

KIC 007831264

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})
007831264-01	OBS	0171.01	5.968714	137.159622	500.8	3.792	85.6	93.0	1.44	6122	3.59	580.76
007831264-02	OBS	0171.02	13.071423	144.442250	242.0	3.170	25.7	27.2	1.44	6122	2.63	204.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007831264-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007831264-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

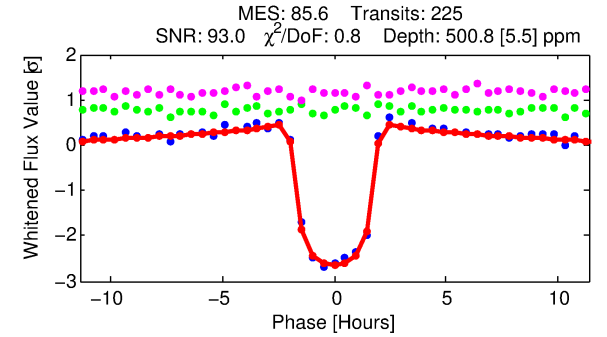
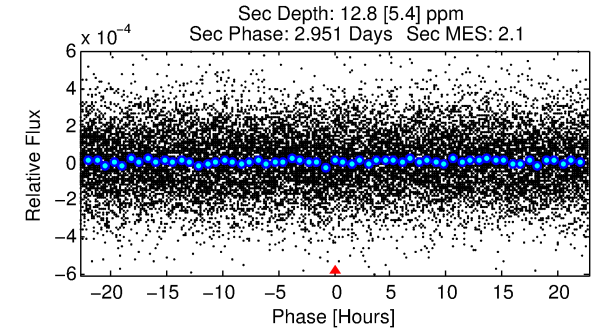
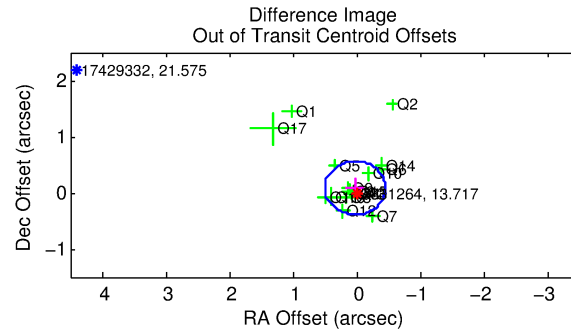
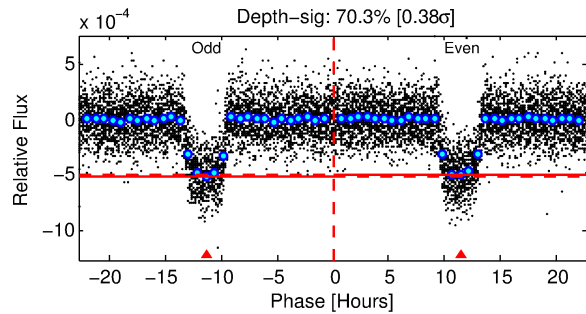
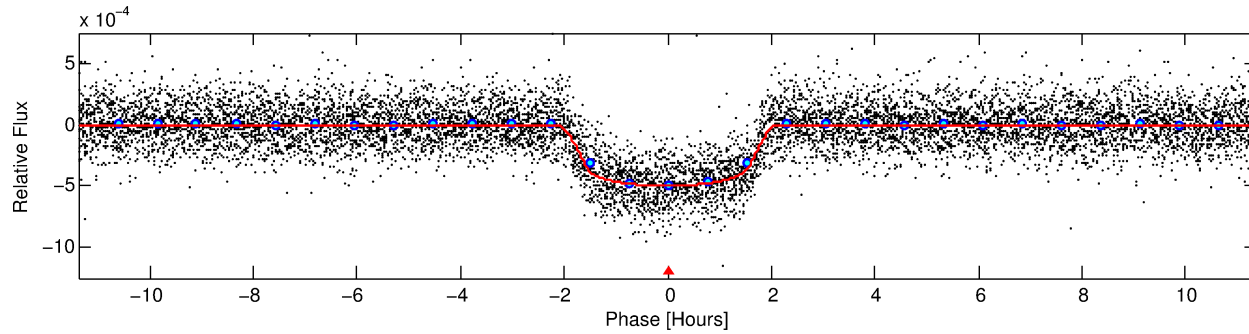
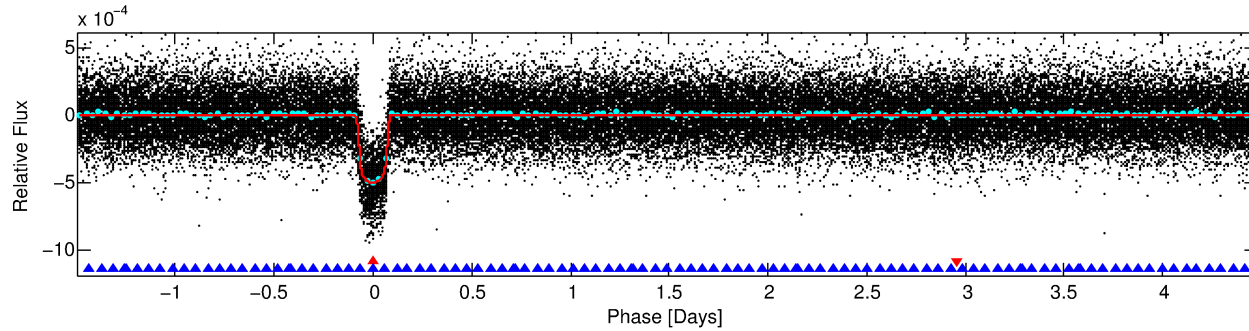
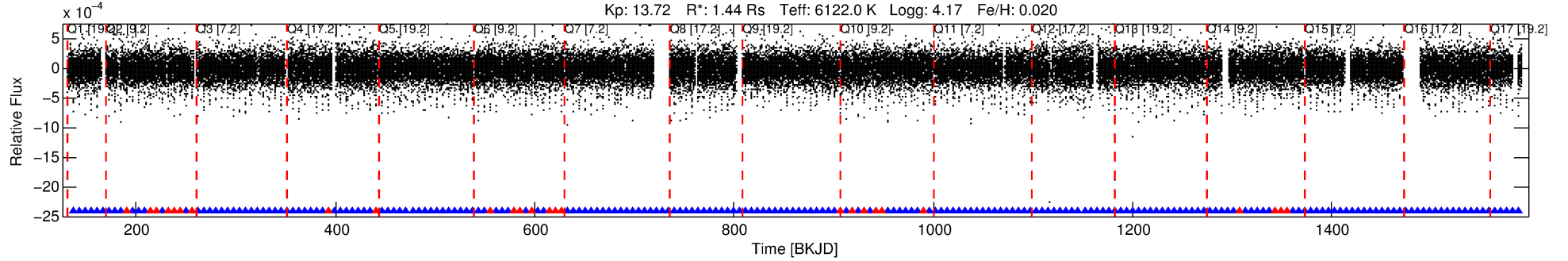
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007831264-01

