

KIC 006528503

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})
006528503-01	OBS	No	0.813955	132.295677	17.2	1.558	9.8	5.0	1.97	6207	0.87	18352.95
006528503-02	OBS	No	0.813949	131.898848	40.5	3.628	8.7	8.6	1.97	6207	1.70	18353.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006528503-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET
006528503-02	OBS	FP	0.00	1	0	1	0	LPP_DV—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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

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

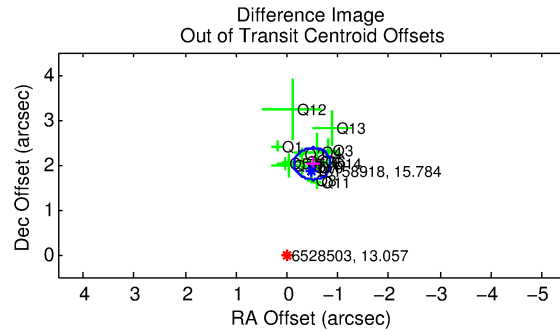
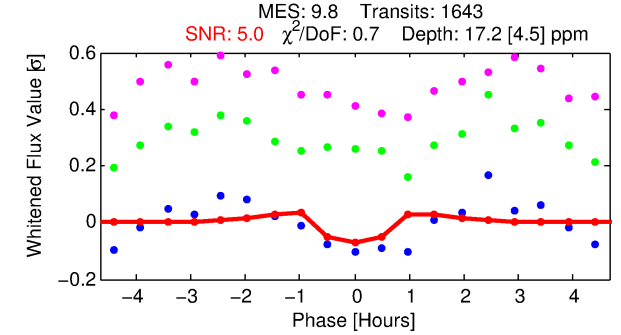
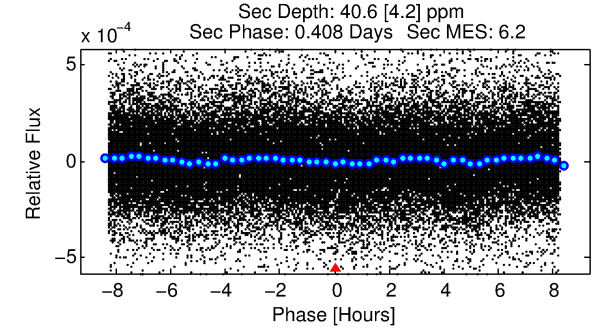
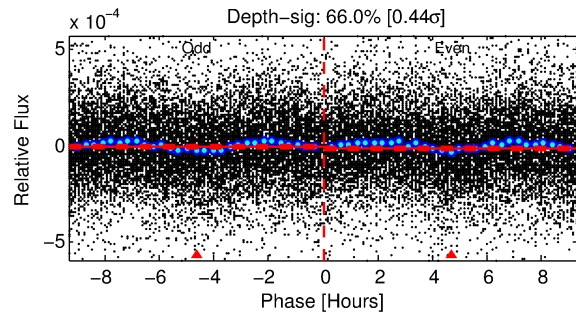
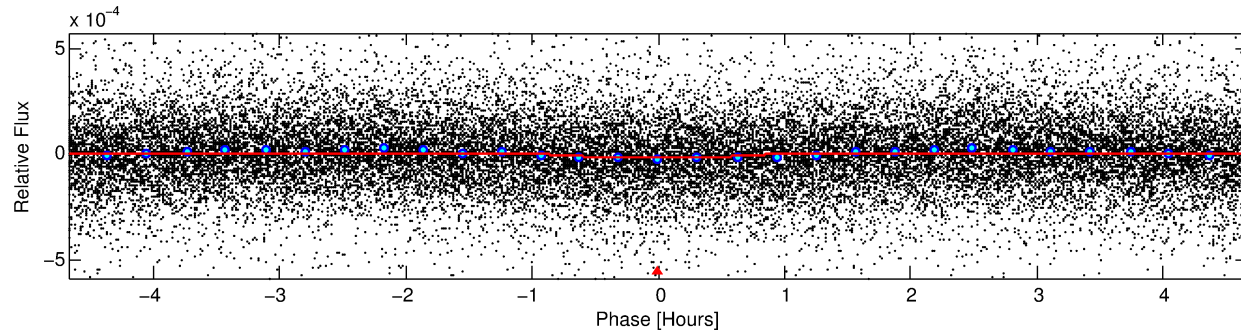
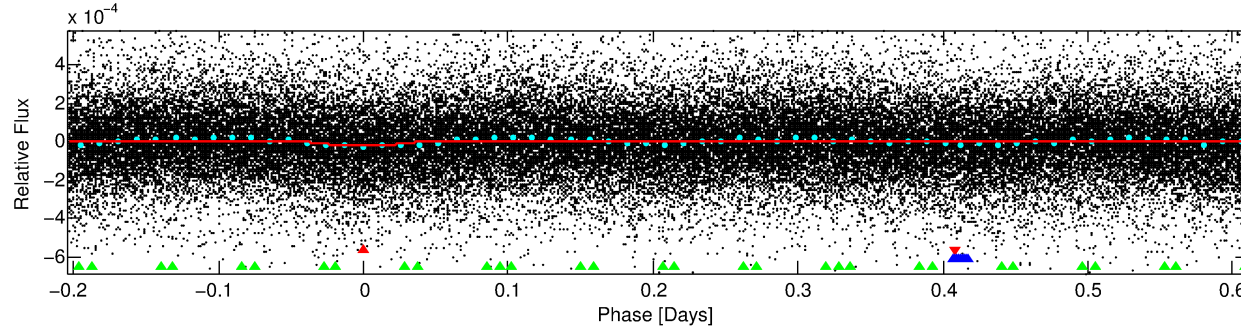
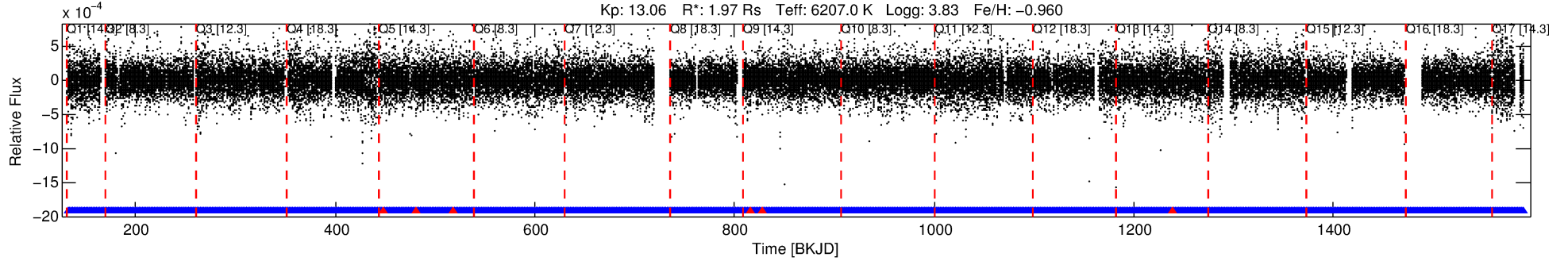
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006528503-01

No Significant Match Found

DV One-Page Summary

KIC: 6528503 Candidate: 1 of 3 Period: 0.814 d



DV Fit Results:

Period = 0.81395 [0.00002] d
Epoch = 132.2957 [0.0030] BKJD
Rp/R* = 0.0041 [0.0010]
a/R* = 3.06 [3.18]
b = 0.68 [0.93]
Seff = 18352.95 [10058.32]
Teq = 2968 [407] K
Rp = 0.87 [0.37] Re
a = 0.0168 [0.0056] AU
Ag = 8.26 [6.08] [1.19 σ]
Teffp = 7779 [1013] K [4.41 σ]

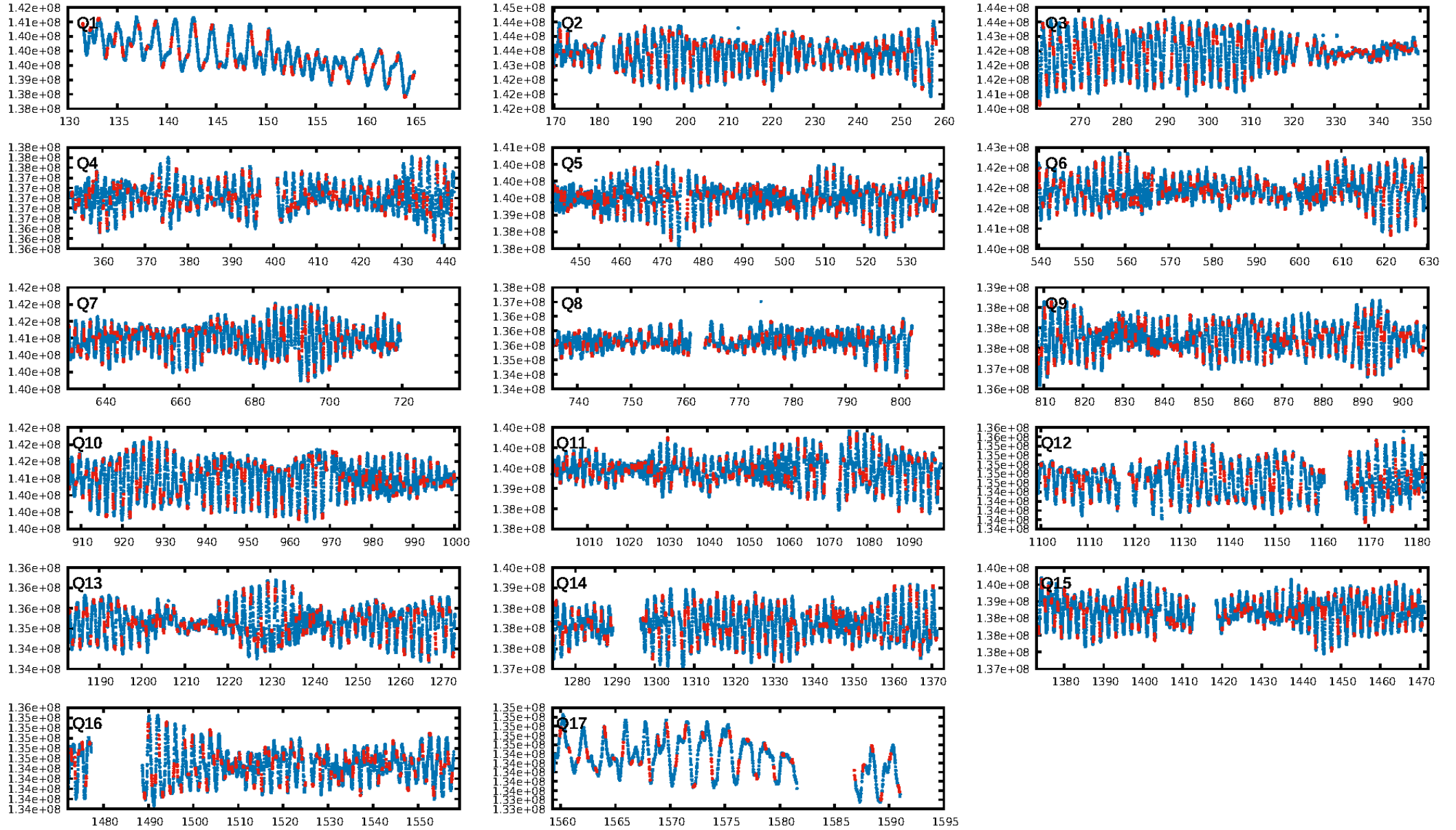
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [331.47 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.96e-14
RollingBand-fgt: 1.00 [1562/1568]
GhostDiagnostic-chr: 0.7796
Centroid-sig: 0.1%
Centroid-so: 2.849 arcsec [2.22 σ]
OotOffset-rm: 2.083 arcsec [17.61 σ]
KicOffset-rm: 1.982 arcsec [18.19 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]

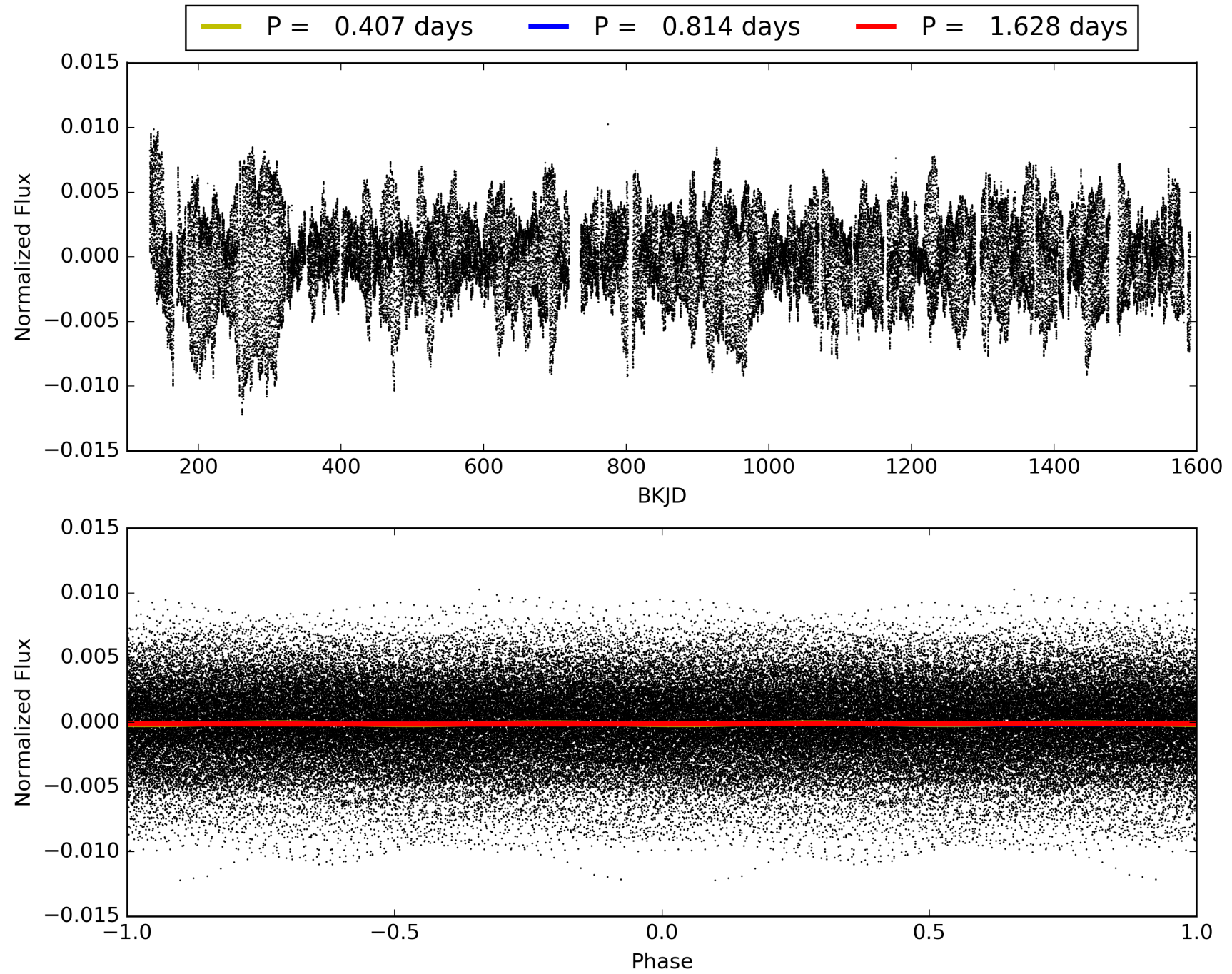
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:03:16 Z

