

KIC 012202143

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})
012202143-01	OBS	No	0.737313	131.513107	4.5	0.500	14.8	0.2	2.55	6861	0.57	40889.18
012202143-02	OBS	No	0.737253	131.858598	8.6	3.432	14.2	0.8	2.55	6861	0.78	40893.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012202143-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
012202143-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

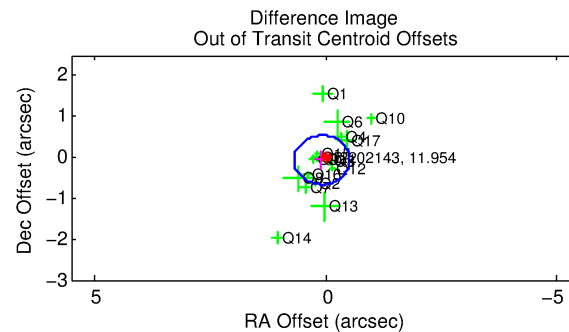
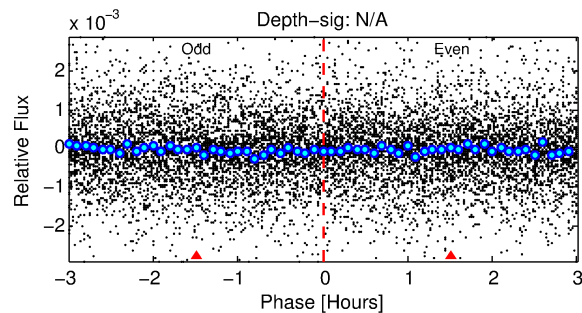
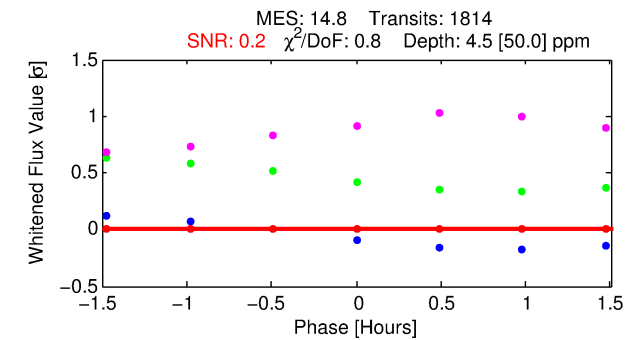
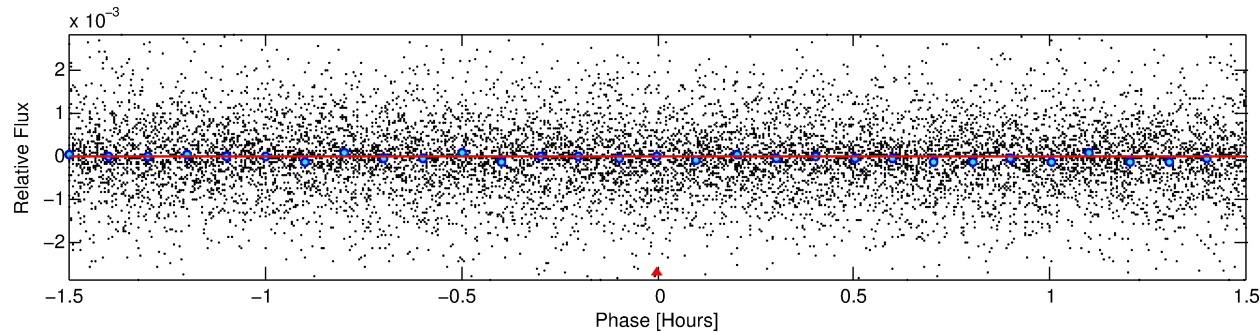
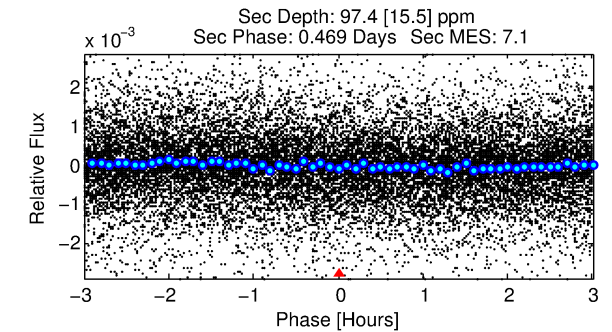
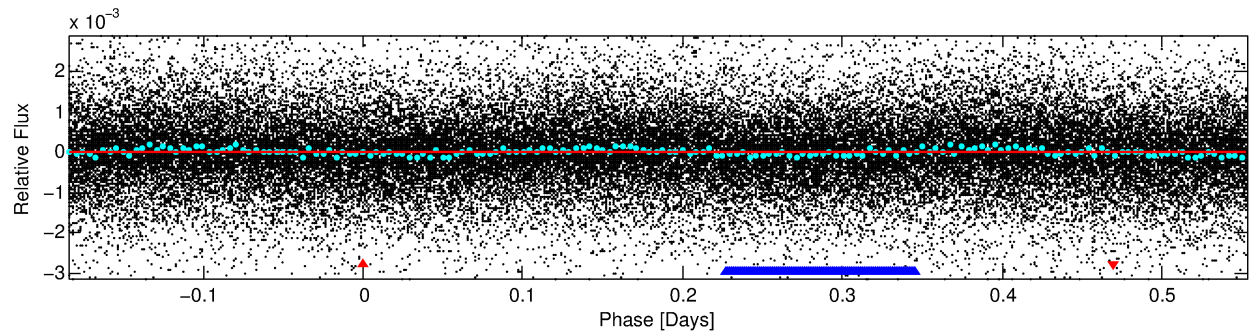
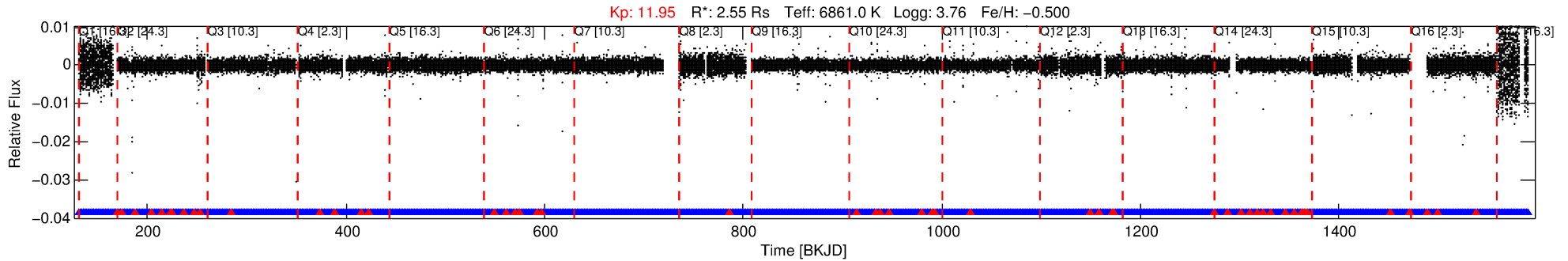
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012202143-01

No Significant Match Found

DV One-Page Summary

KIC: 12202143 Candidate: 1 of 2 Period: 0.737 d



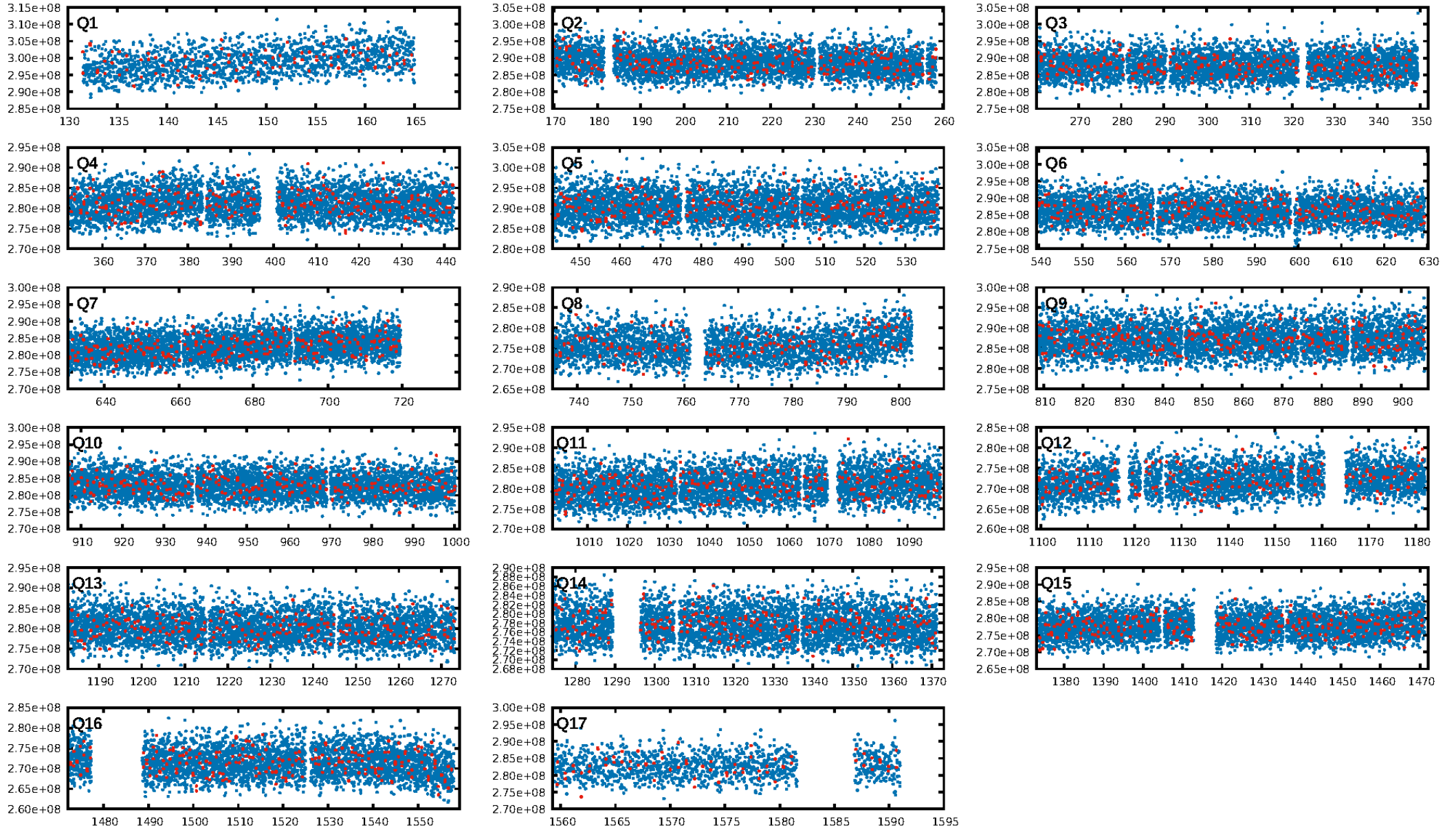
DV Fit Results:

Period = 0.73731 [0.00056] d
Epoch = 131.5131 [0.0561] BKJD
Rp/R* = 0.0021 [0.2557]
a/R* = 11.24 [7768.73]
b = 0.10 [7238.77]
Seff = 40889.18 [36015.86]
Teq = 3626 [798] K
Rp = 0.57 [71.23] Re
a = 0.0178 [0.0093] AU
Ag = 51.53 [12798.00] [0.00 σ]
Teffp = 15020 [932643] K [0.01 σ]

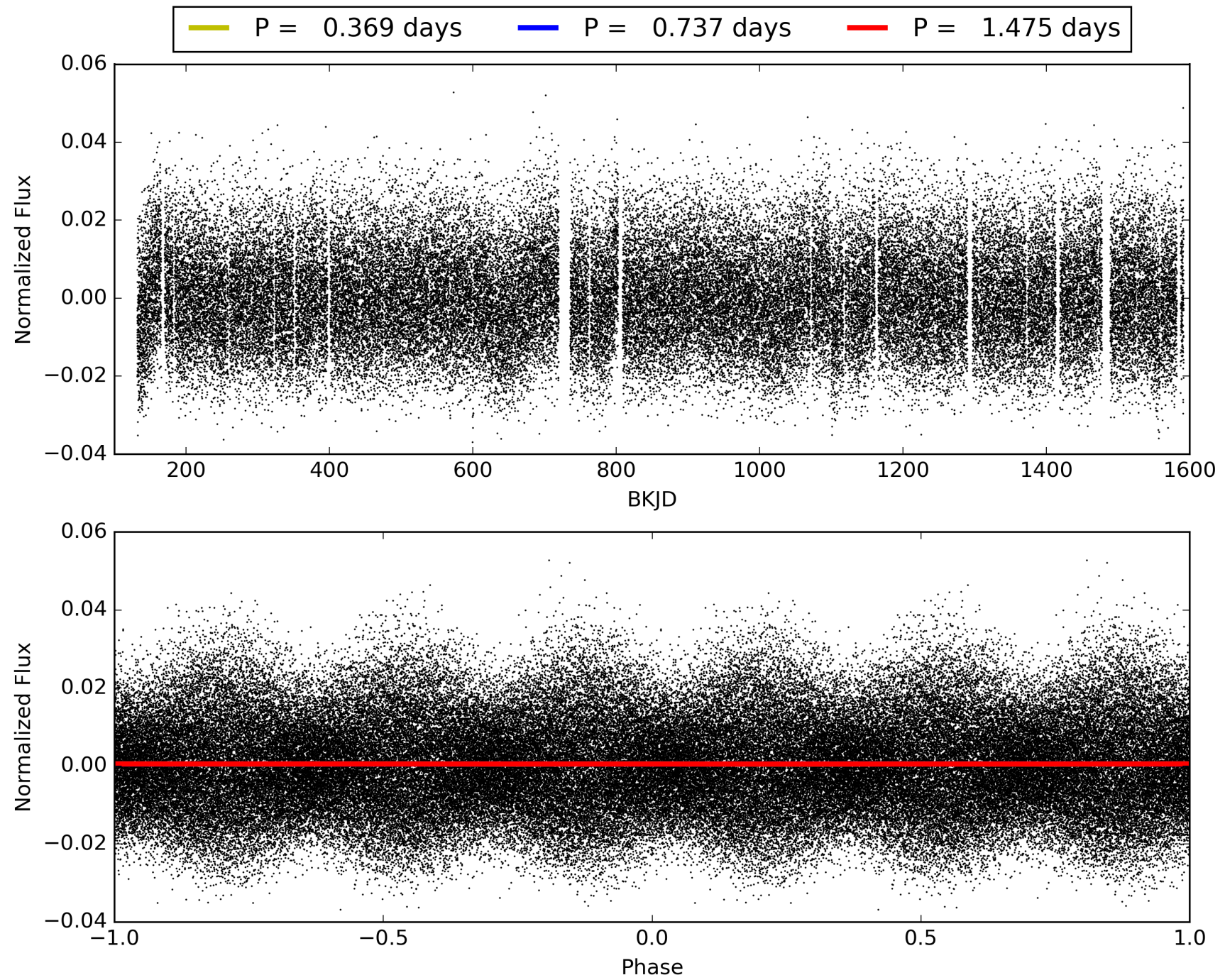
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.16e-24
RollingBand-fgt: 0.97 [1676/1732]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.104 arcsec [0.52 σ]
KicOffset-rm: 0.093 arcsec [0.44 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.65 [11/17]
DiffImageOverlap-fno: 0.53 [9/17]

