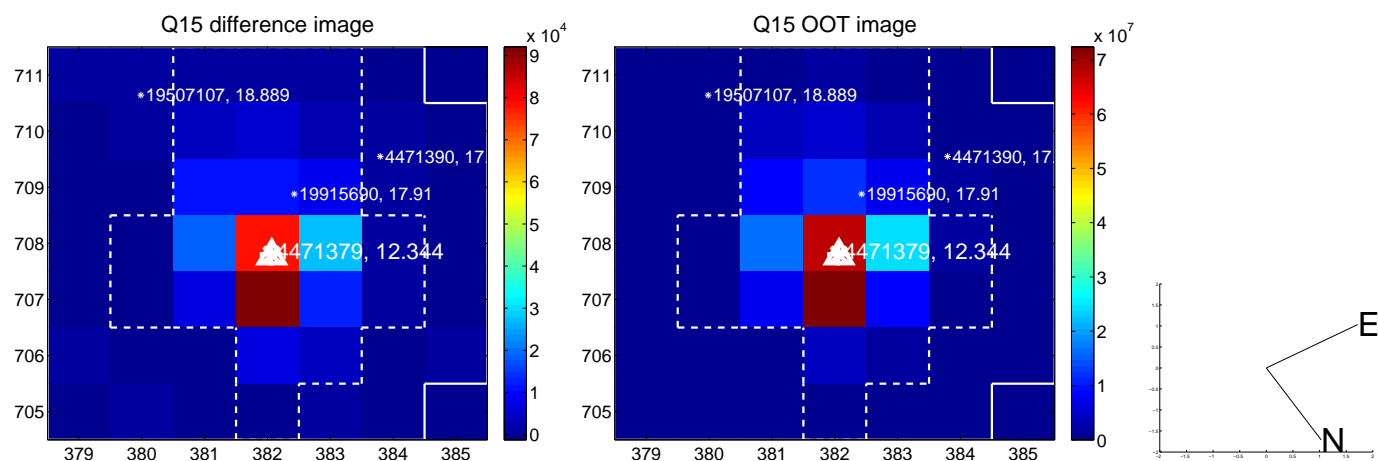
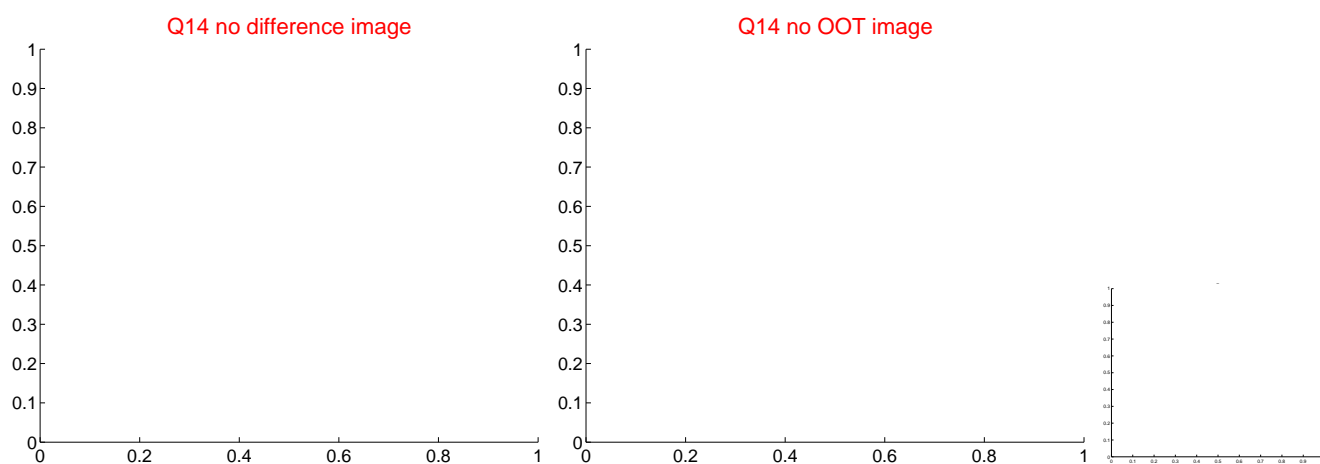
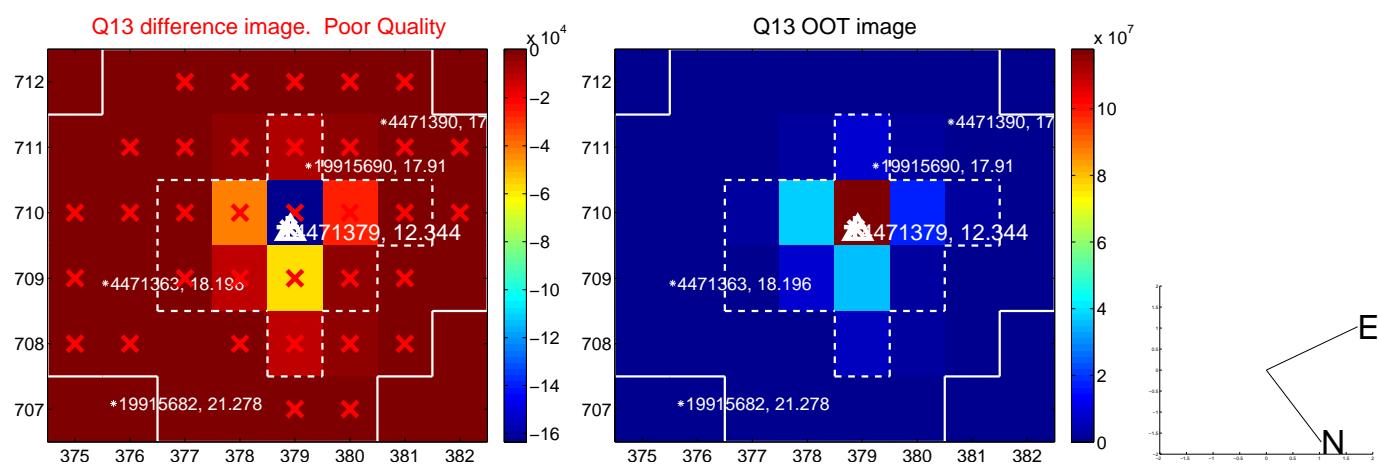
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



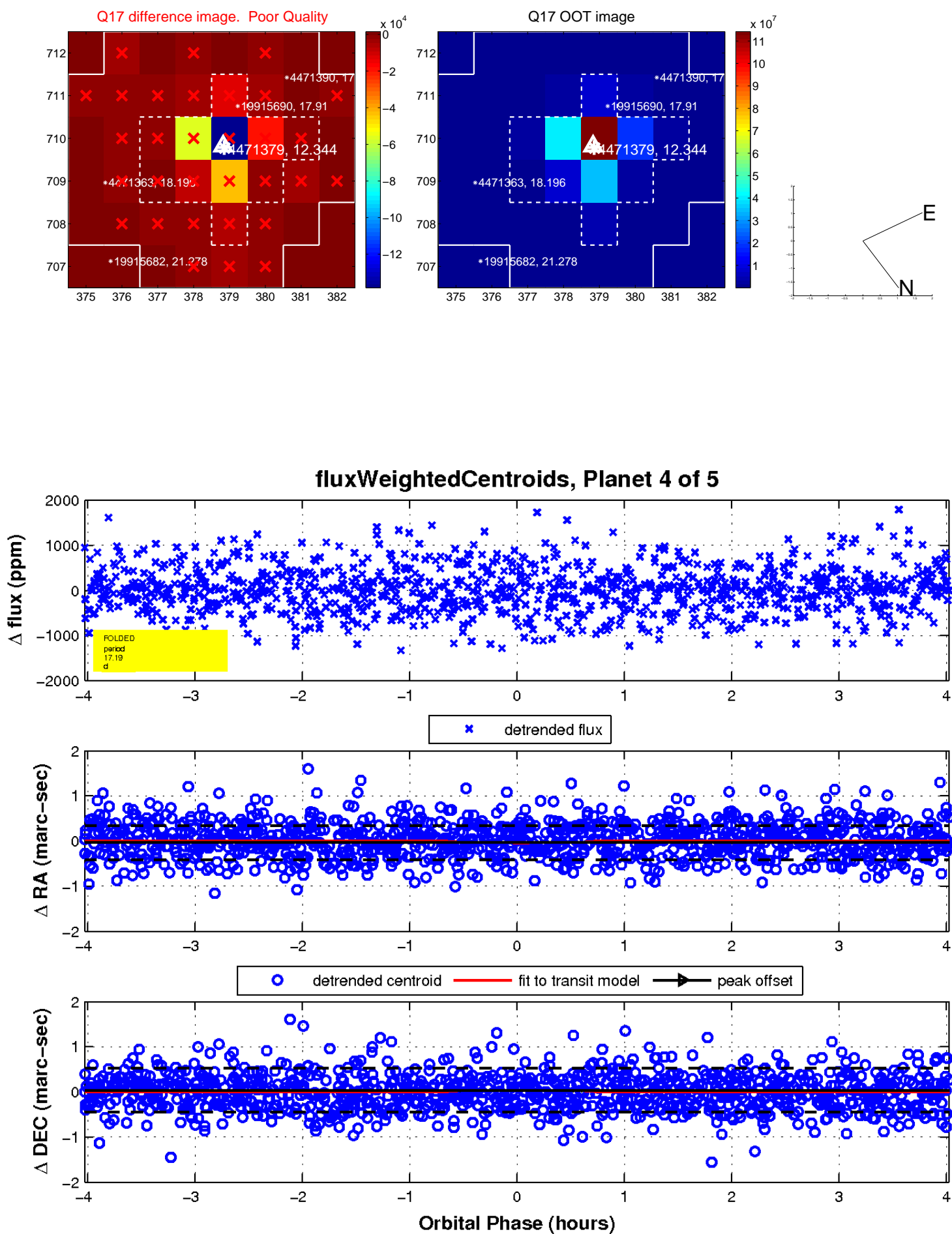
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



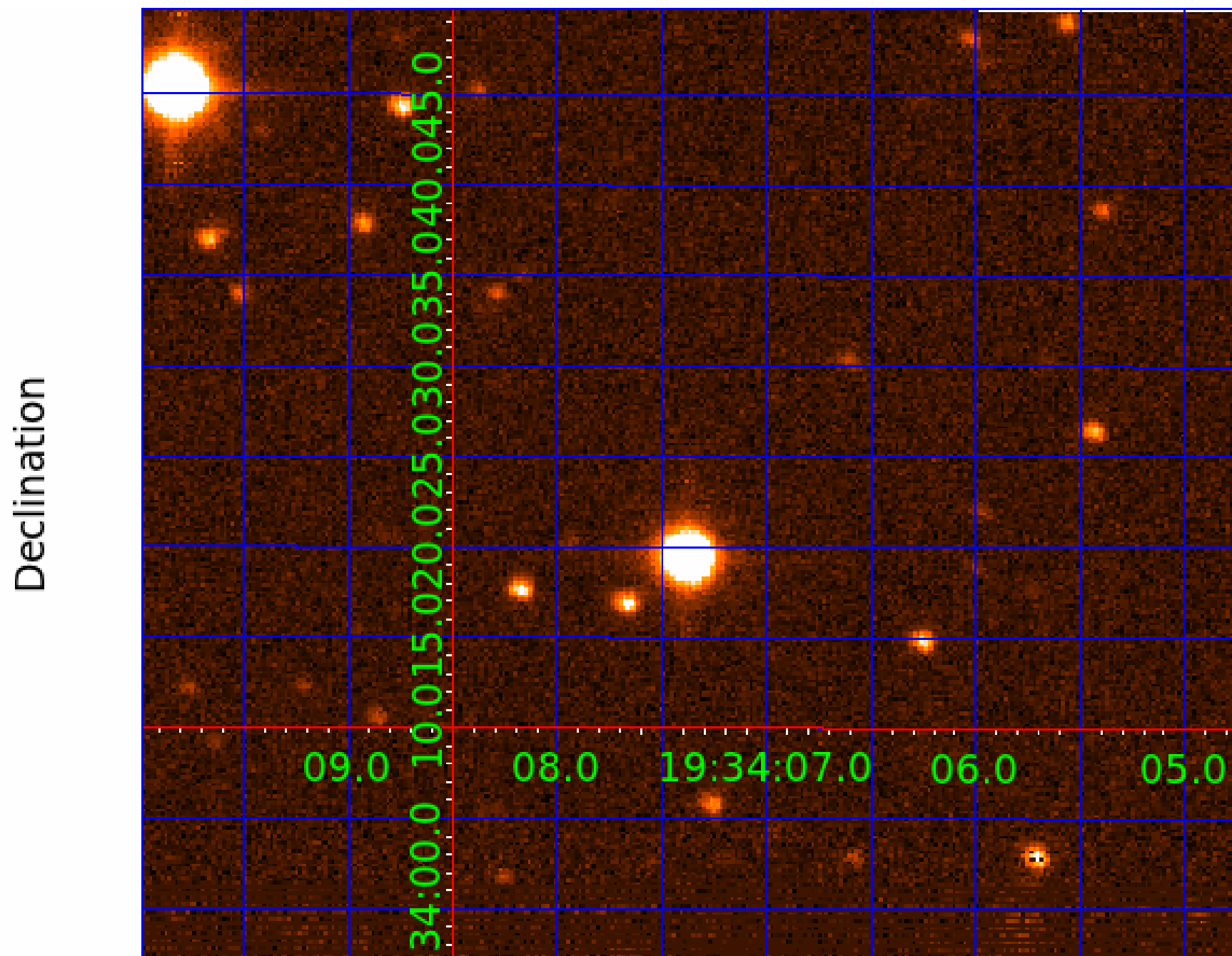
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004471379