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

TCE 006528503-01, PDC Light Curves

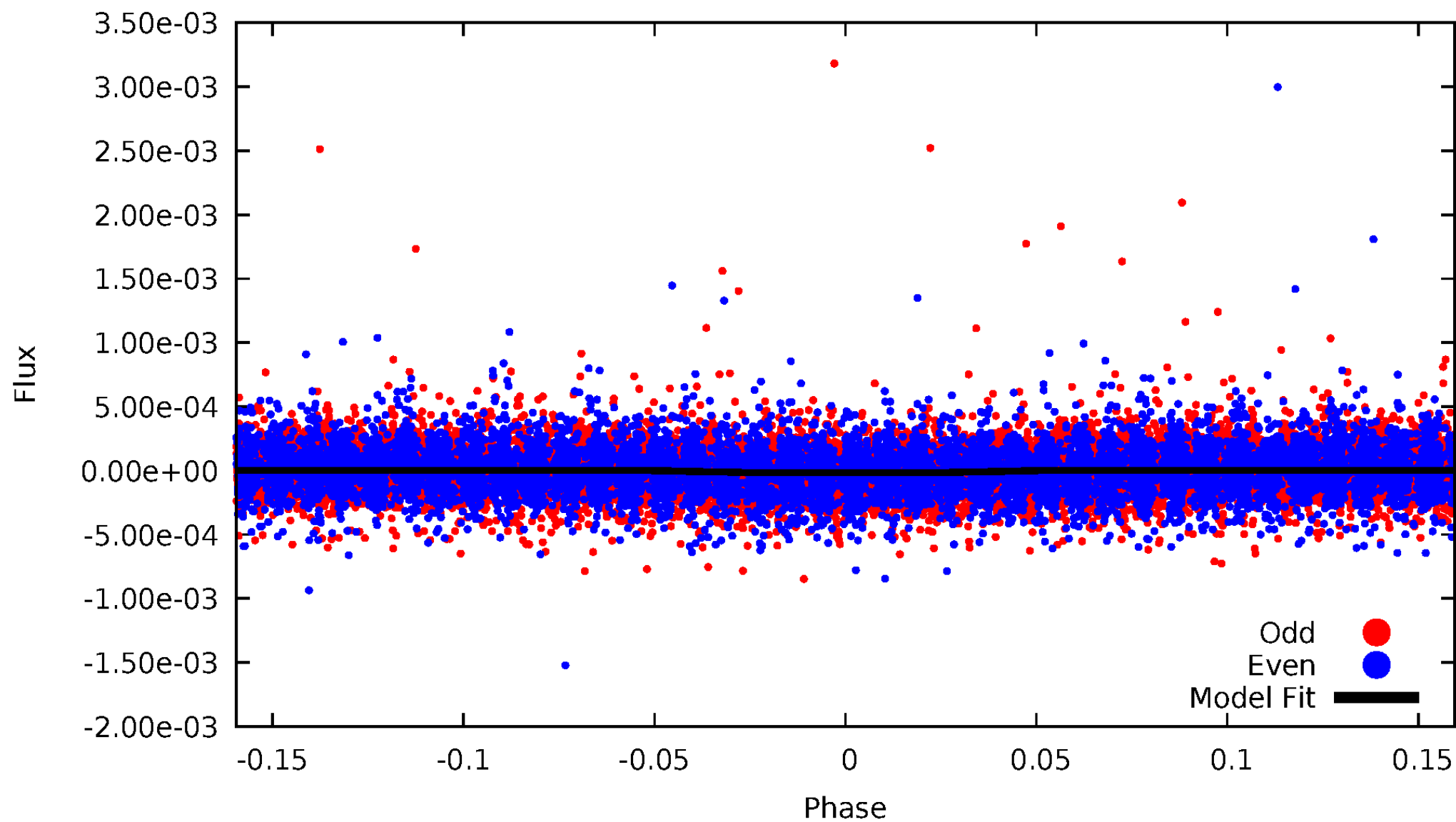


TCE 006528503-01



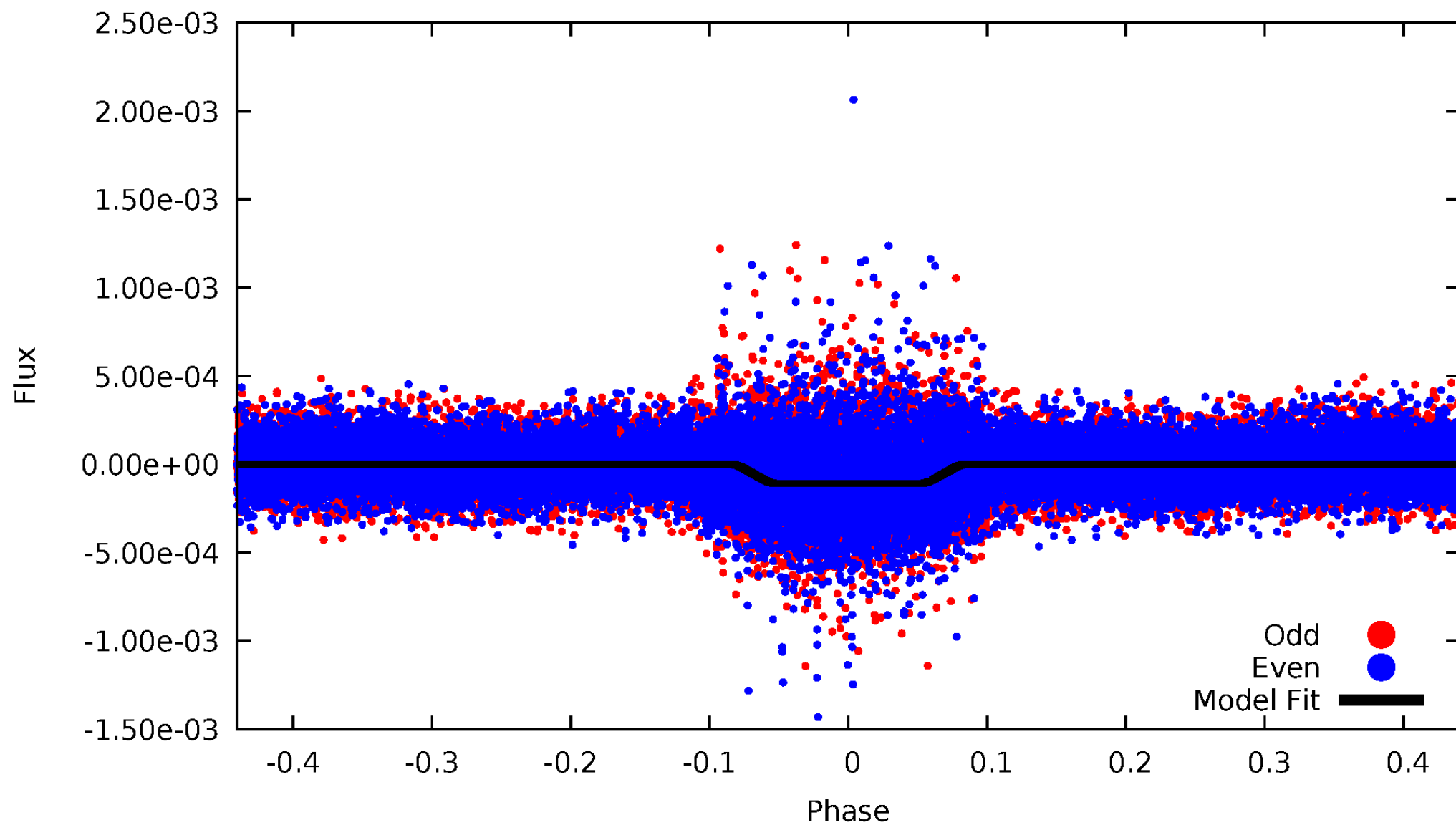
DV Odd/Even

TCE 006528503-01



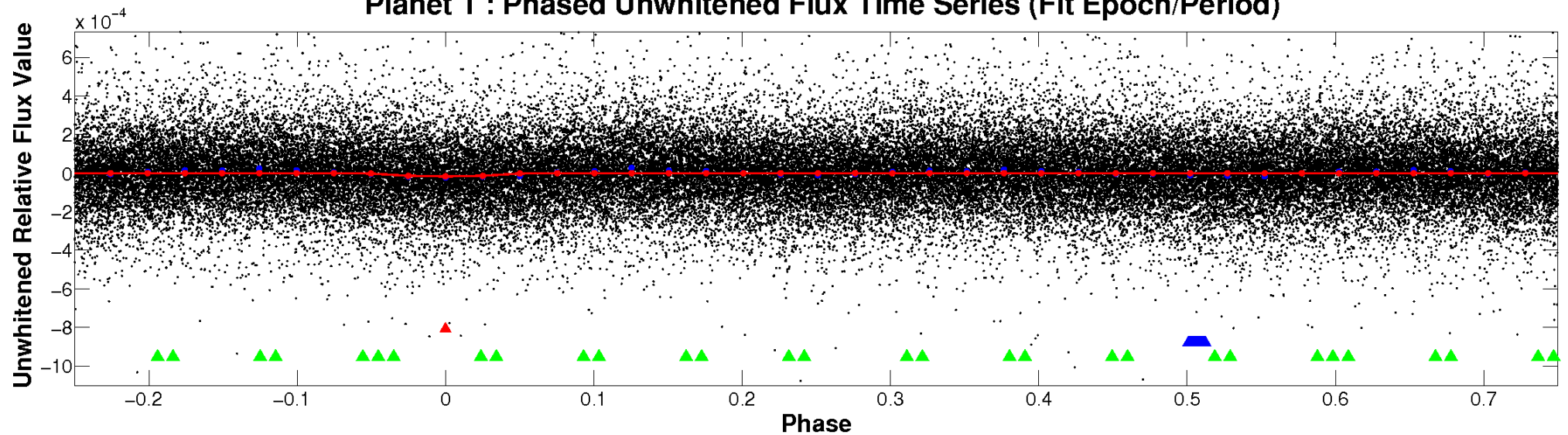
ALT Odd/Even

TCE 006528503-01

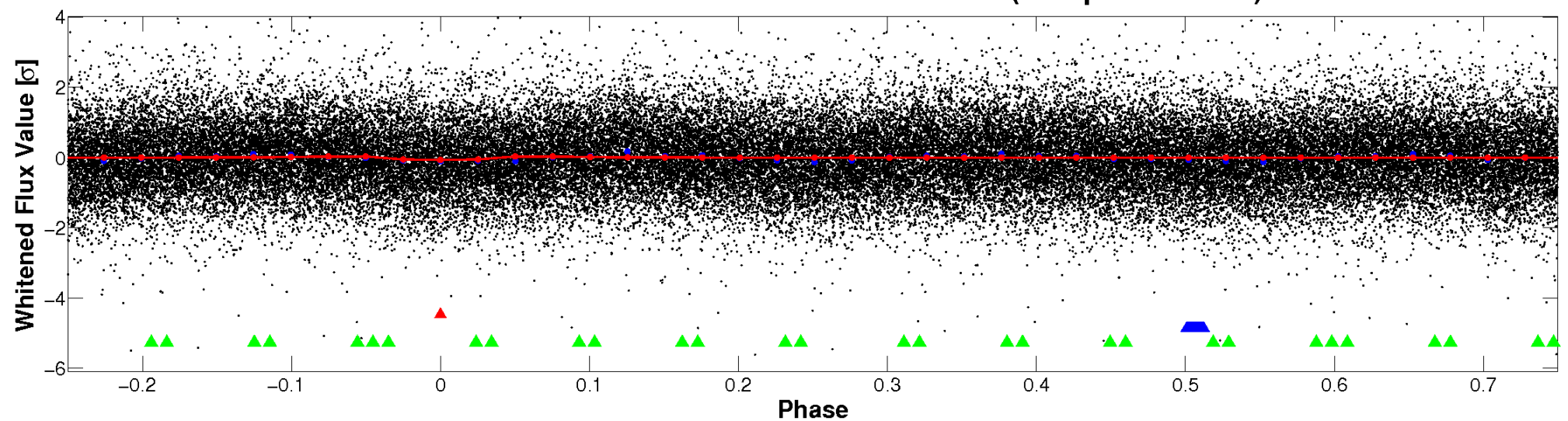


Non-Whitened Vs. Whitened Light Curve

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

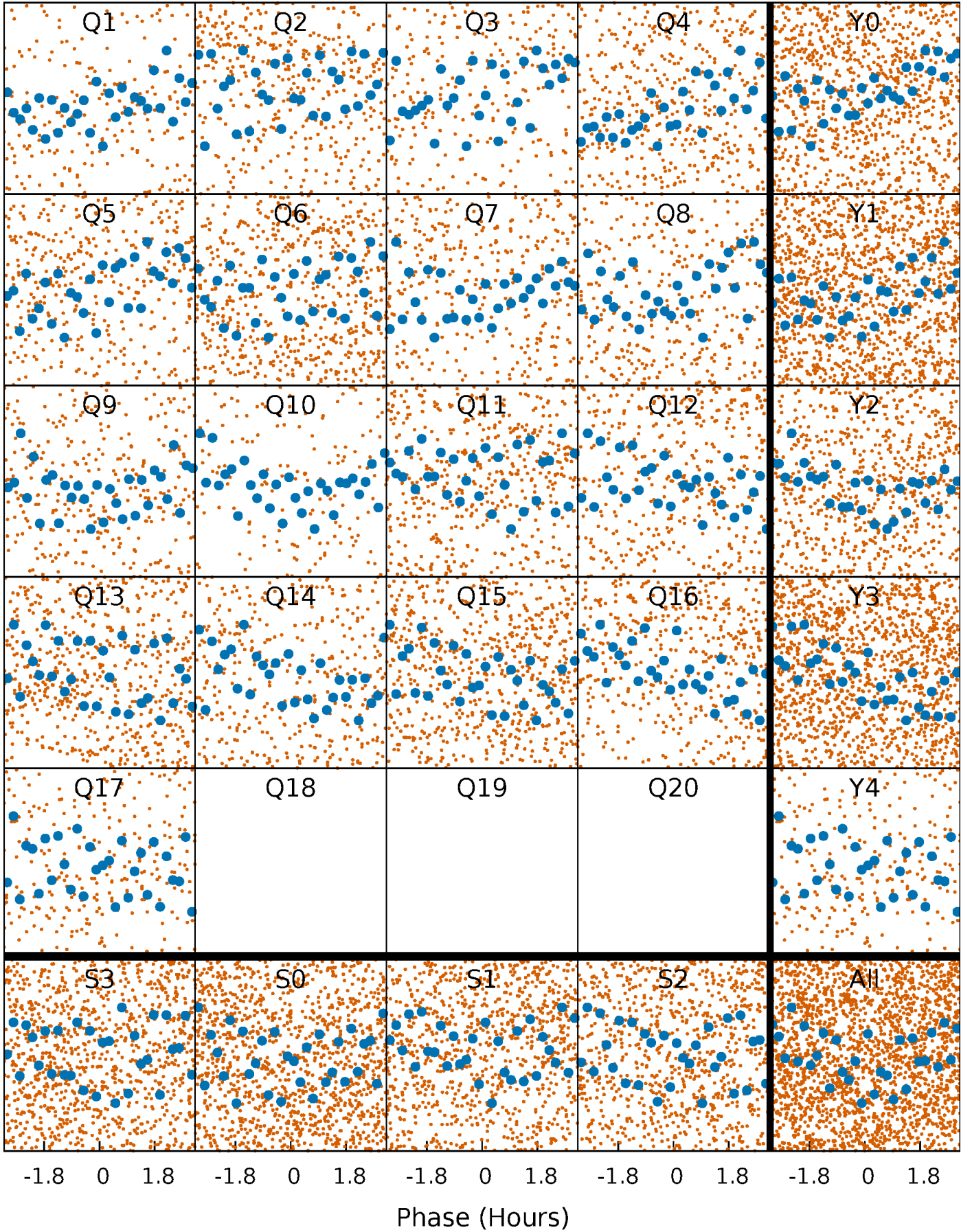


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



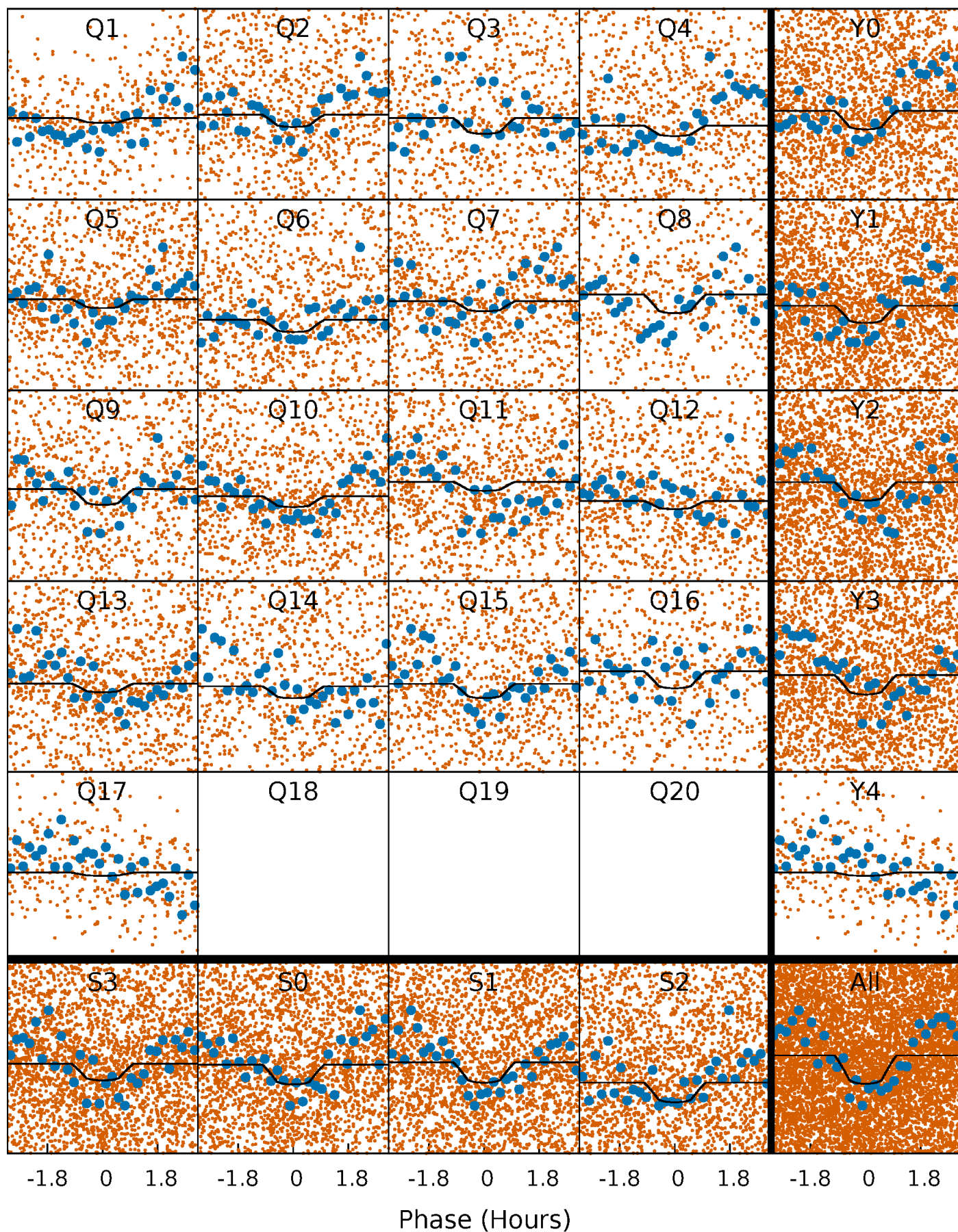
PDC Quarter-Phased Transit Curves

TCE 006528503-01 P= 0.813955 Days $T_0=132.295678$ (BKJD)



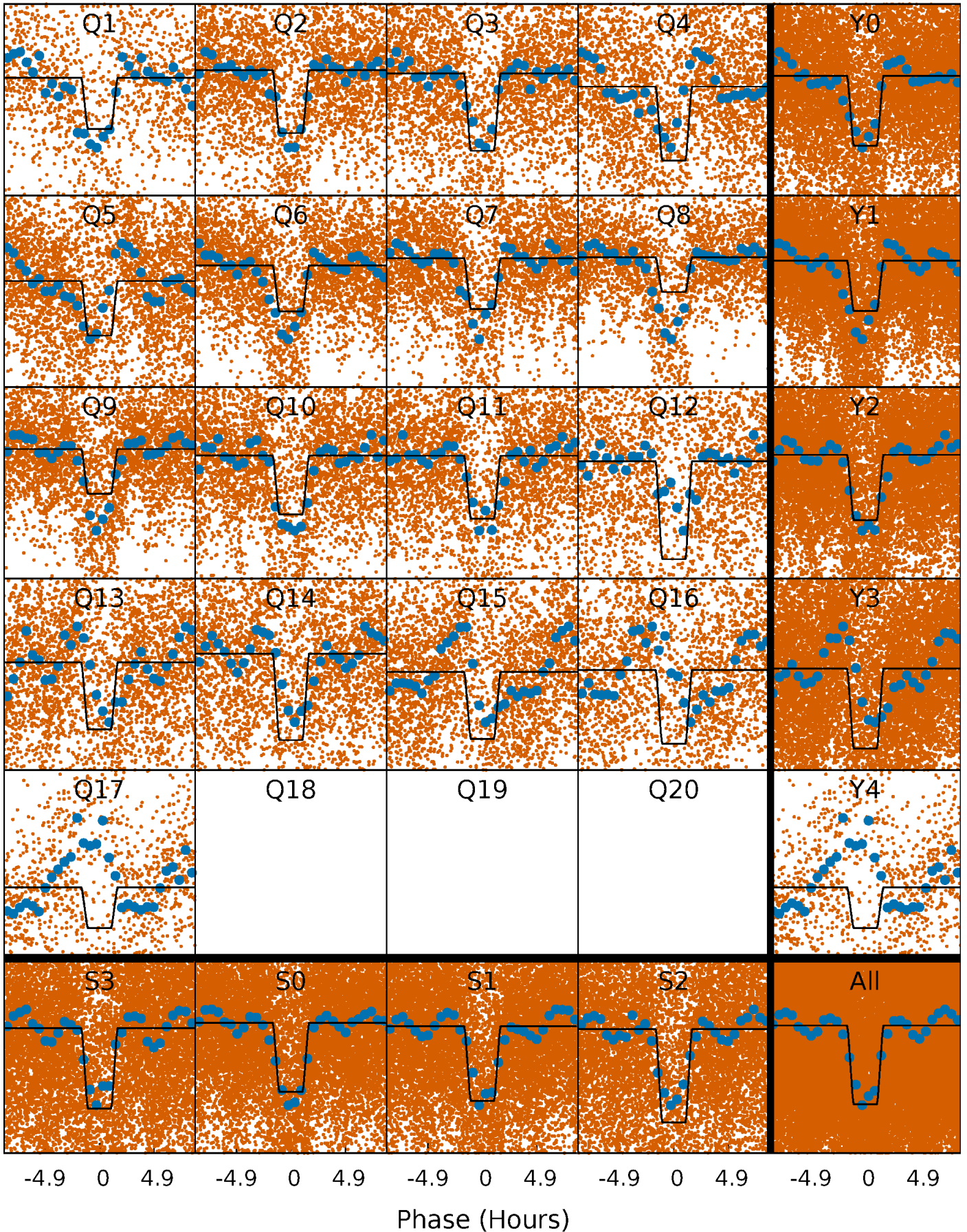
DV Quarter-Phased Transit Curves

TCE 006528503-01 P= 0.813955 Days $T_0=132.295678$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