TCE 012202143-01, PDC Light Curves

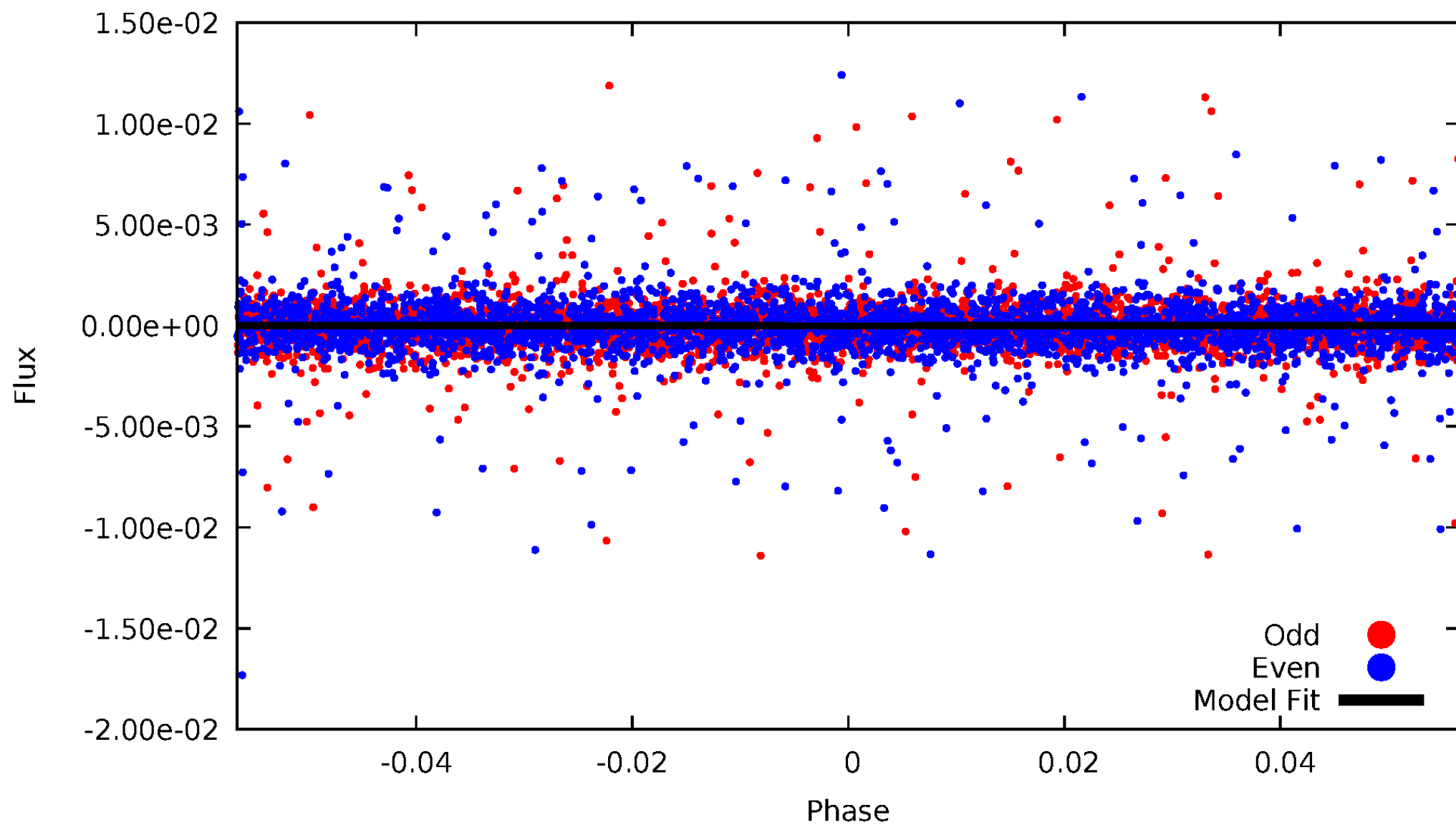


TCE 012202143-01



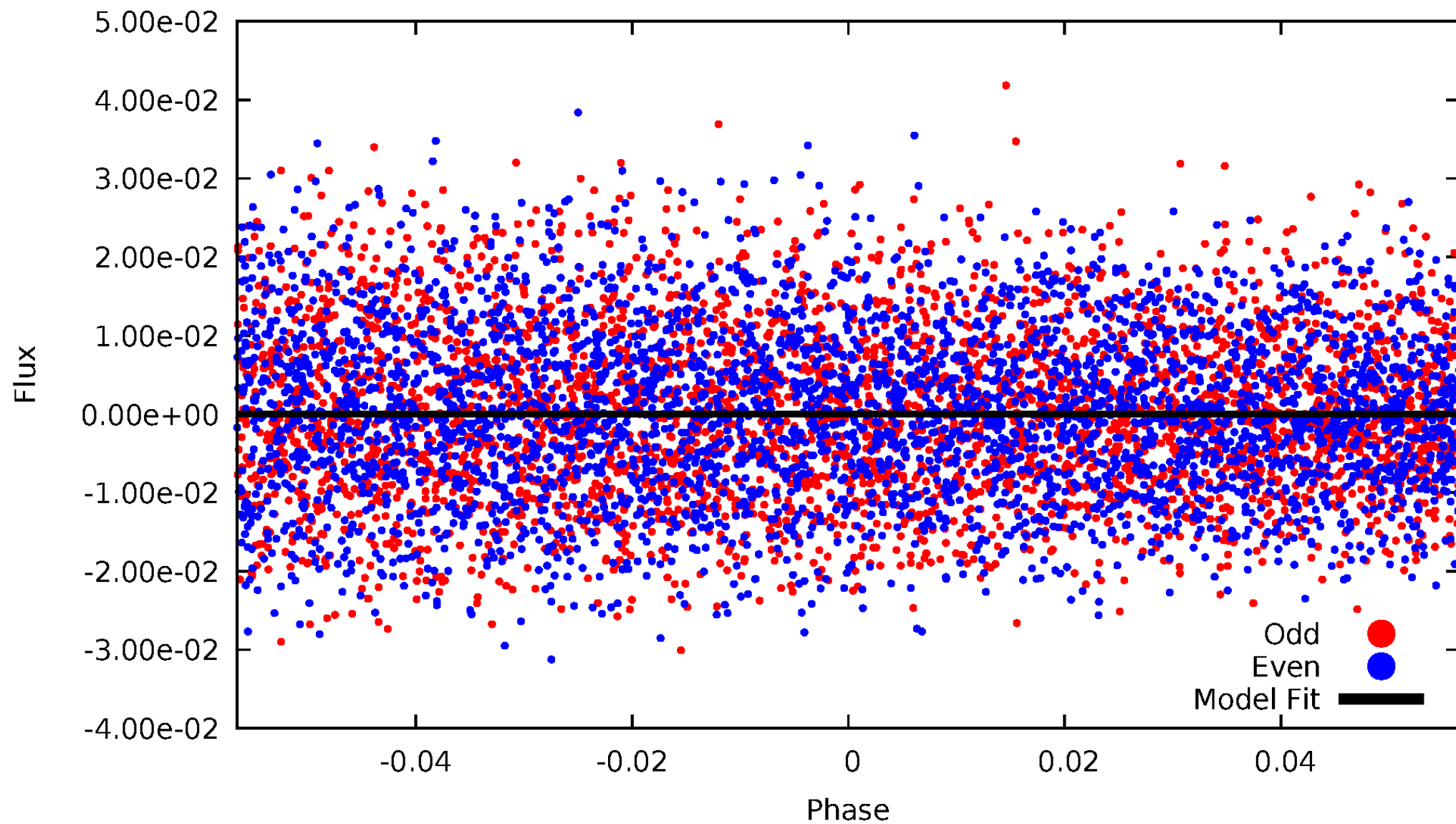
DV Odd/Even

TCE 012202143-01



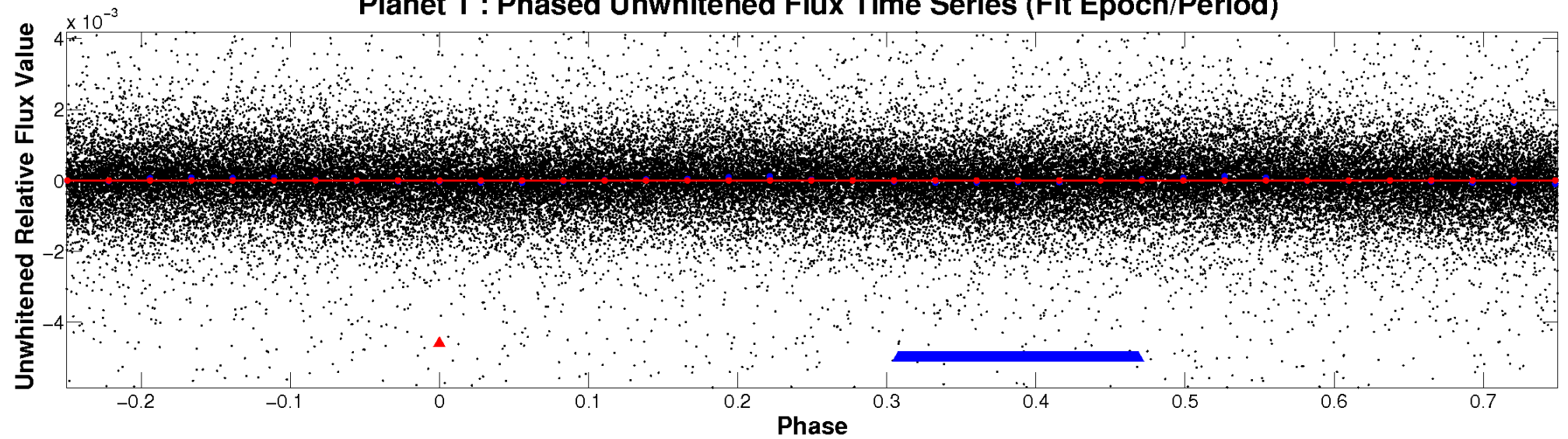
ALT Odd/Even

TCE 012202143-01

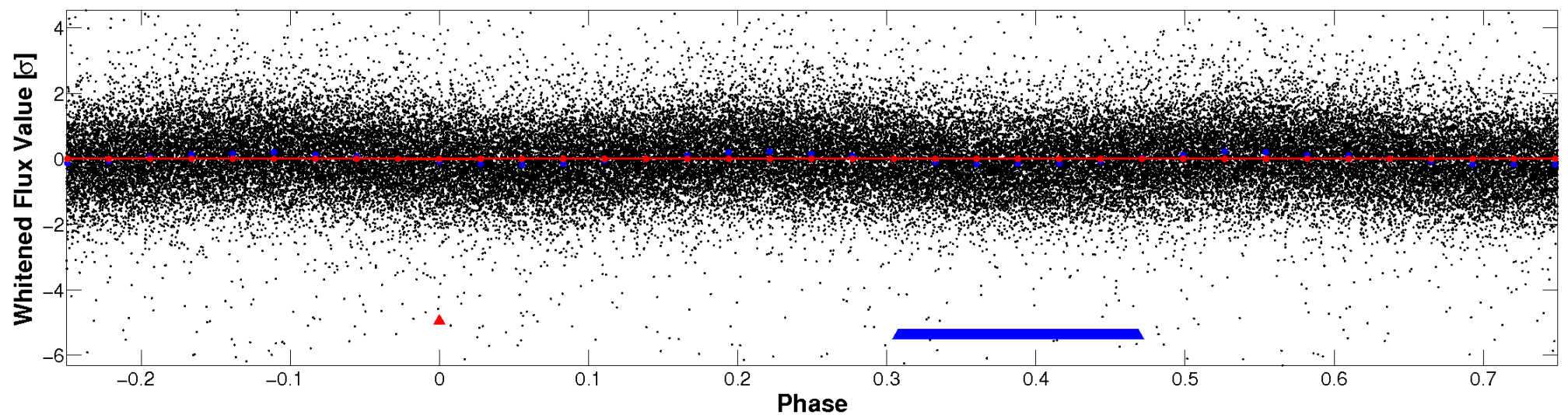


Non-Whitened Vs. Whitened Light Curve

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

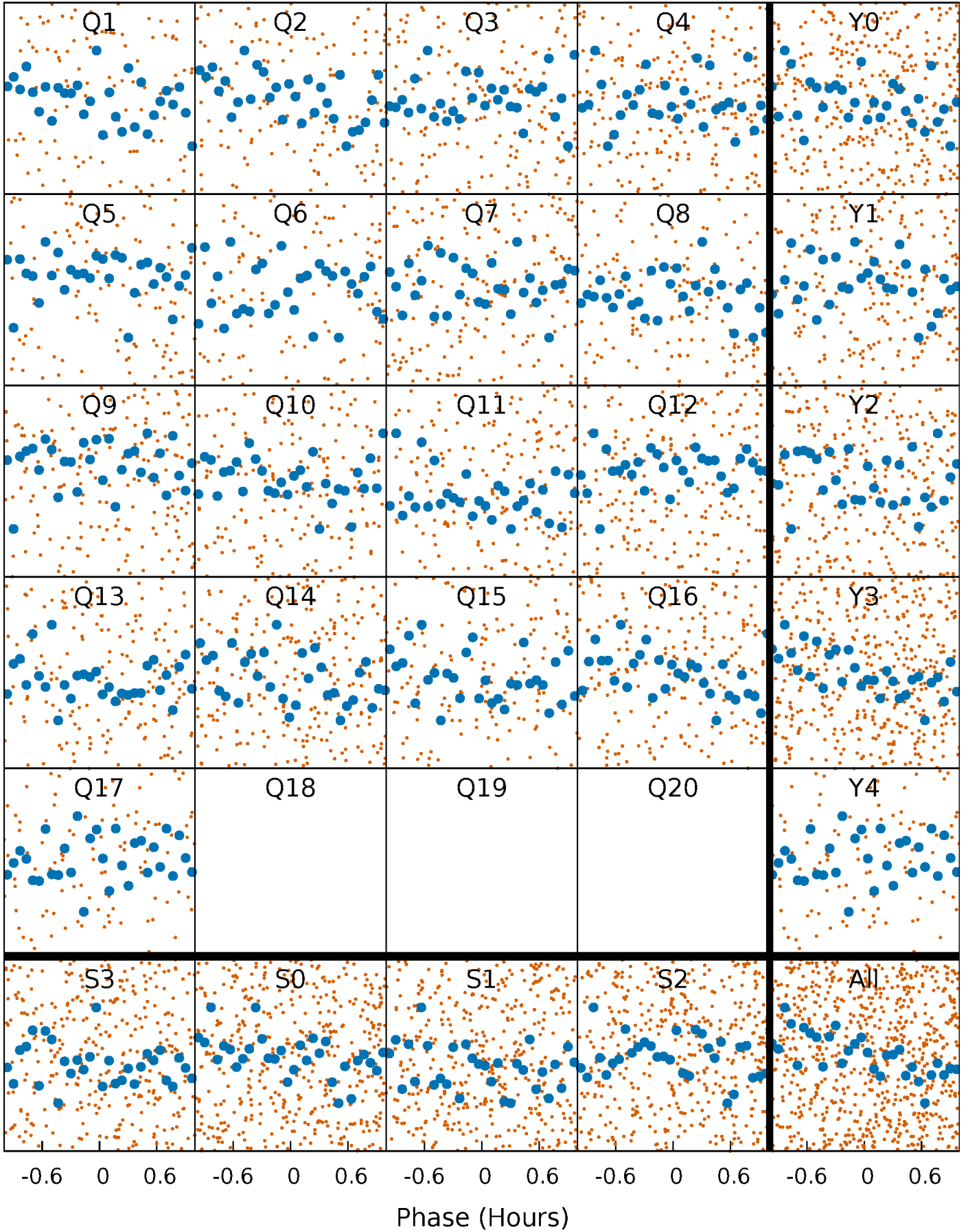


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



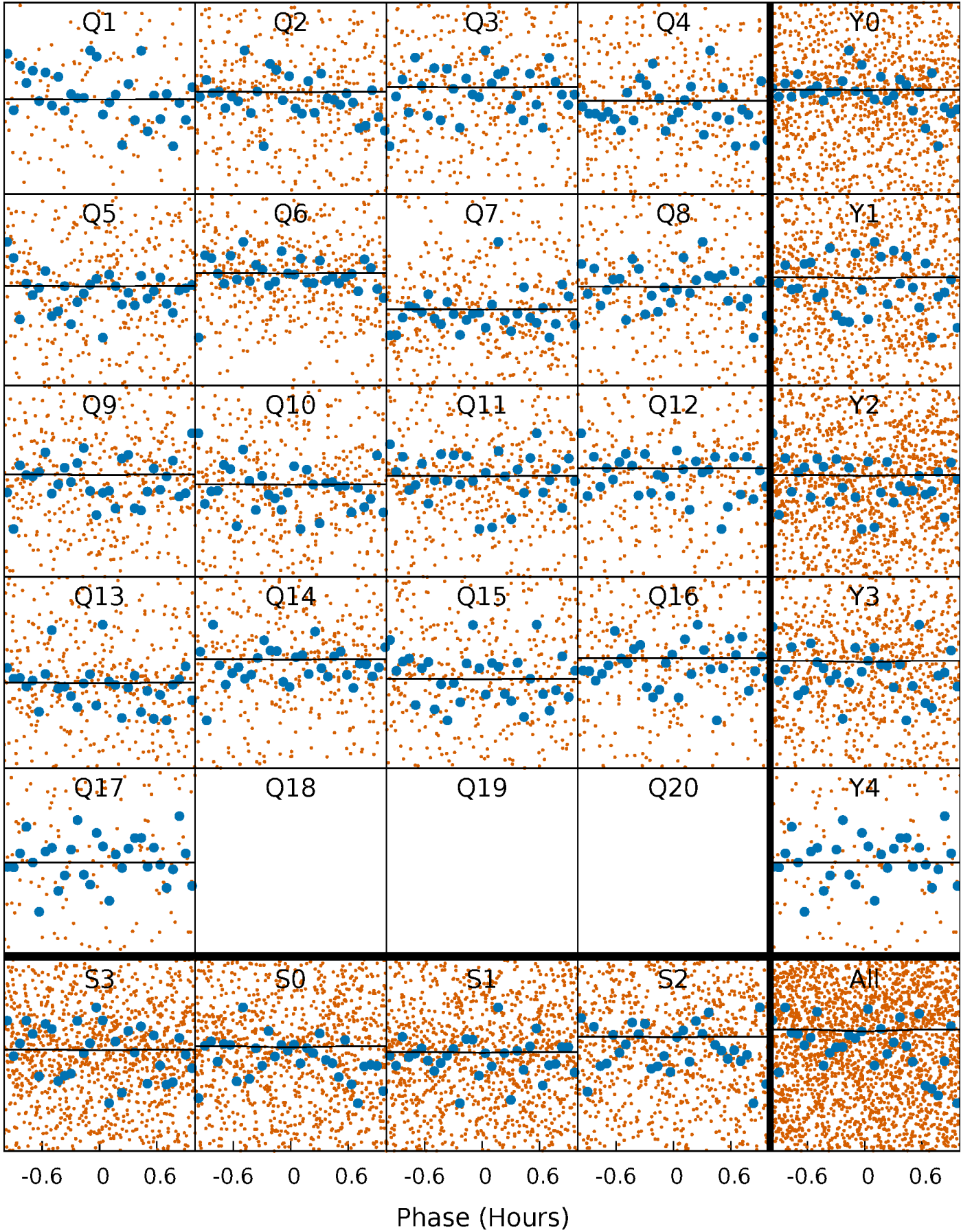
PDC Quarter-Phased Transit Curves

TCE 012202143-01 P= 0.737313 Days $T_0=131.513107$ (BKJD)



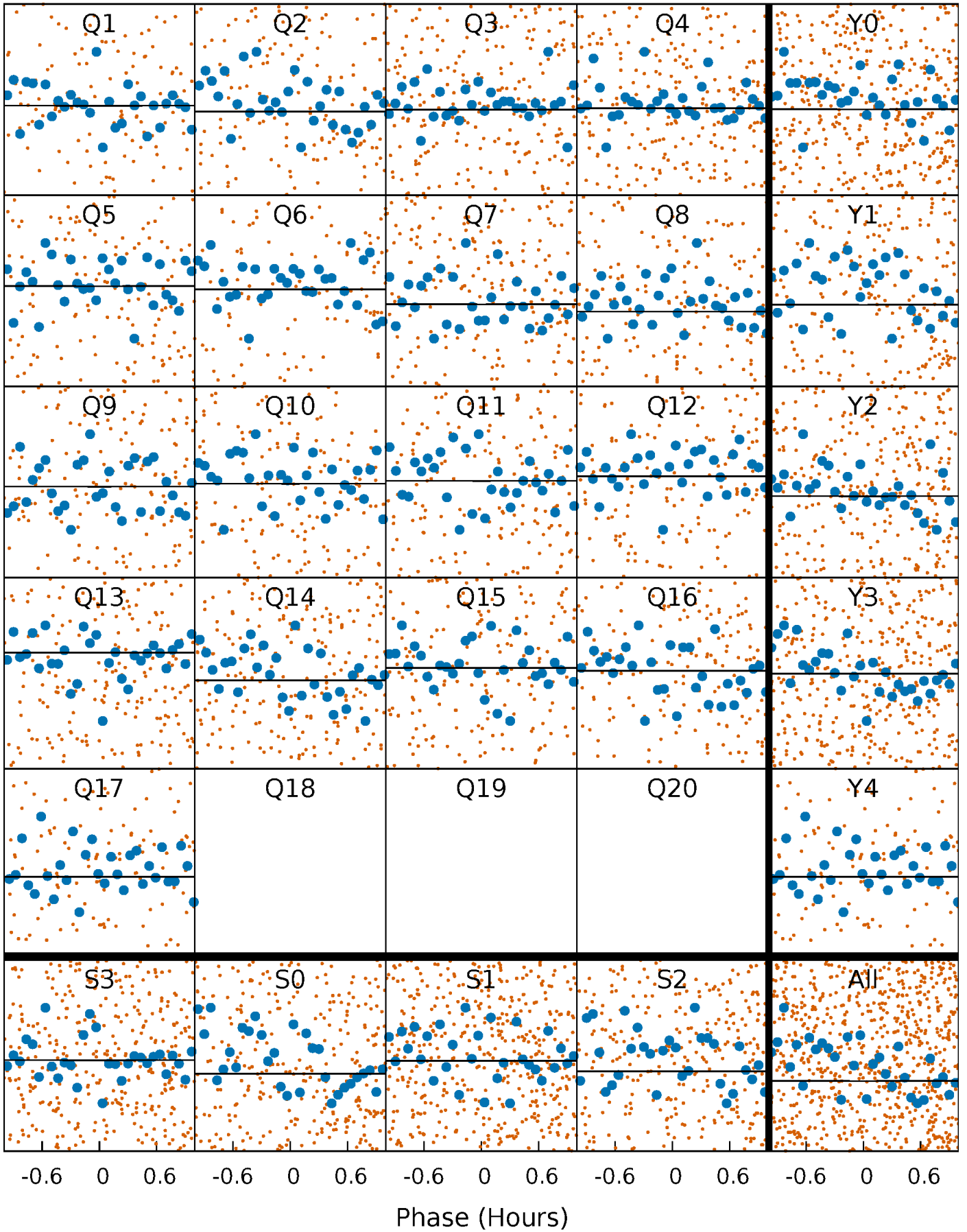
DV Quarter-Phased Transit Curves

TCE 012202143-01 P= 0.737313 Days $T_0=131.513107$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

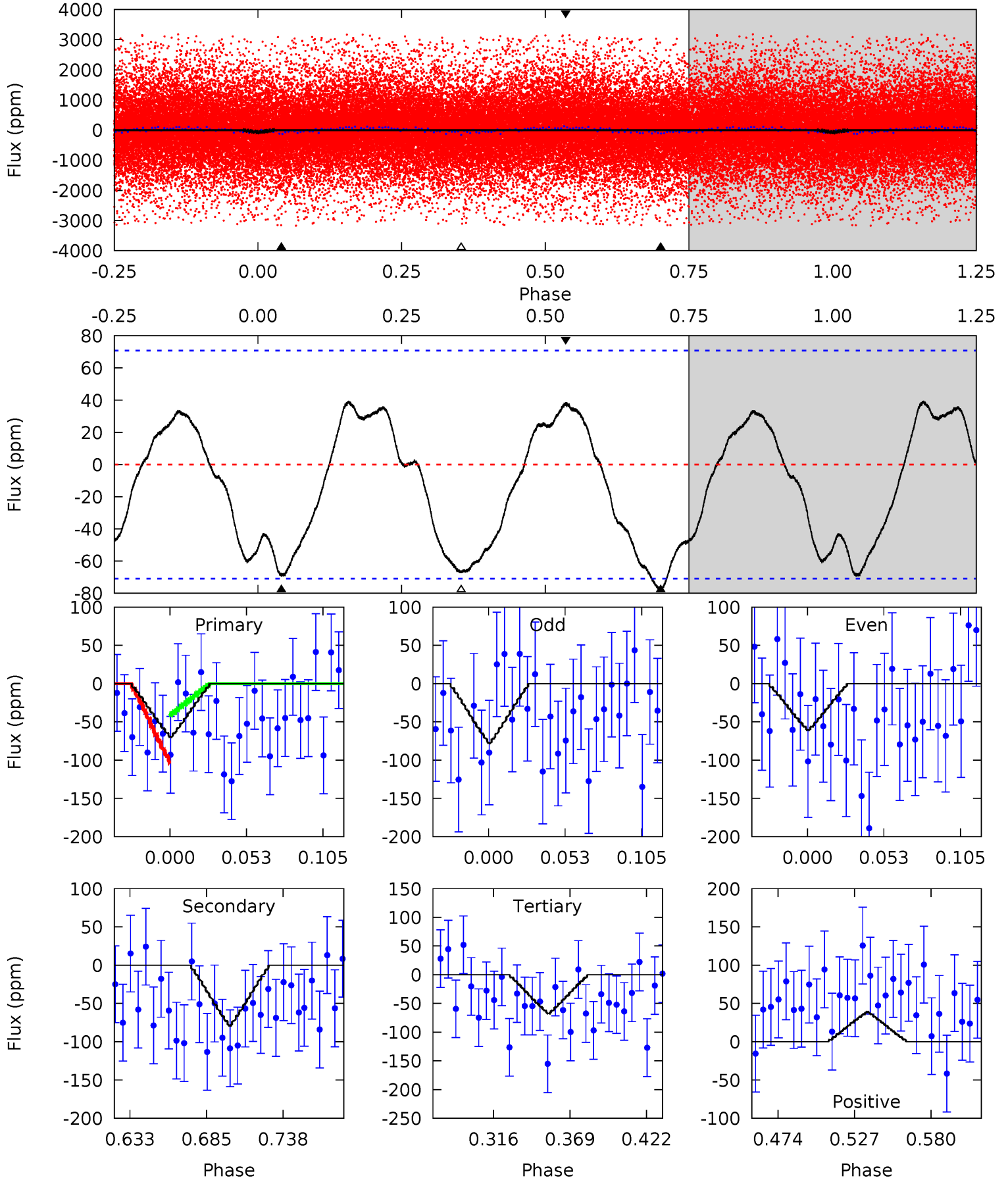
TCE 012202143-01 P= 0.737314 Days $T_0=131.513086$ (BKJD)