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})
004471379-01	OBS	No	0.685660	131.548032	62.0	1.793	10.0	8.2	2.28	8148	2.09	56645.30
004471379-02	OBS	No	0.932566	131.593773	60.1	6.647	8.6	8.1	2.28	8148	1.80	37589.73
004471379-04	OBS	No	17.189458	139.544273	782.8	1.345	13.0	10.6	2.28	8148	6.50	772.01
004471379-05	OBS	No	12.696187	137.618712	698.3	2.748	13.1	13.7	2.28	8148	6.62	1156.32

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004471379-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
004471379-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004471379-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV
004471379-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

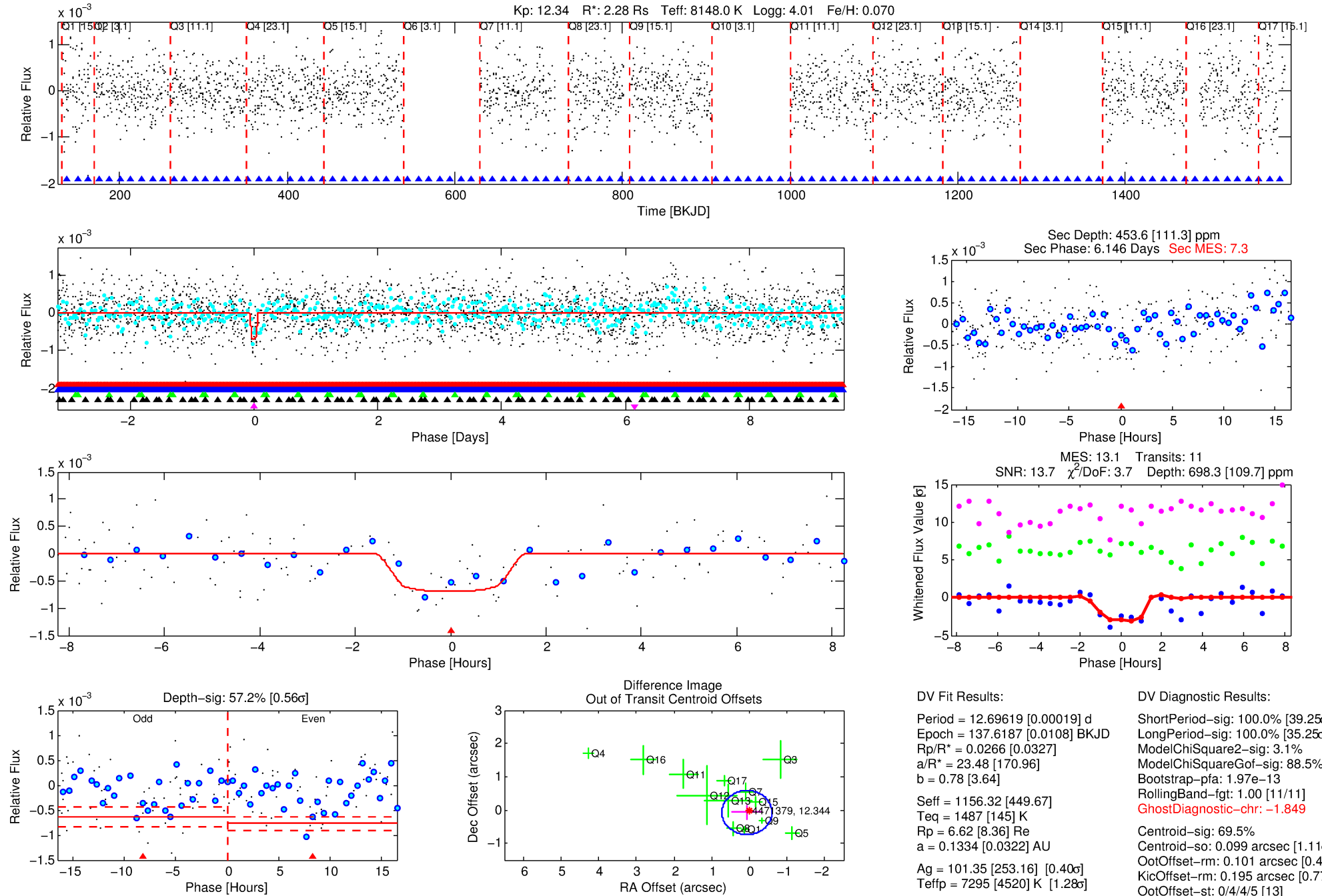
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004471379-05

No Significant Match Found

DV One-Page Summary

KIC: 4471379 Candidate: 5 of 5 Period: 12.696 d



DV Fit Results:

Period = 12.69619 [0.00019] d
Epoch = 137.6187 [0.0108] BKJD
Rp/R* = 0.0266 [0.0327]
a/R* = 23.48 [170.96]
b = 0.78 [3.64]
Seff = 1156.32 [449.67]
Teq = 1487 [145] K
Rp = 6.62 [8.36] Re
a = 0.1334 [0.0322] AU
Ag = 101.35 [253.16] [0.40 σ]
Teff = 7295 [4520] K [1.28 σ]

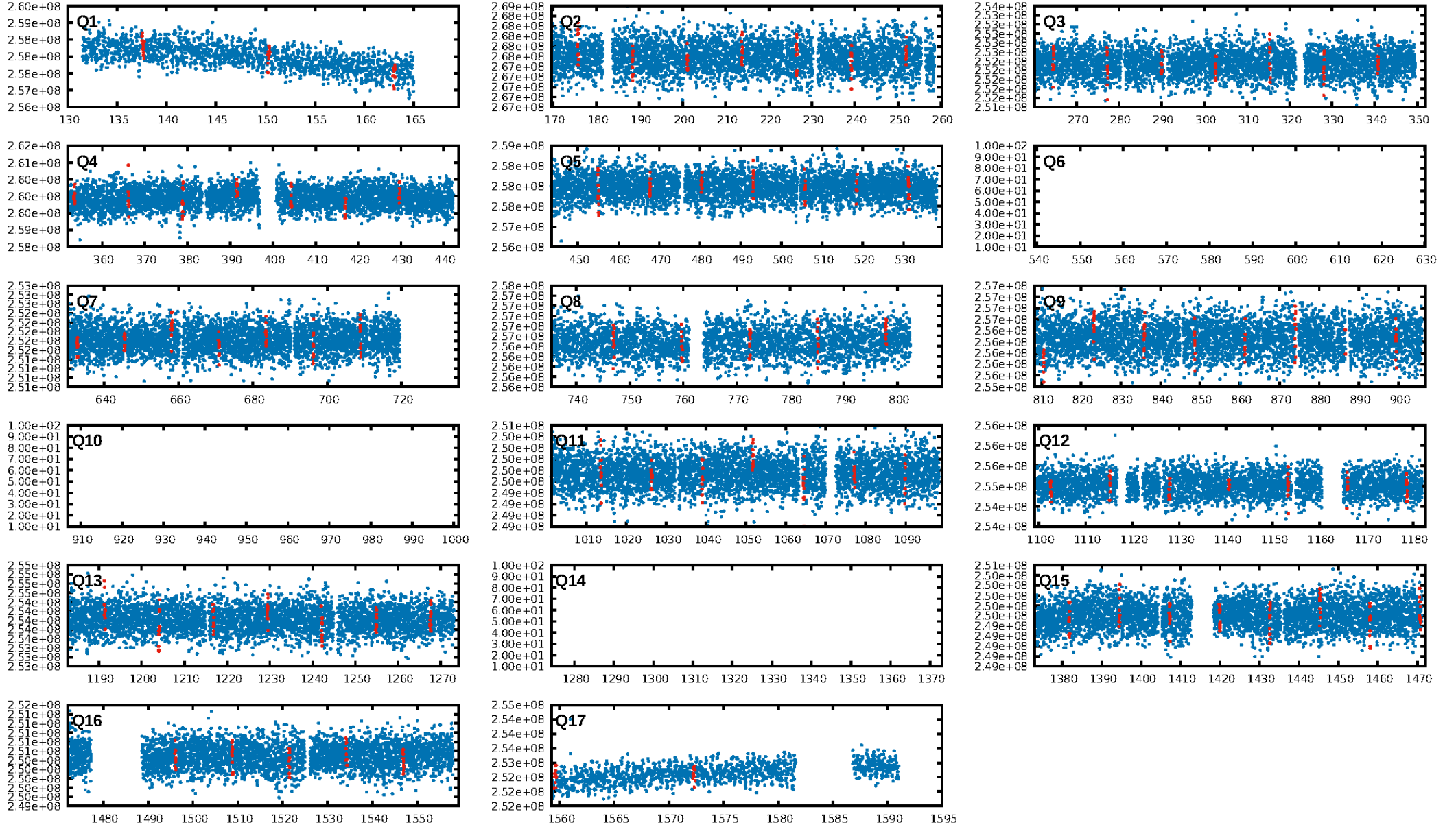
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.25 σ]
LongPeriod-sig: 100.0% [35.25 σ]
ModelChiSquare2-sig: 3.1%
ModelChiSquareGof-sig: 88.5%
Bootstrap-pfa: 1.97e-13
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -1.849
Centroid-sig: 69.5%
Centroid-so: 0.099 arcsec [1.11 σ]
OotOffset-rm: 0.101 arcsec [0.46 σ]
KicOffset-rm: 0.195 arcsec [0.77 σ]
OotOffset-st: 0/4/4/5 [13]
KicOffset-st: 0/4/4/5 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 0.00 [0/14]