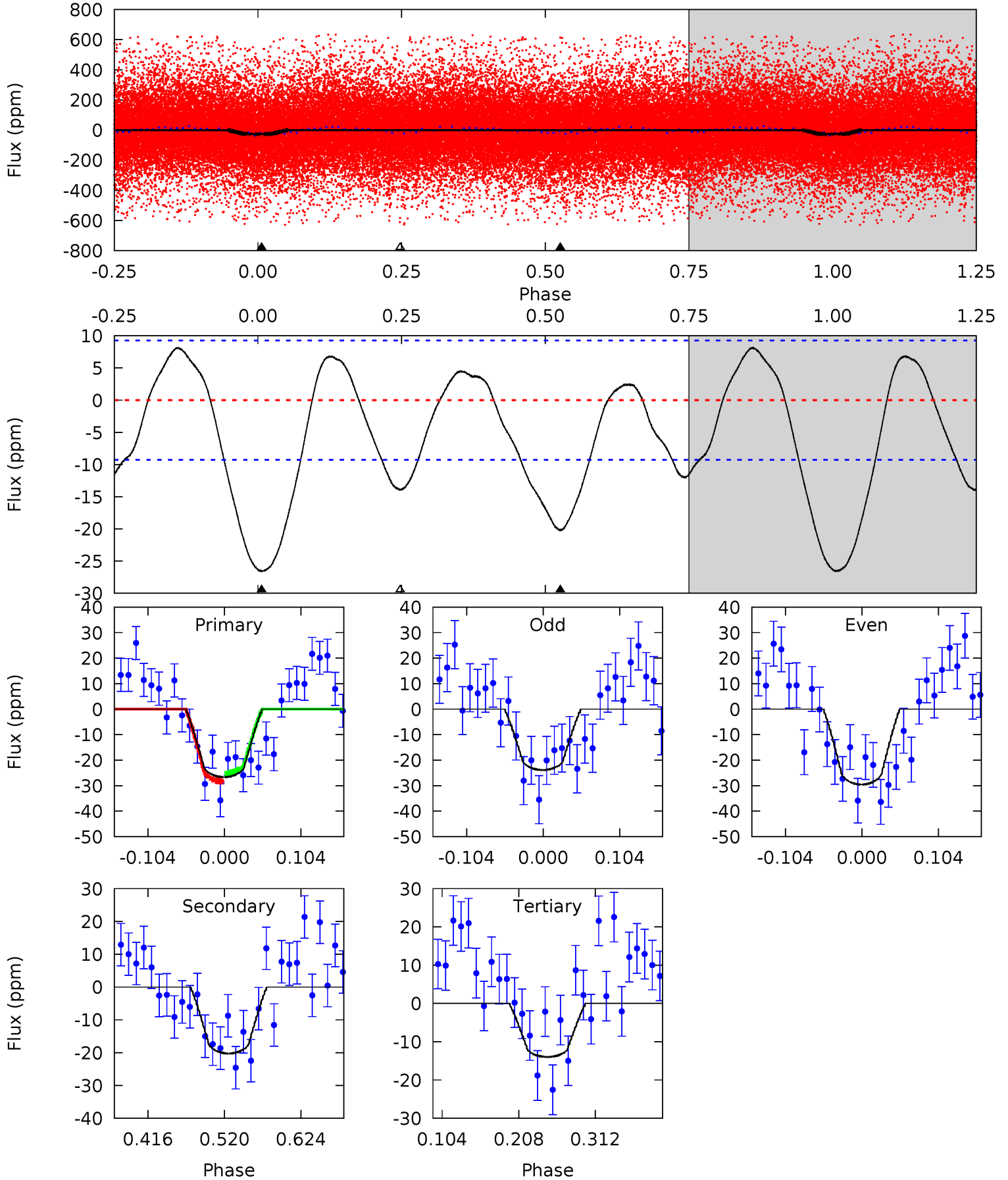
TCE 006528503-01 P= 0.813946 Days $T_0=132.308529$ (BKJD)



DV Model-Shift Uniqueness Test

006528503-01, P = 0.813955 Days, E = 131.481723 Days

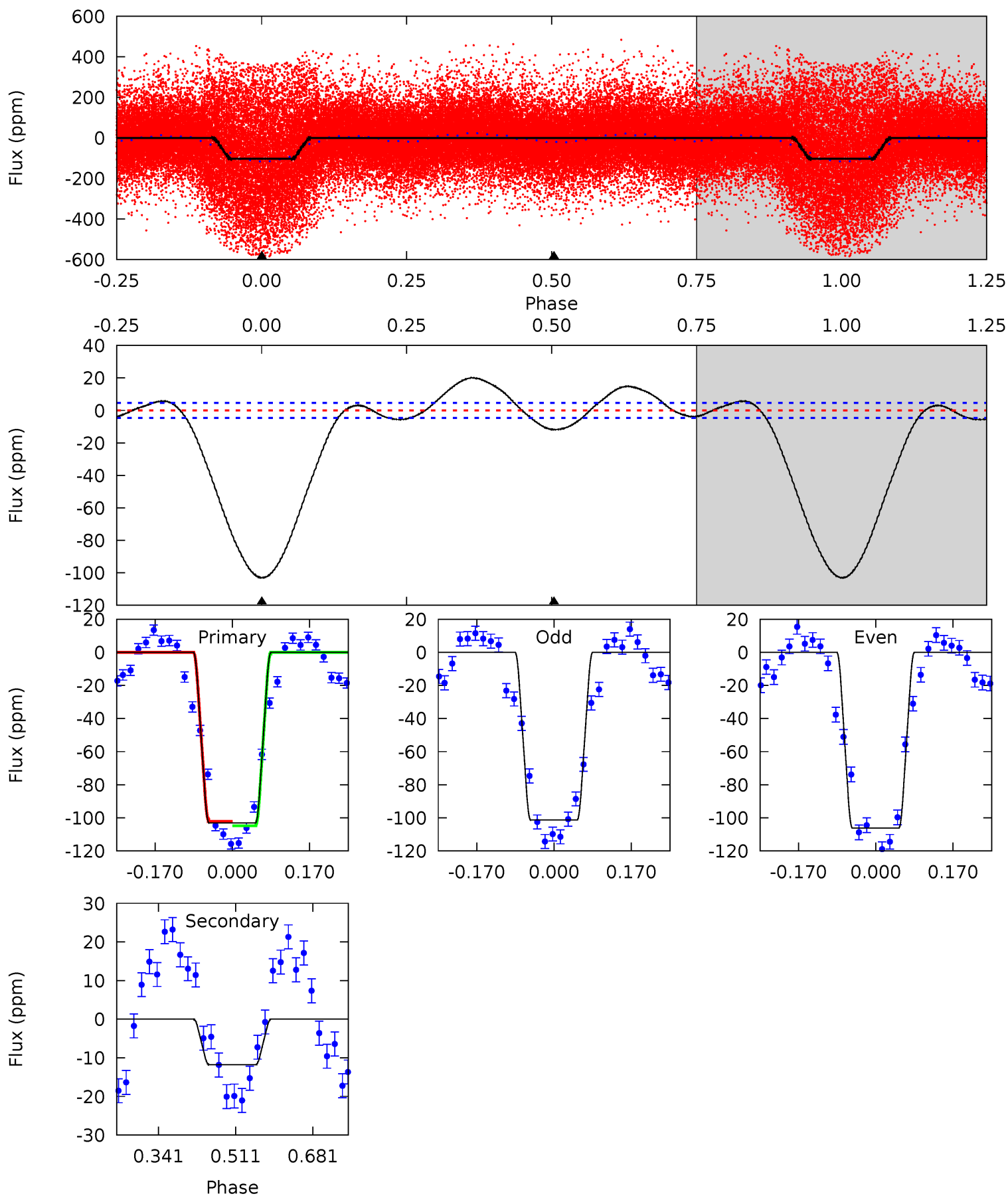
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	9.95	6.86	0	4.56	1.63	3.25	6.22	13.1	3.08	9.95	1.41	0.84	0.23	0.77



Alt Model-Shift Uniqueness Test

006528503-01, P = 0.813946 Days, E = 131.494583 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
99.9	11.4	0	0	4.45	1.37	4.87	99.9	99.9	11.4	11.4	2.33	0.91	0.16	1.28



Stellar Parameters For KIC 006528503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6207^{+188}_{-156}	$3.827^{+0.315}_{-0.135}$	$-0.960^{+0.350}_{-0.250}$	$1.973^{+0.449}_{-0.674}$	$0.952^{+0.130}_{-0.130}$	$0.175^{+0.380}_{-0.069}$
	+3%/-3%	+8%/-4%	+36%/-26%	+23%/-34%	+14%/-14%	+218%/-39%
Source	PHO1	FLK73	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 006528503-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-20 ± 2	$0.82^{+0.28}_{-0.22}$	4093^{+269}_{-382}	6508^{+1286}_{-841}	$4.779^{+4.559}_{-2.124}$
Alt.	-12 ± 1	$2.15^{+0.41}_{-0.41}$	4097^{+288}_{-345}	3118^{+454}_{-5709}	$0.393^{+0.208}_{-0.112}$

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 $A_{obs} \gg 1.0$

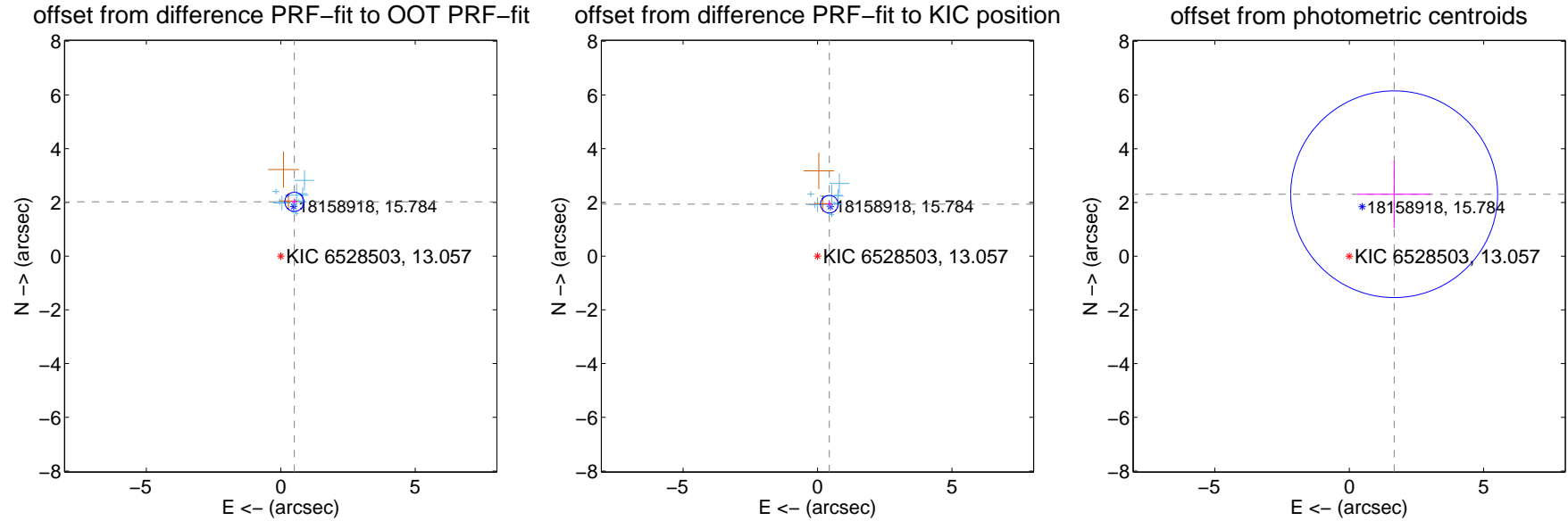
DV Centroid Data

Supplemental centroid analysis for 006528503-01. Kepler magnitude: 13.06. Transit SNR 4.99

There are 14 quarters with good PRF difference image offsets

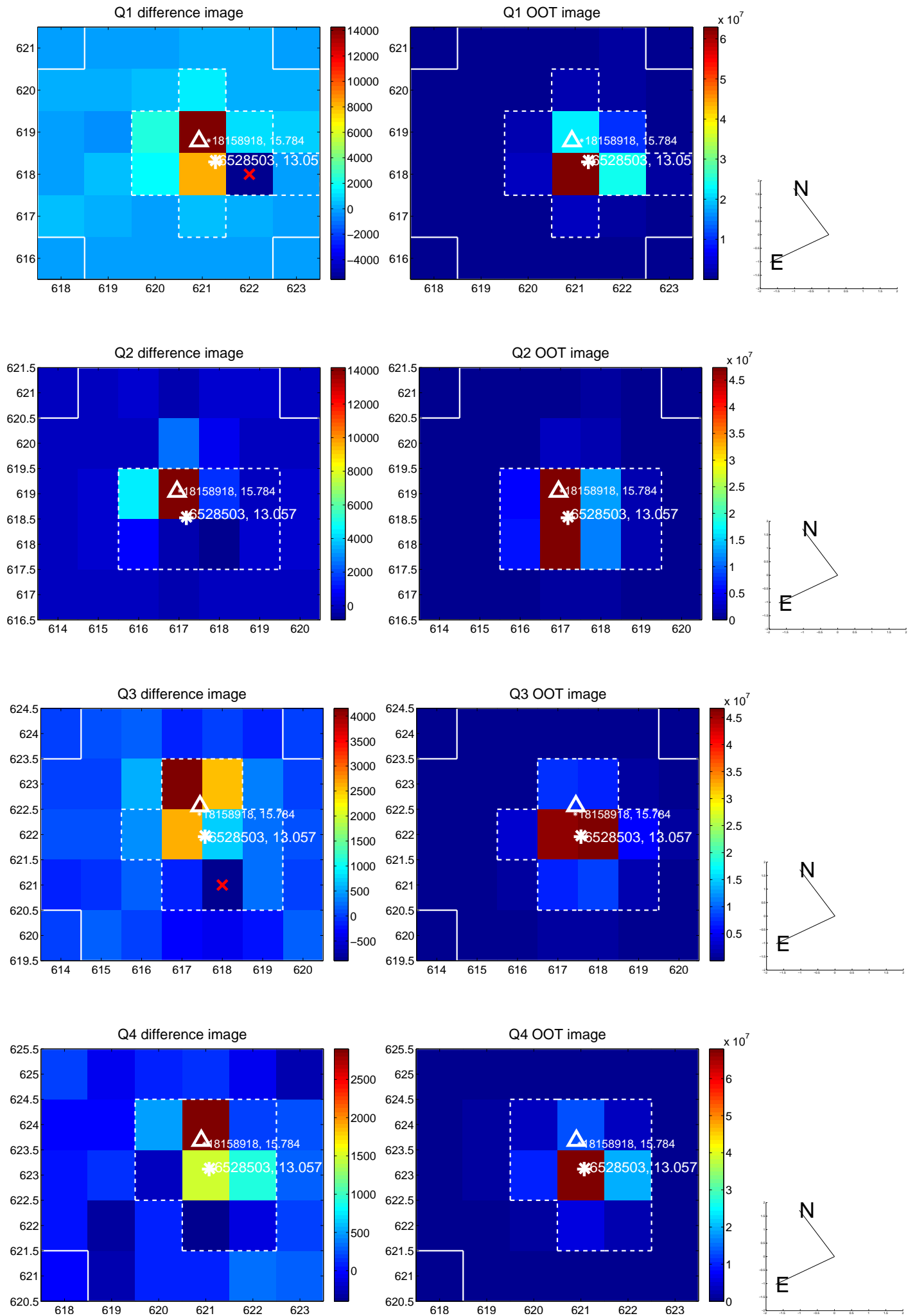
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.083 ± 0.118	17.61	-0.505 ± 0.107	2.021 ± 0.121
PRF-fit source offset from KIC position	1.982 ± 0.109	18.19	-0.440 ± 0.103	1.933 ± 0.111
photometric centroid source offset	2.85 ± 1.28	2.22	-1.67 ± 1.35	2.31 ± 1.25