DV Model-Shift Uniqueness Test

012202143-01, P = 0.737313 Days, E = 130.775794 Days

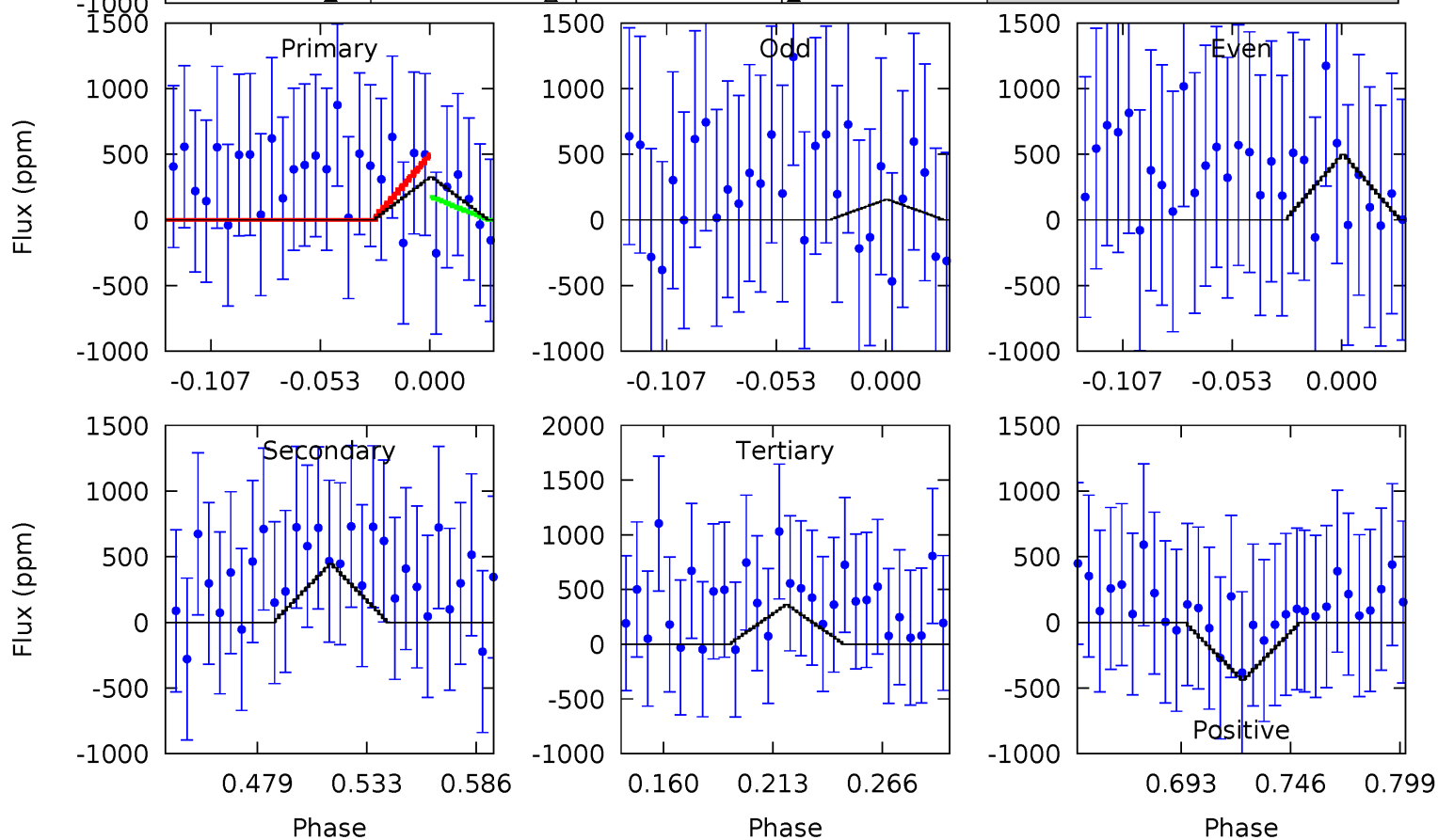
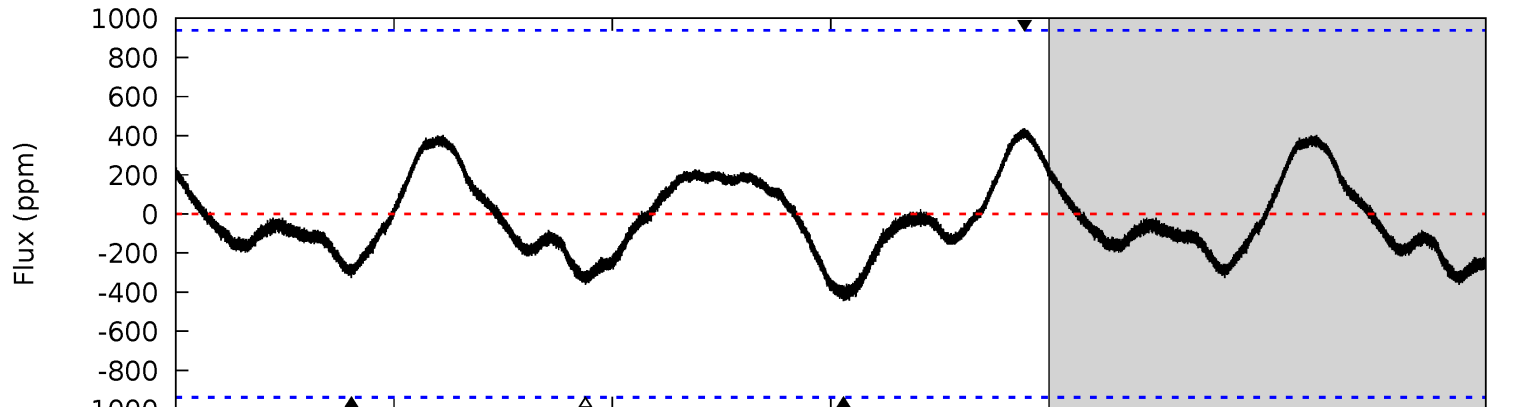
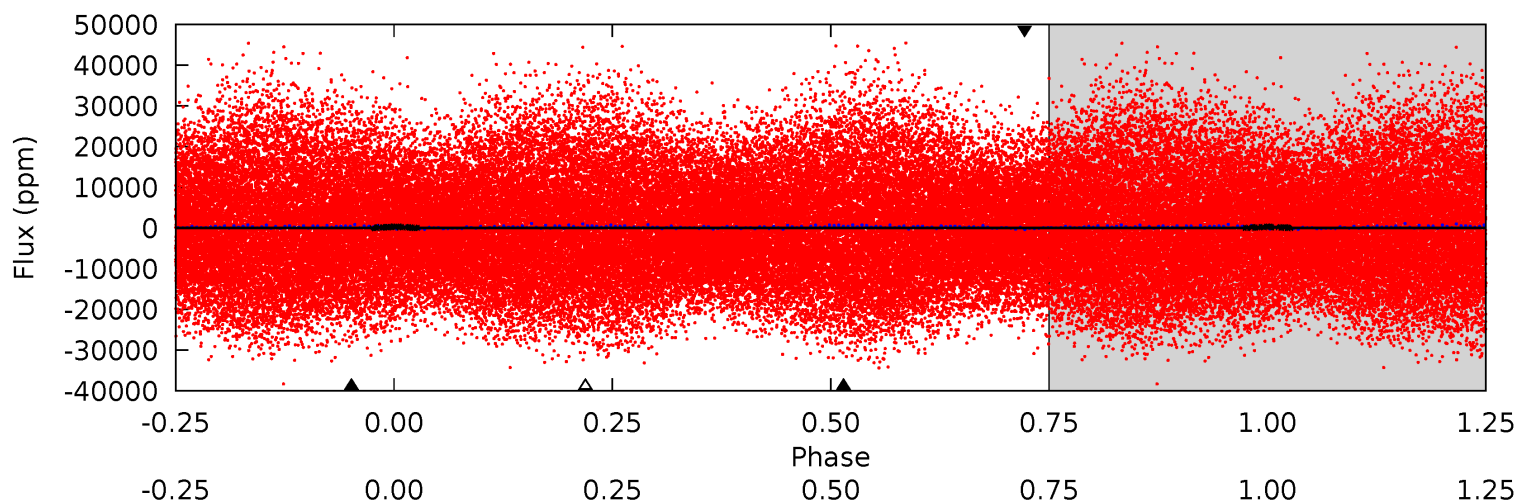
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.62	5.23	4.47	2.57	4.70	1.94	2.14	0.15	2.05	0.76	2.66	0.56	0.98	0.33	2.09



Alt Model-Shift Uniqueness Test

012202143-01, P = 0.737314 Days, E = 130.775772 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.63	2.23	1.81	2.20	4.70	1.93	0.91	-0.18	-0.56	0.42	0.03	0.86	4.05	0.50	0.83



Stellar Parameters For KIC 012202143

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6861^{+214}_{-285}	$3.764^{+0.518}_{-0.091}$	$-0.500^{+0.300}_{-0.300}$	$2.553^{+0.522}_{-1.304}$	$1.380^{+0.205}_{-0.334}$	$0.117^{+0.658}_{-0.033}$
	+3%/-4%	+14%/-2%	+60%/-60%	+20%/-51%	+15%/-24%	+563%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012202143-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-79 ± 15	$40.26^{+48.78}_{-29.09}$	4879^{+406}_{-625}	-4129^{+685}_{-305}	$0.008^{+0.106}_{-0.006}$
Alt.	-445 ± 200	$40.91^{+54.54}_{-29.06}$	4857^{+353}_{-645}	-3935^{+7751}_{-399}	$0.043^{+0.473}_{-0.036}$

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

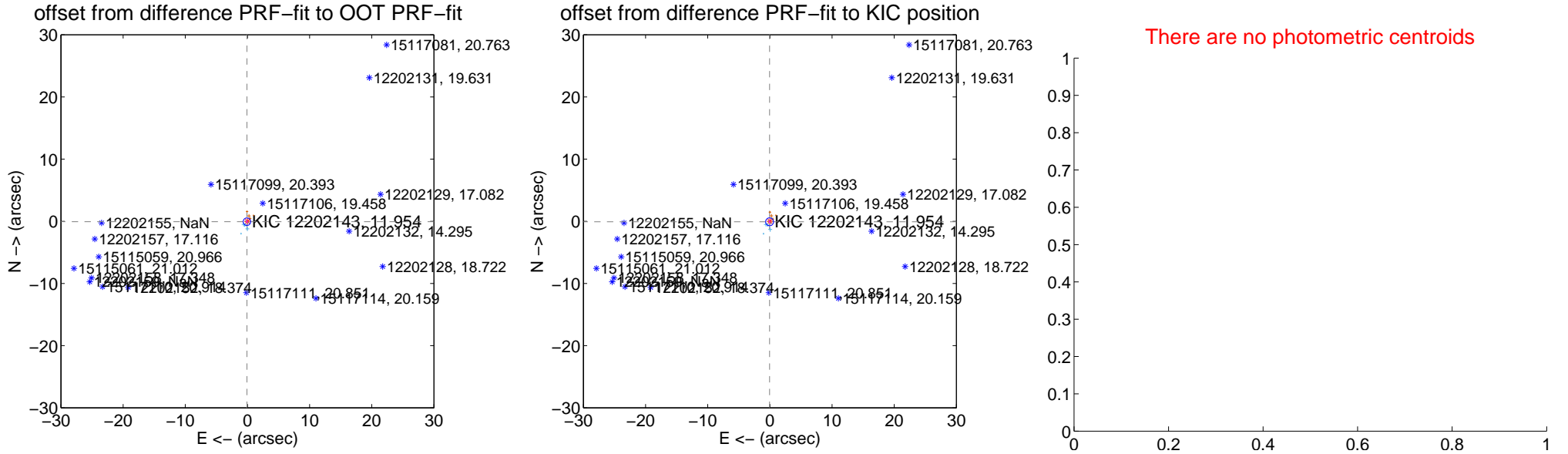
DV Centroid Data

Supplemental centroid analysis for 012202143-01. **Kepler magnitude: 11.95.** Transit SNR 0.18

There are 11 quarters with good PRF difference image offsets

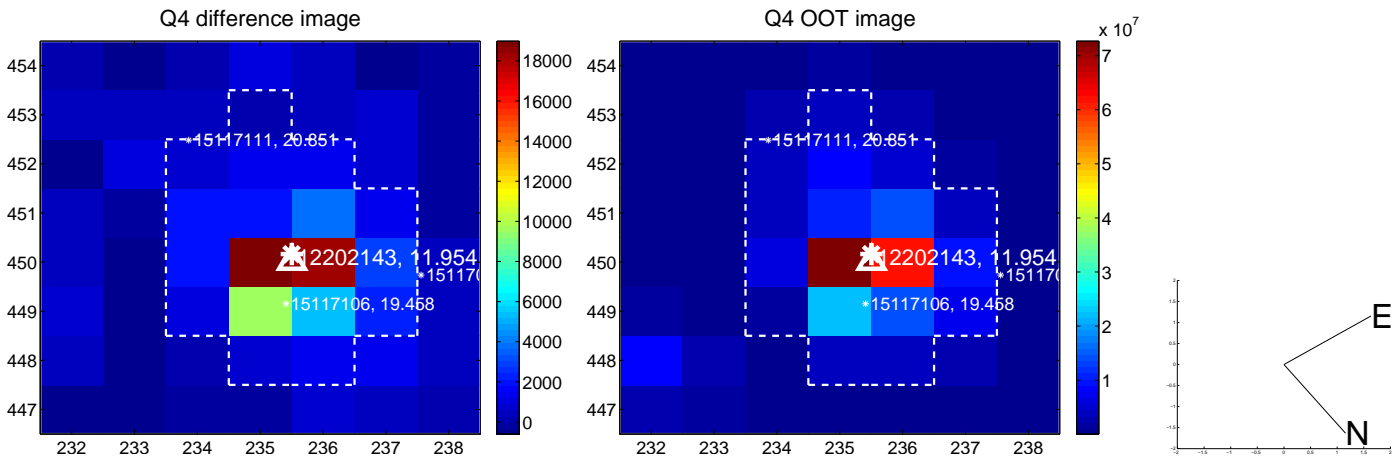
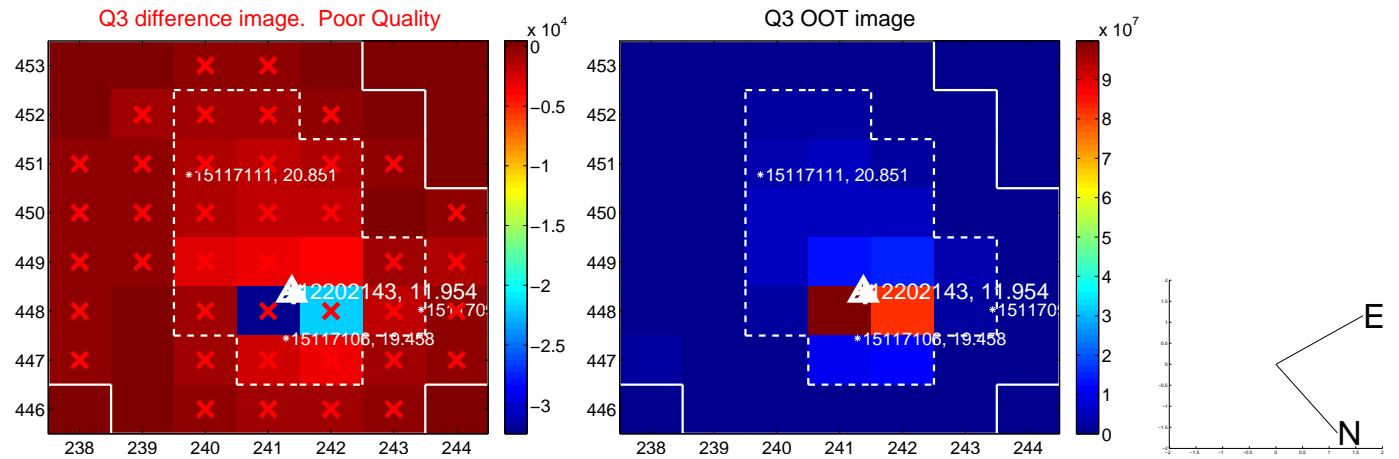
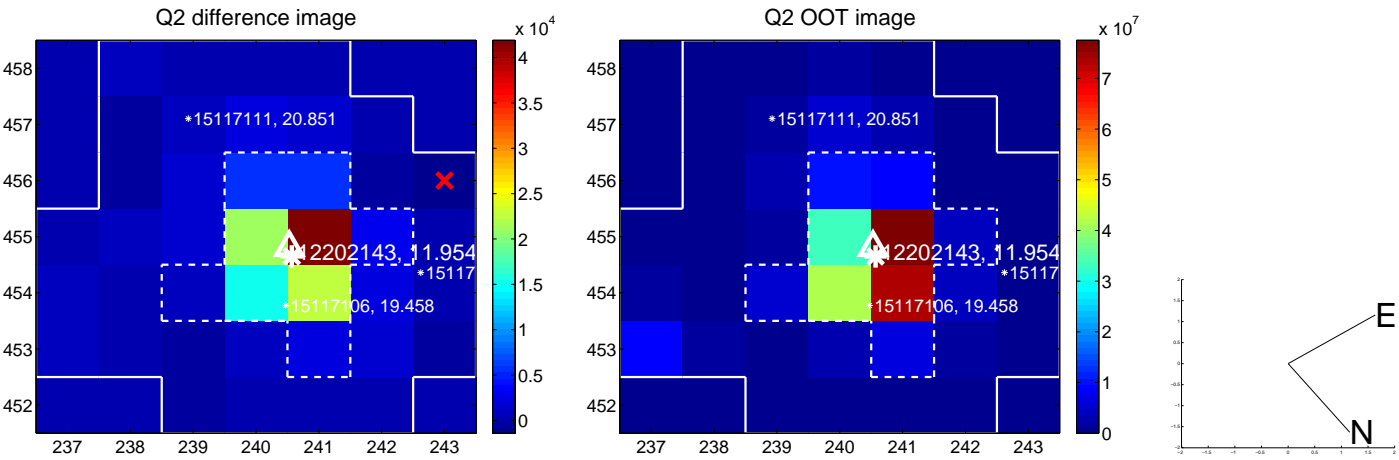
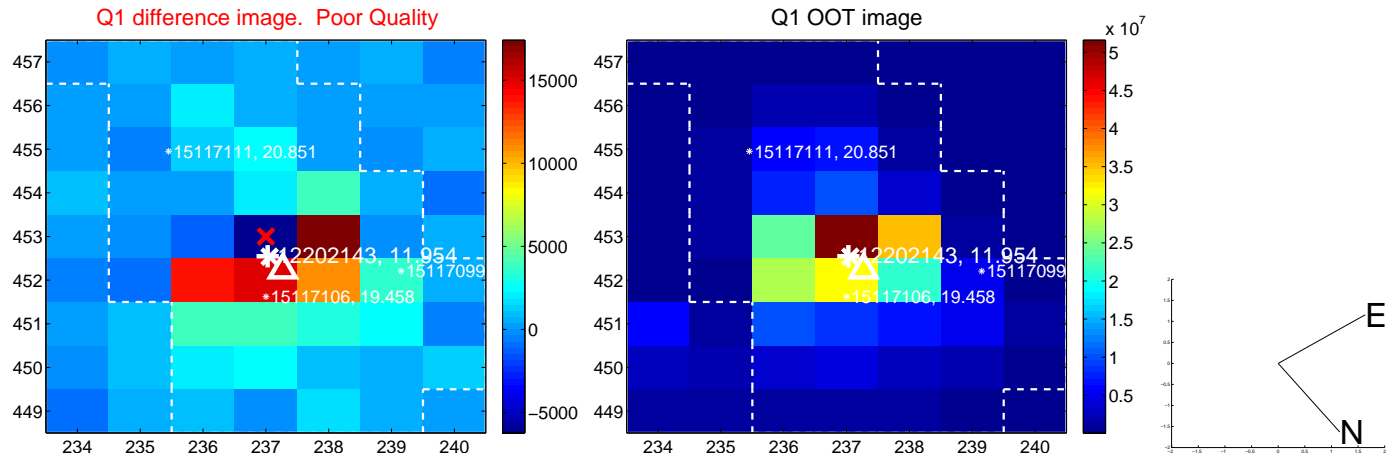
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.104 ± 0.201	0.52	0.082 ± 0.127	-0.064 ± 0.207
PRF-fit source offset from KIC position	0.093 ± 0.211	0.44	0.048 ± 0.122	-0.079 ± 0.199
photometric centroid source offset	—	—	—	—