No Significant Match Found

DV One-Page Summary

KIC: 7831264 Candidate: 1 of 2 Period: 5.969 d
KOI: K00171.01 Name: Kepler-116b Corr: 0.982



DV Fit Results:

Period = 5.96871 [0.00001] d
Epoch = 137.1596 [0.0007] BKJD
Rp/R* = 0.0229 [0.0013]
a/R* = 7.50 [2.12]
b = 0.81 [0.12]
Seff = 580.77 [172.85]
Teq = 1252 [93] K
Rp = 3.59 [0.67] Re
a = 0.0670 [0.0118] AU
Ag = 2.46 [1.28] [1.13 σ]
Teffp = 2423 [271] K [4.09 σ]

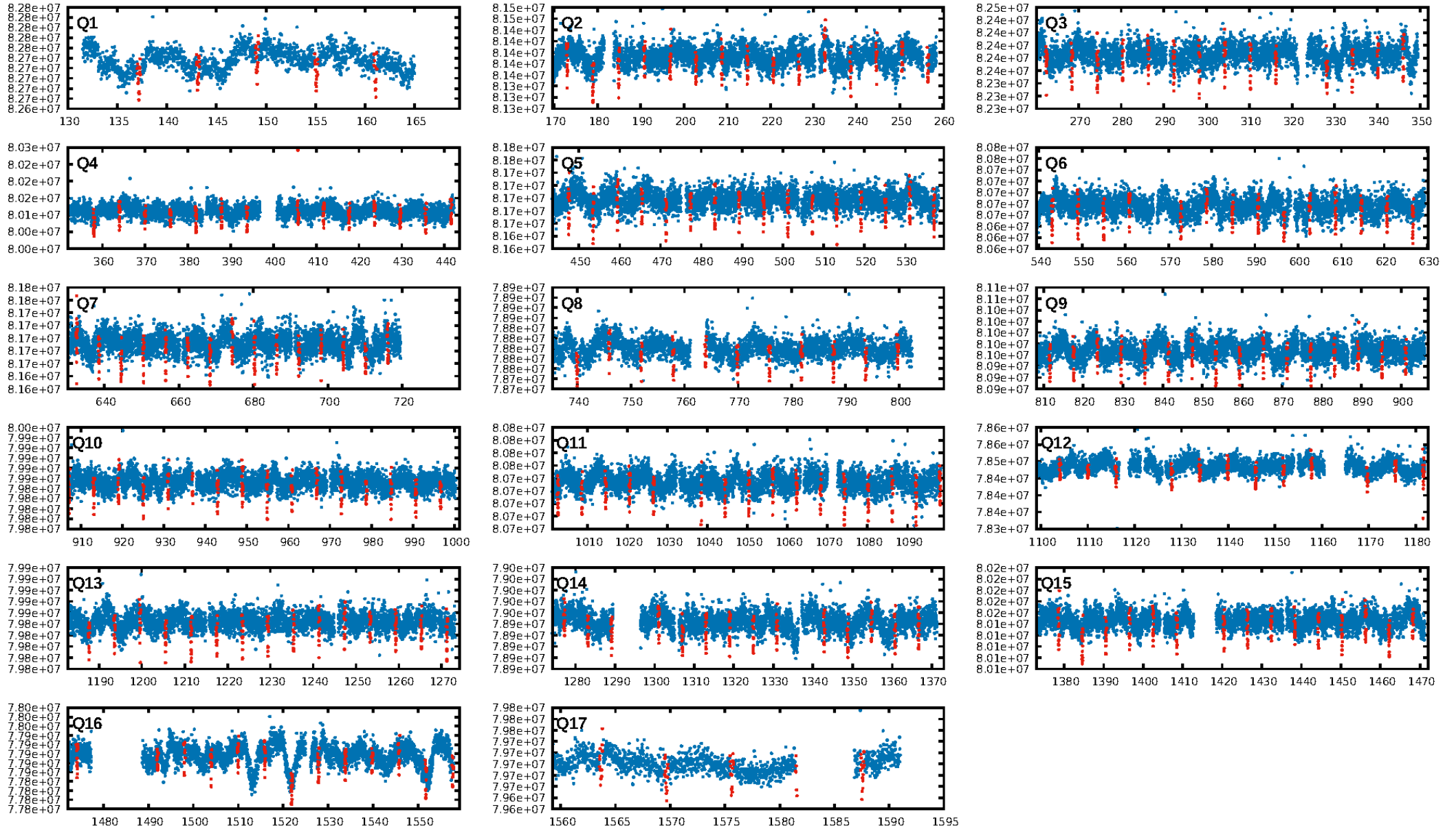
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [34.49 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.88 [189/215]
GhostDiagnostic-chr: 12.03
Centroid-sig: 7.6%
Centroid-so: 0.148 arcsec [1.25 σ]
OotOffset-rm: 0.089 arcsec [0.56 σ]
KicOffset-rm: 0.101 arcsec [0.89 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