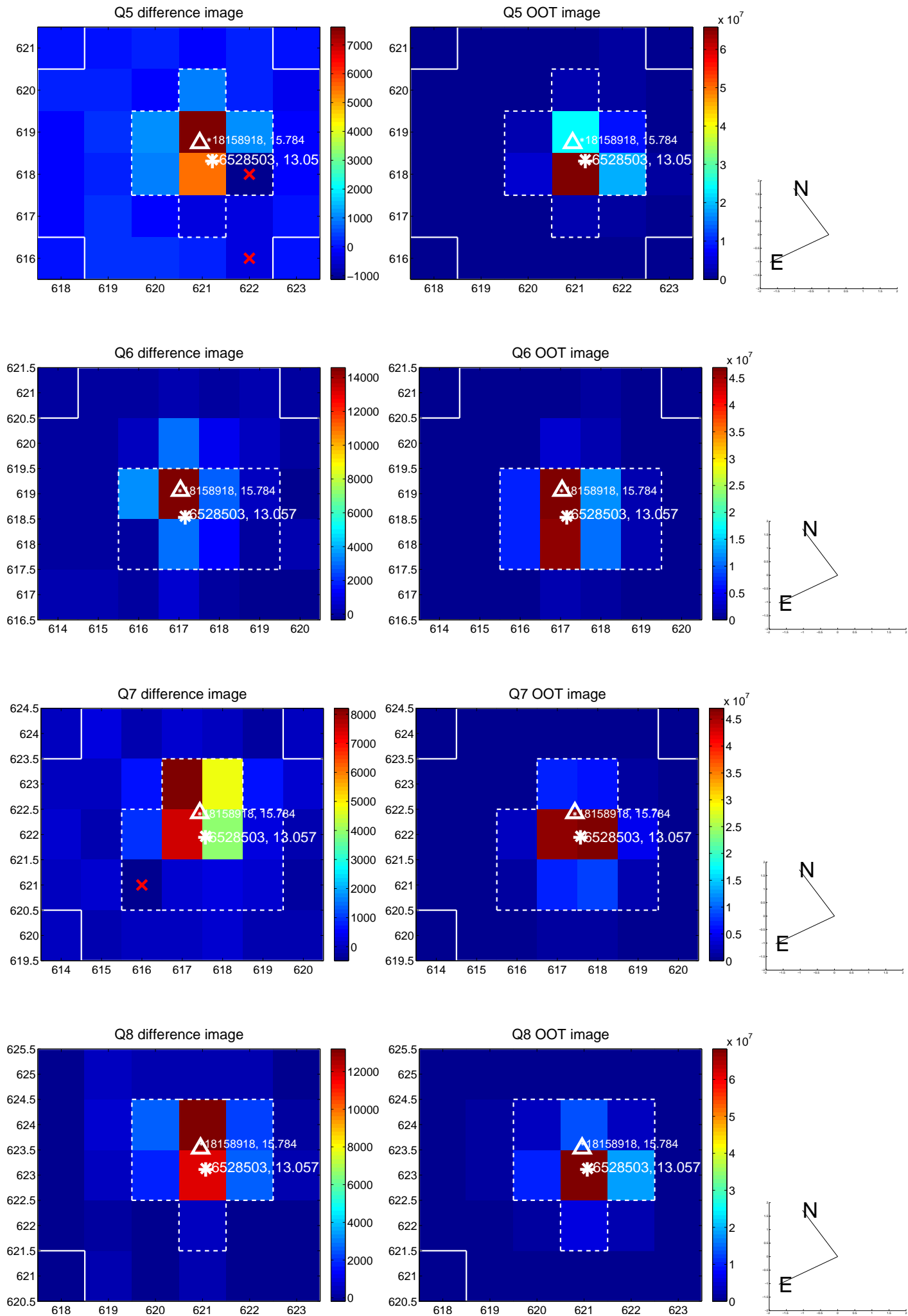


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

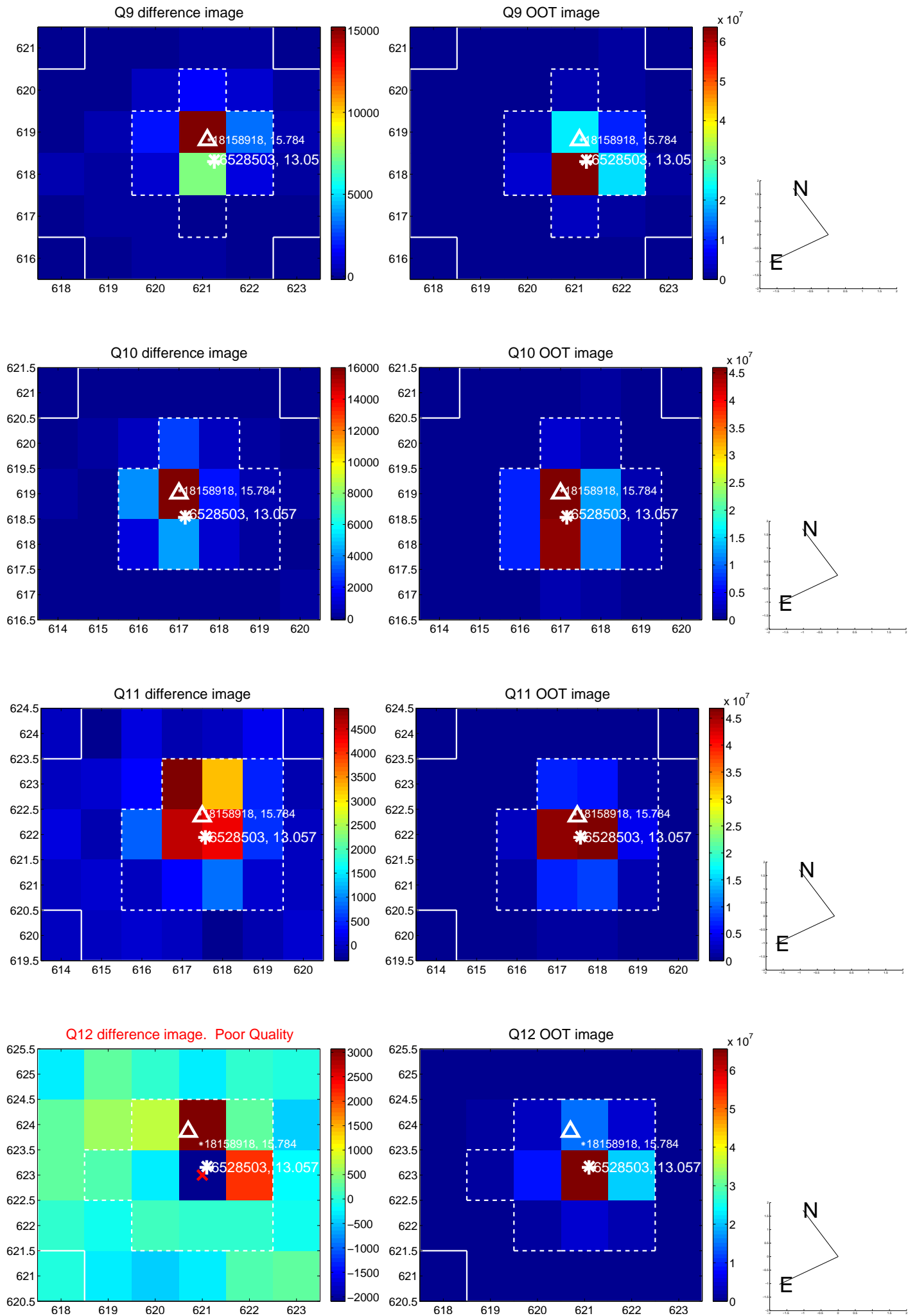
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



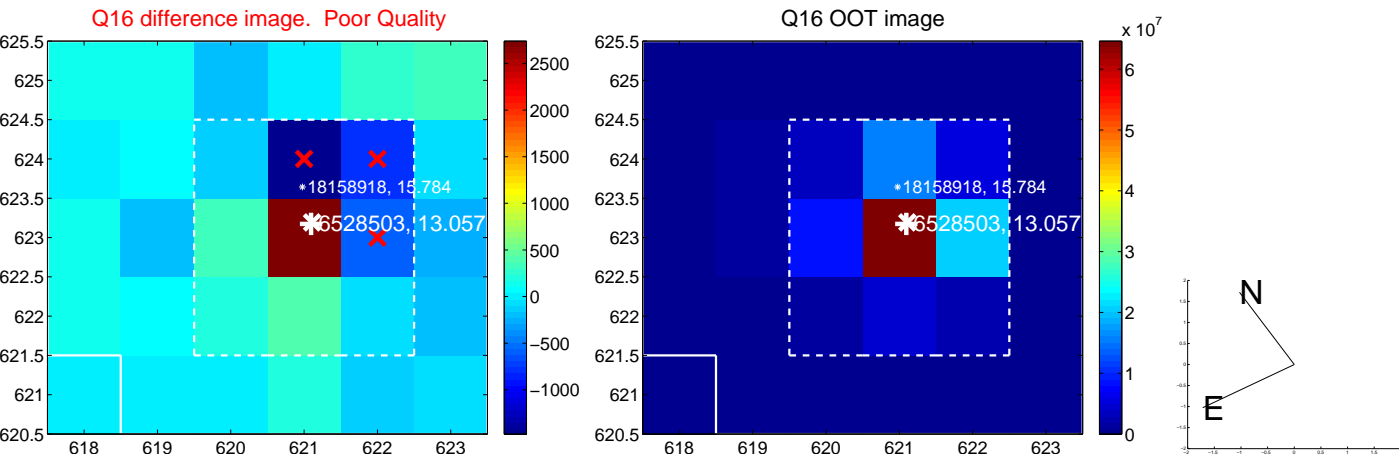
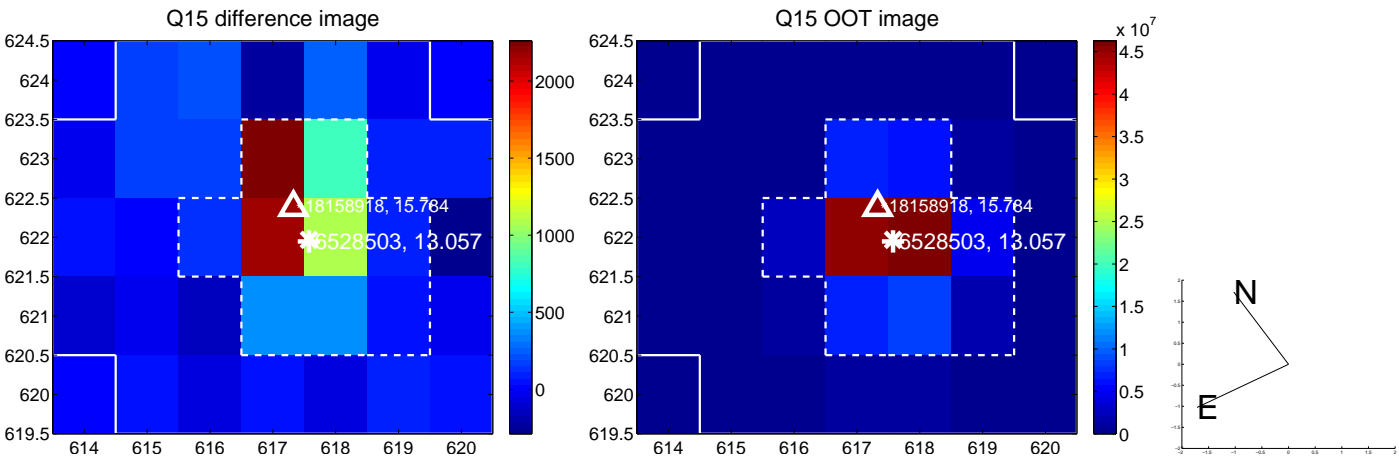
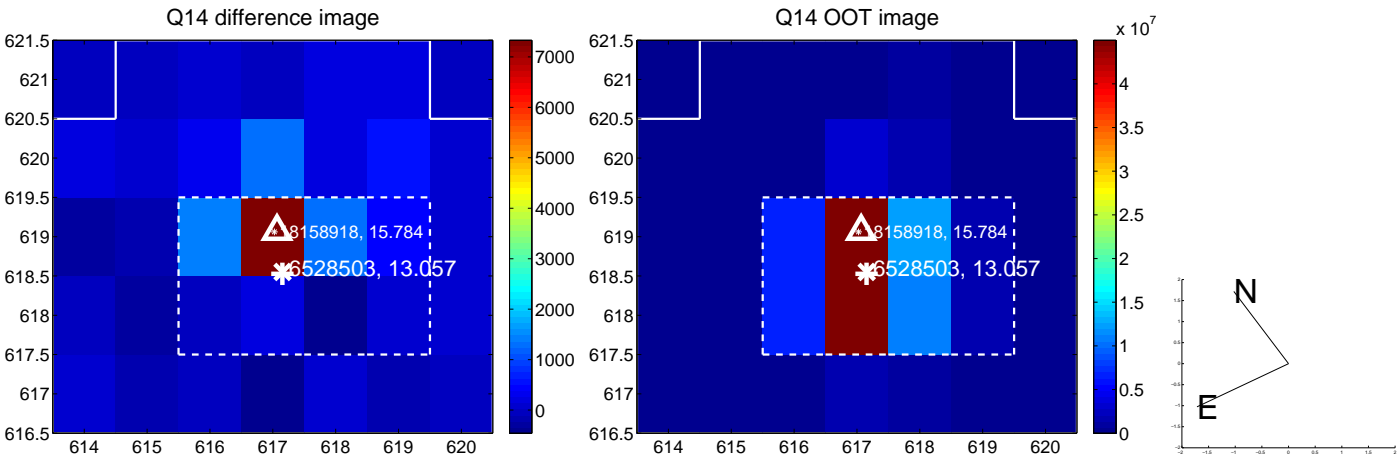
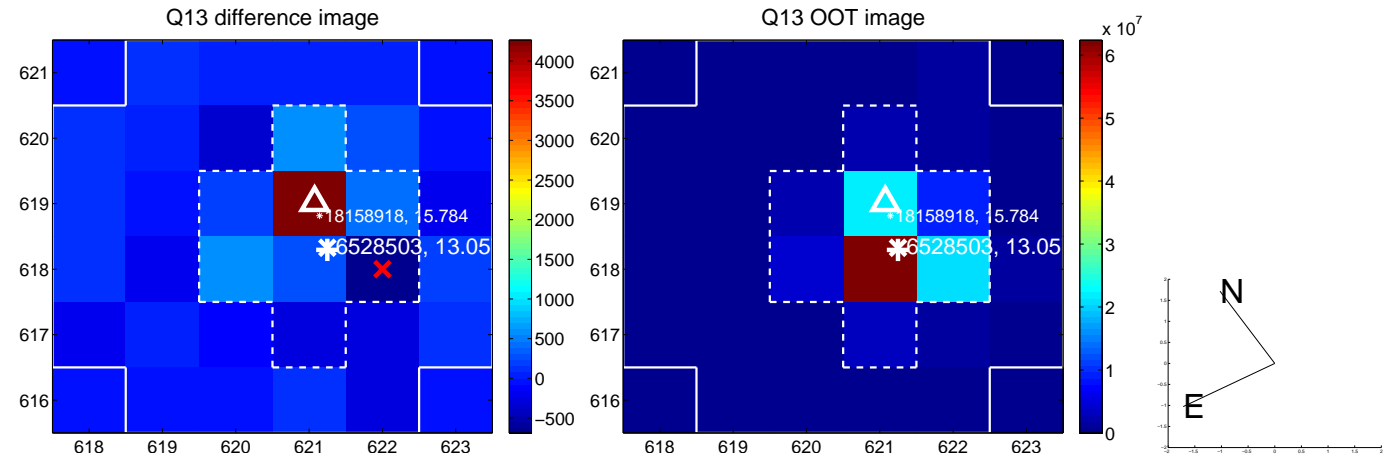
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



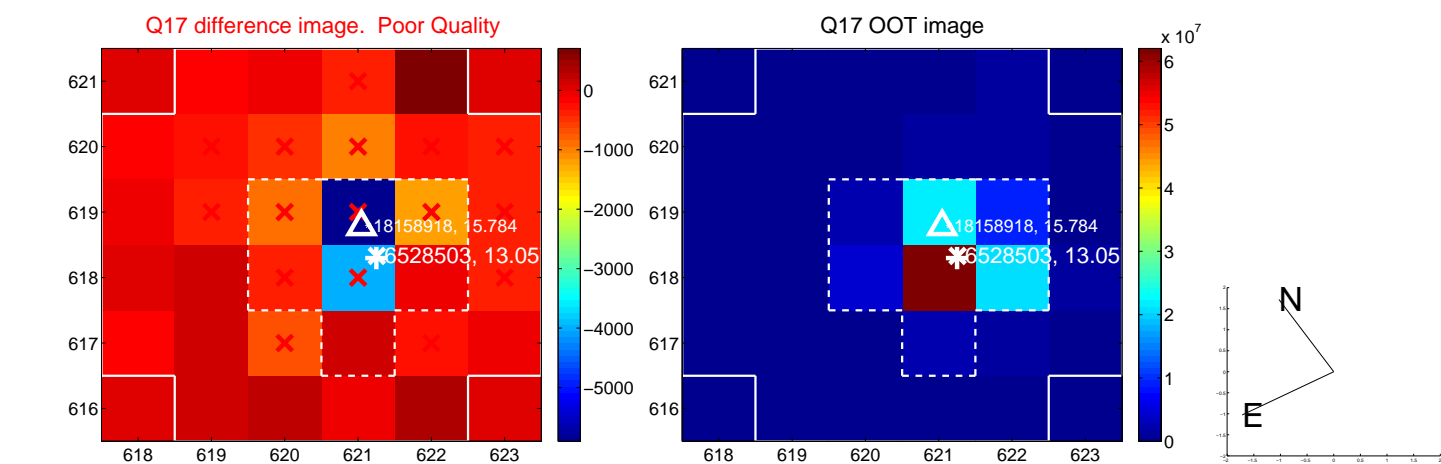
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



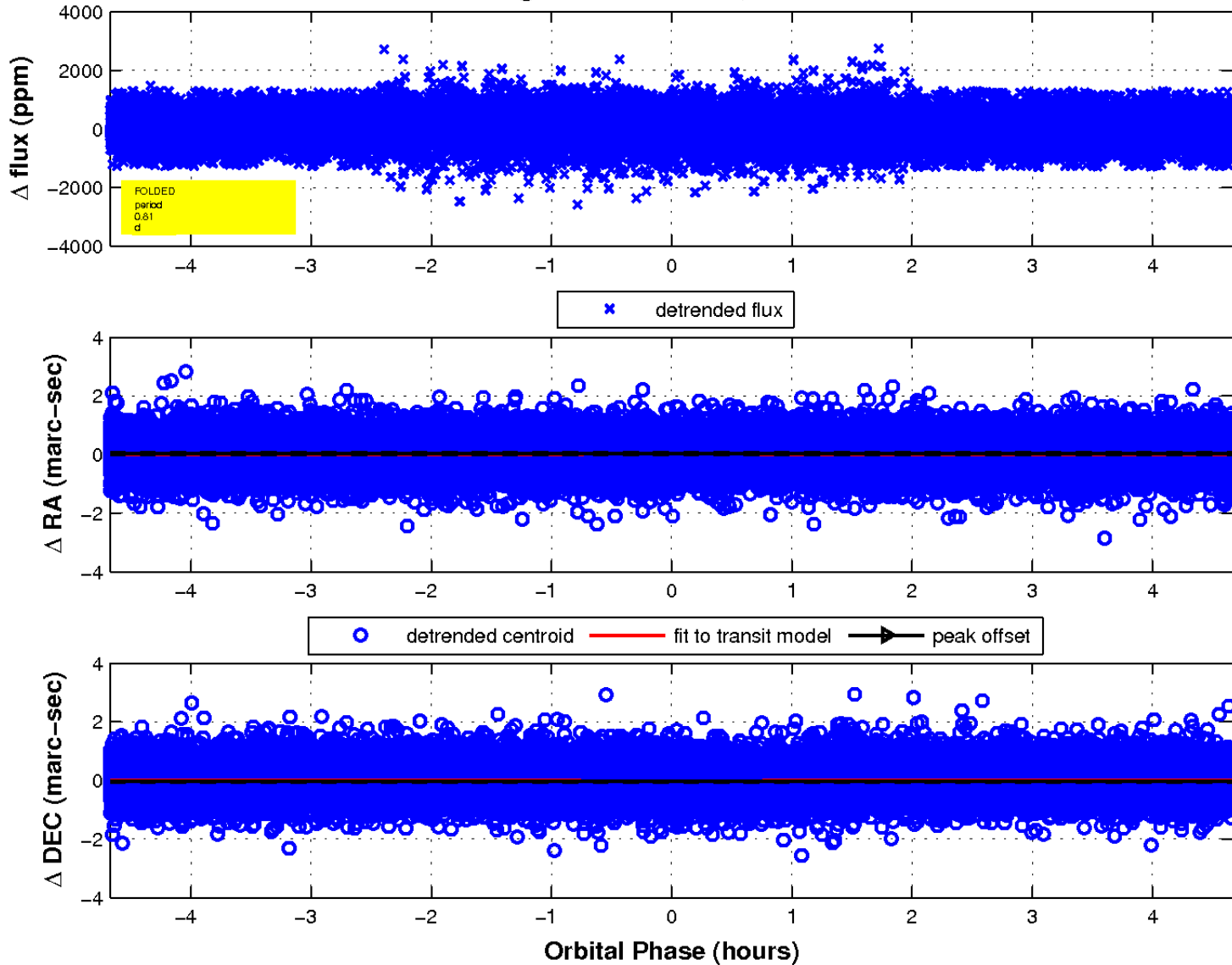
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