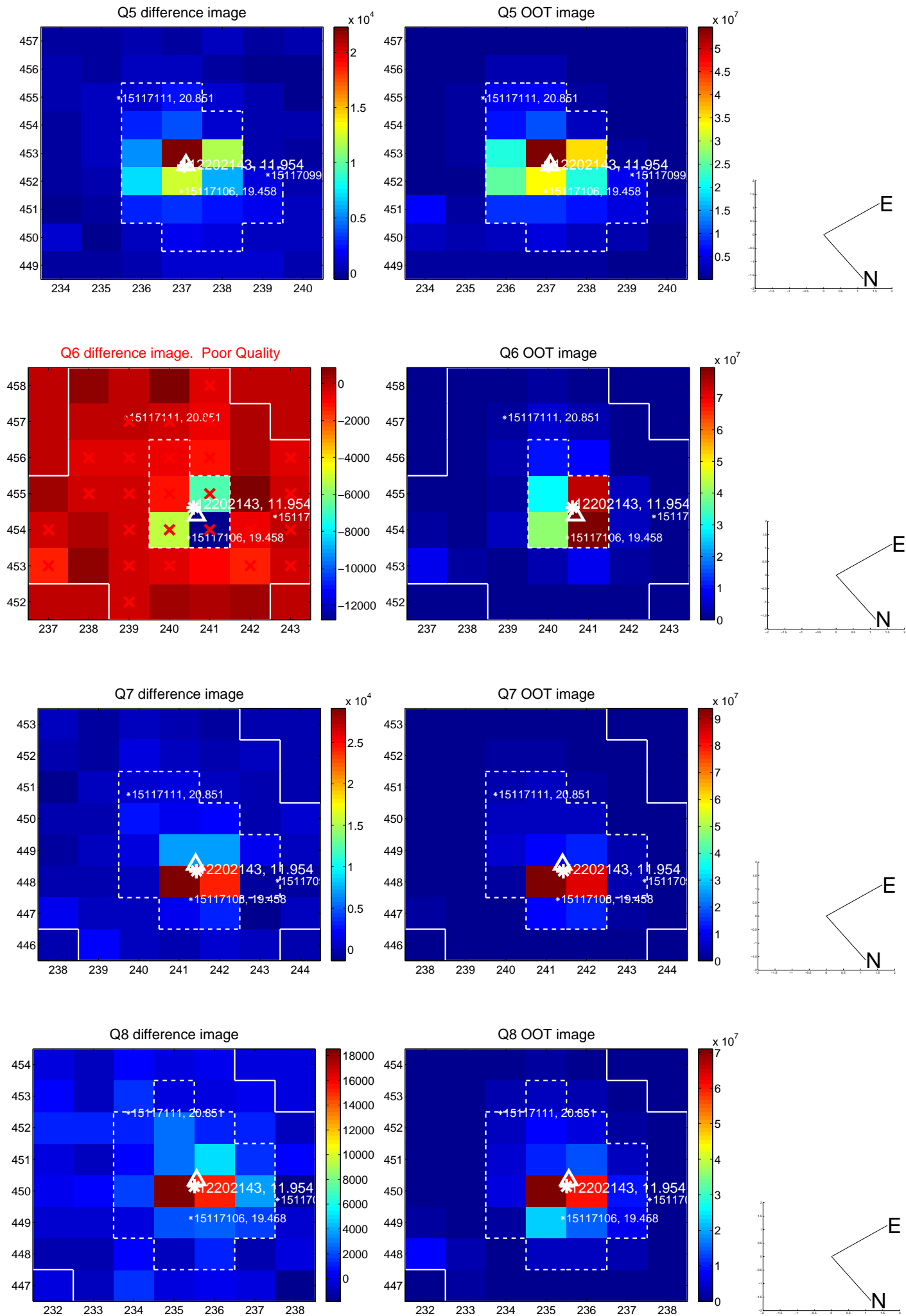


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

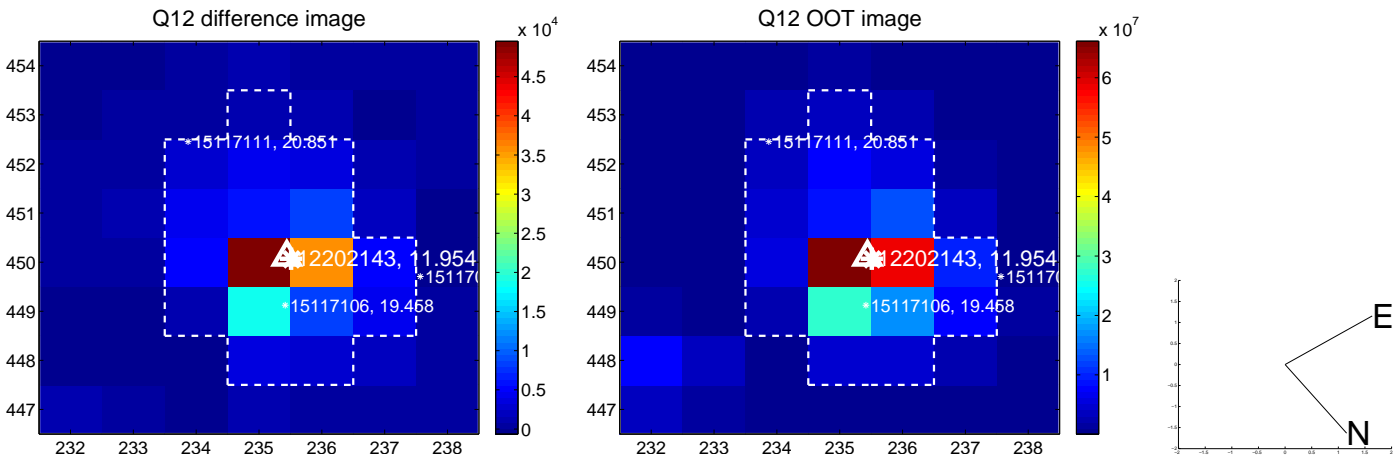
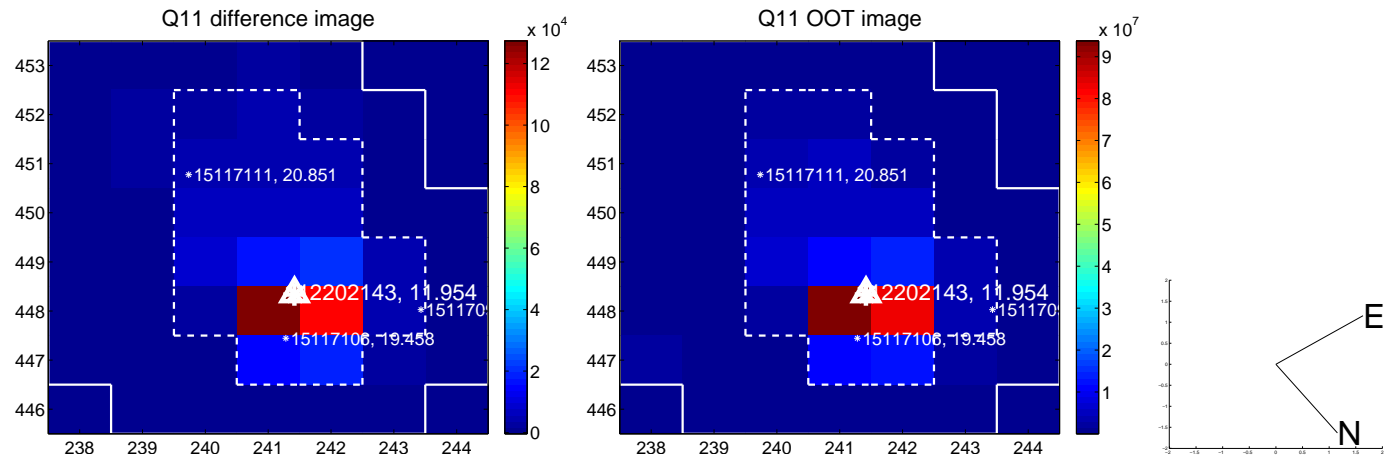
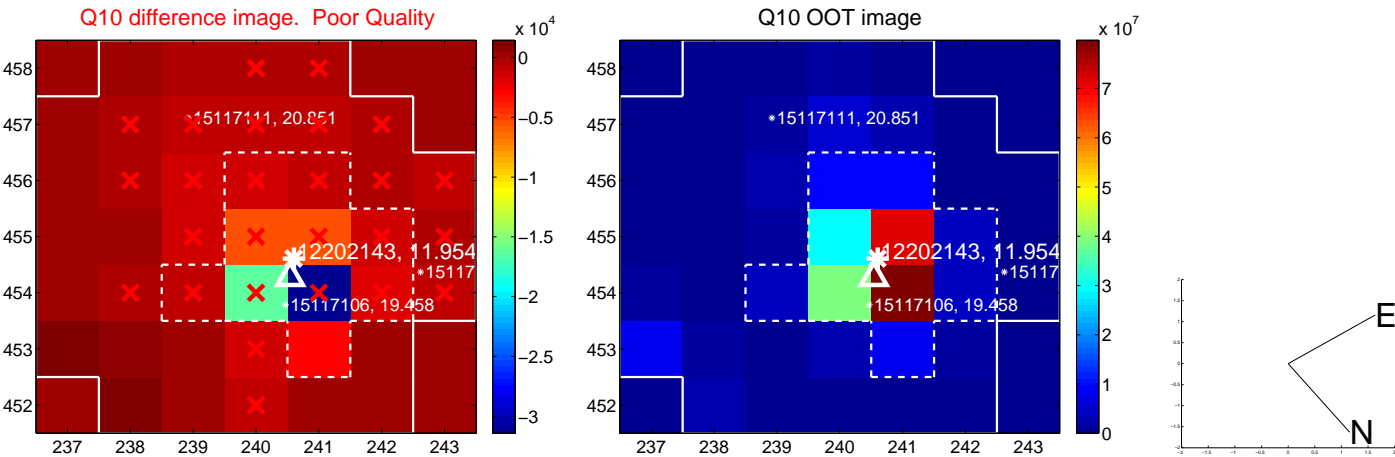
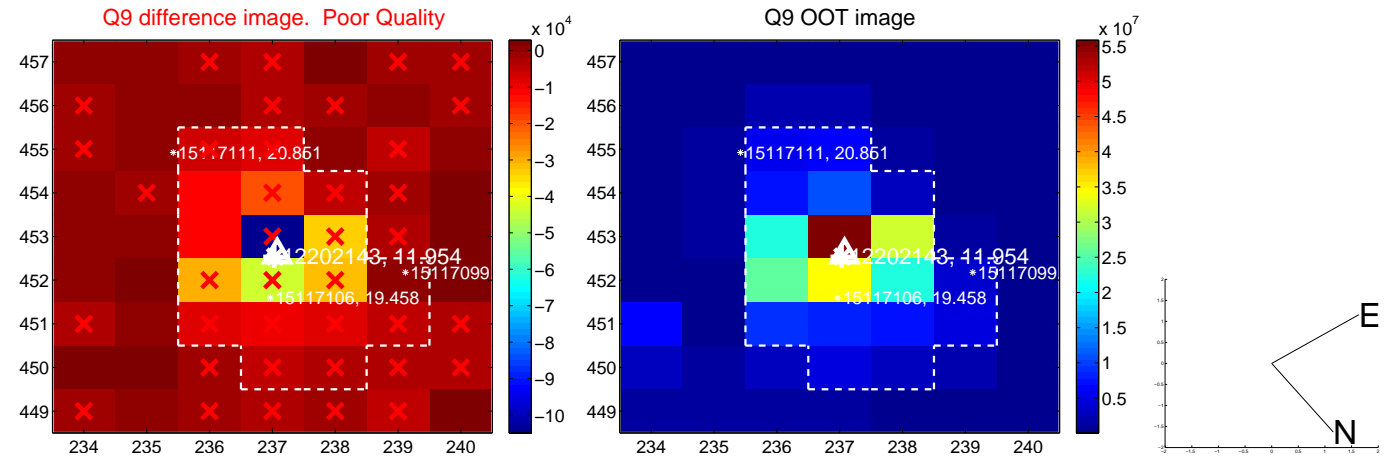
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



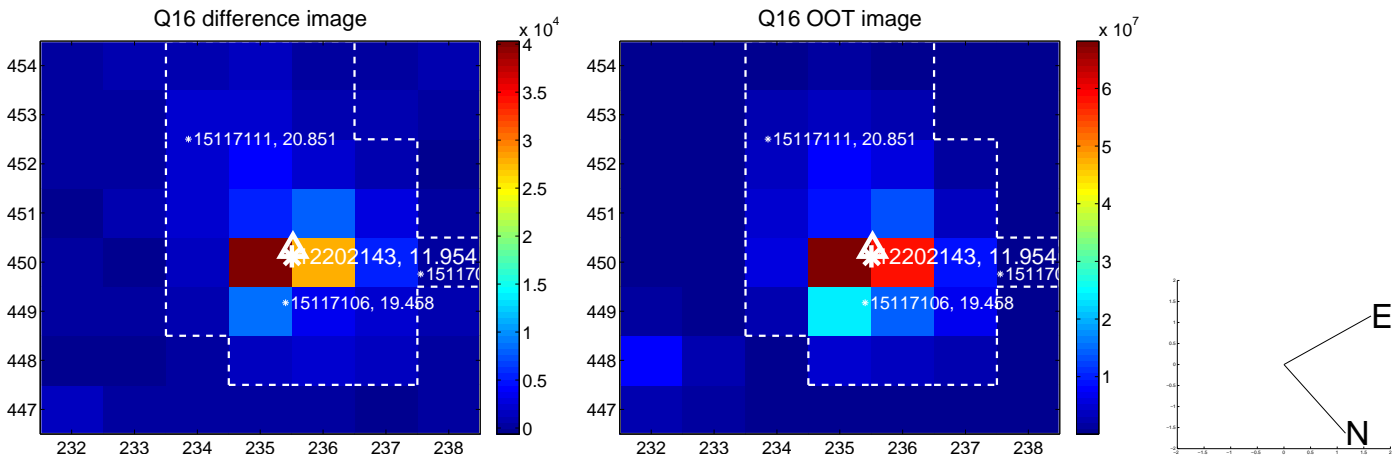
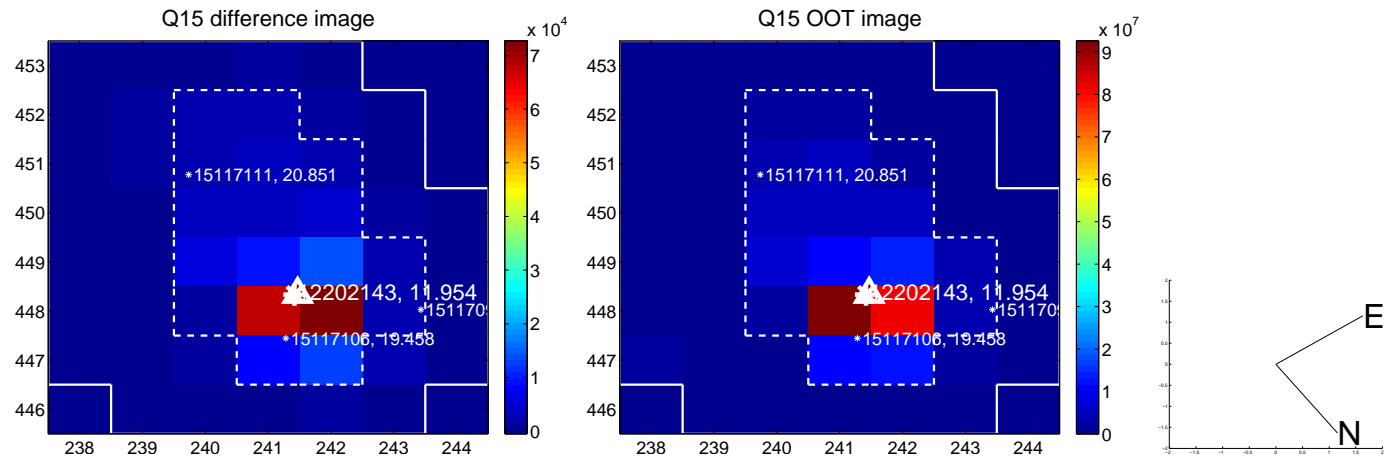
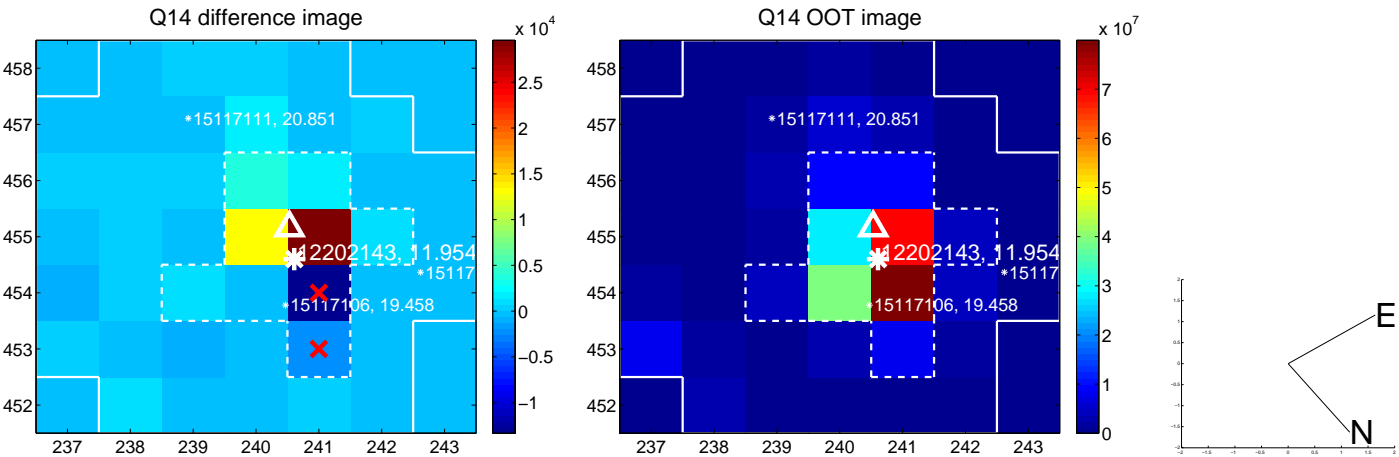
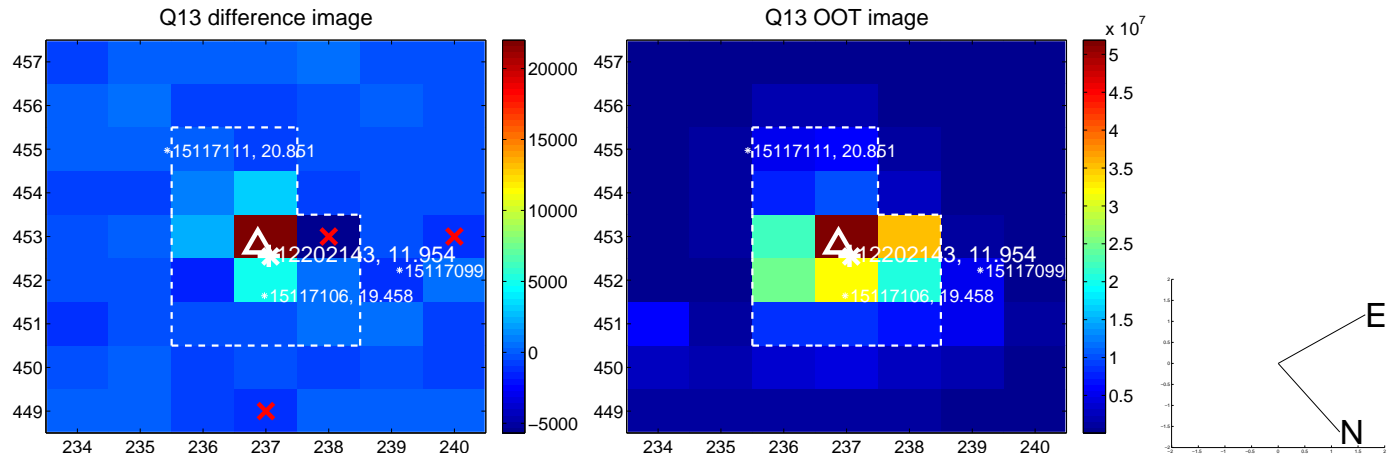
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