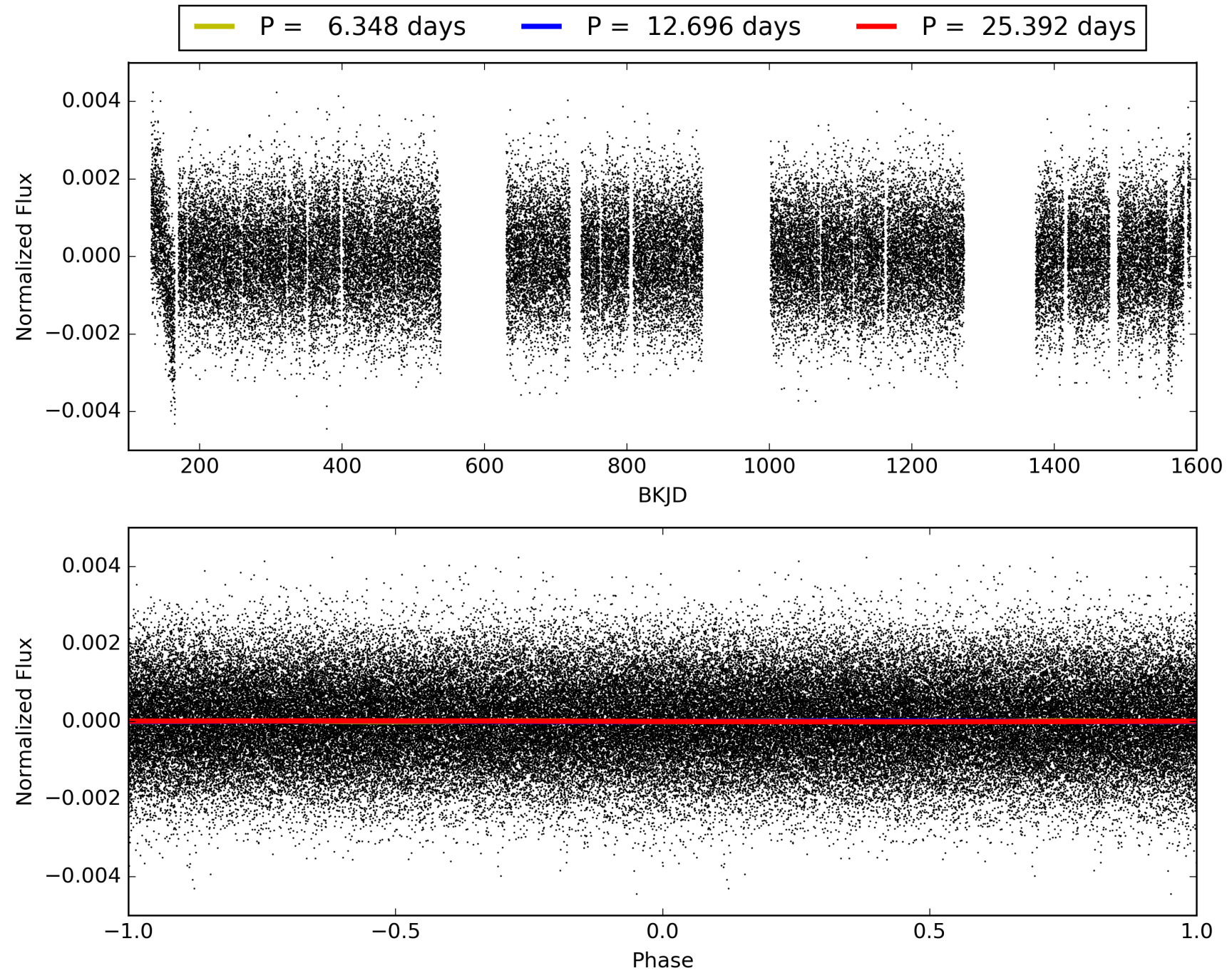
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:14:35 Z