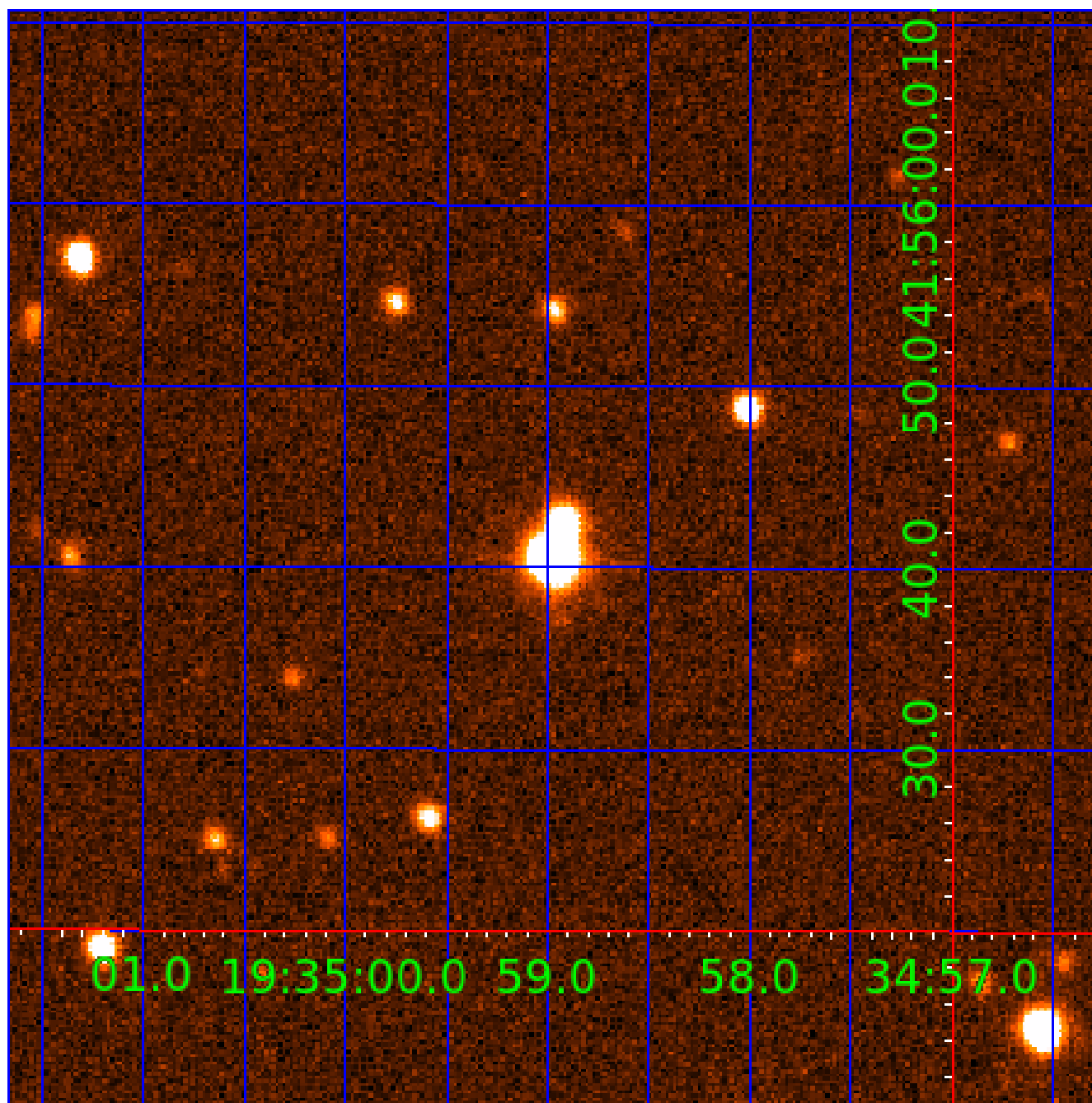


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination



KIC 006528503

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})
006528503-01	OBS	No	0.813955	132.295677	17.2	1.558	9.8	5.0	1.97	6207	0.87	18352.95
006528503-02	OBS	No	0.813949	131.898848	40.5	3.628	8.7	8.6	1.97	6207	1.70	18353.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006528503-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET
006528503-02	OBS	FP	0.00	1	0	1	0	LPP_DV—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET

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

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

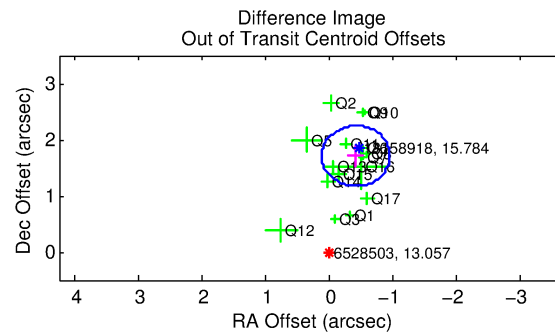
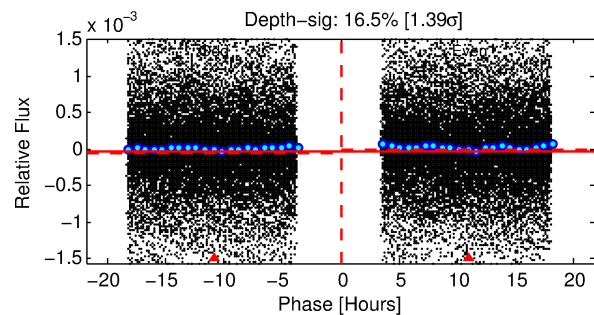
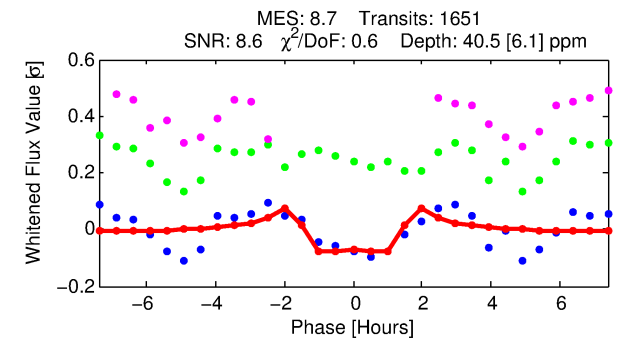
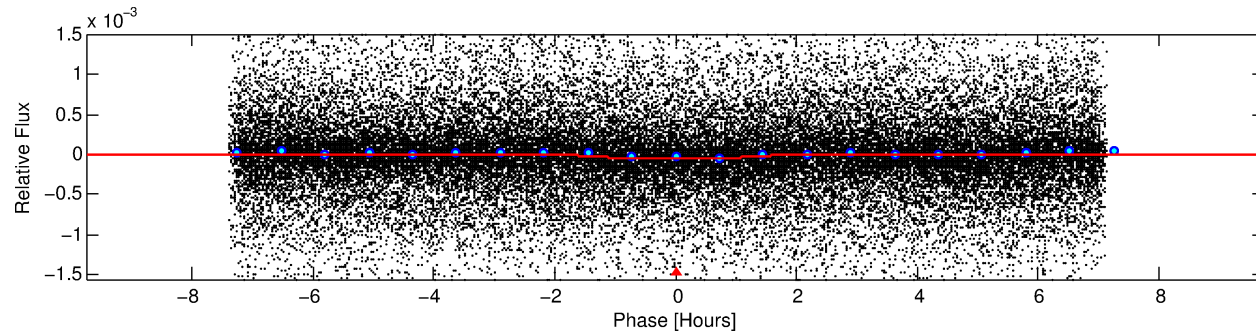
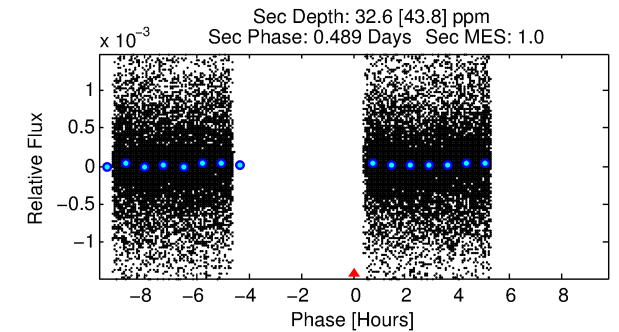
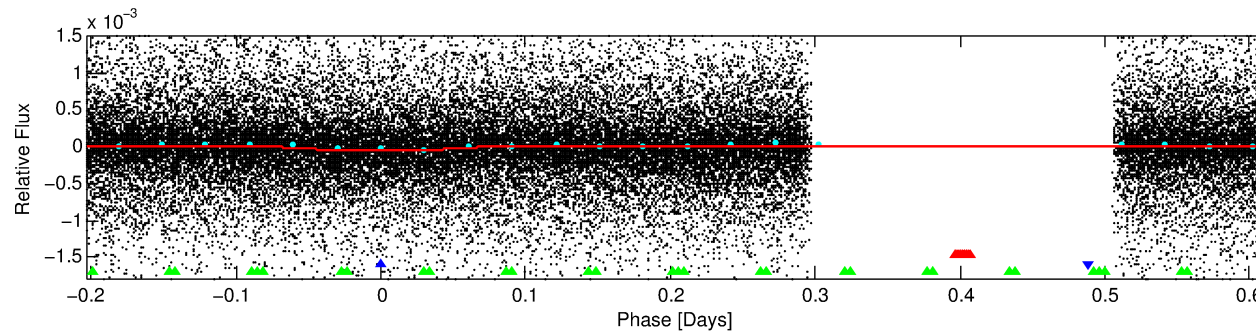
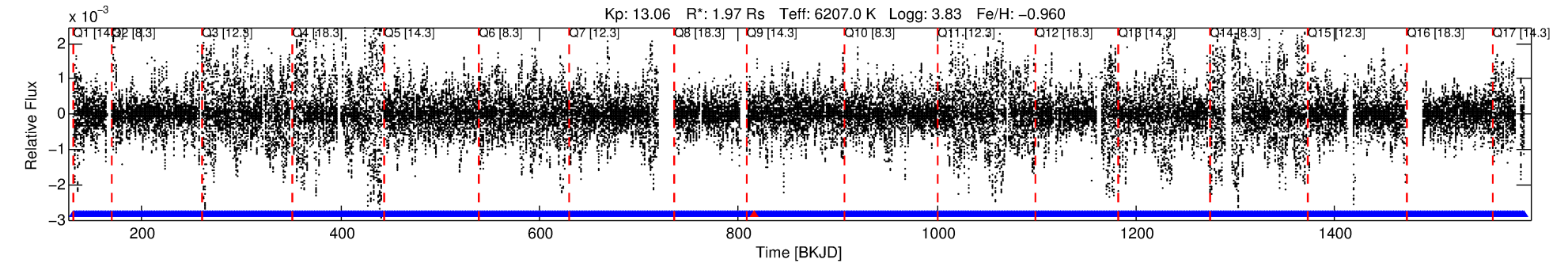
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006528503-02

No Significant Match Found

DV One-Page Summary

KIC: 6528503 Candidate: 2 of 3 Period: 0.814 d



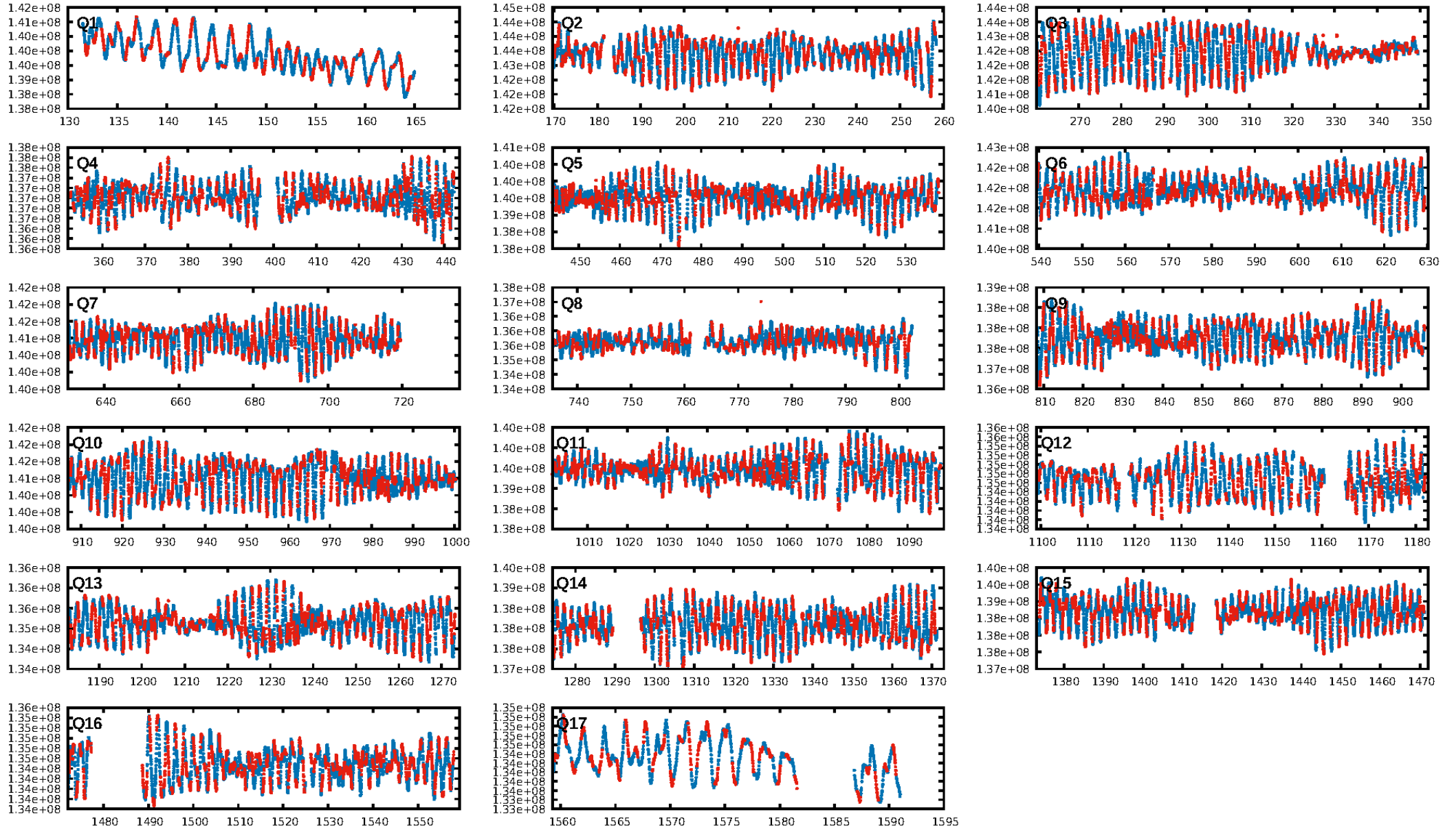
DV Fit Results:

Period = 0.81395 [0.00001] d
Epoch = 131.8988 [0.0023] BKJD
Rp/R* = 0.0079 [0.0007]
a/R* = 1.06 [0.02]
b = 0.99 [0.00]
Seff = 18353.11 [10058.41]
Teff = 2968 [407] K
Rp = 1.70 [0.60] Re
a = 0.0168 [0.0056] AU
Ag = 1.75 [2.55] [0.29 σ]
Teffp = 5277 [1794] K [1.26 σ]

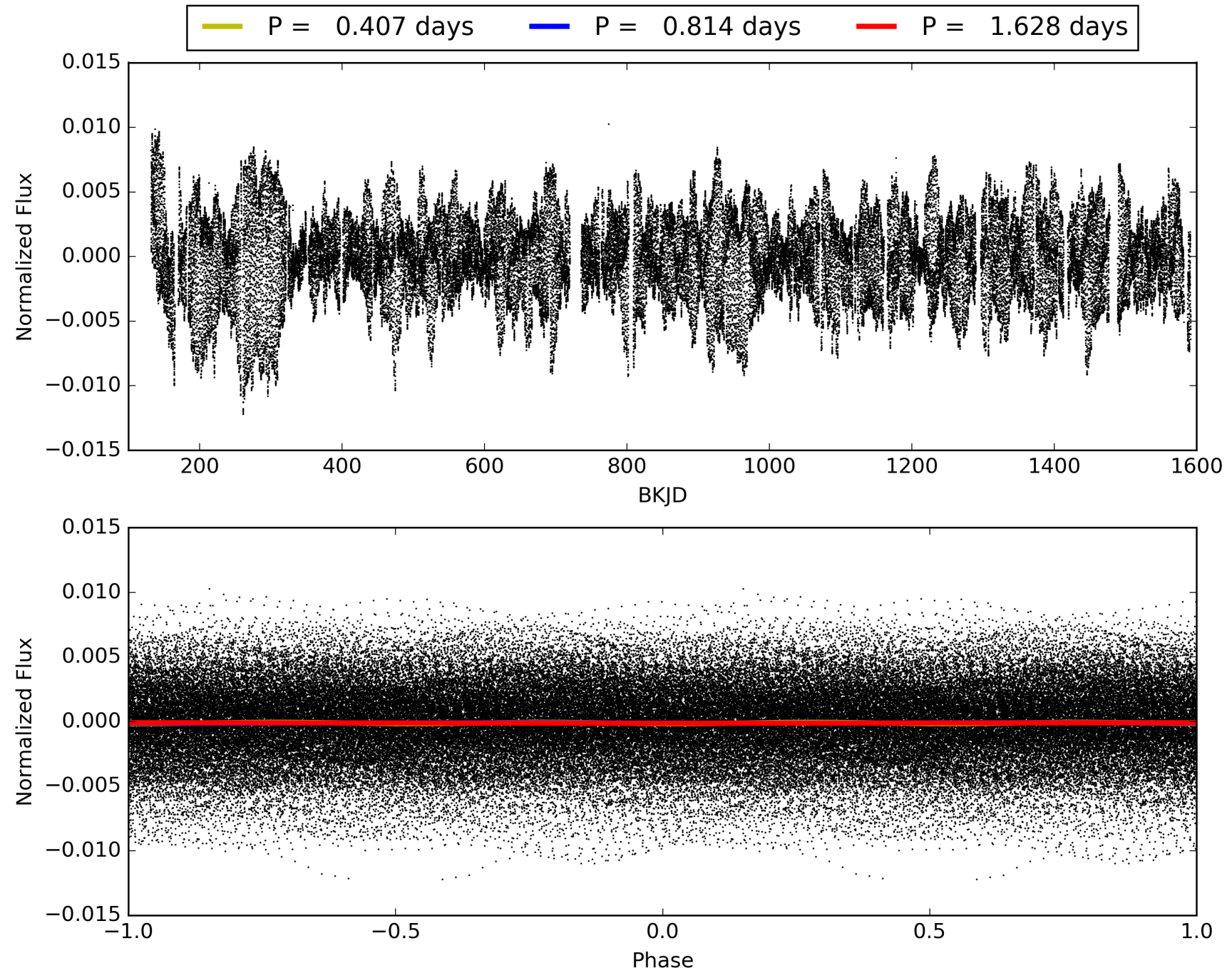
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.52e-10
RollingBand-fgt: 1.00 [1576/1577]
GhostDiagnostic-chr: 0.8739
Centroid-sig: 0.0%
Centroid-so: 0.936 arcsec [2.36 σ]
OotOffset-rm: 1.757 arcsec [9.81 σ]
KicOffset-rm: 1.696 arcsec [9.68 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]