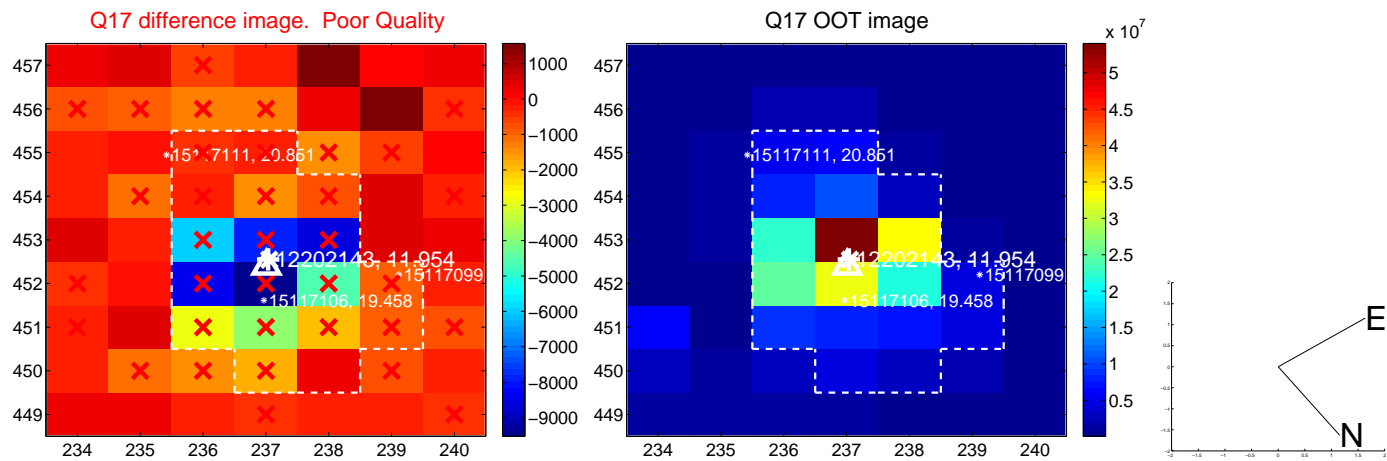
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

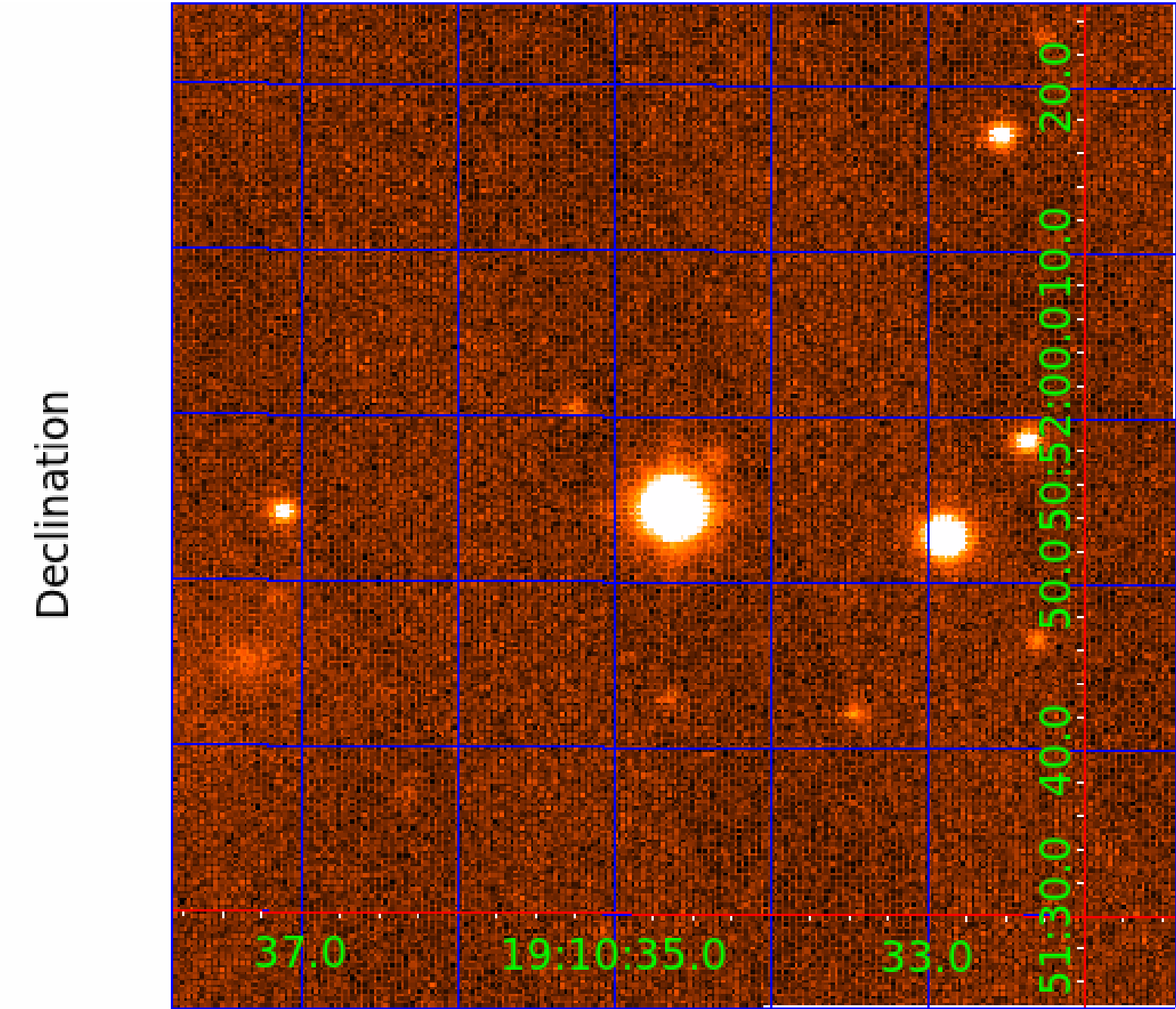


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 012202143

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})
012202143-01	OBS	No	0.737313	131.513107	4.5	0.500	14.8	0.2	2.55	6861	0.57	40889.18
012202143-02	OBS	No	0.737253	131.858598	8.6	3.432	14.2	0.8	2.55	6861	0.78	40893.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012202143-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
012202143-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

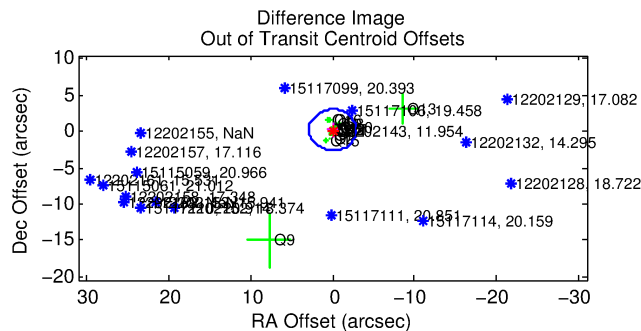
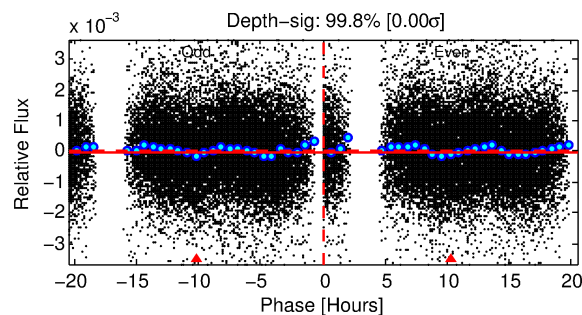
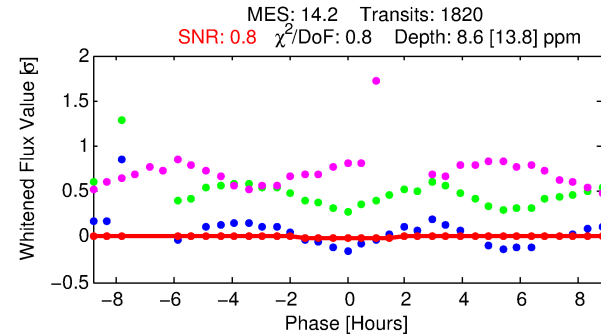
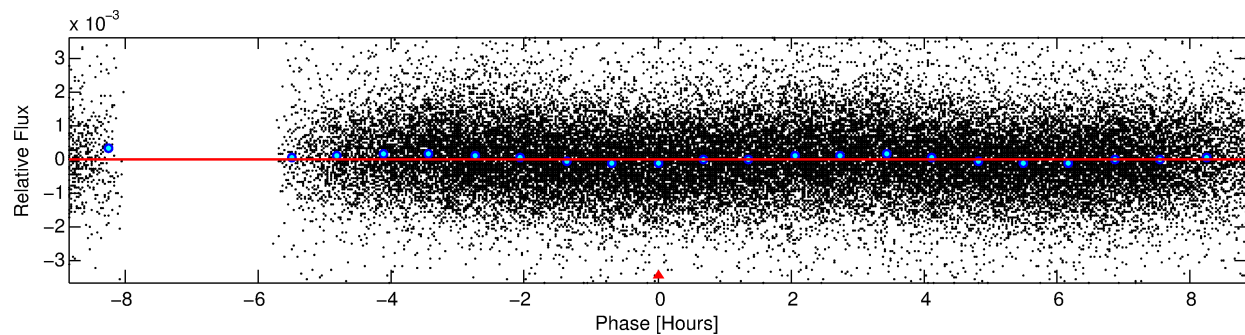
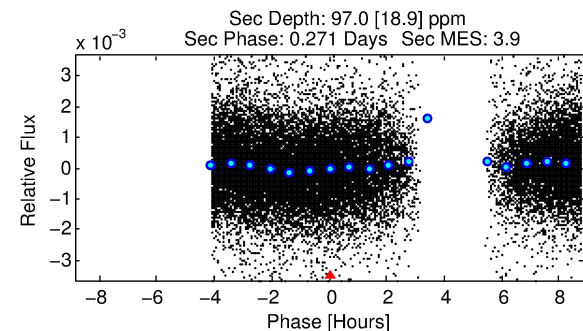
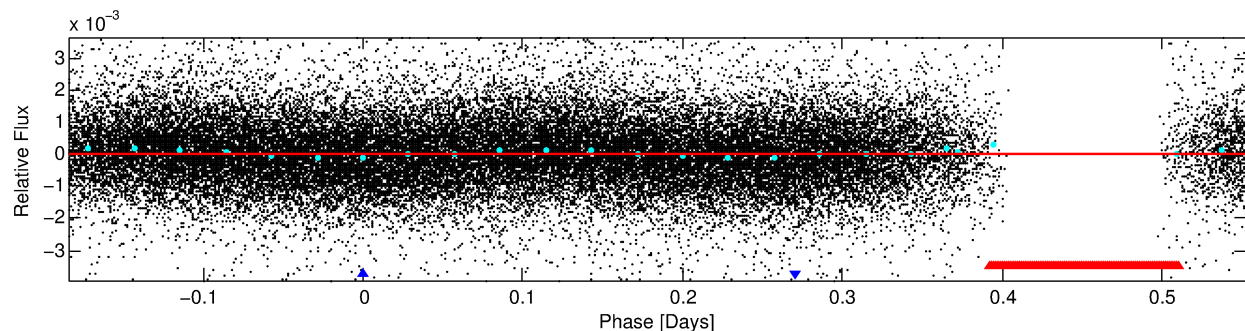
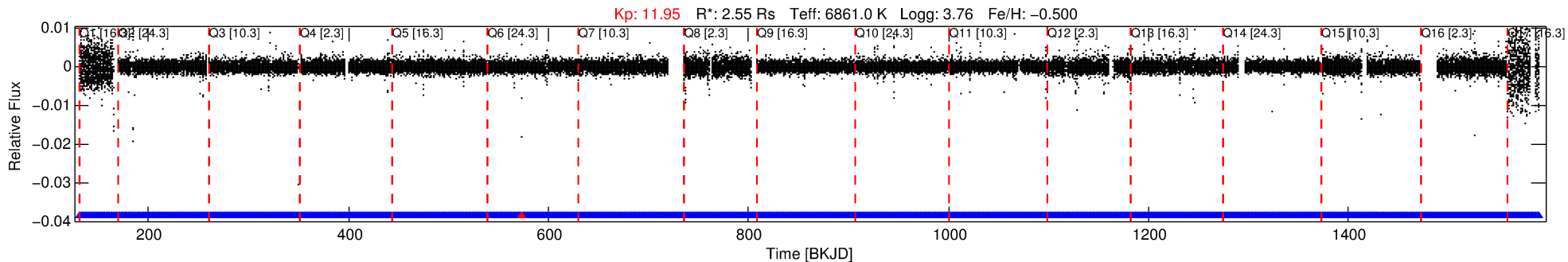
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012202143-02

No Significant Match Found

DV One-Page Summary

KIC: 12202143 Candidate: 2 of 2 Period: 0.737 d



DV Fit Results:

Period = 0.73725 [0.00013] d
Epoch = 131.8586 [0.0440] BKJD
Rp/R* = 0.0028 [0.0072]
a/R* = 1.60 [13.75]
b = 0.50 [21.43]
Seff = 40893.61 [36019.74]
Teq = 3626 [798] K
Rp = 0.78 [2.04] Re
a = 0.0178 [0.0093] AU
Ag = 27.99 [146.60] [0.18σ]
Teffp = 12895 [16663] K [0.56σ]

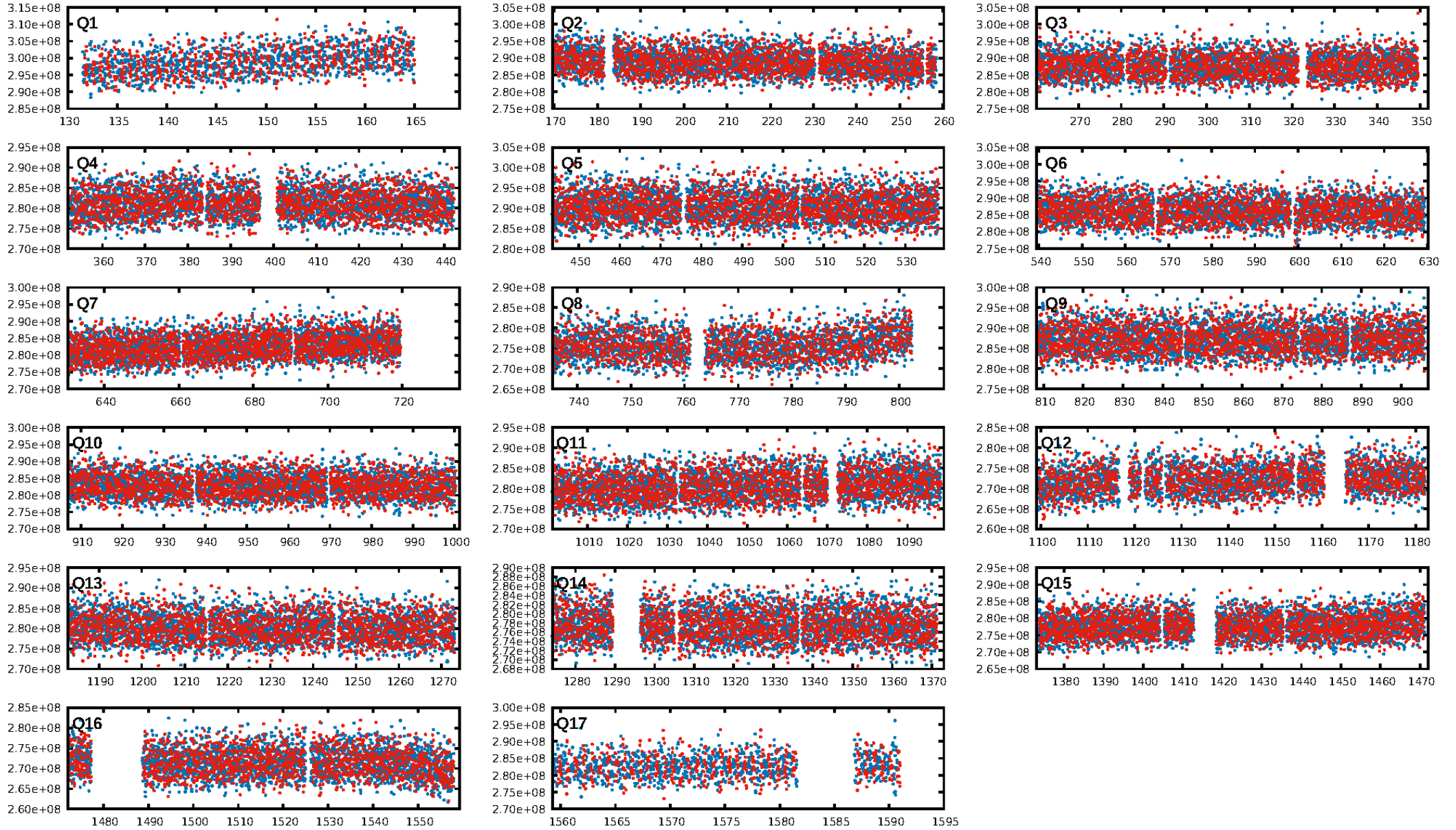
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.58e-22
RollingBand-fgt: 1.00 [1736/1737]
GhostDiagnostic-chr: 0.667
Centroid-sig: 0.3%
Centroid-so: 3.240 arcsec [1.85σ]
OotOffset-rm: 0.223 arcsec [0.23σ]
KicOffset-rm: 0.209 arcsec [0.18σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.47 [7/15]
DiffImageOverlap-fno: 0.00 [0/17]

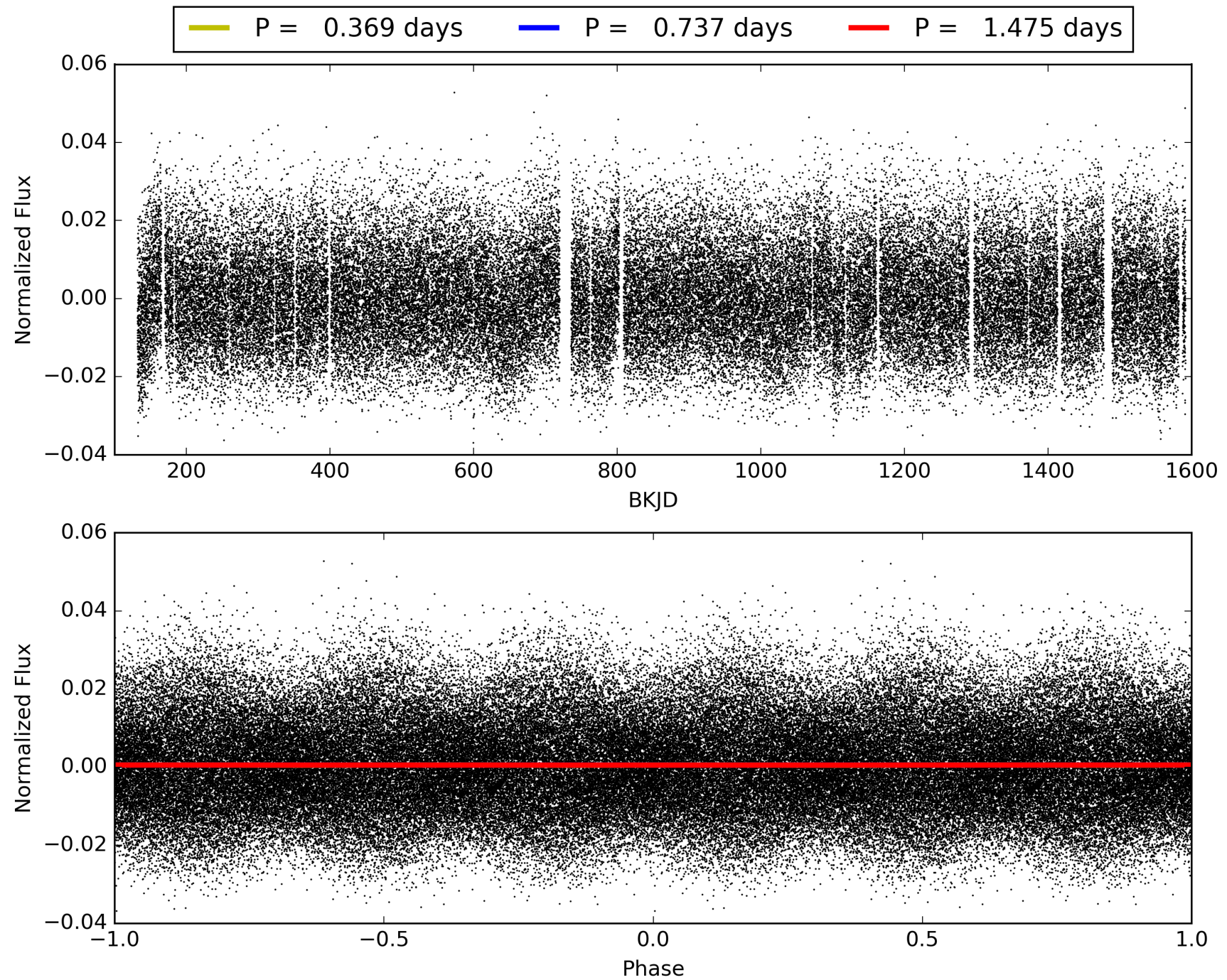
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:33:11 Z