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

TCE 004471379-05, PDC Light Curves

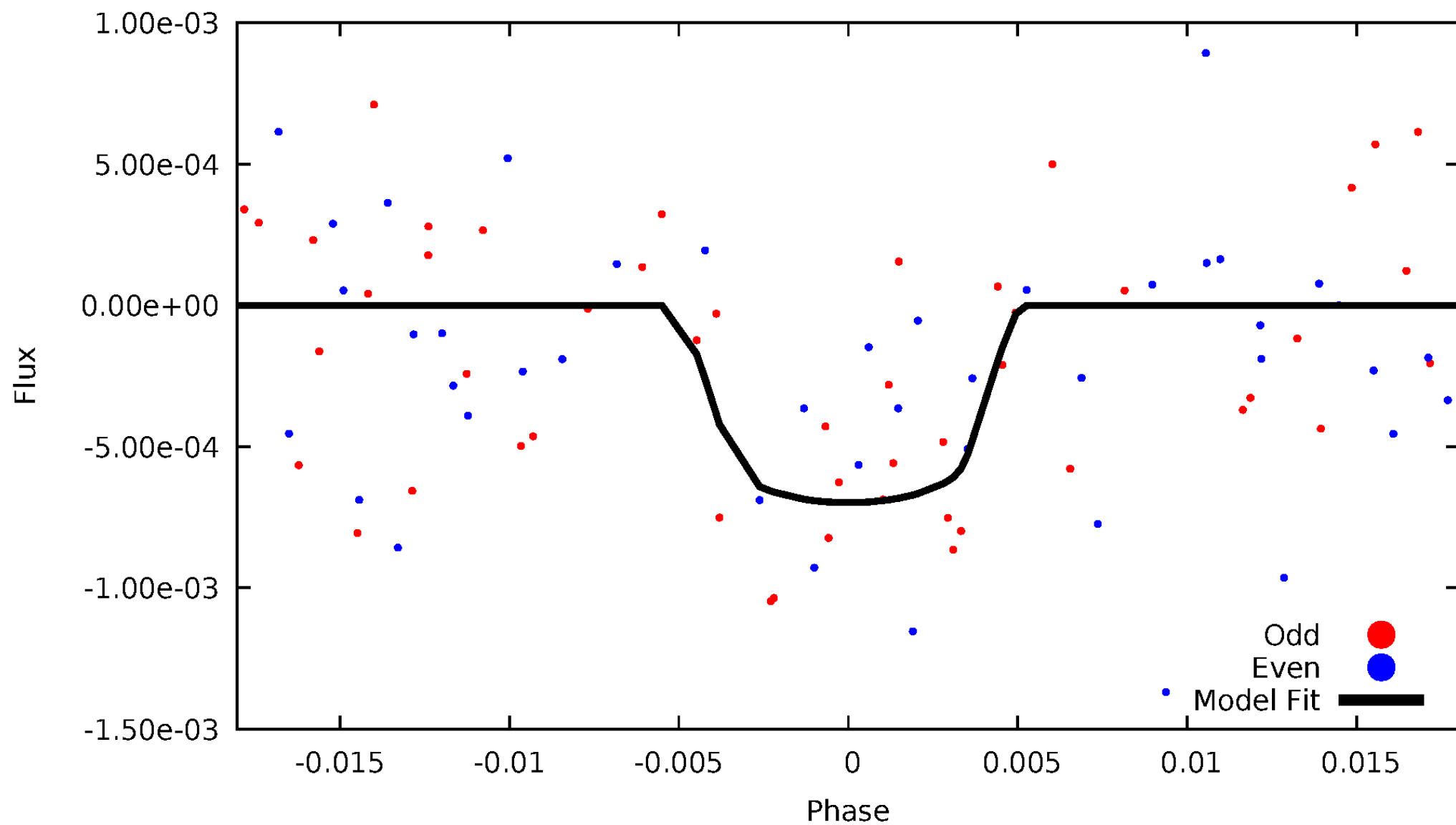


TCE 004471379-05



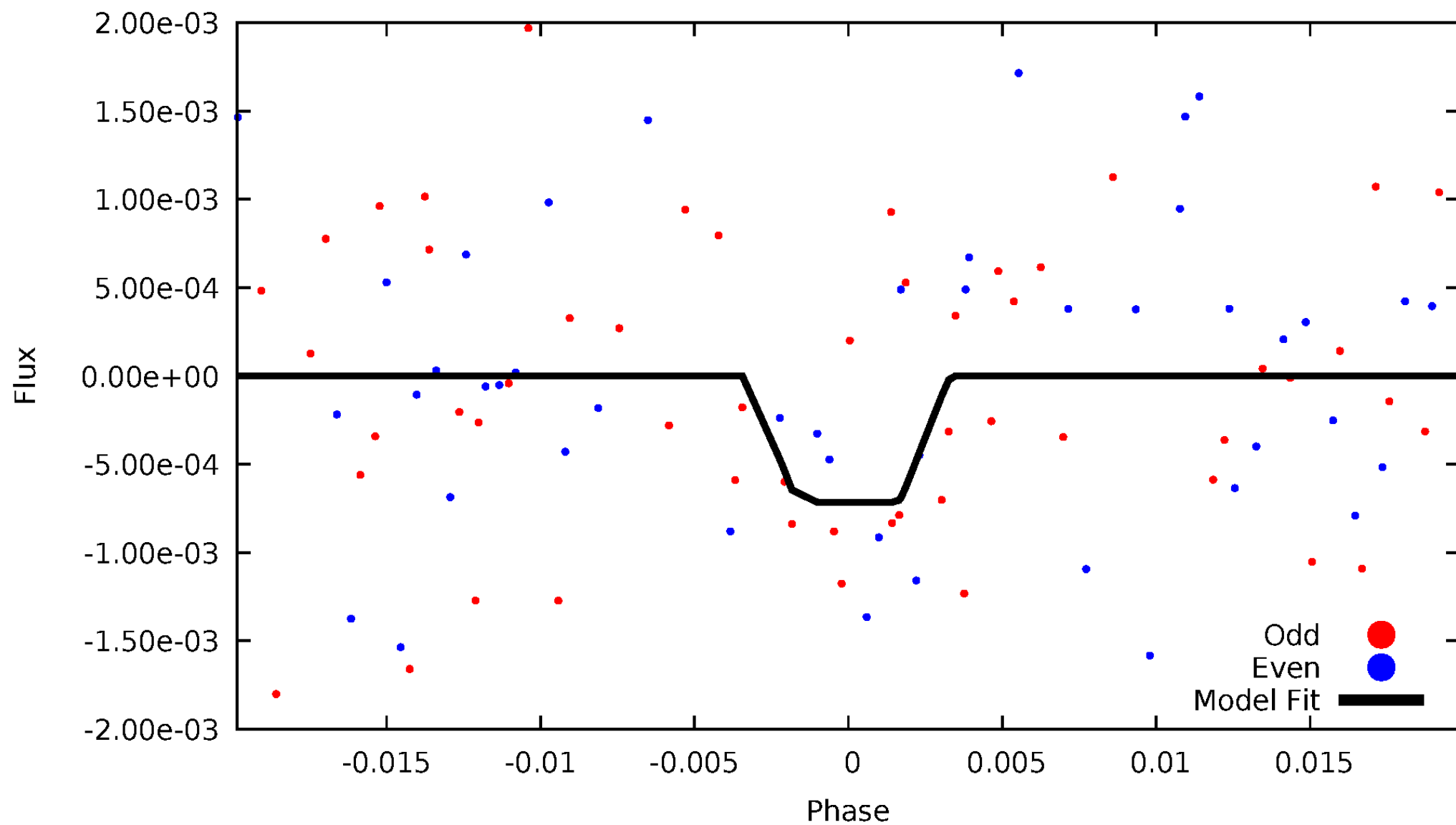
DV Odd/Even

TCE 004471379-05



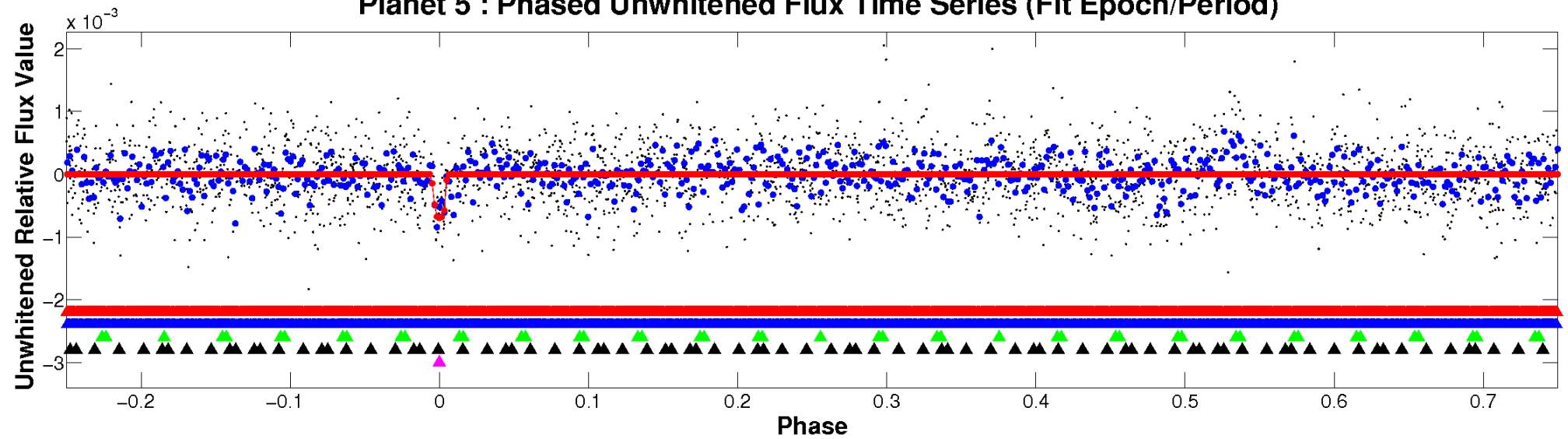
ALT Odd/Even

TCE 004471379-05

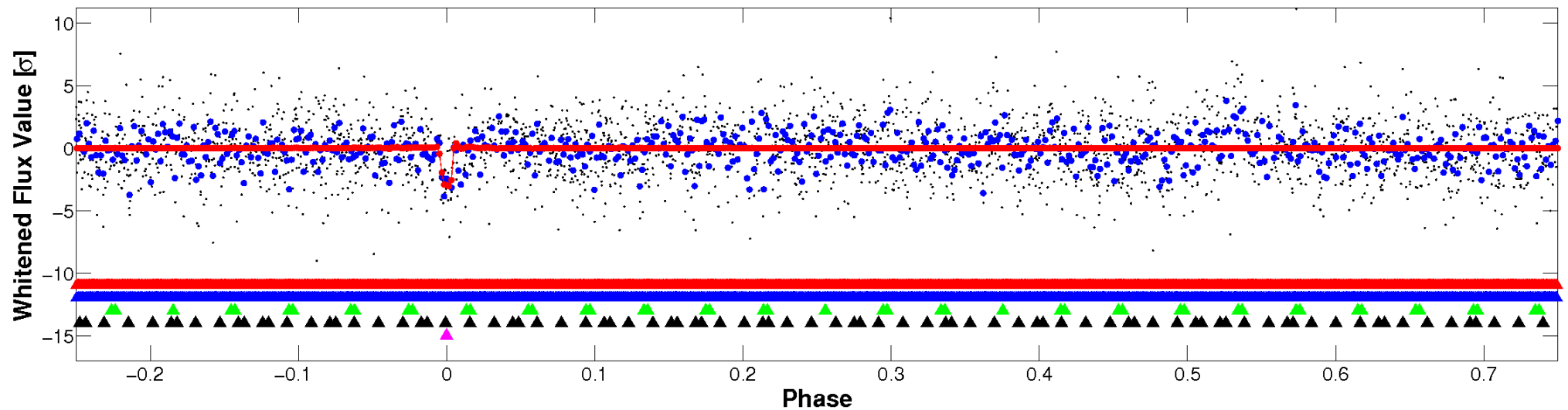


Non-Whitened Vs. Whitened Light Curve

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

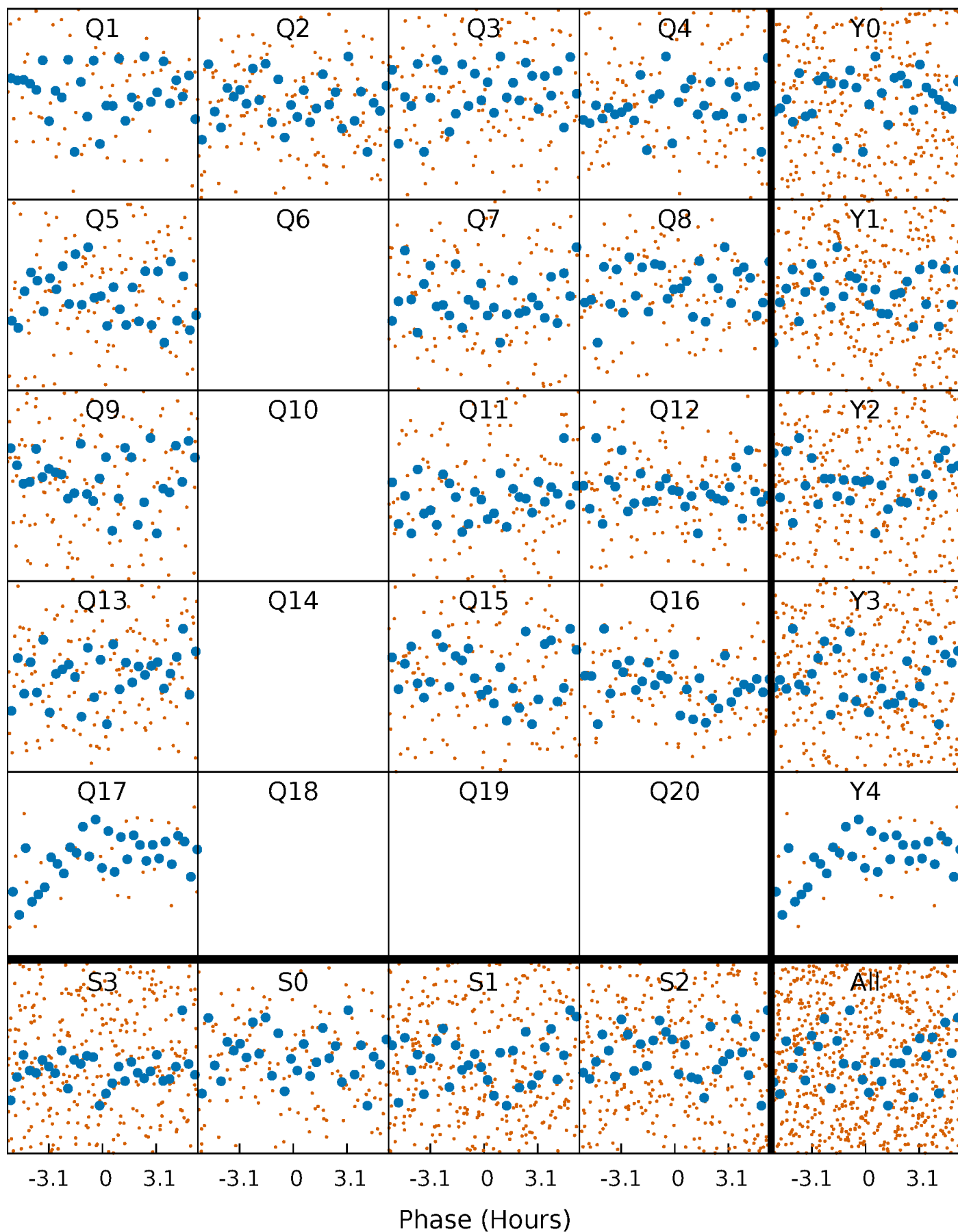


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



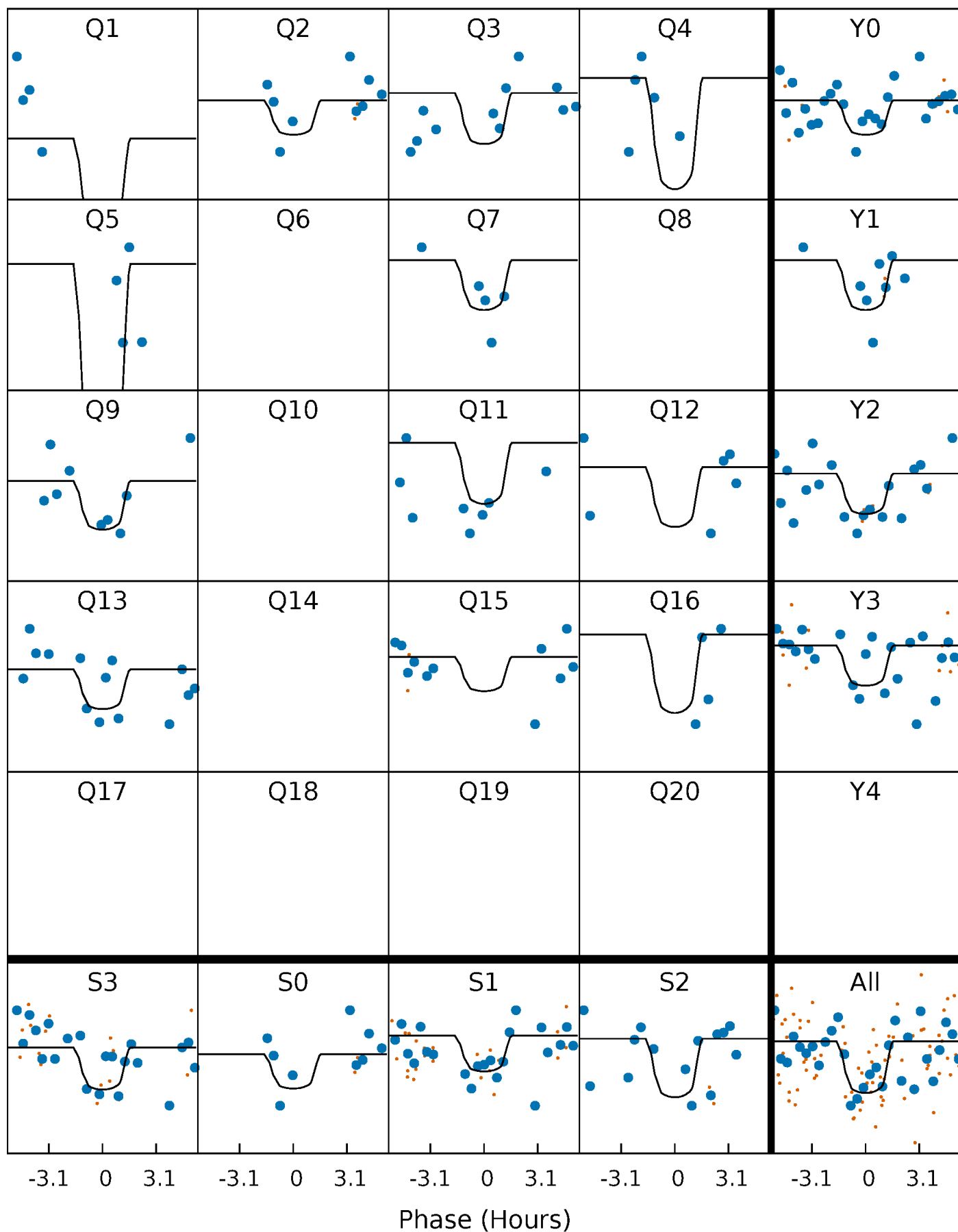
PDC Quarter-Phased Transit Curves

TCE 004471379-05 P= 12.696187 Days $T_0=137.618712$ (BKJD)