TCE 006528503-02, PDC Light Curves

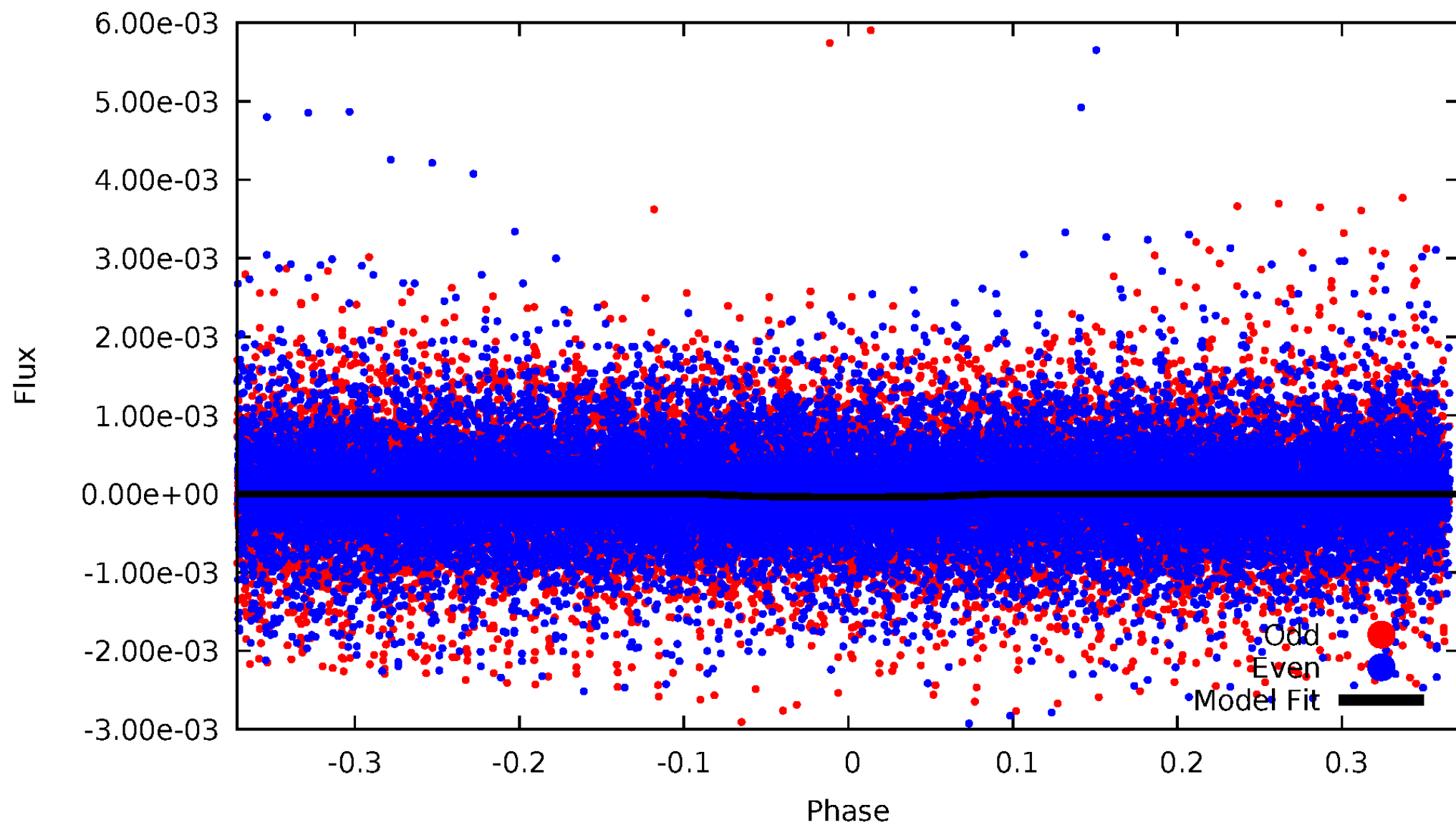


TCE 006528503-02



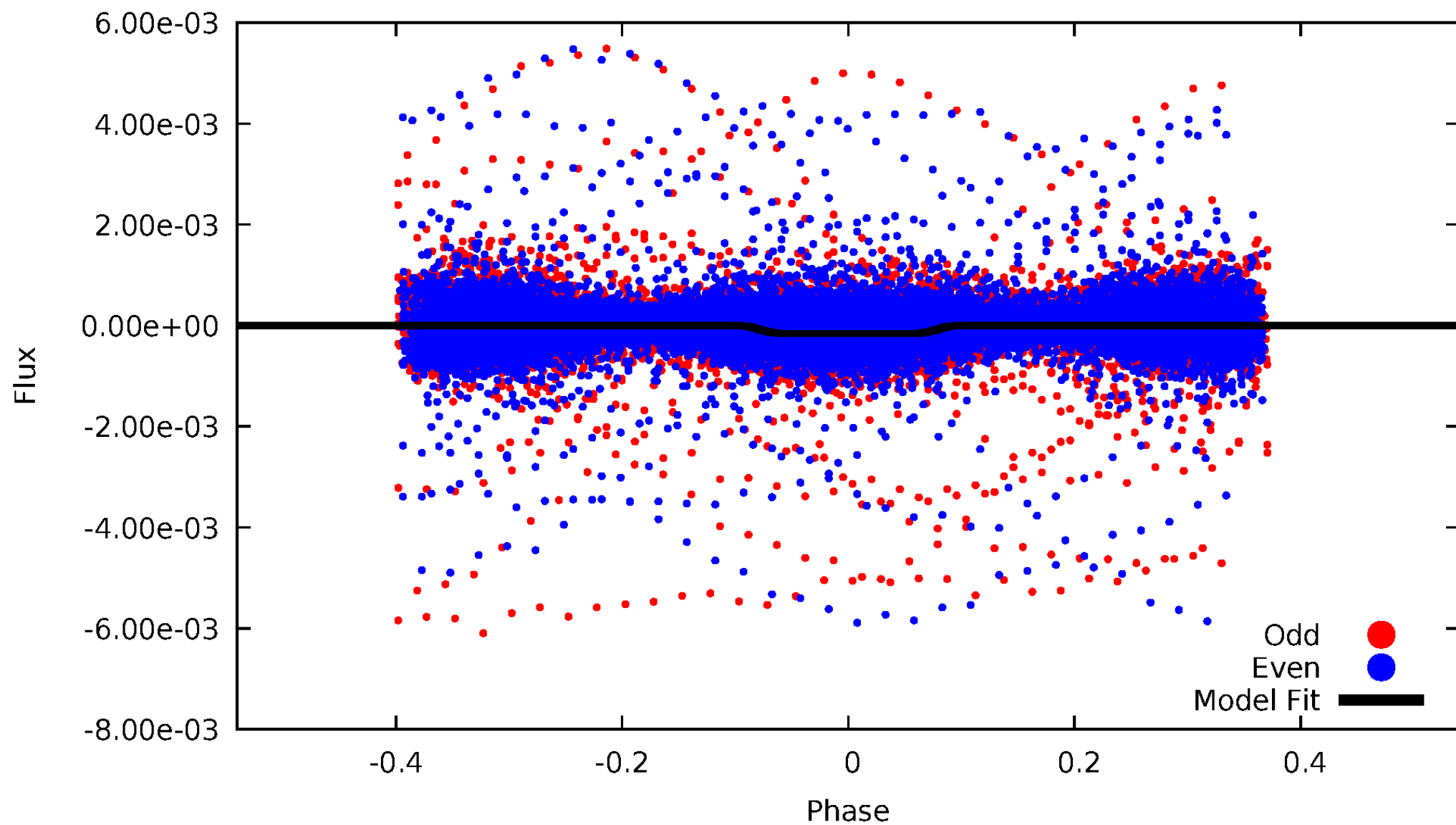
DV Odd/Even

TCE 006528503-02



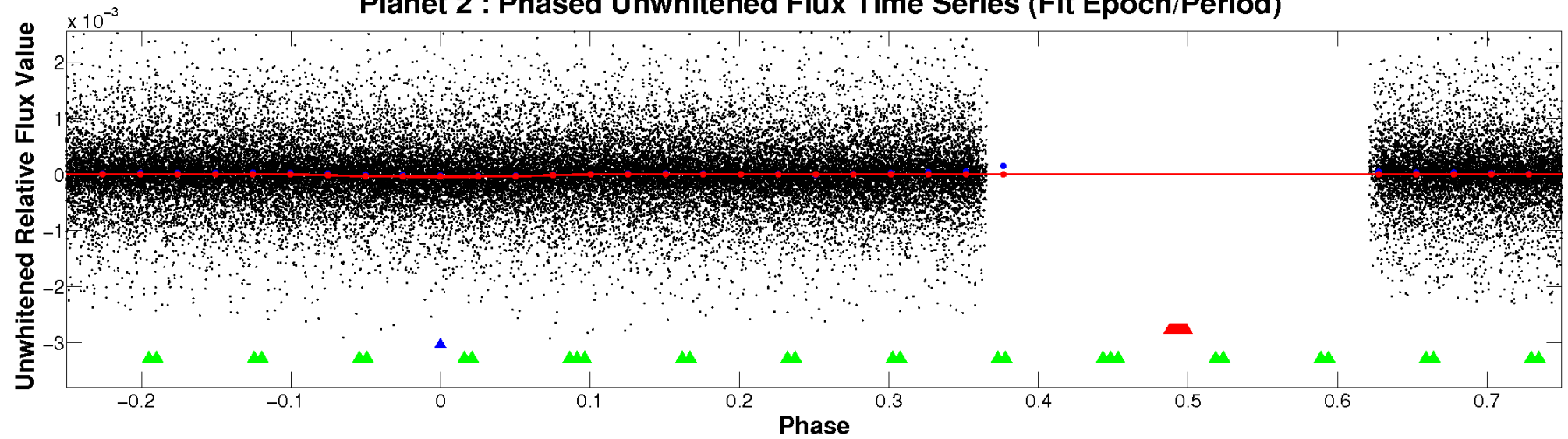
ALT Odd/Even

TCE 006528503-02

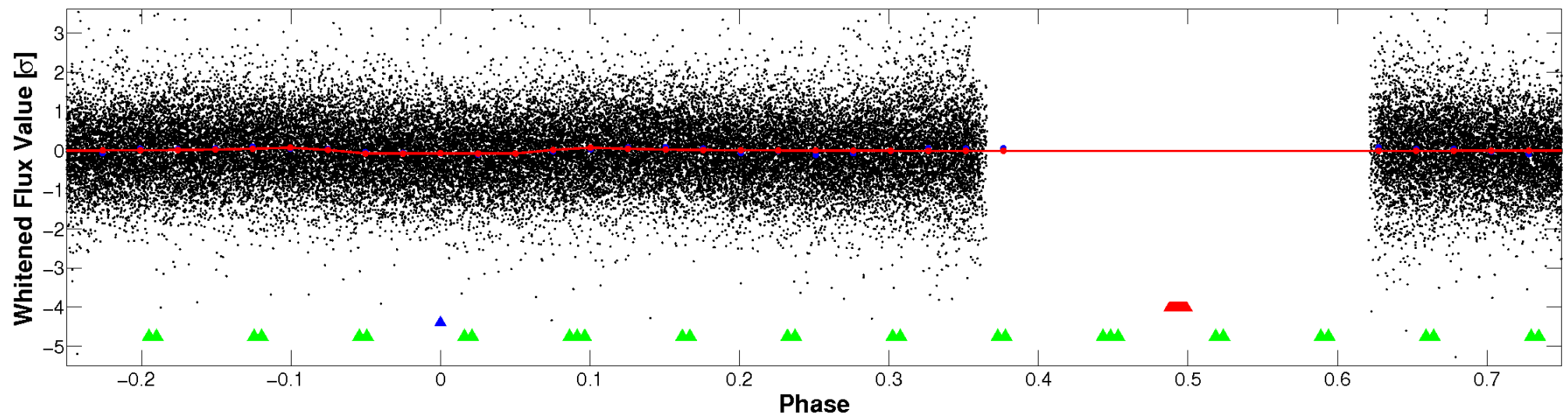


Non-Whitened Vs. Whitened Light Curve

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

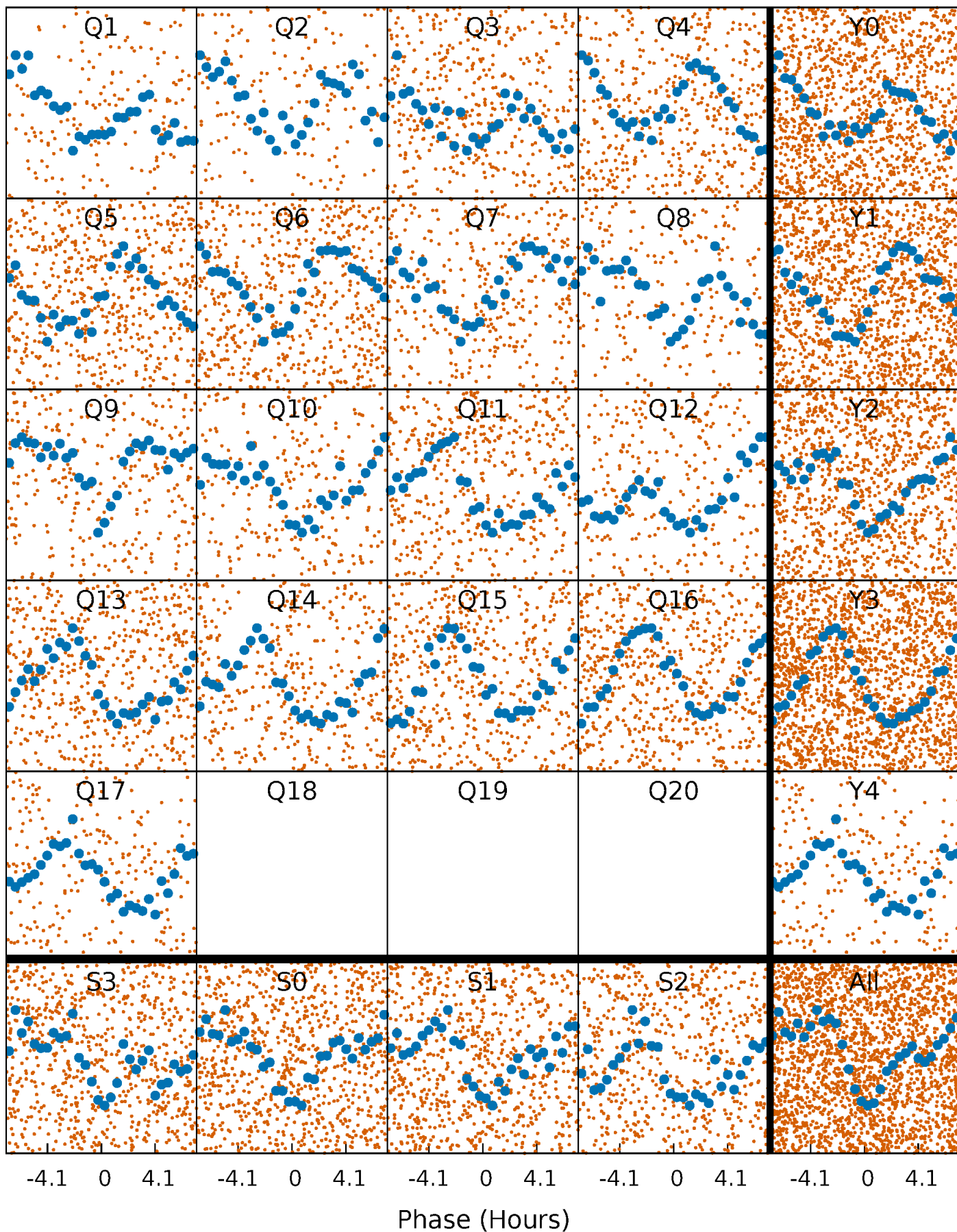


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



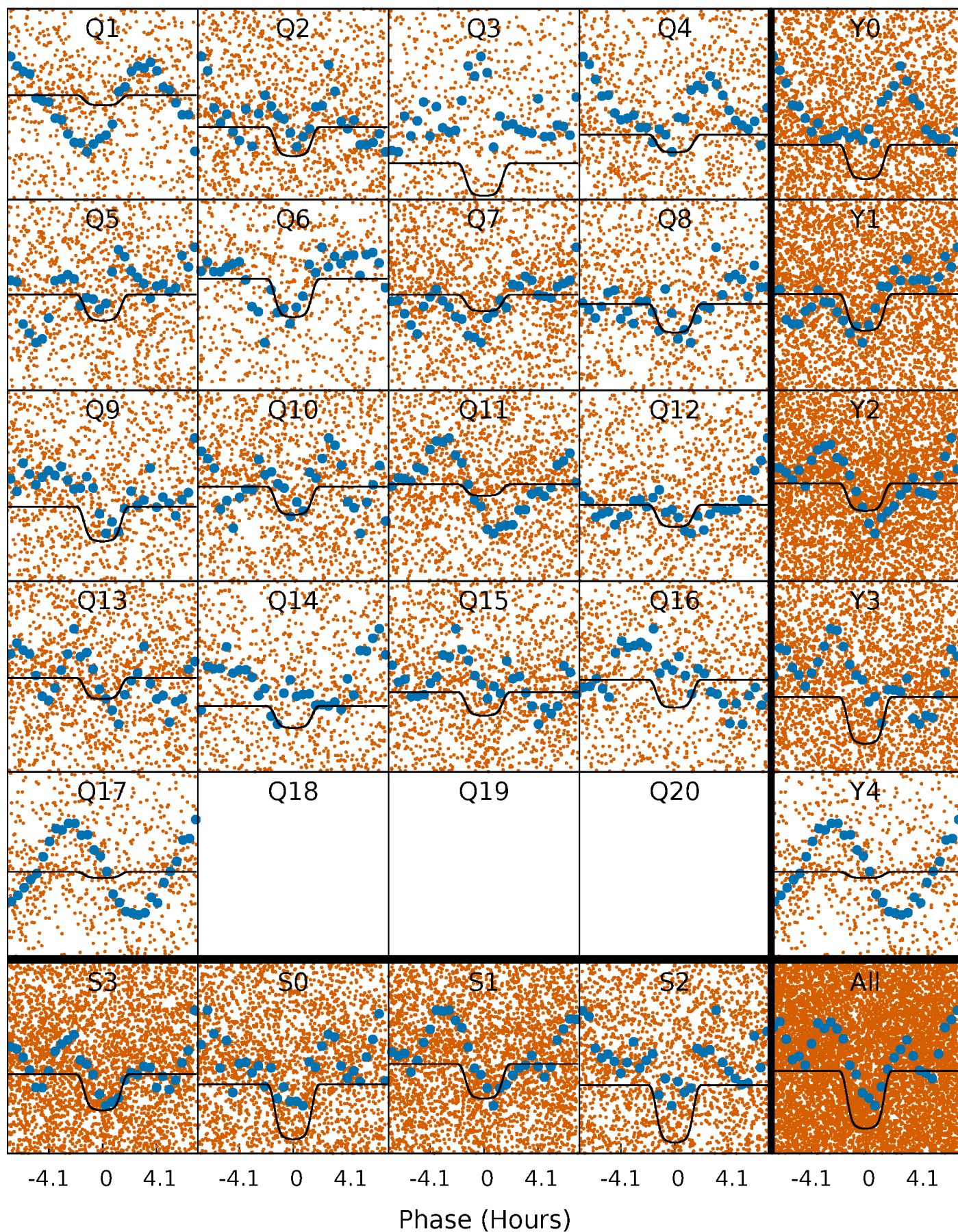
PDC Quarter-Phased Transit Curves

TCE 006528503-02 P= 0.813949 Days $T_0=131.898848$ (BKJD)



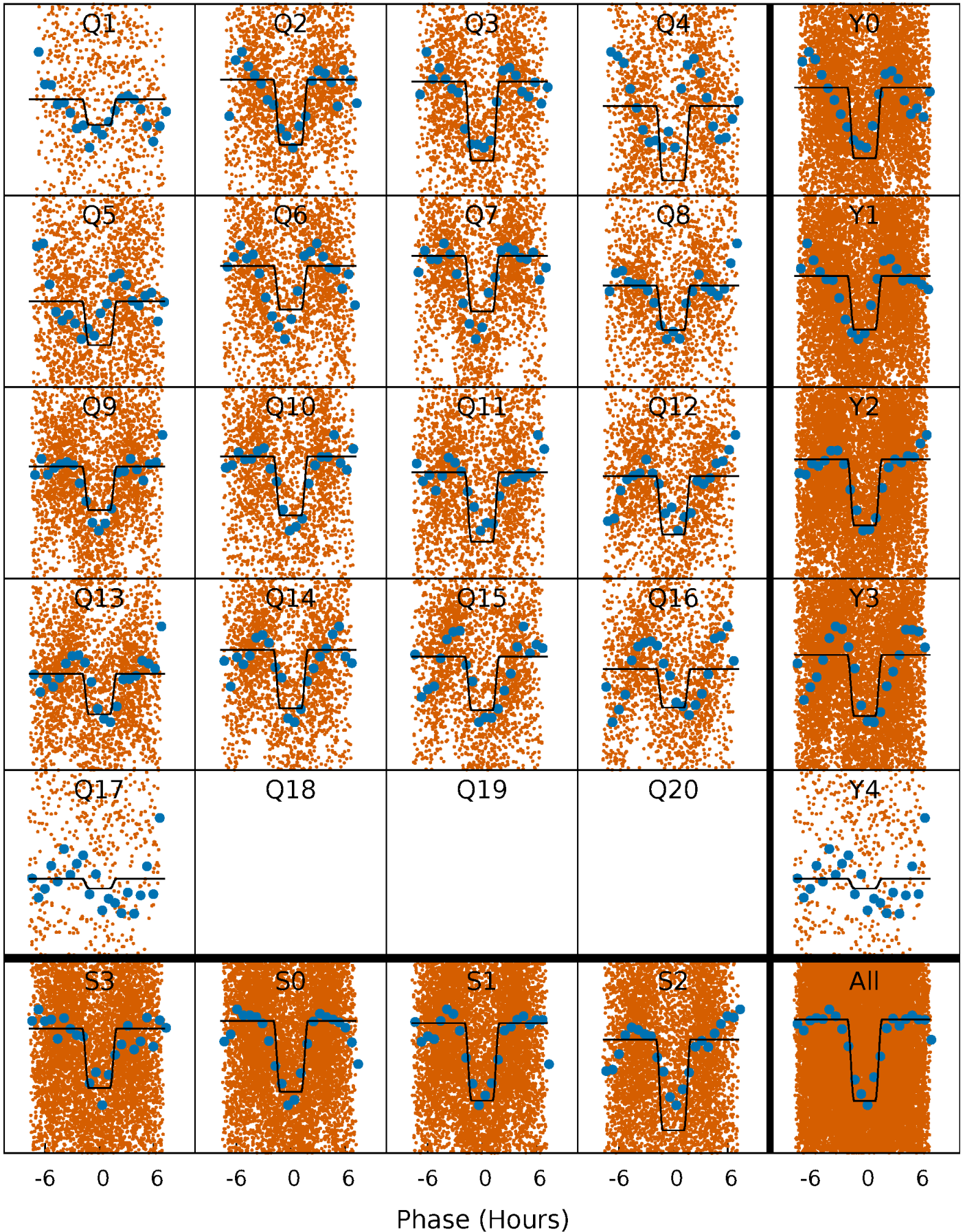
DV Quarter-Phased Transit Curves

TCE 006528503-02 $P = 0.813949$ Days $T_0 = 131.898848$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