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

TCE 012202143-02, PDC Light Curves

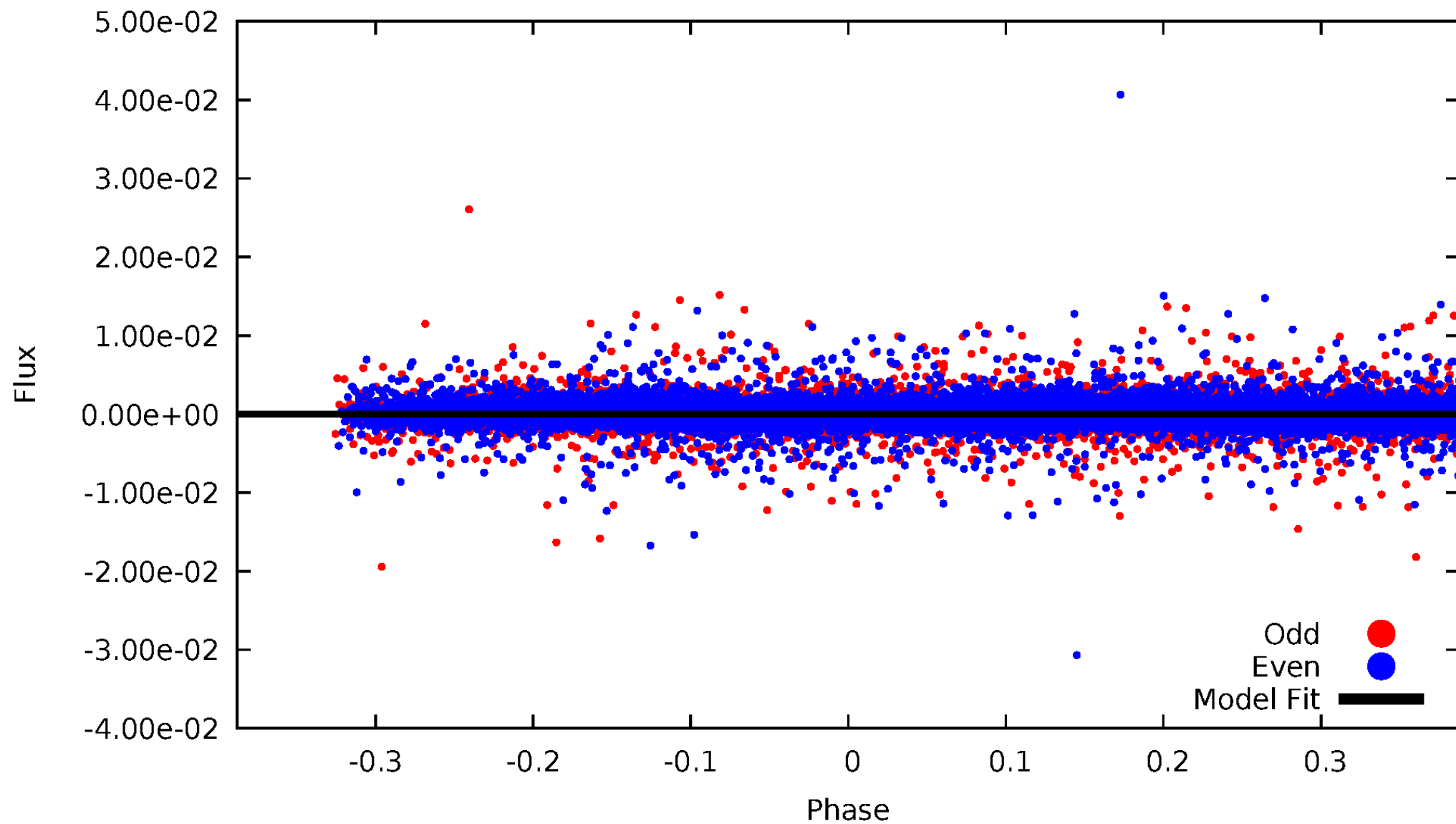


TCE 012202143-02



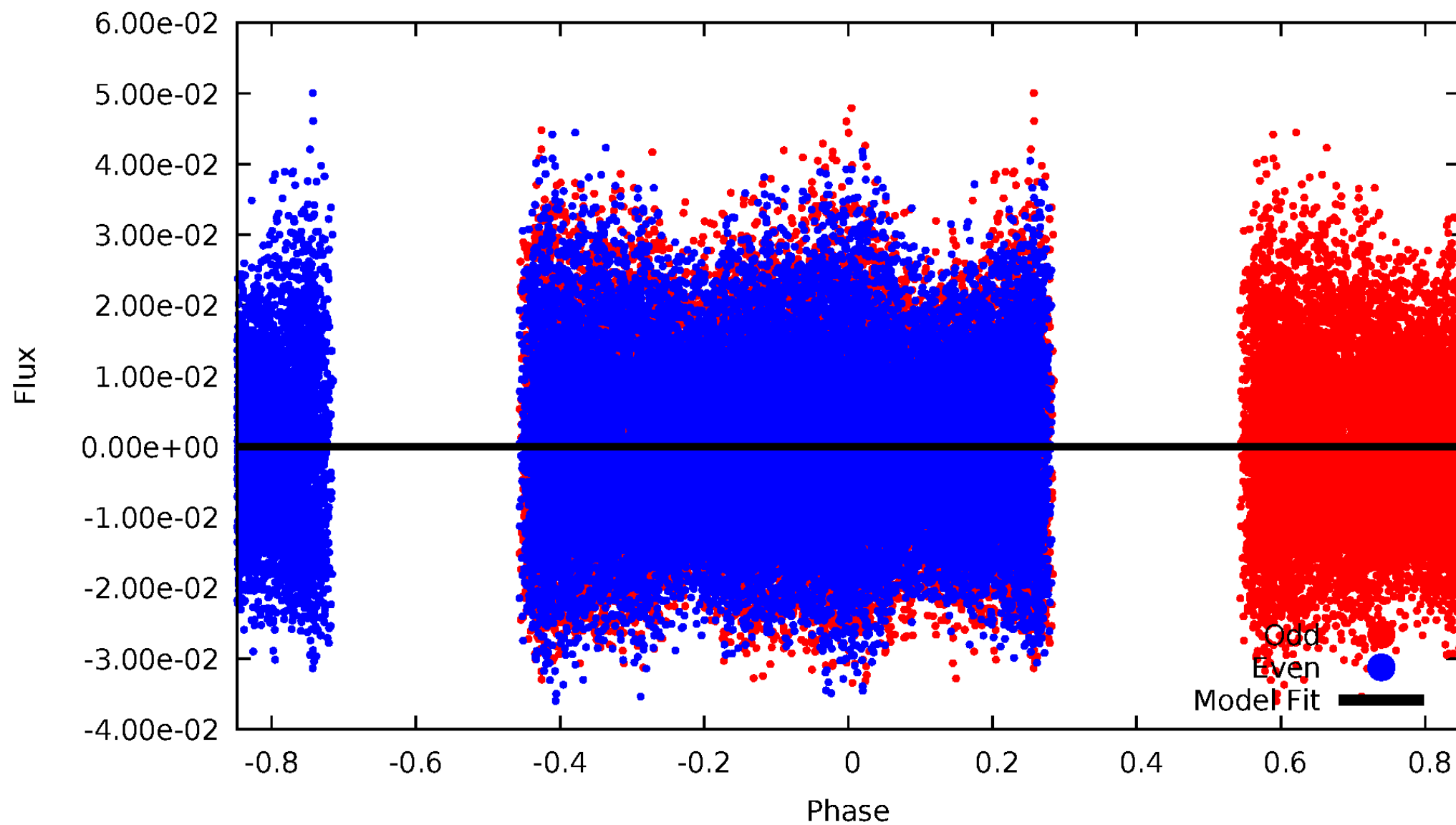
DV Odd/Even

TCE 012202143-02



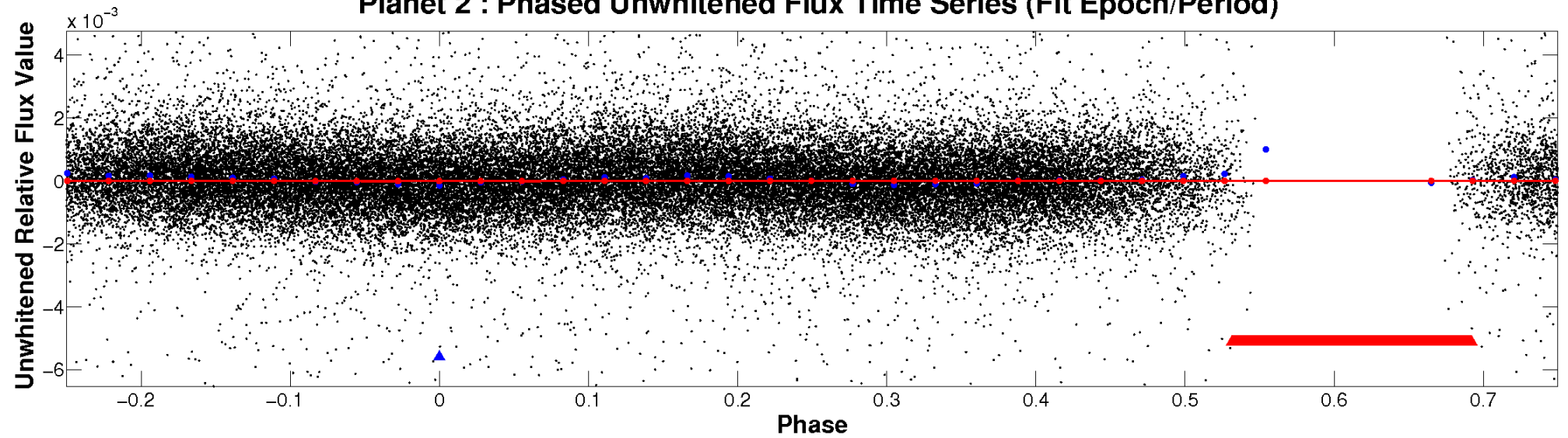
ALT Odd/Even

TCE 012202143-02

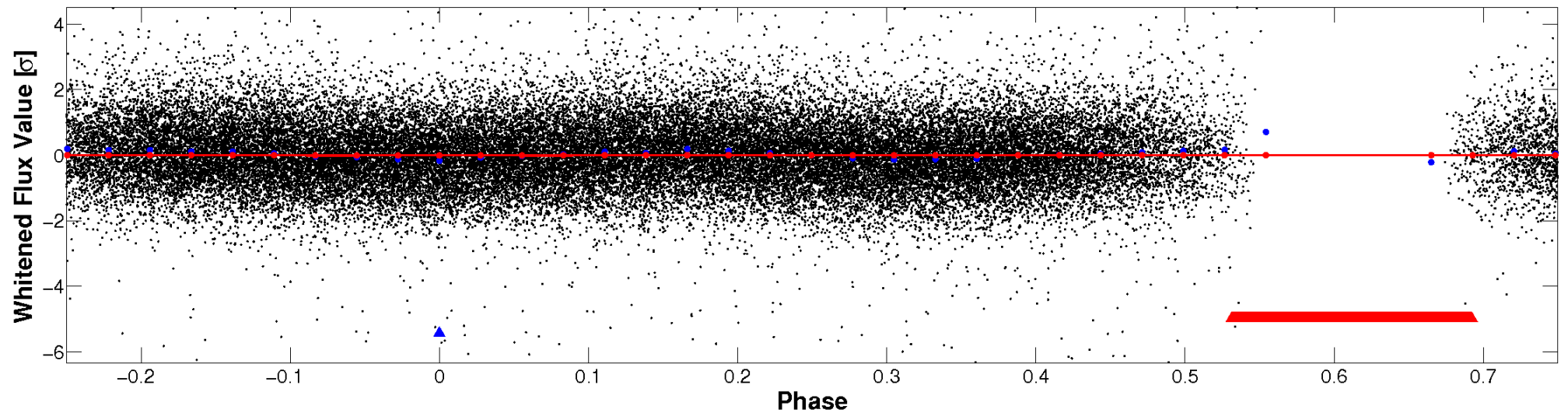


Non-Whitened Vs. Whitened Light Curve

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

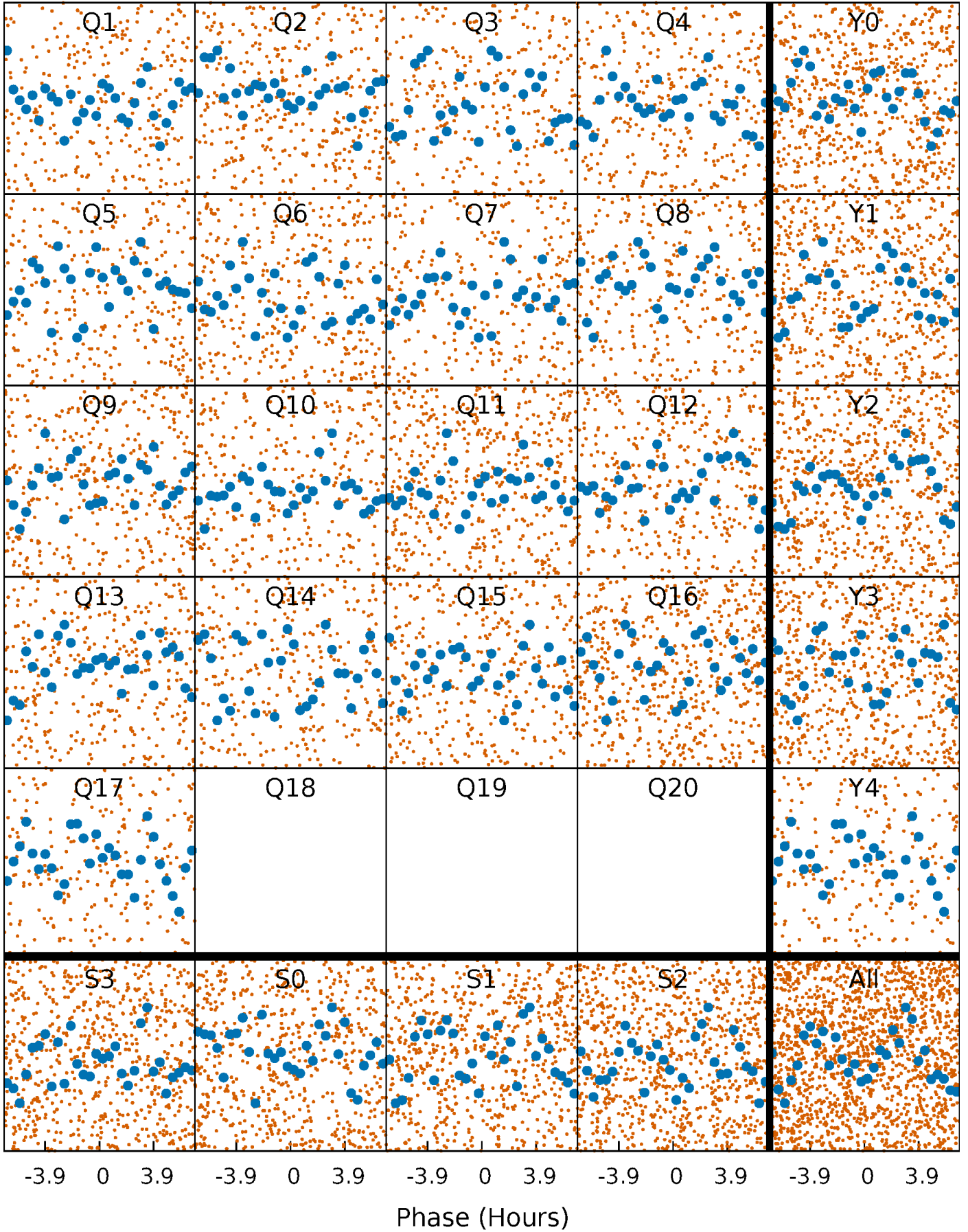


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



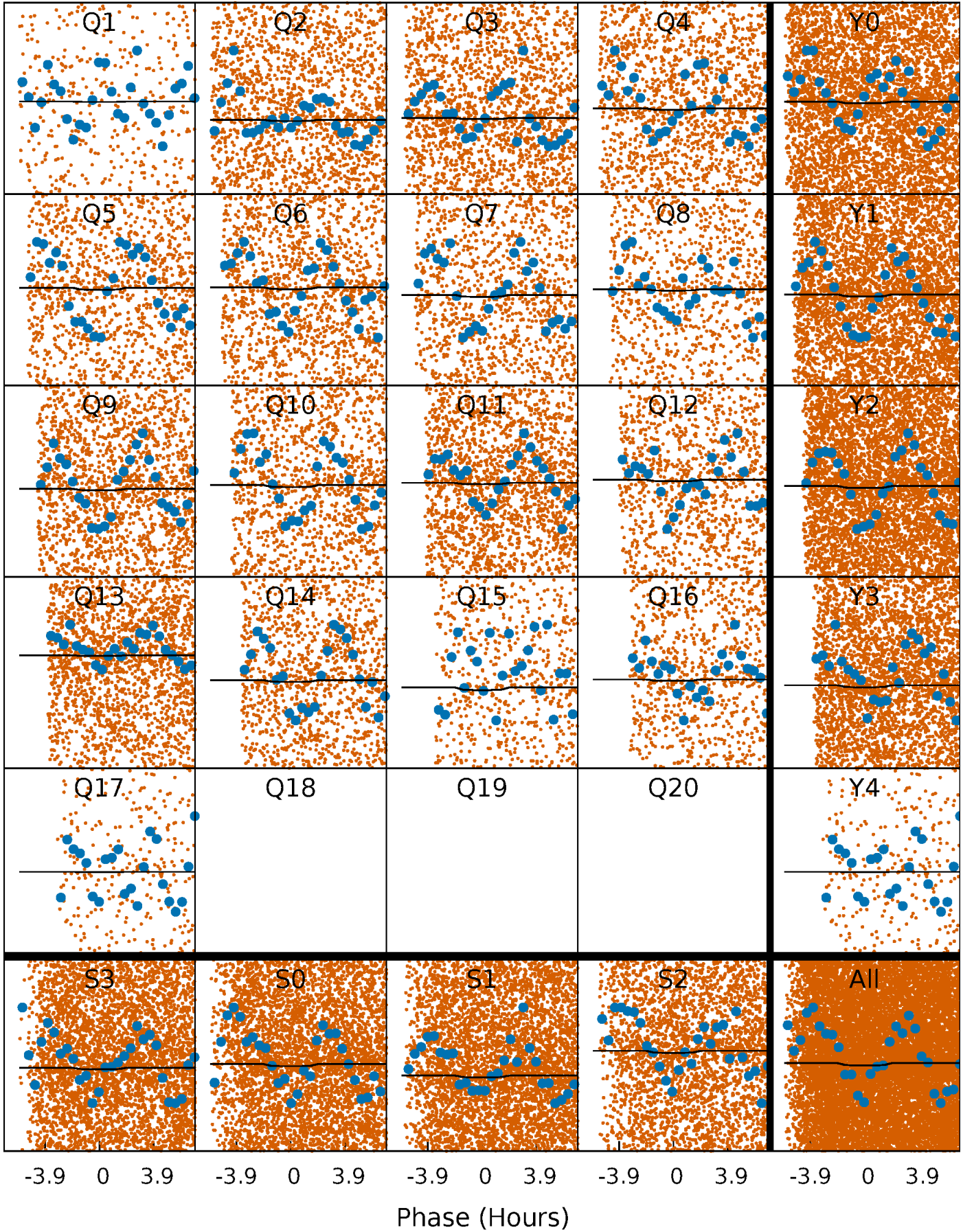
PDC Quarter-Phased Transit Curves

TCE 012202143-02 P= 0.737253 Days $T_0=131.858598$ (BKJD)