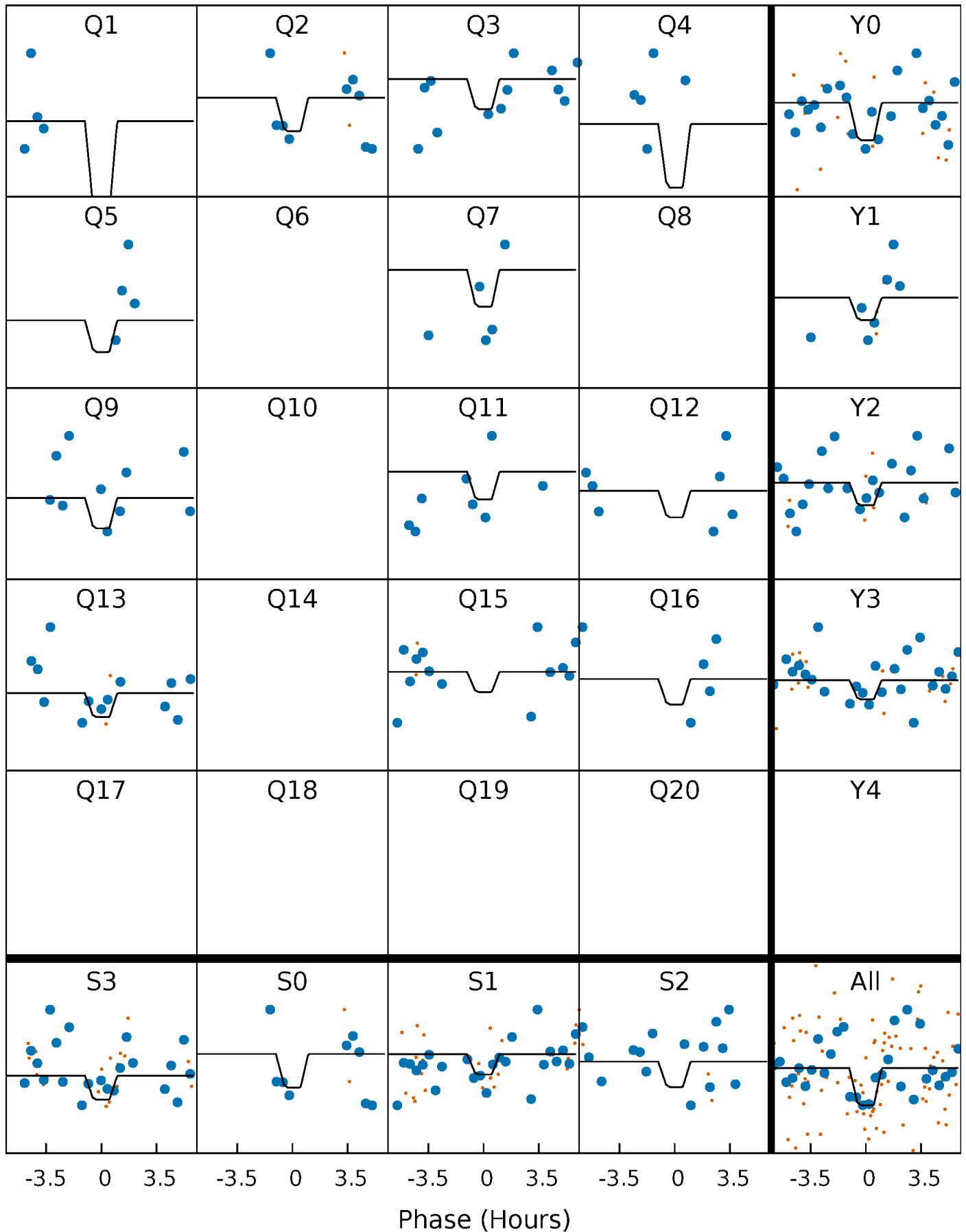
DV Quarter-Phased Transit Curves

TCE 004471379-05 P= 12.696187 Days $T_0=137.618712$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

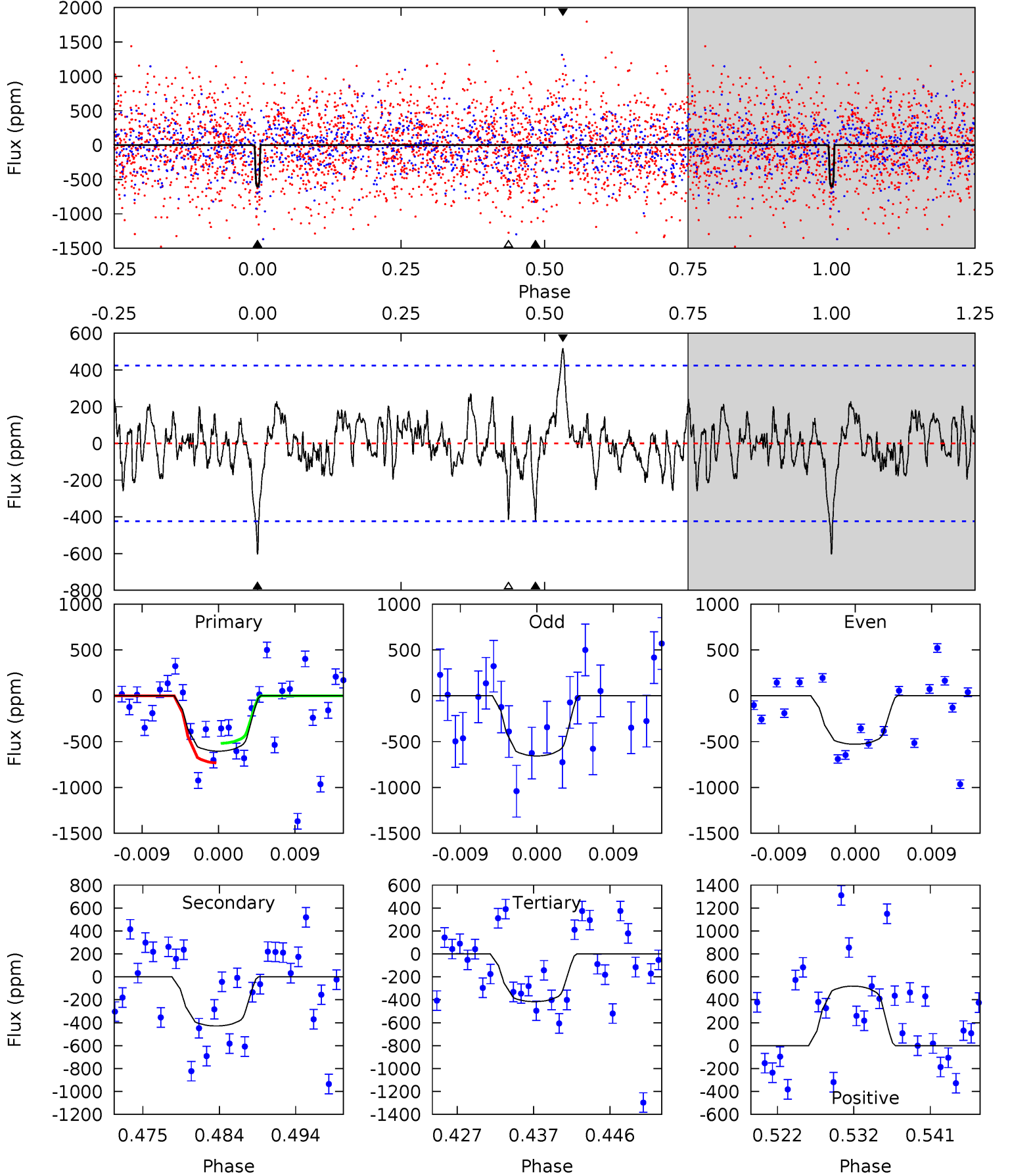
TCE 004471379-05 P= 12.696160 Days $T_0=137.616127$ (BKJD)



DV Model-Shift Uniqueness Test

004471379-05, $P = 12.696187$ Days, $E = 124.922525$ Days

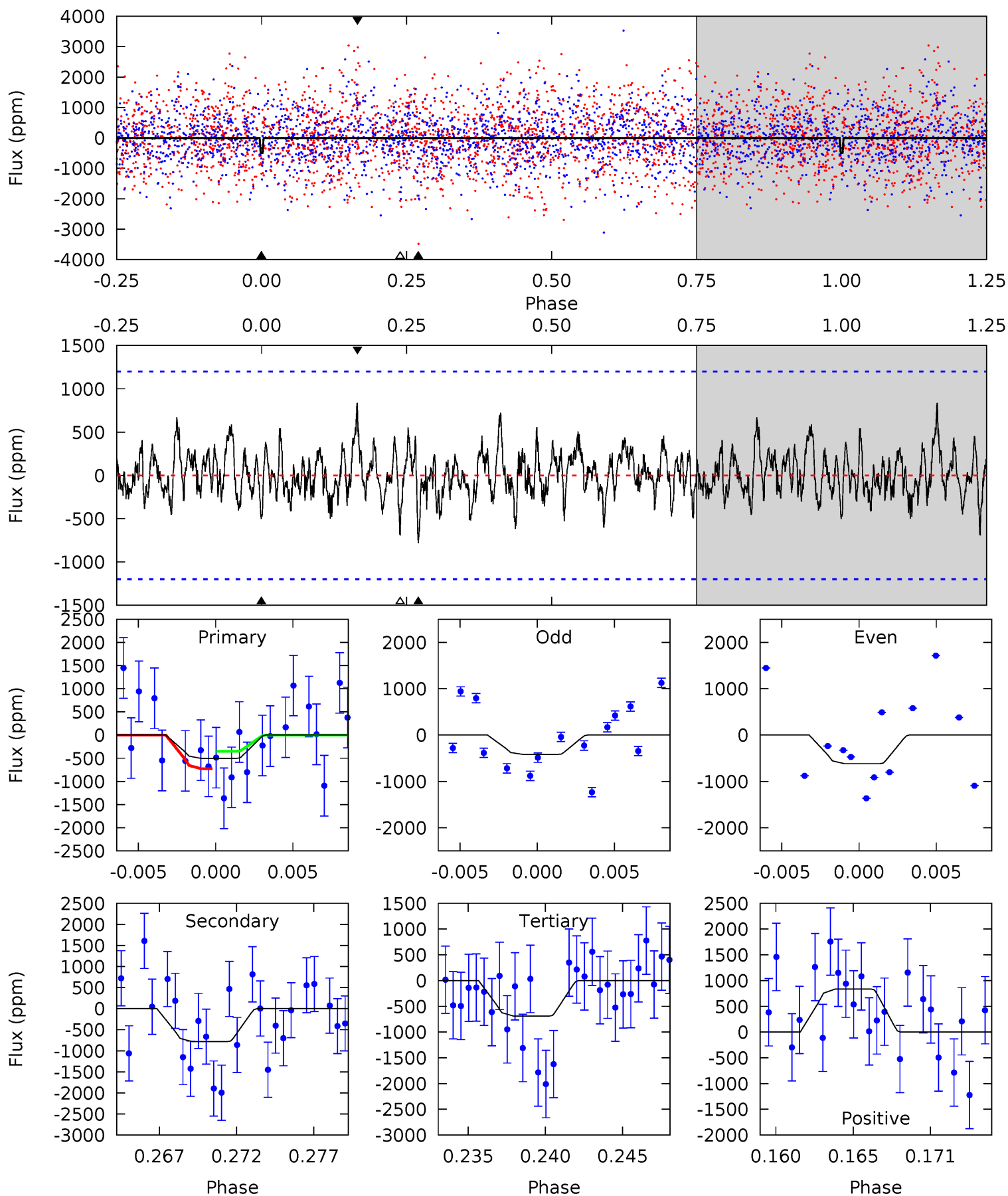
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.17	5.08	4.94	6.15	5.04	2.59	1.33	2.22	1.01	0.14	-1.07	0.73	0.91	0.46	1.21



Alt Model-Shift Uniqueness Test

004471379-05, $P = 12.696160$ Days, $E = 124.919967$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.16	3.35	2.96	3.59	5.15	2.79	1.02	-0.81	-1.43	0.39	-0.23	0.43	0.91	0.52	0.75



Stellar Parameters For KIC 004471379

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8148^{+226}_{-340}	$4.014^{+0.192}_{-0.128}$	$0.070^{+0.250}_{-0.500}$	$2.282^{+0.436}_{-0.654}$	$1.960^{+0.295}_{-0.405}$	$0.232^{+0.289}_{-0.081}$
	+3%/-4%	+5%/-3%	+357%/-714%	+19%/-29%	+15%/-21%	+124%/-35%
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 004471379-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-428 ± 84	$8.12^{+7.83}_{-5.43}$	2063^{+123}_{-145}	6209^{+6372}_{-1620}	61^{+475}_{-45}
Alt.	-781 ± 233	$8.41^{+7.39}_{-5.33}$	2070^{+134}_{-154}	7060^{+7672}_{-1832}	104^{+641}_{-74}