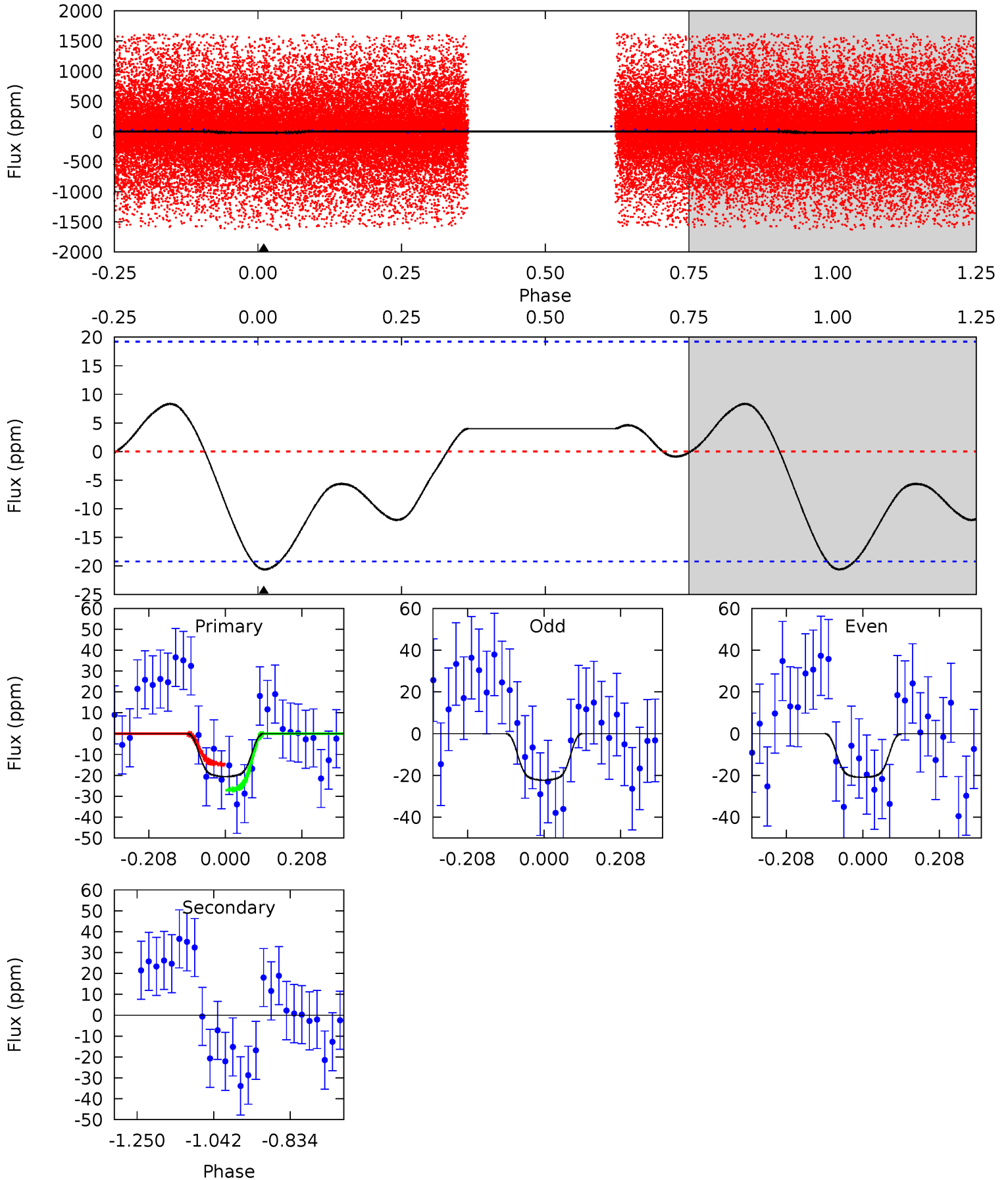
TCE 006528503-02 P= 0.813971 Days $T_0=131.885220$ (BKJD)



DV Model-Shift Uniqueness Test

006528503-02, P = 0.813949 Days, E = 131.084899 Days

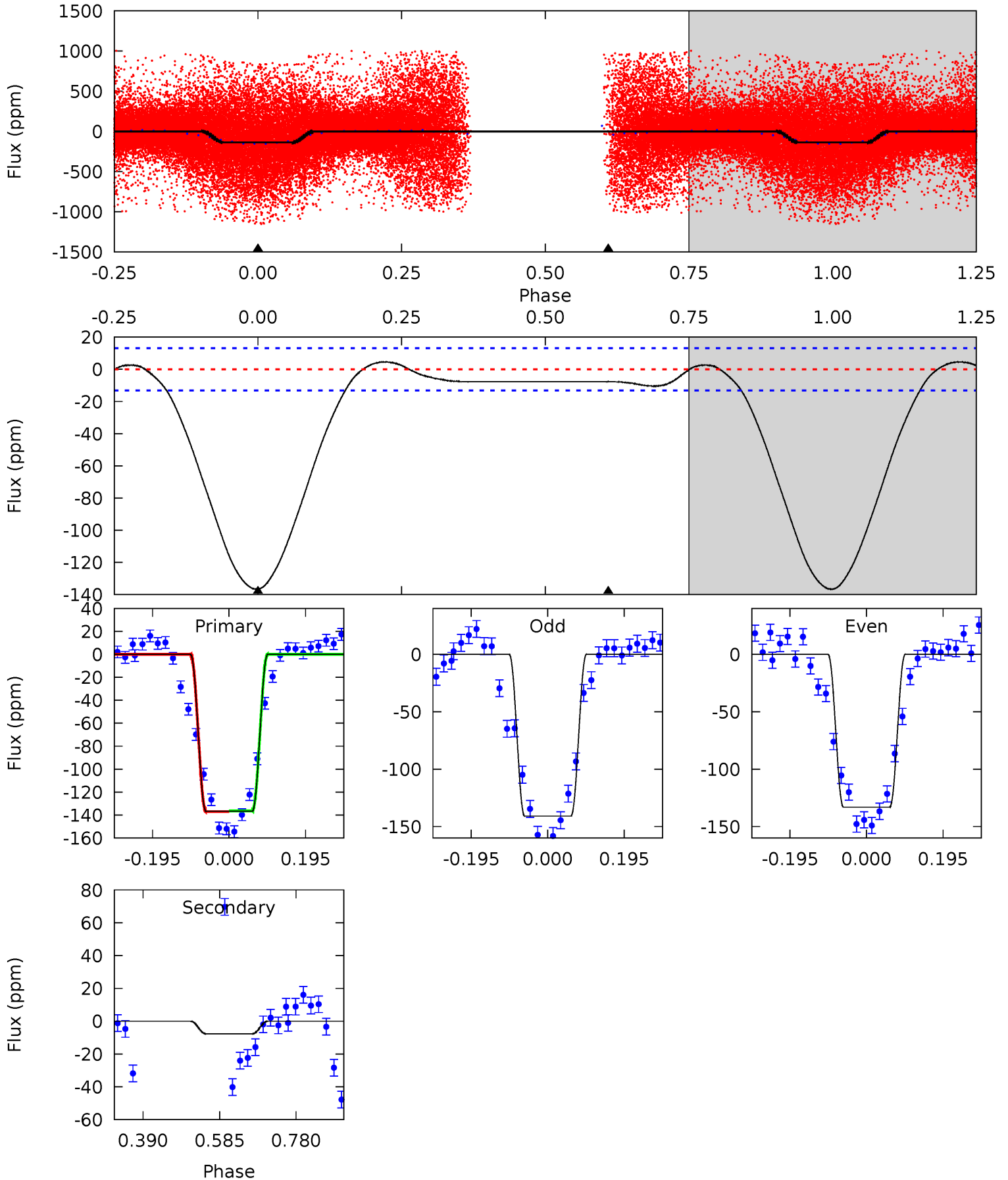
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.73	0	0	0	4.41	1.26	1.25	4.73	4.73	0	0	0.16	0.49	0.29	1.46



Alt Model-Shift Uniqueness Test

006528503-02, P = 0.813971 Days, E = 131.071249 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.1	2.59	0	0	4.42	1.30	1.50	46.1	46.1	2.59	2.59	1.35	0.93	0.03	0.15



Stellar Parameters For KIC 006528503

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6207^{+188}_{-156}	$3.827^{+0.315}_{-0.135}$	$-0.960^{+0.350}_{-0.250}$	$1.973^{+0.449}_{-0.674}$	$0.952^{+0.130}_{-0.130}$	$0.175^{+0.380}_{-0.069}$
	+3%/-3%	+8%/-4%	+36%/-26%	+23%/-34%	+14%/-14%	+218%/-39%
Source	PHO1	FLK73	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 006528503-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 4	$1.64^{+0.30}_{-0.32}$	4103^{+277}_{-386}	-3767^{+1153}_{-436}	$-0.008^{+0.276}_{-0.230}$
Alt.	-8 ± 3	$2.61^{+0.41}_{-0.48}$	4101^{+284}_{-385}	-3251^{+989}_{-366}	$0.175^{+0.114}_{-0.077}$

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 $A_{obs} \gg 1.0$

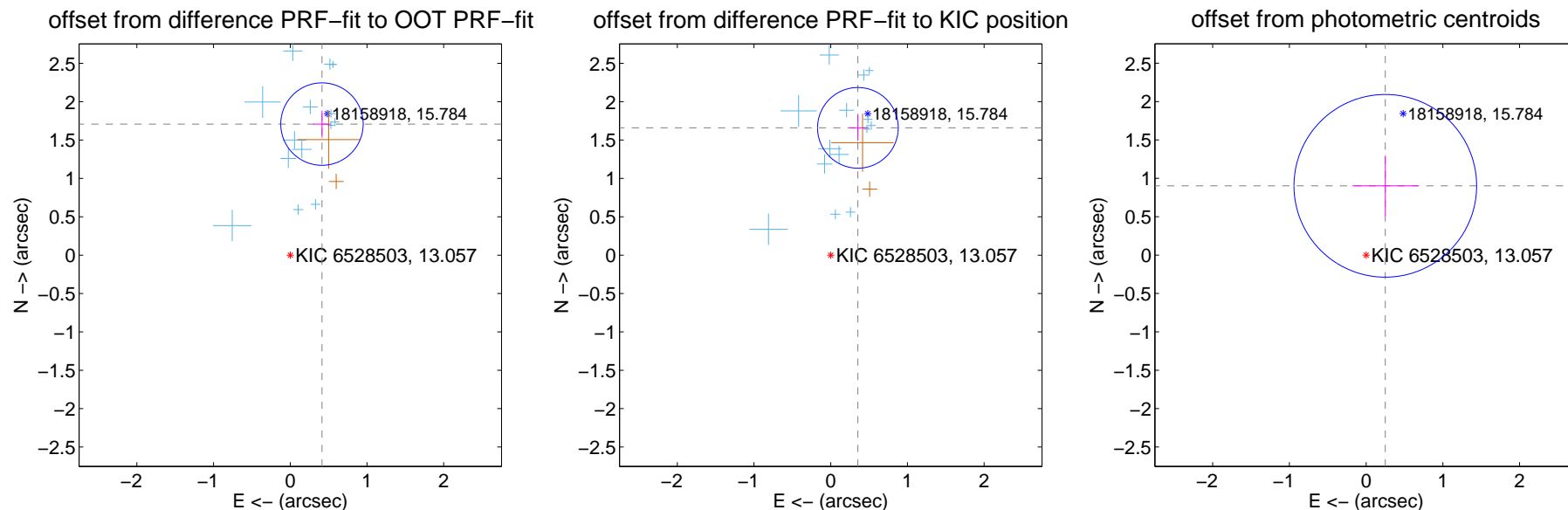
DV Centroid Data

Supplemental centroid analysis for 006528503-02. Kepler magnitude: 13.06. Transit SNR 8.61

There are 14 quarters with good PRF difference image offsets

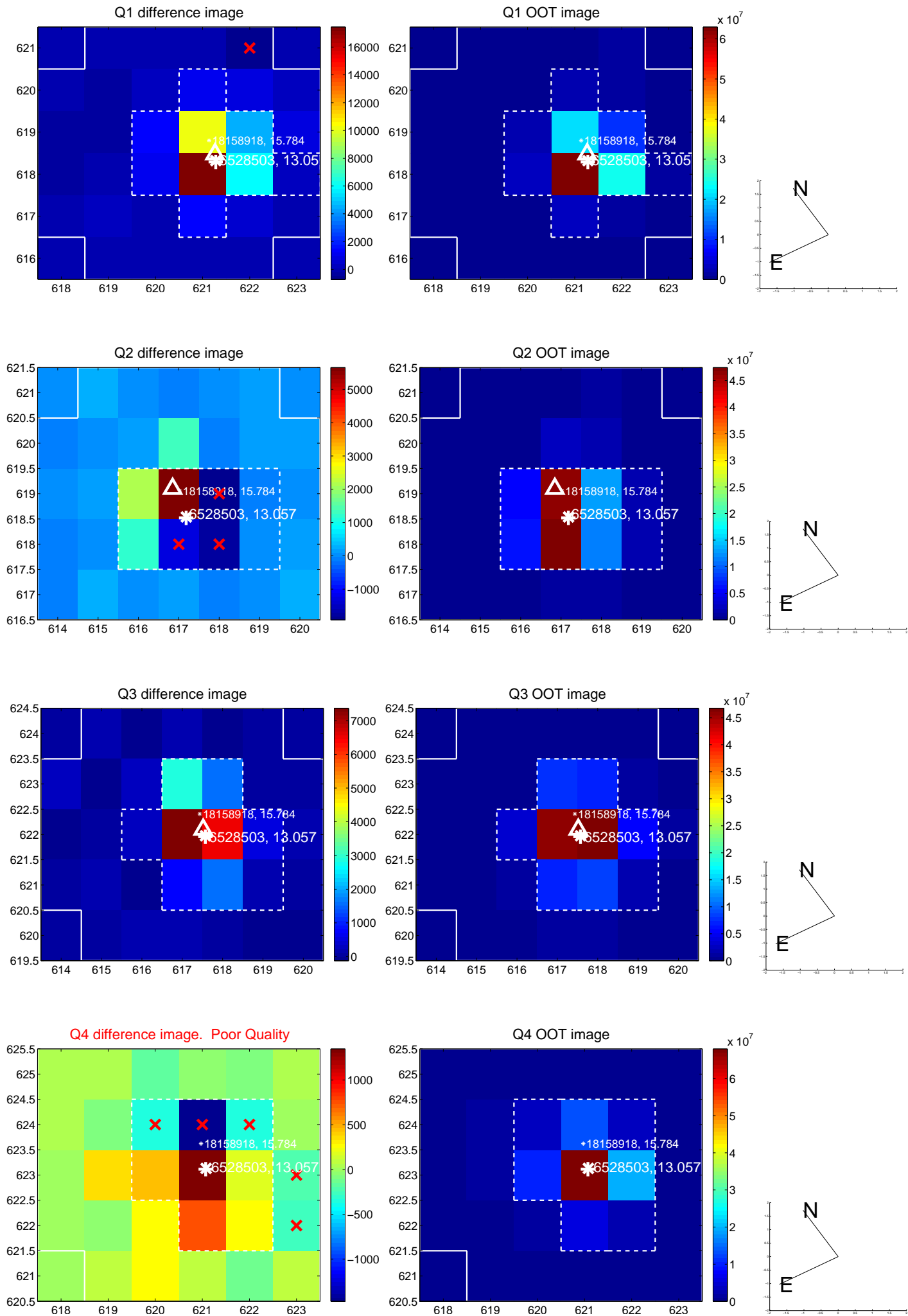
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.757 ± 0.179	9.81	-0.413 ± 0.113	1.708 ± 0.175
PRF-fit source offset from KIC position	1.696 ± 0.175	9.68	-0.354 ± 0.115	1.659 ± 0.170
photometric centroid source offset	0.94 ± 0.40	2.36	-0.25 ± 0.43	0.90 ± 0.39