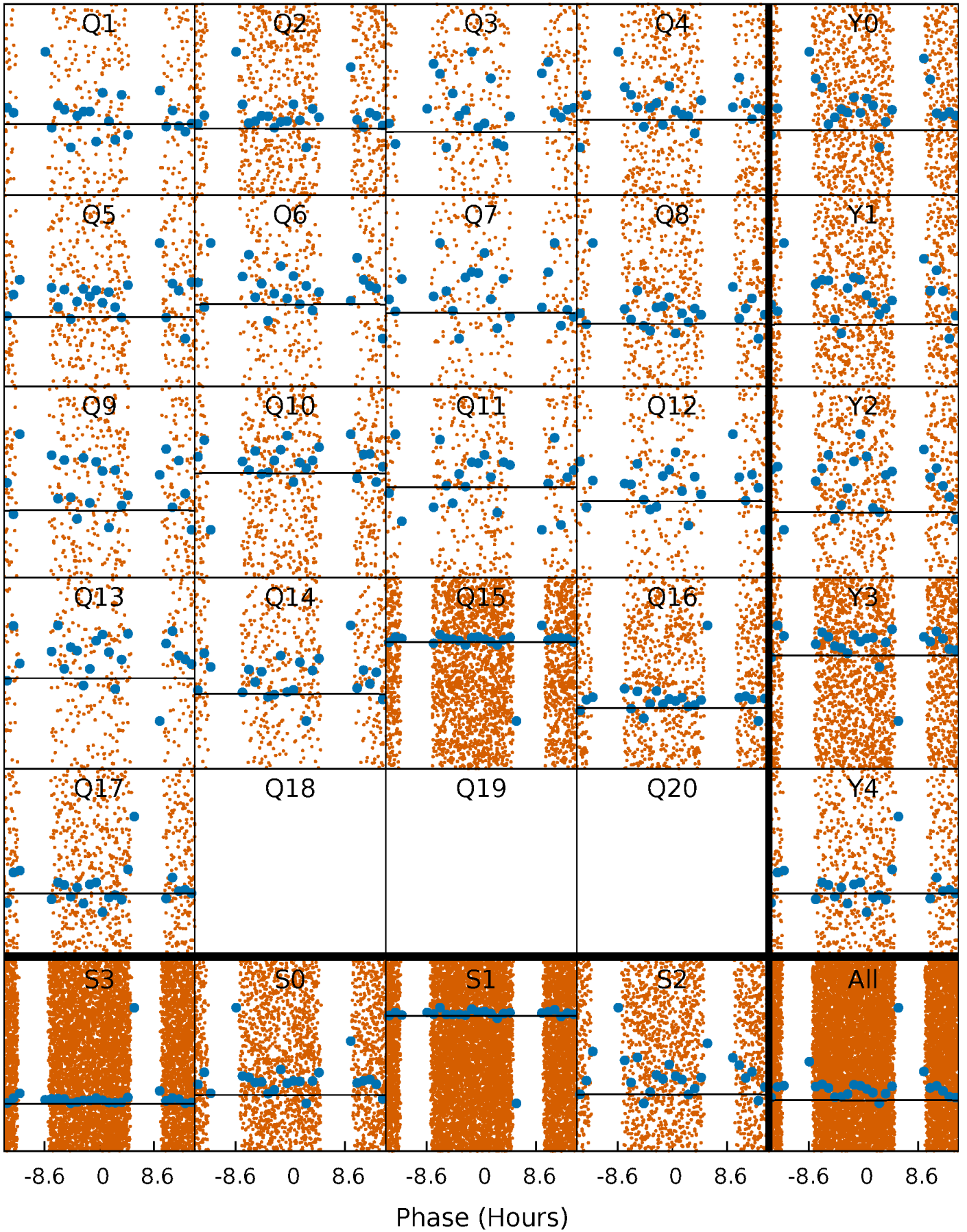
DV Quarter-Phased Transit Curves

TCE 012202143-02 $P = 0.737253$ Days $T_0 = 131.858598$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

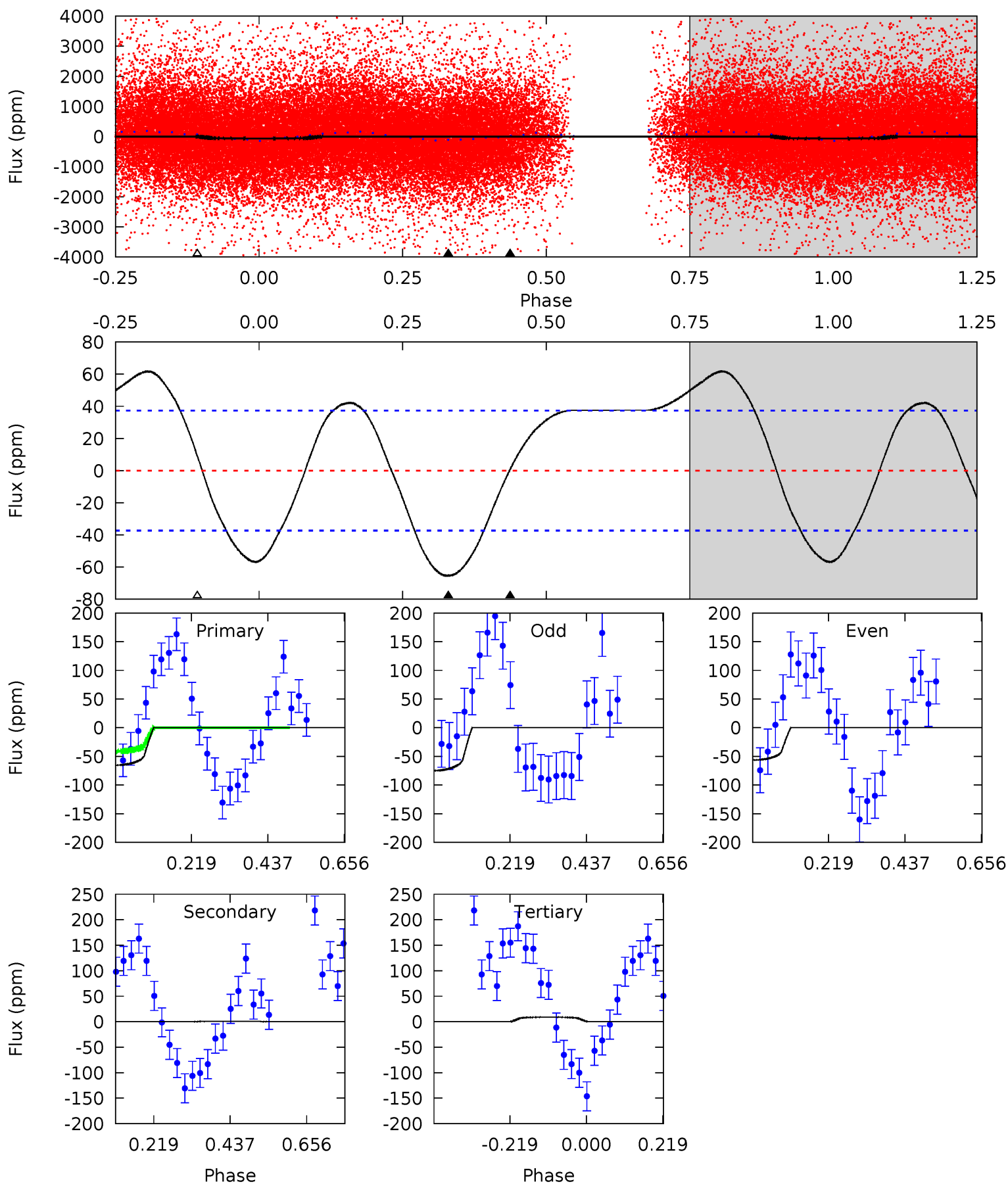
TCE 012202143-02 P= 0.737304 Days $T_0=131.954507$ (BKJD)



DV Model-Shift Uniqueness Test

012202143-02, P = 0.737253 Days, E = 131.121345 Days

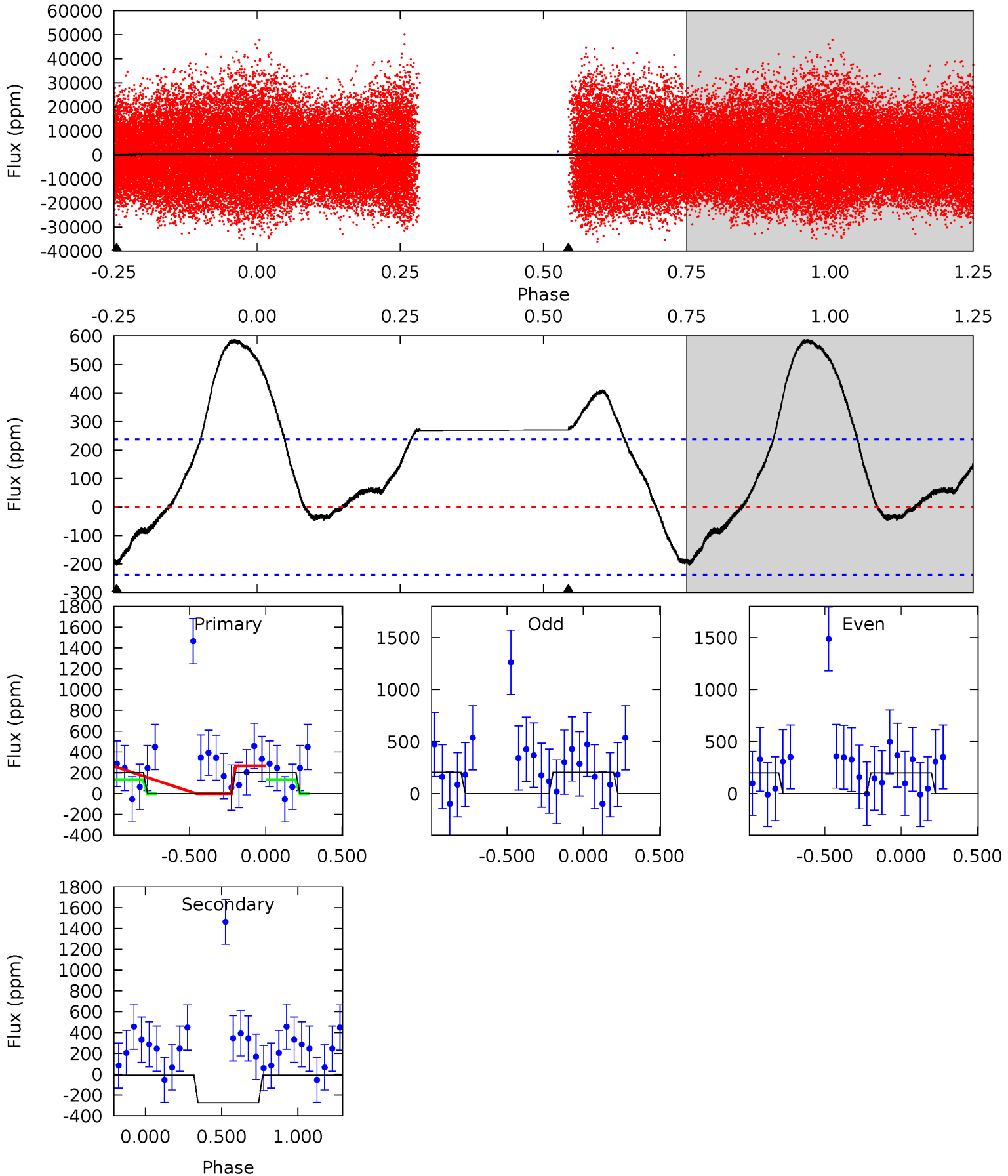
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.72	-0.09	-1.06	0	4.40	1.23	4.91	8.78	7.72	0.98	-0.09	1.10	0.80	0.49	2.89



Alt Model-Shift Uniqueness Test

012202143-02, P = 0.737304 Days, E = 131.217203 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.65	-4.81	0	0	4.21	0.67	0.54	3.65	3.65	-4.81	-4.81	0.05	0	0.74	0.84



Stellar Parameters For KIC 012202143

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6861^{+214}_{-285}	$3.764^{+0.518}_{-0.091}$	$-0.500^{+0.300}_{-0.300}$	$2.553^{+0.522}_{-1.304}$	$1.380^{+0.205}_{-0.334}$	$0.117^{+0.658}_{-0.033}$
	+3%/-4%	+14%/-2%	+60%/-60%	+20%/-51%	+15%/-24%	+563%/-28%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012202143-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	1 ± 8	$1.47^{+1.34}_{-0.99}$	4837^{+377}_{-604}	-4242^{+8904}_{-1531}	$-0.022^{+0.937}_{-1.324}$
Alt.	271 ± 56	$1.43^{+1.51}_{-1.01}$	4831^{+383}_{-618}	-13748^{+5320}_{-56121}	$-22.651^{+17.136}_{-236.225}$

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

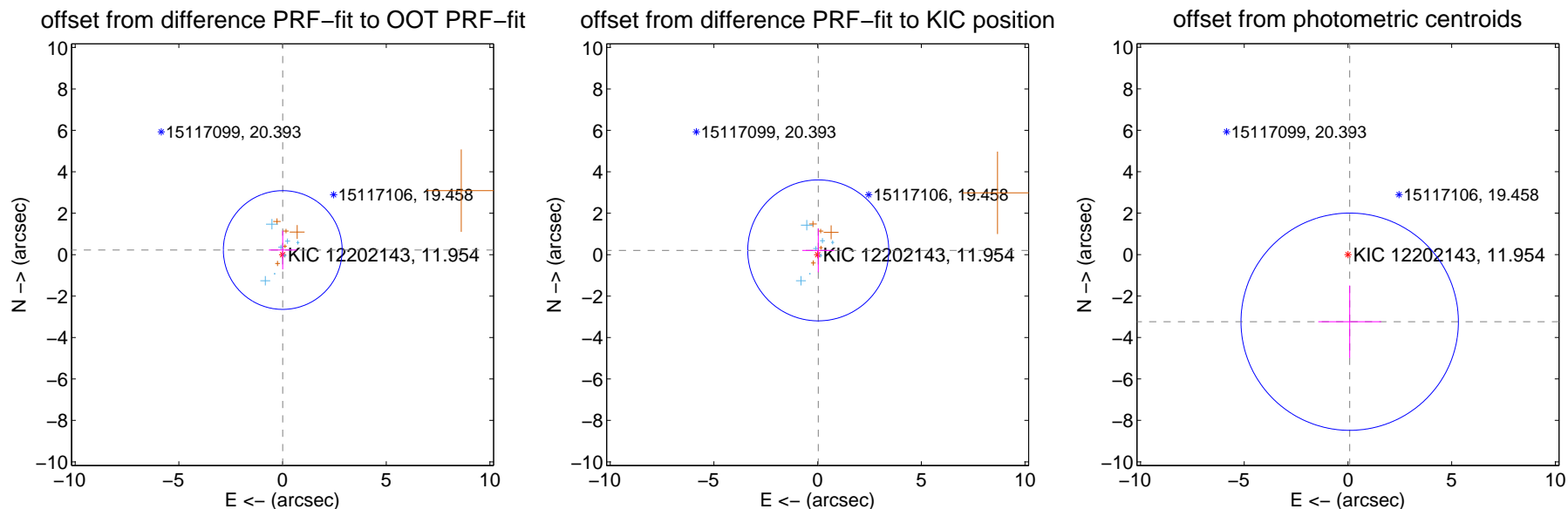
DV Centroid Data

Supplemental centroid analysis for 012202143-02. **Kepler magnitude: 11.95.** Transit SNR 0.77

There are 7 quarters with good PRF difference image offsets

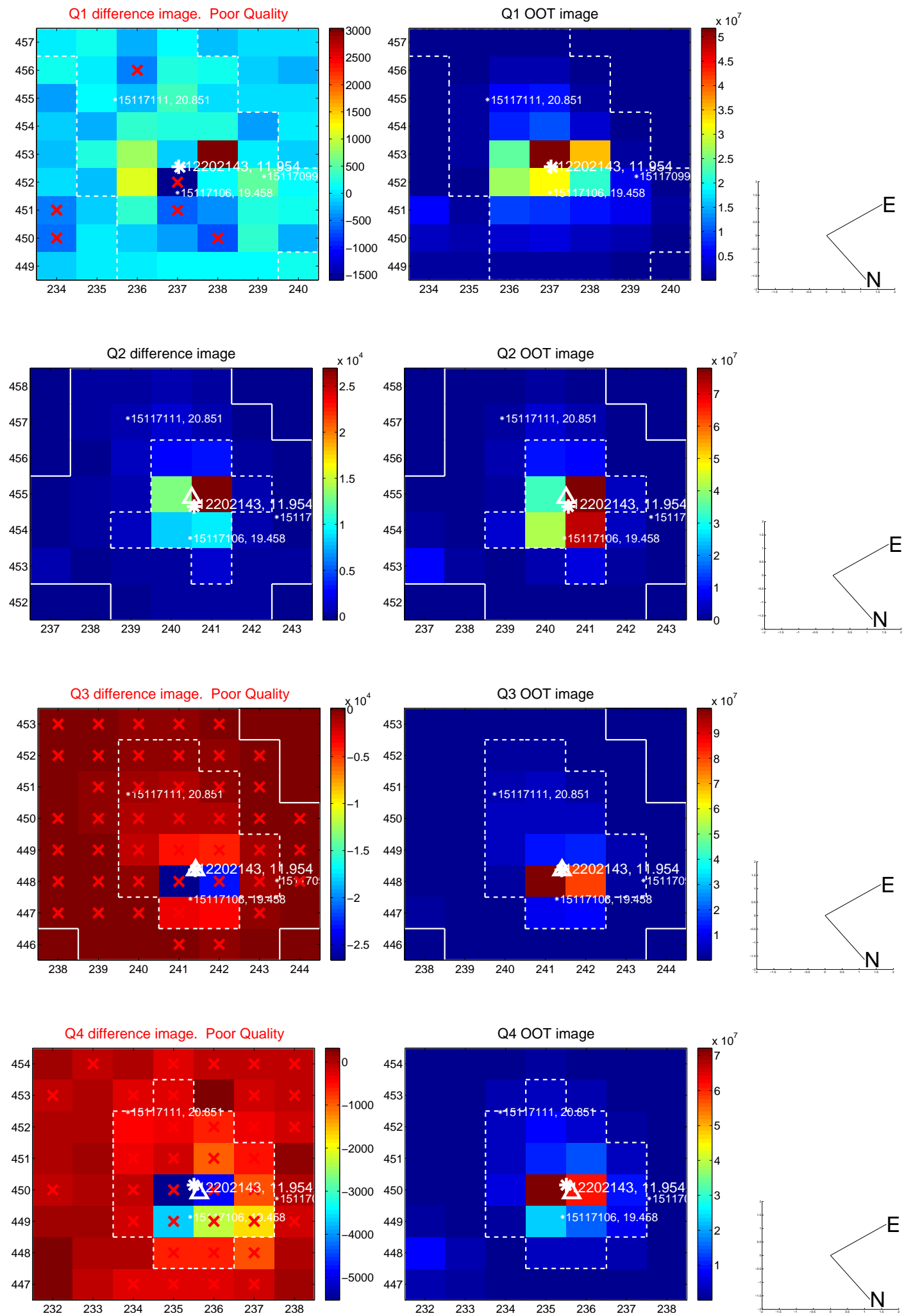
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.223 ± 0.955	0.23	-0.009 ± 0.671	0.223 ± 0.935
PRF-fit source offset from KIC position	0.209 ± 1.134	0.18	-0.030 ± 0.771	0.206 ± 1.054
photometric centroid source offset	3.24 ± 1.75	1.85	-0.08 ± 1.52	-3.24 ± 1.75