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

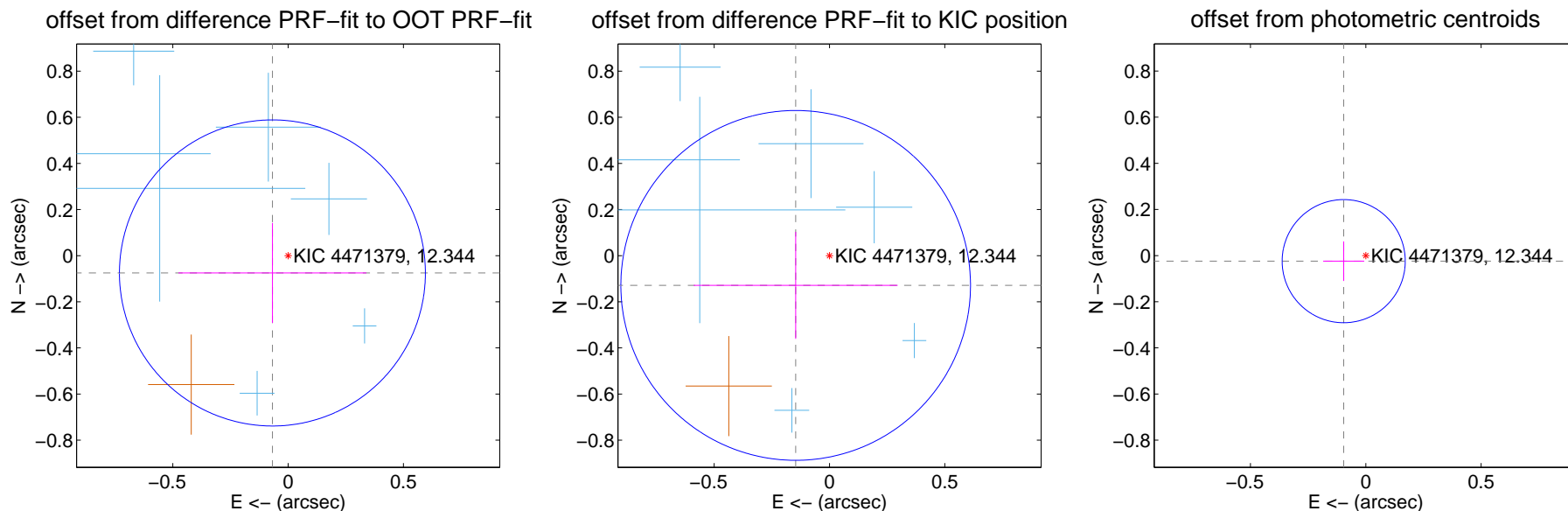
DV Centroid Data

Supplemental centroid analysis for 004471379-05. Kepler magnitude: 12.34. Transit SNR 13.71

There are 8 quarters with good PRF difference image offsets

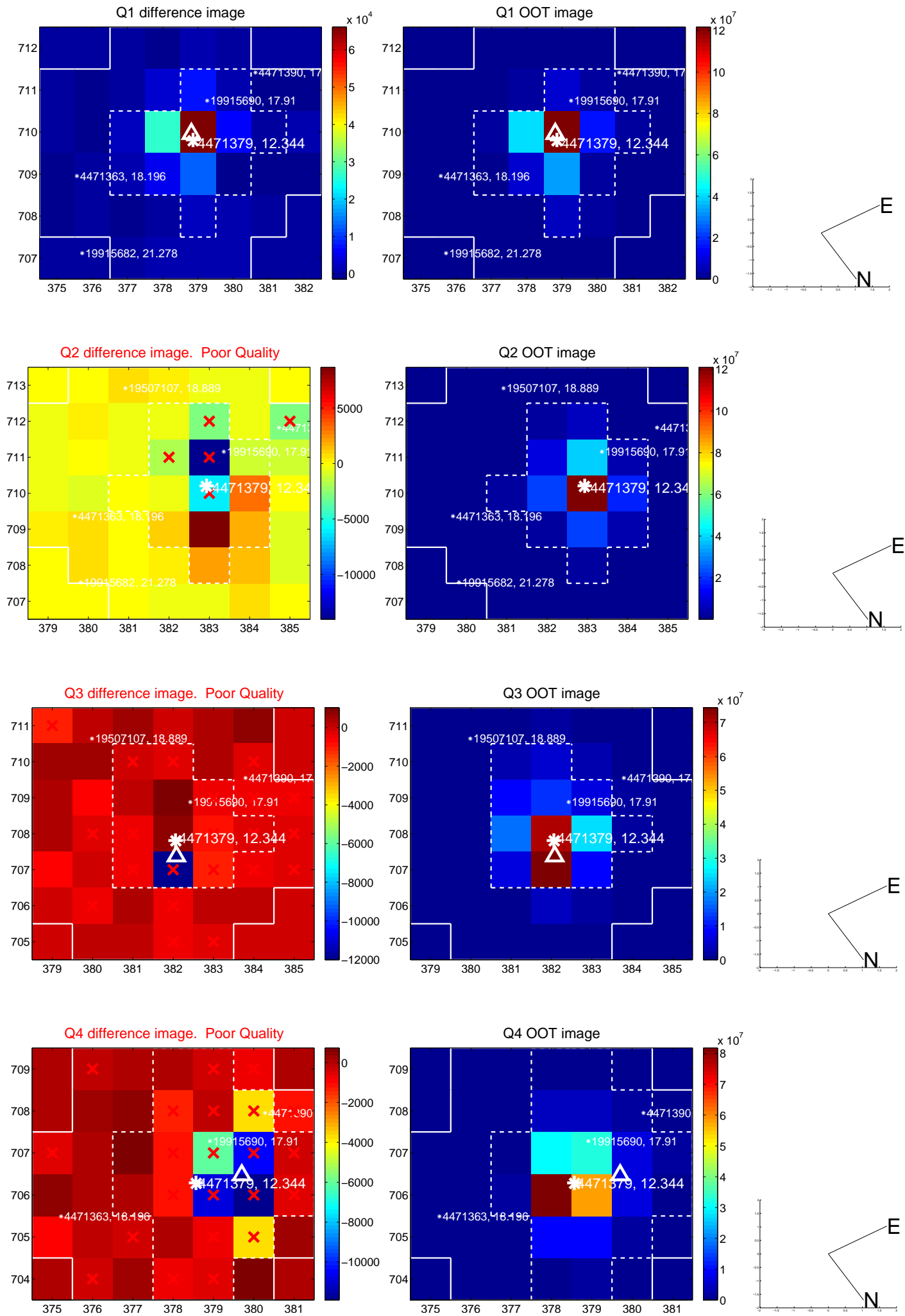
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.101 ± 0.221	0.46	0.068 ± 0.408	-0.075 ± 0.217
PRF-fit source offset from KIC position	0.195 ± 0.253	0.77	0.147 ± 0.442	-0.129 ± 0.232
photometric centroid source offset	0.10 ± 0.09	1.11	0.10 ± 0.09	-0.02 ± 0.09

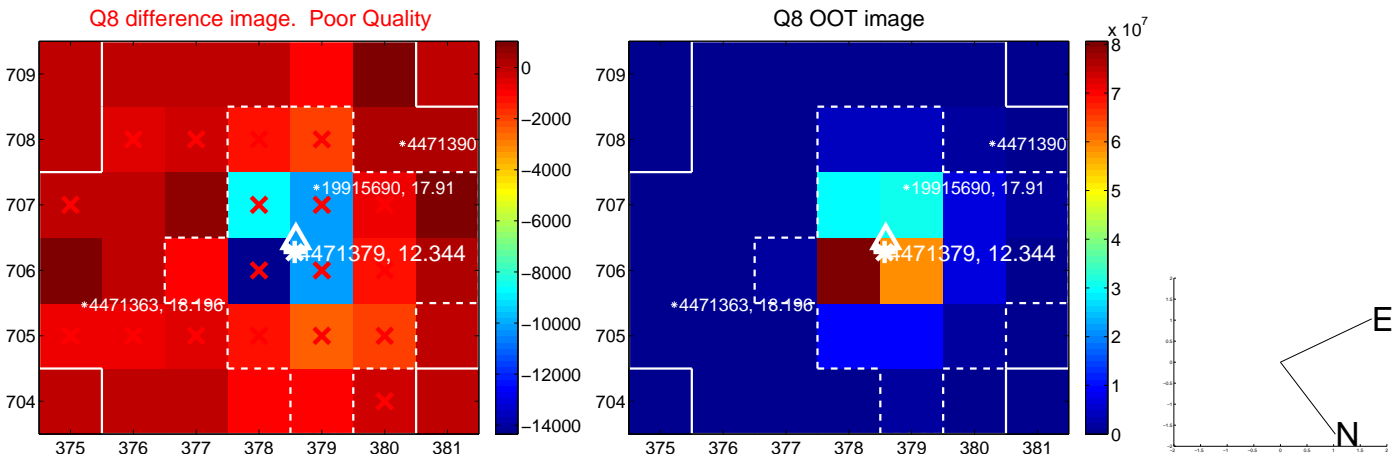
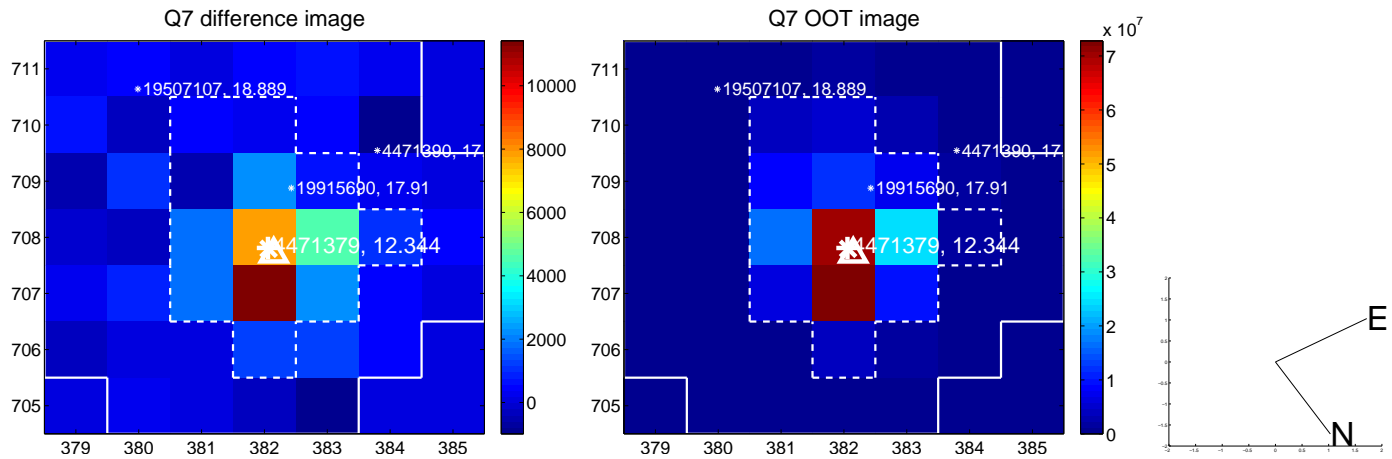
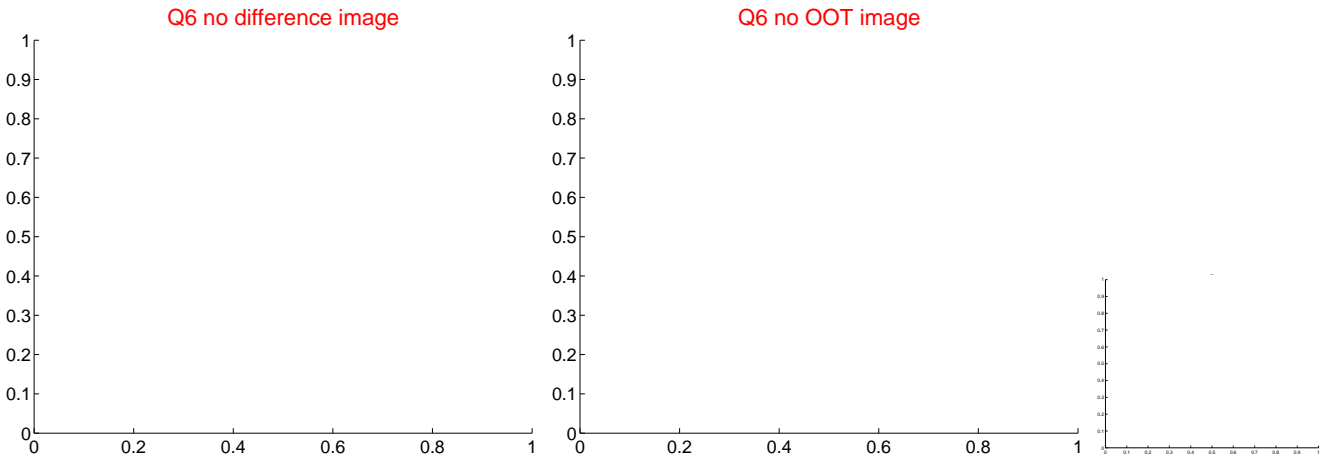
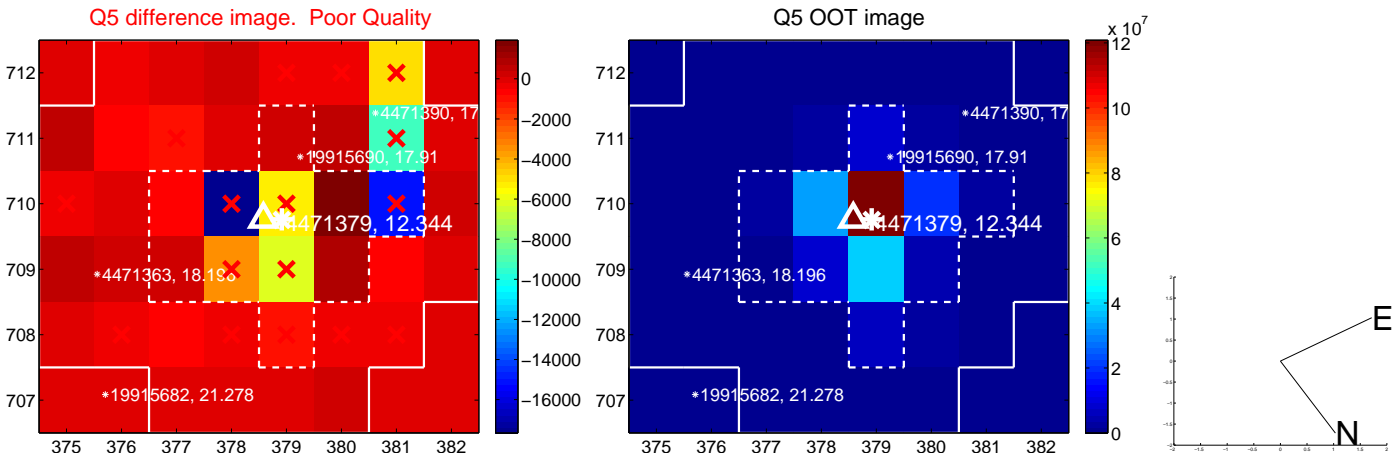