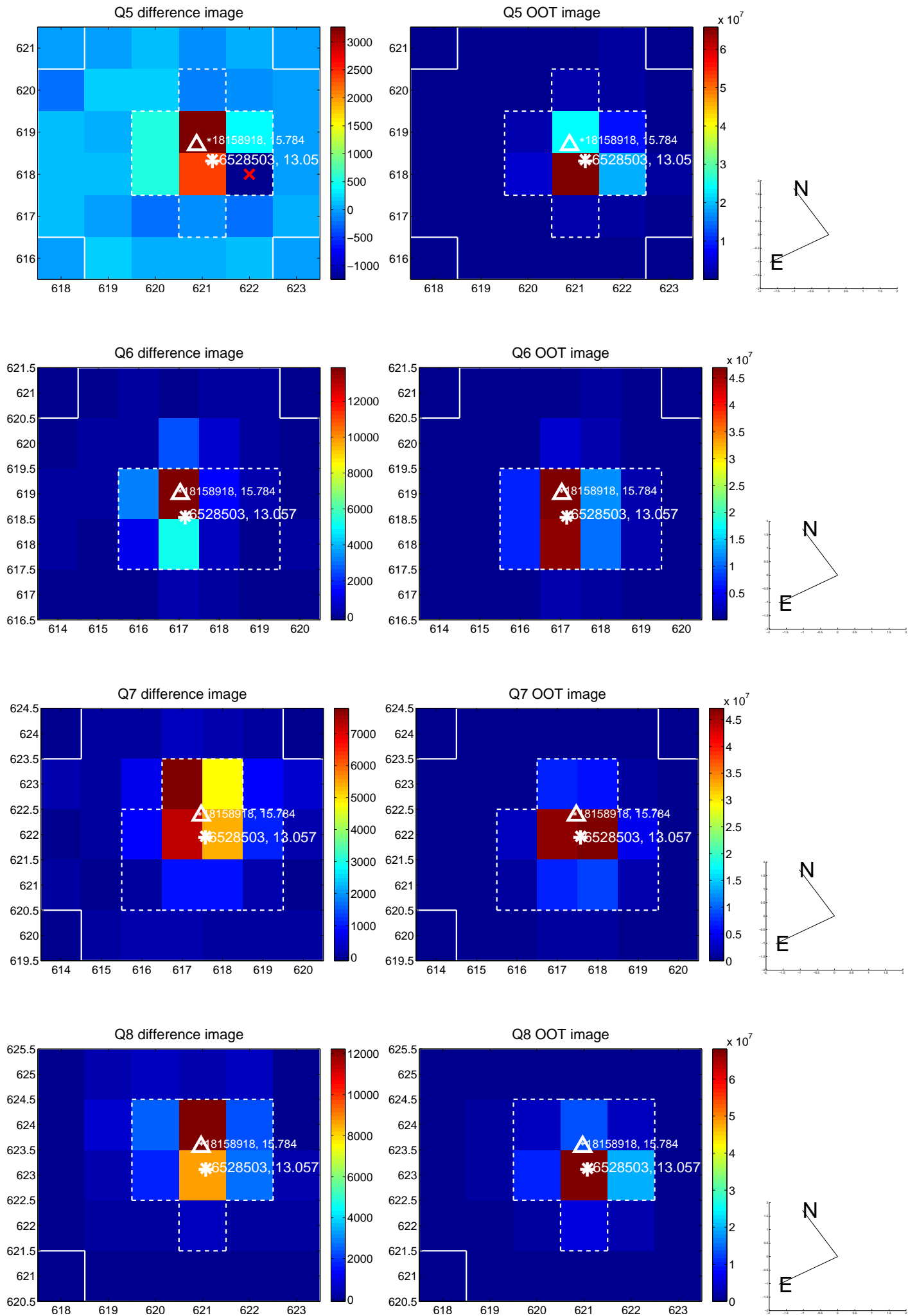


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

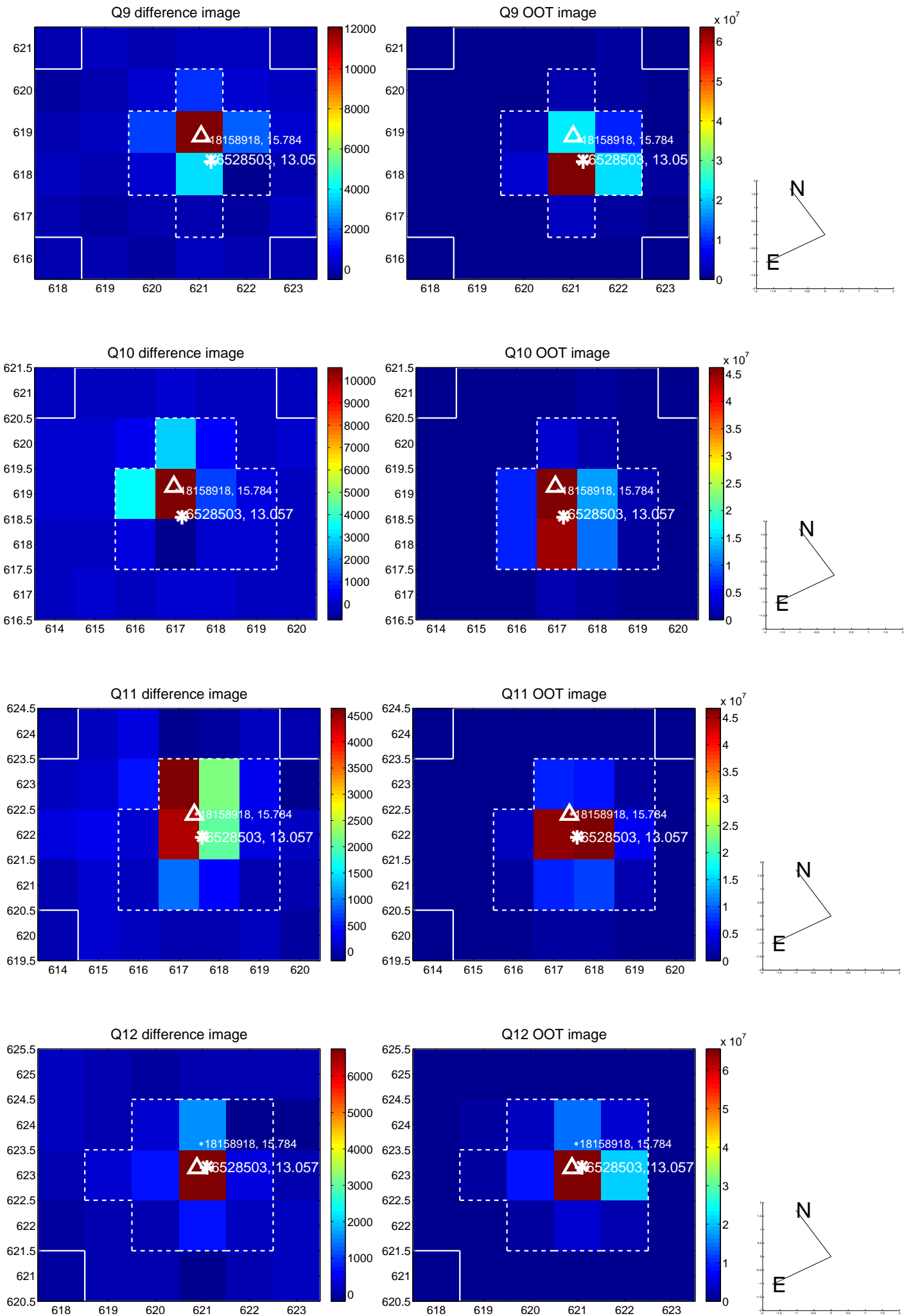
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



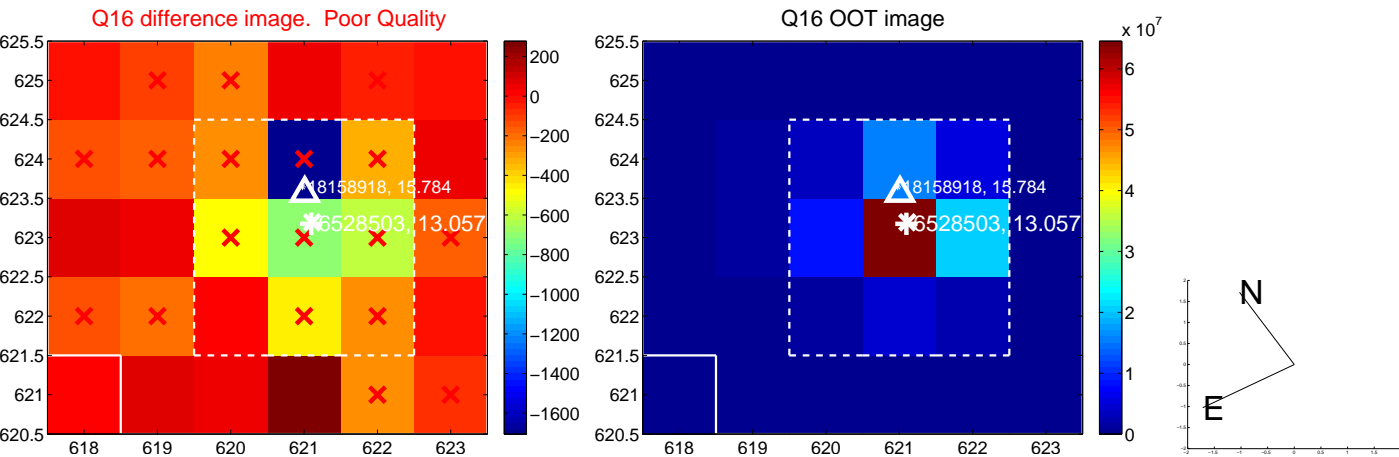
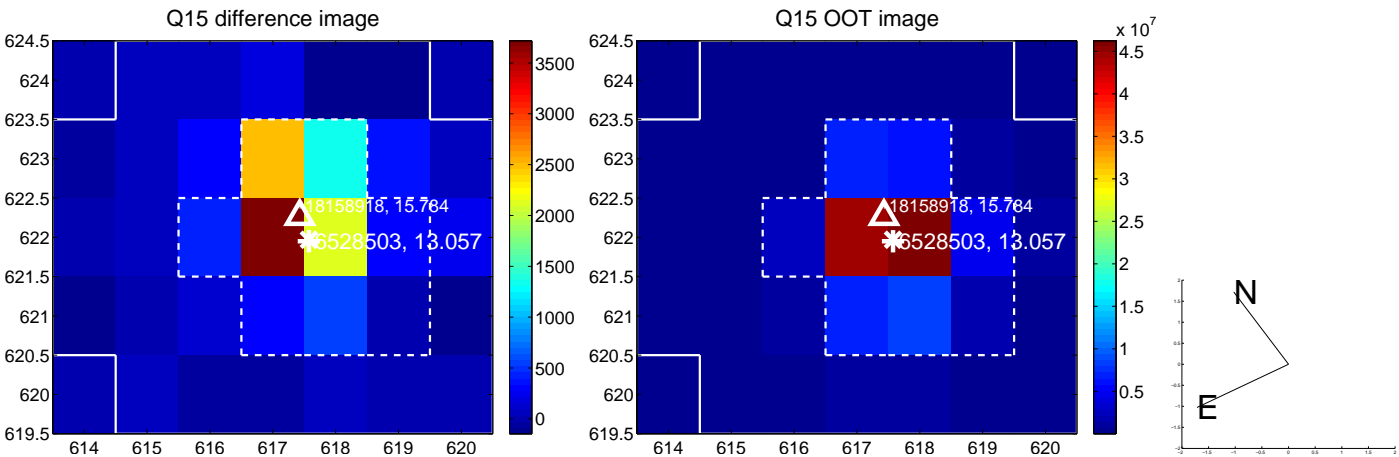
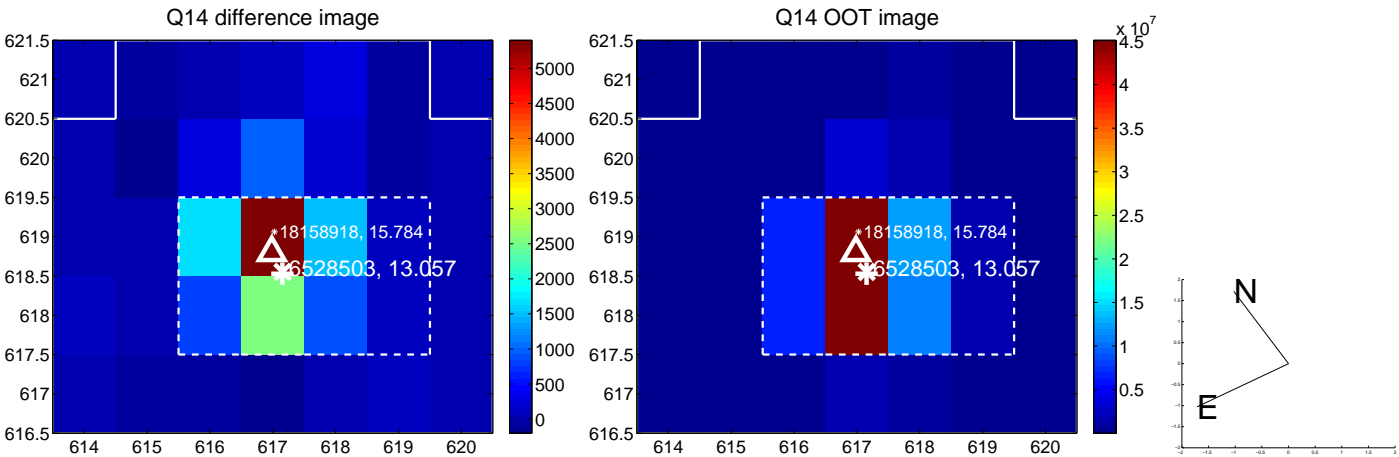
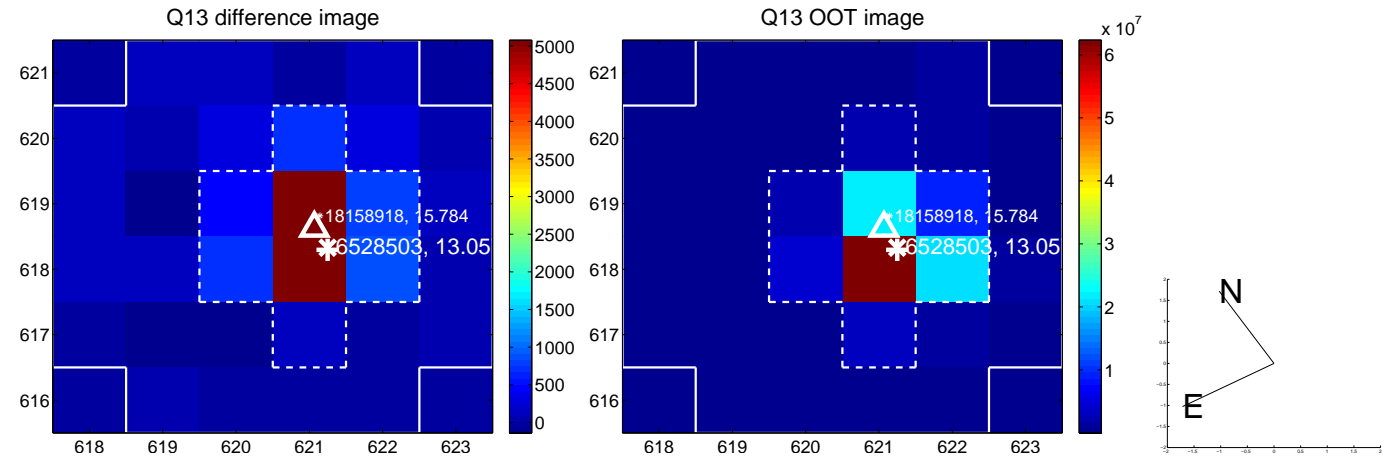
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



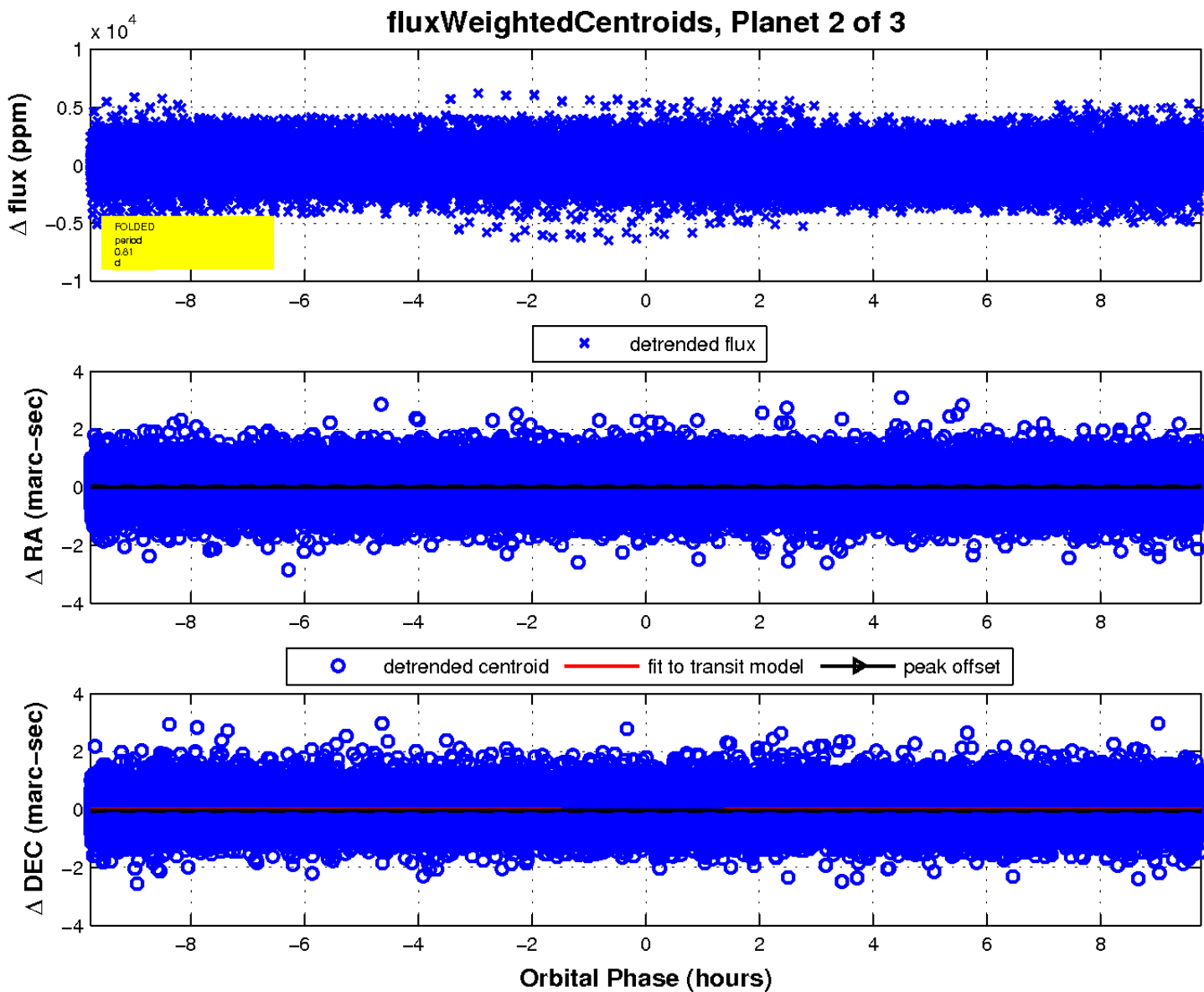
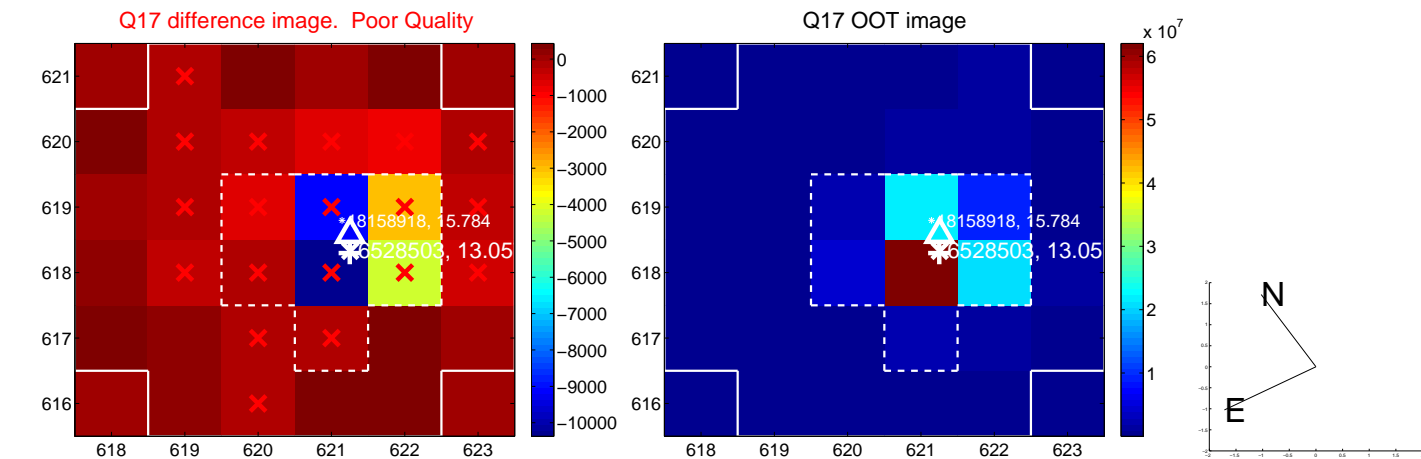
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