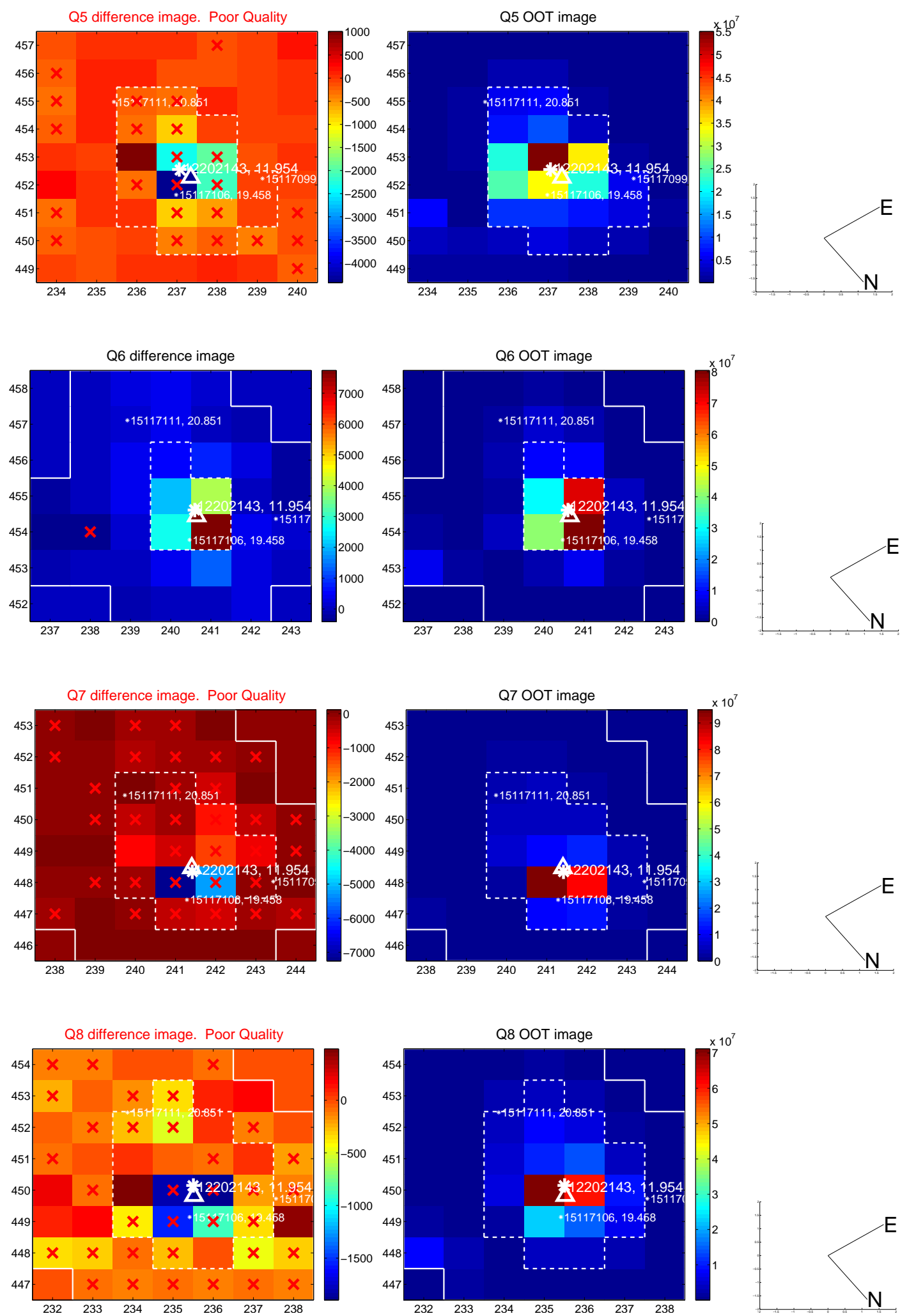


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

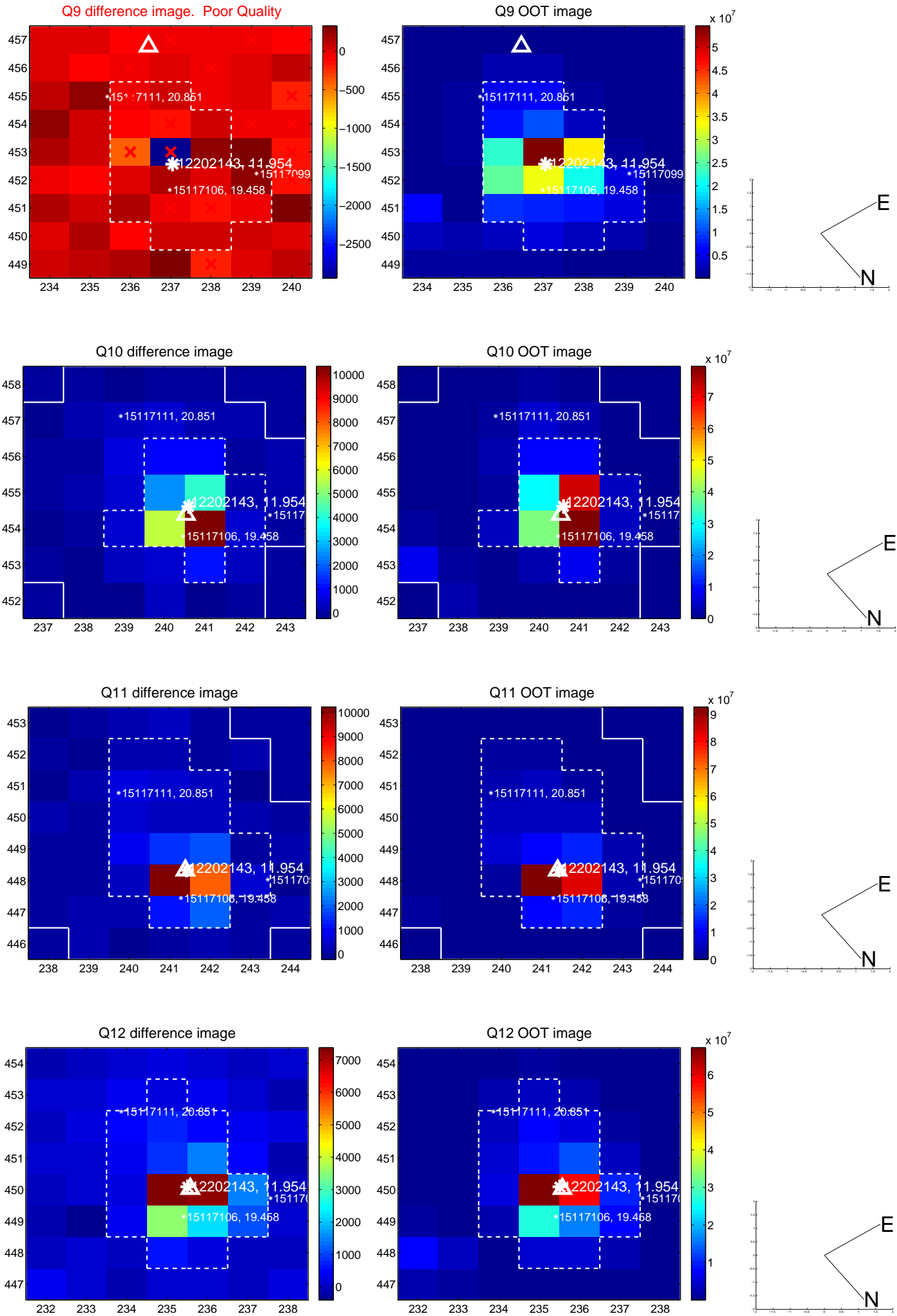
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



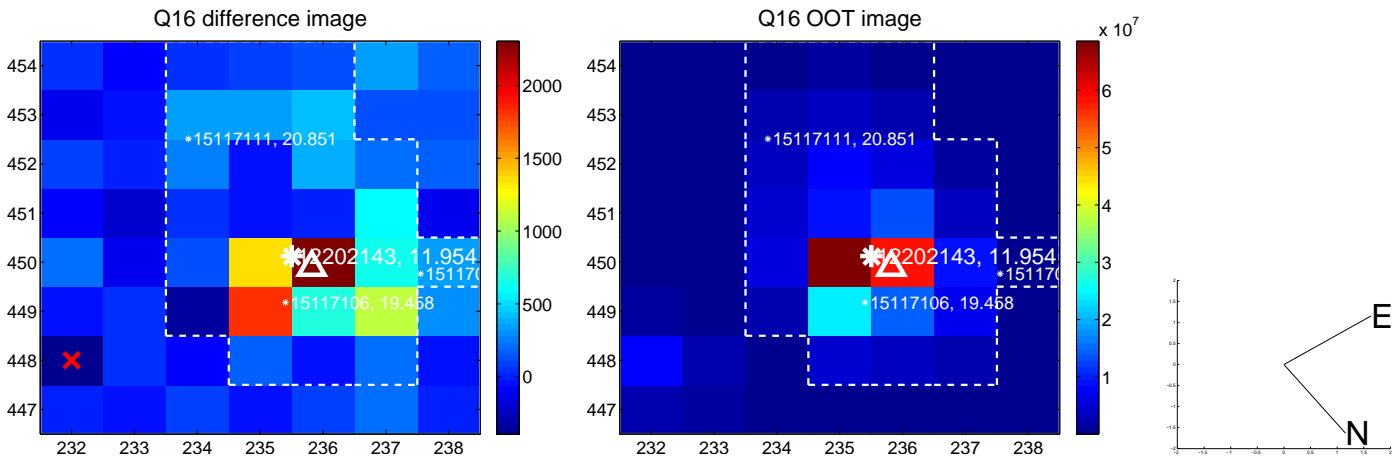
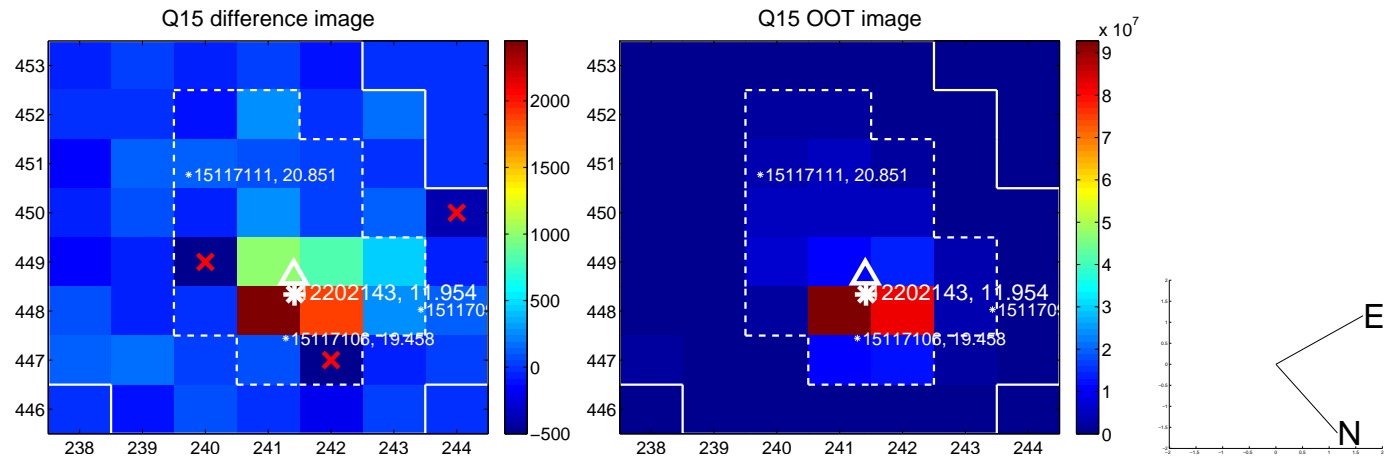
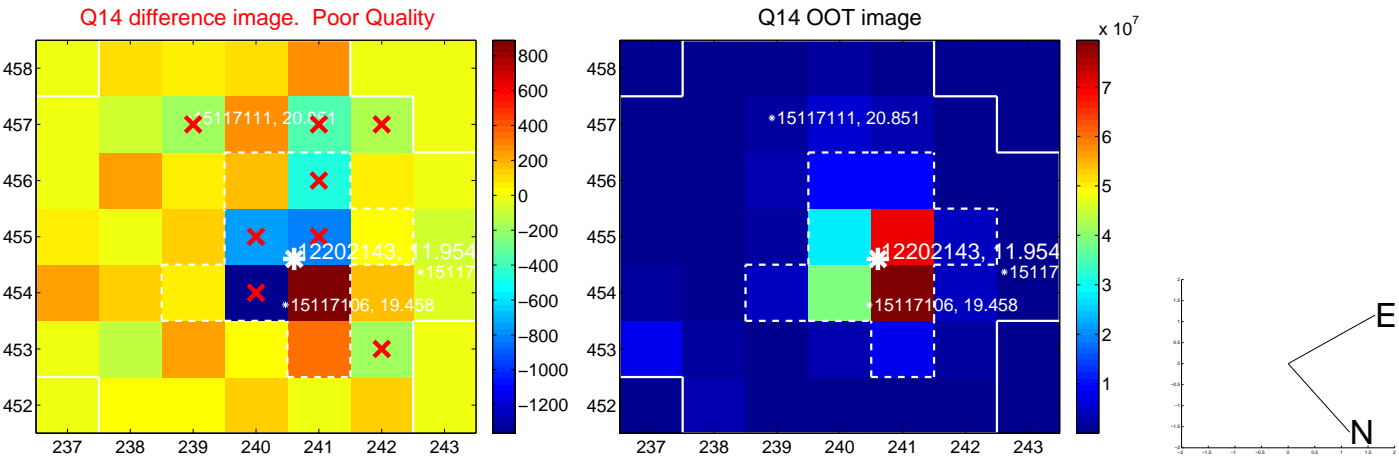
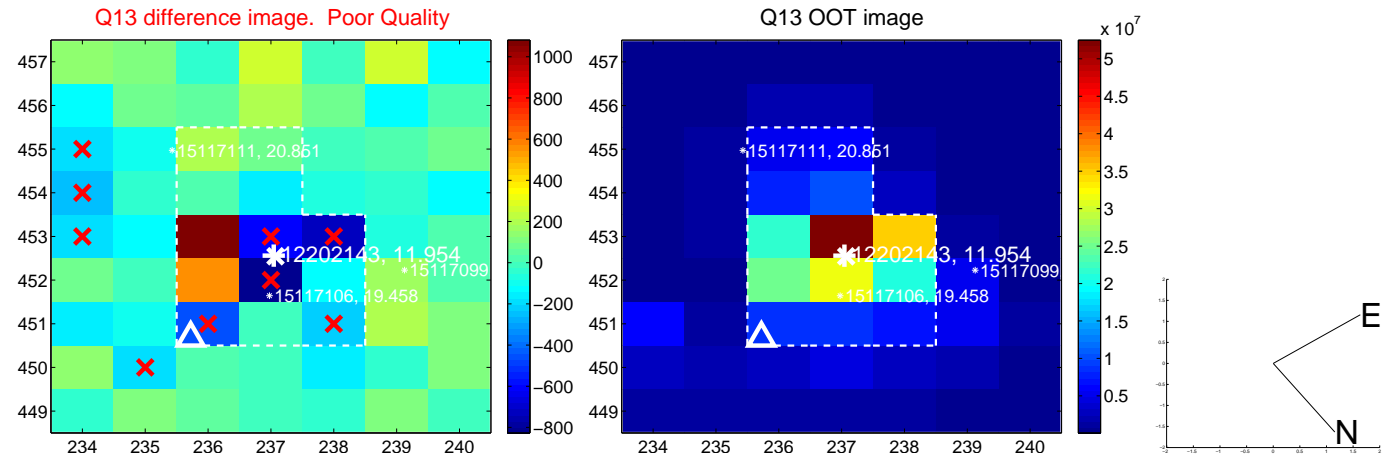
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



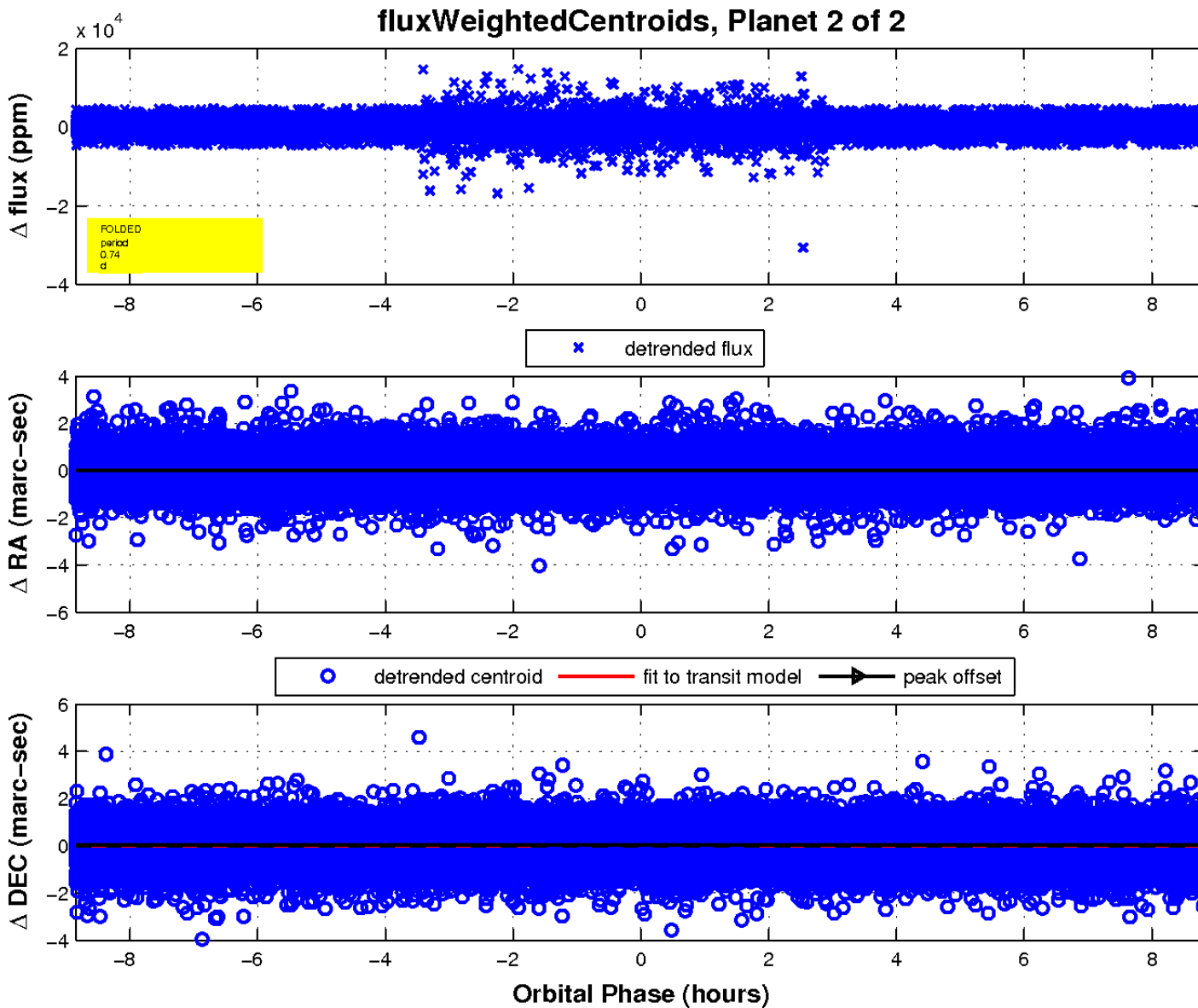
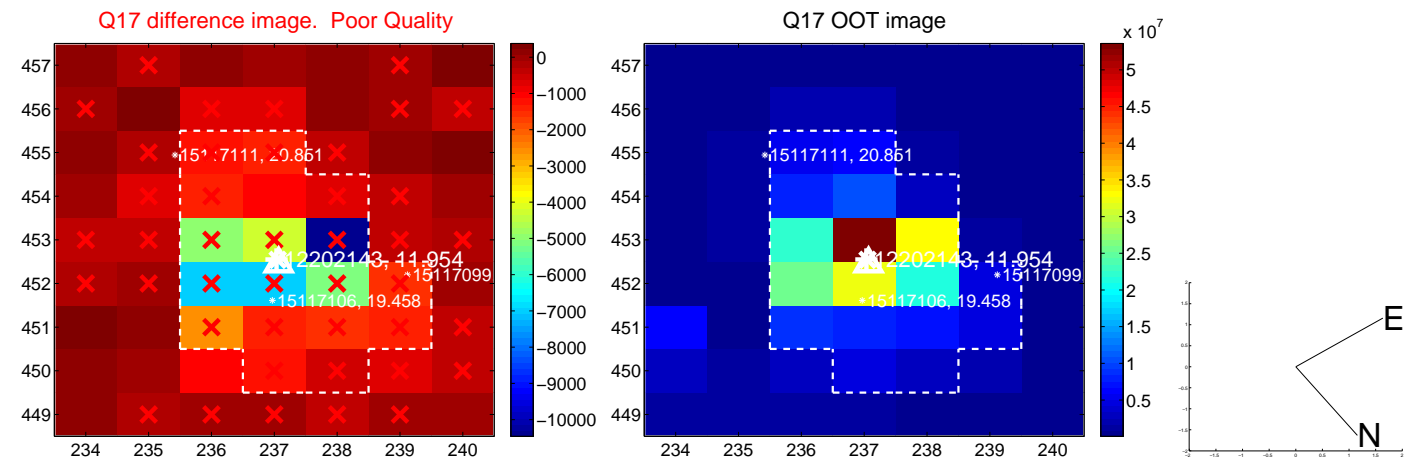
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