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

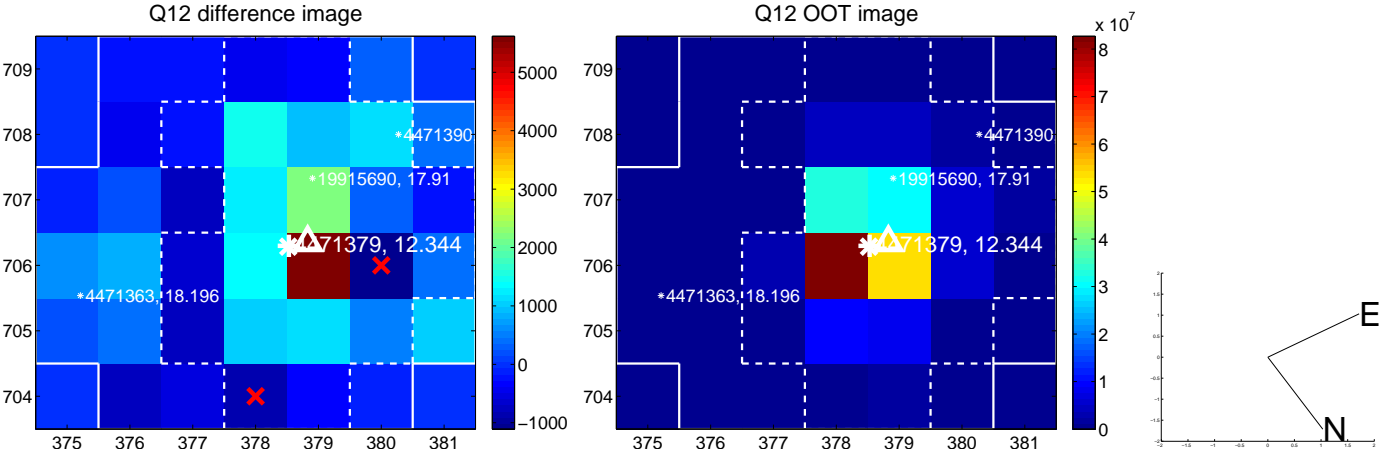
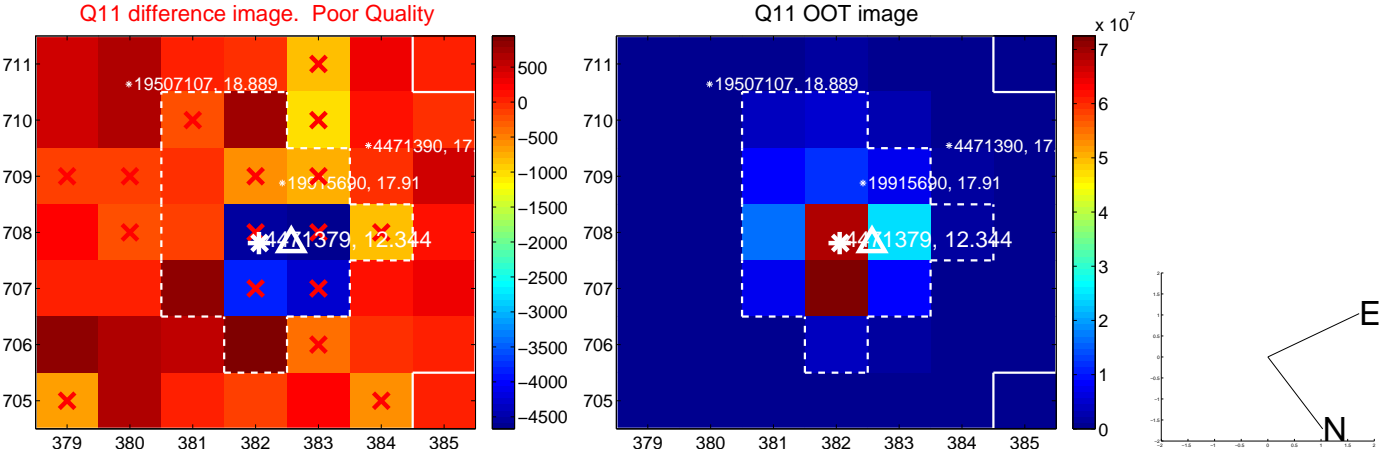
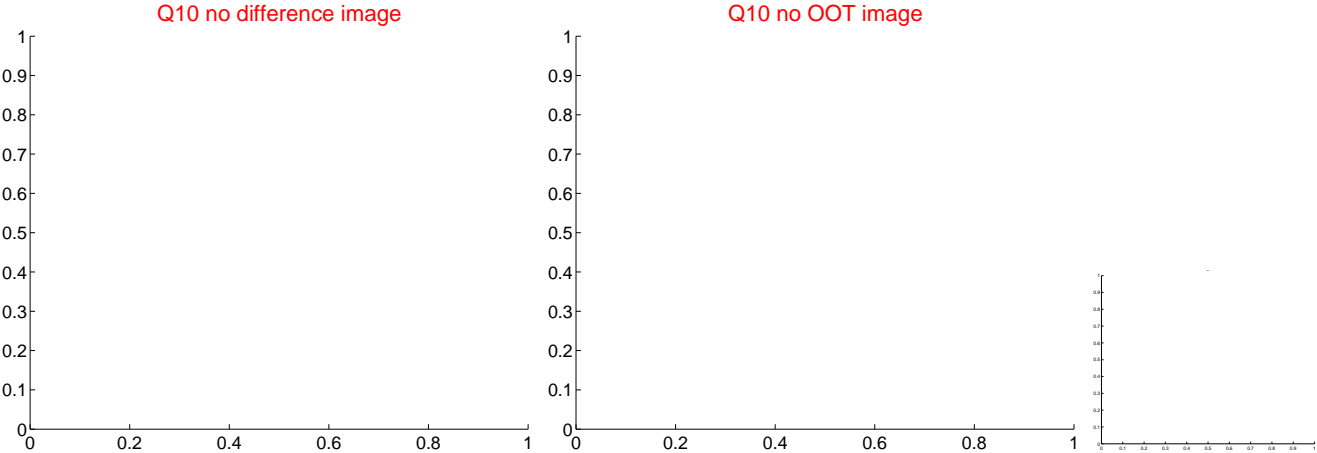
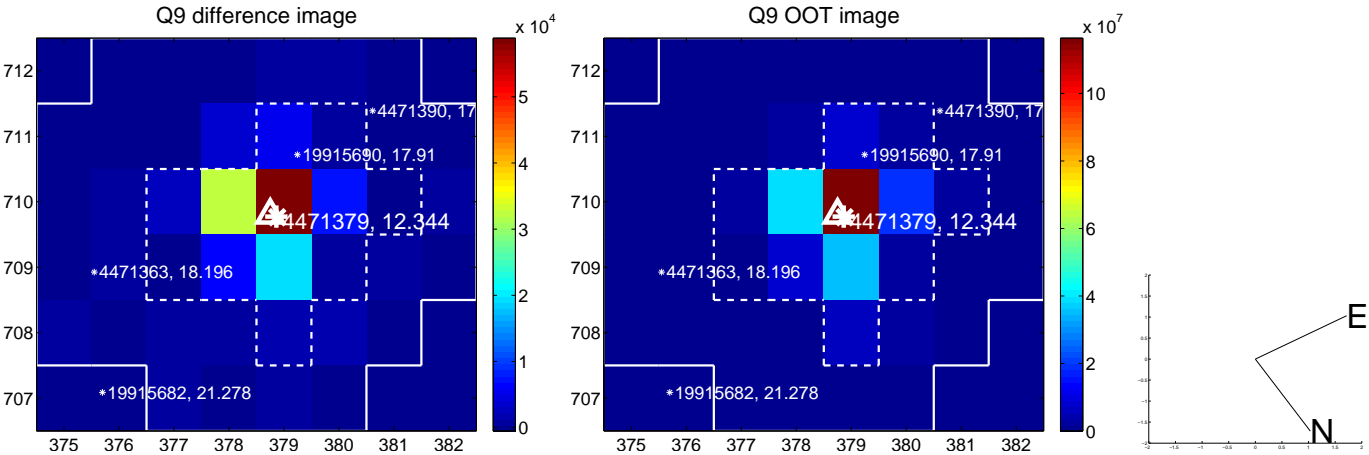
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



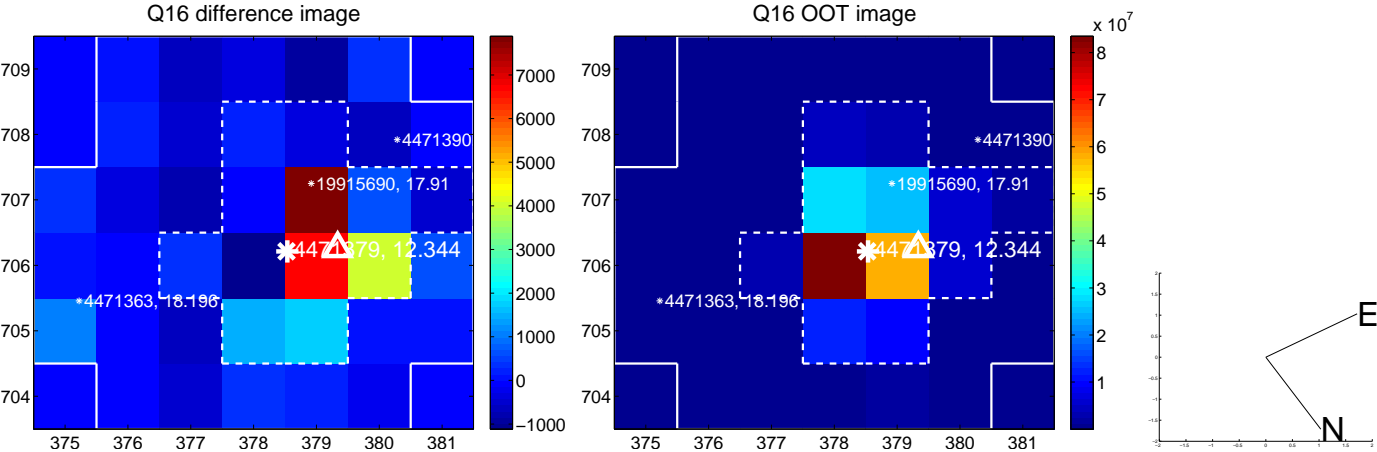
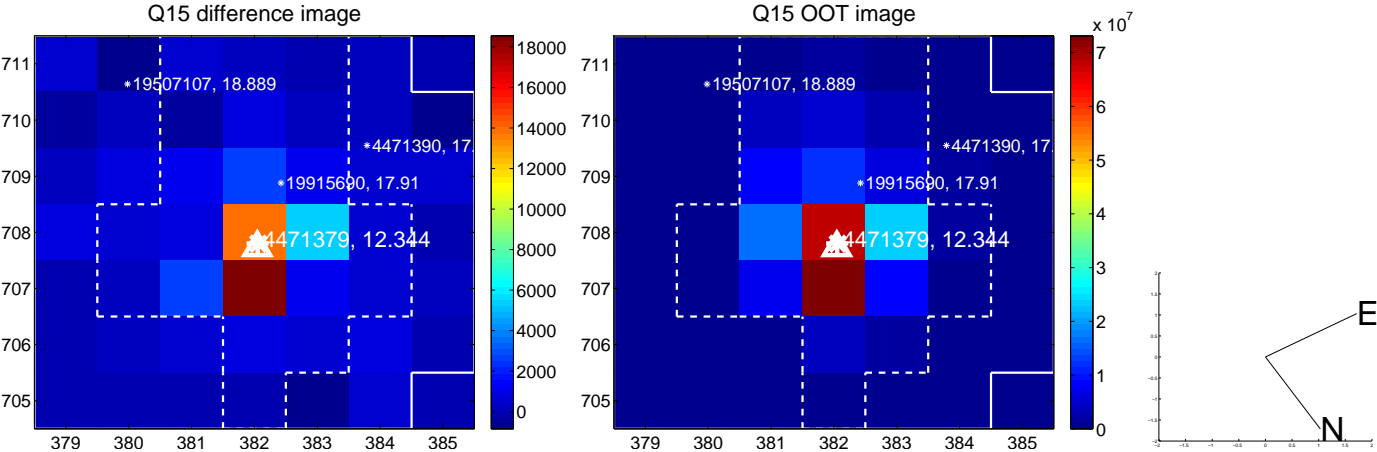
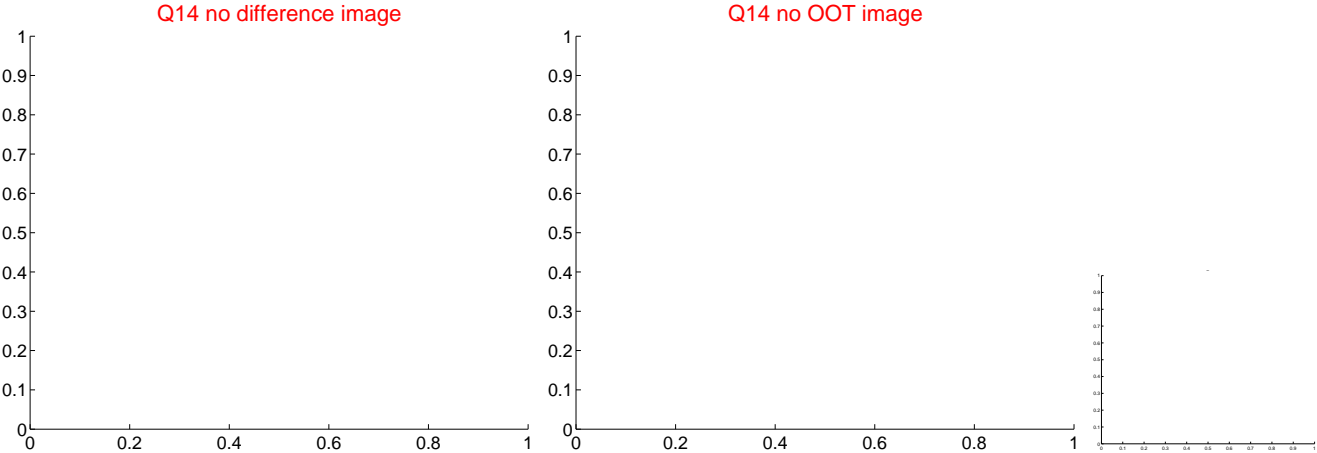
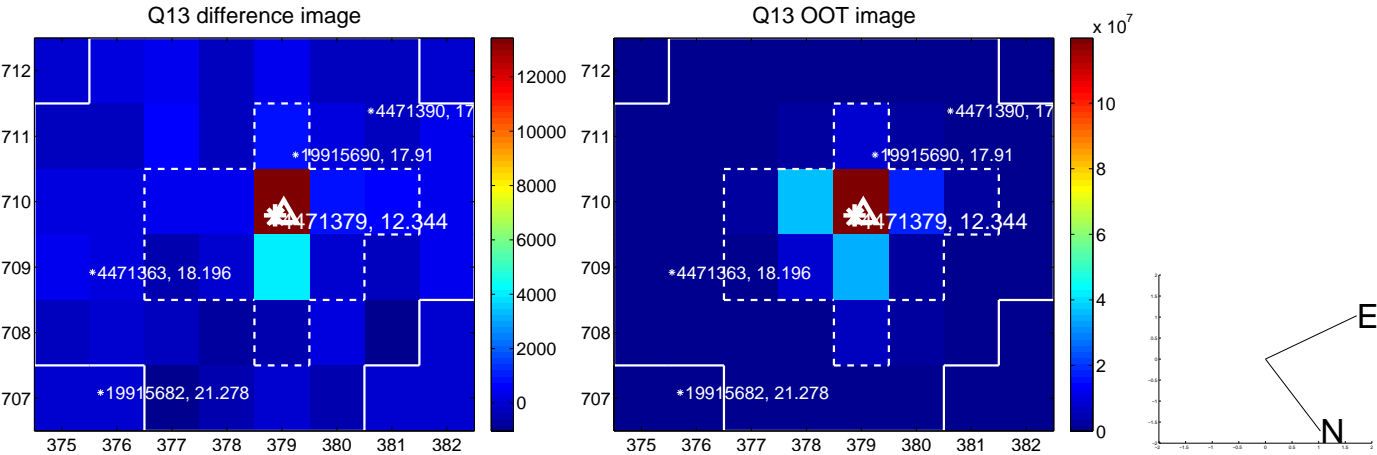
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



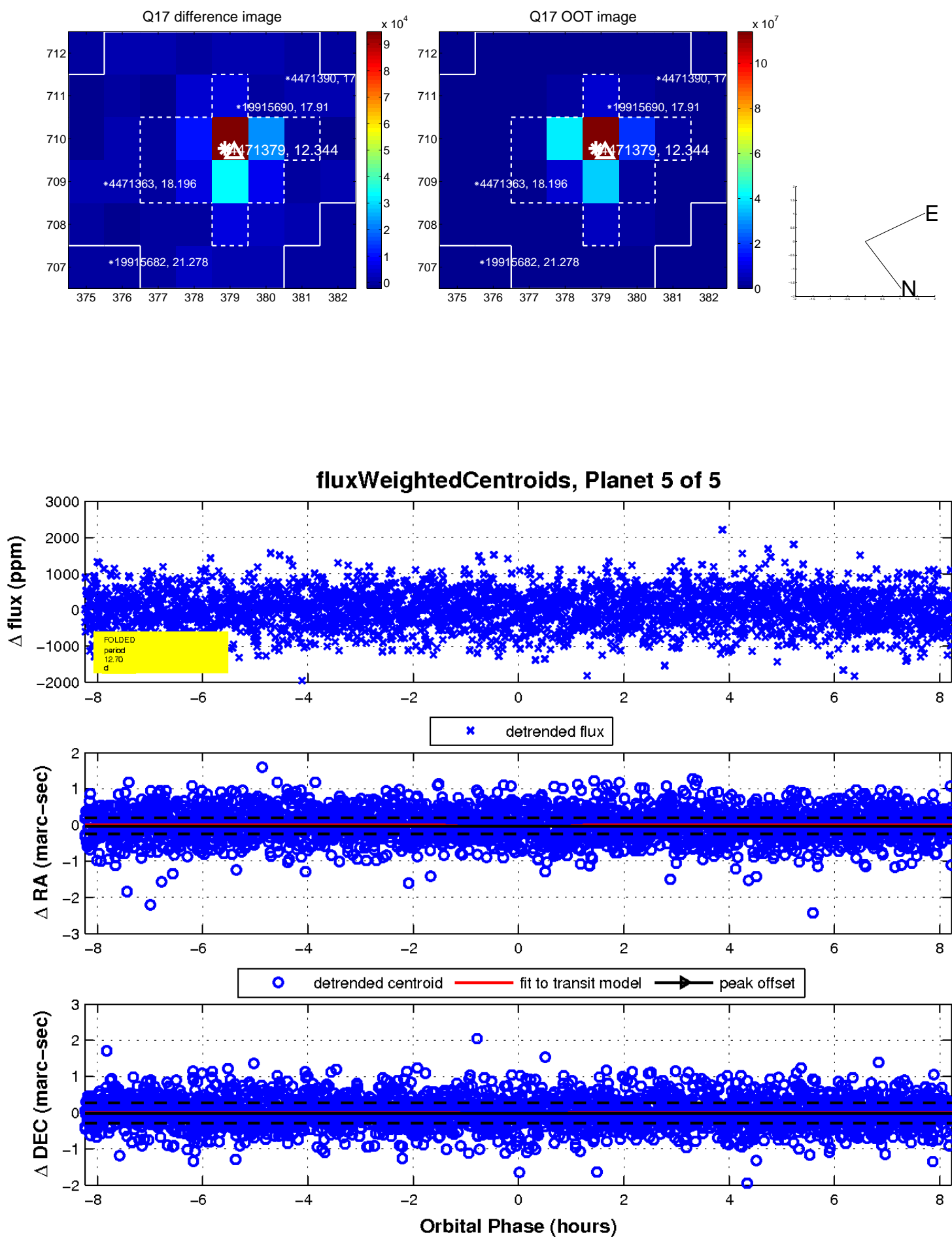
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