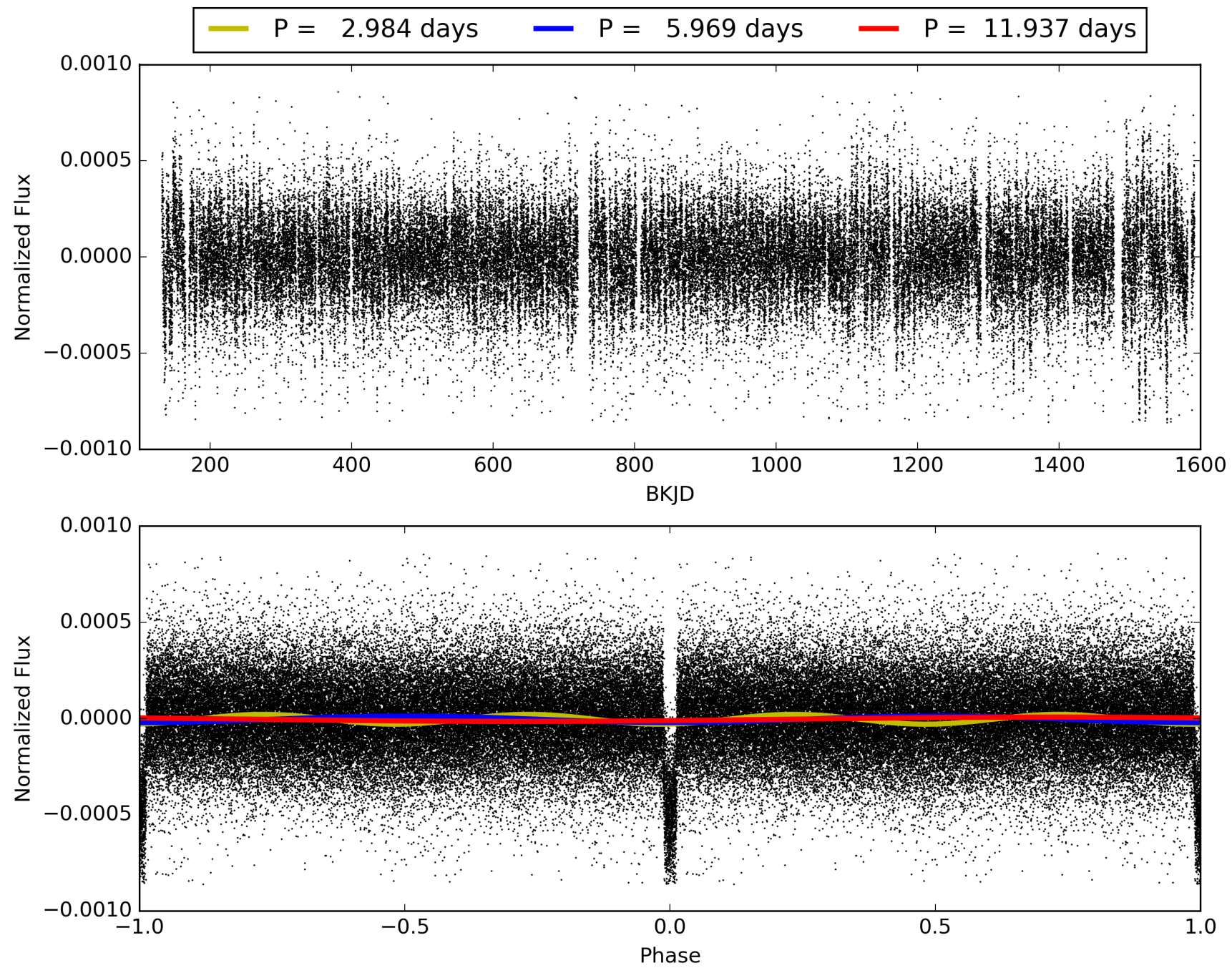
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:27:47 Z

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

TCE 007831264-01, PDC Light Curves

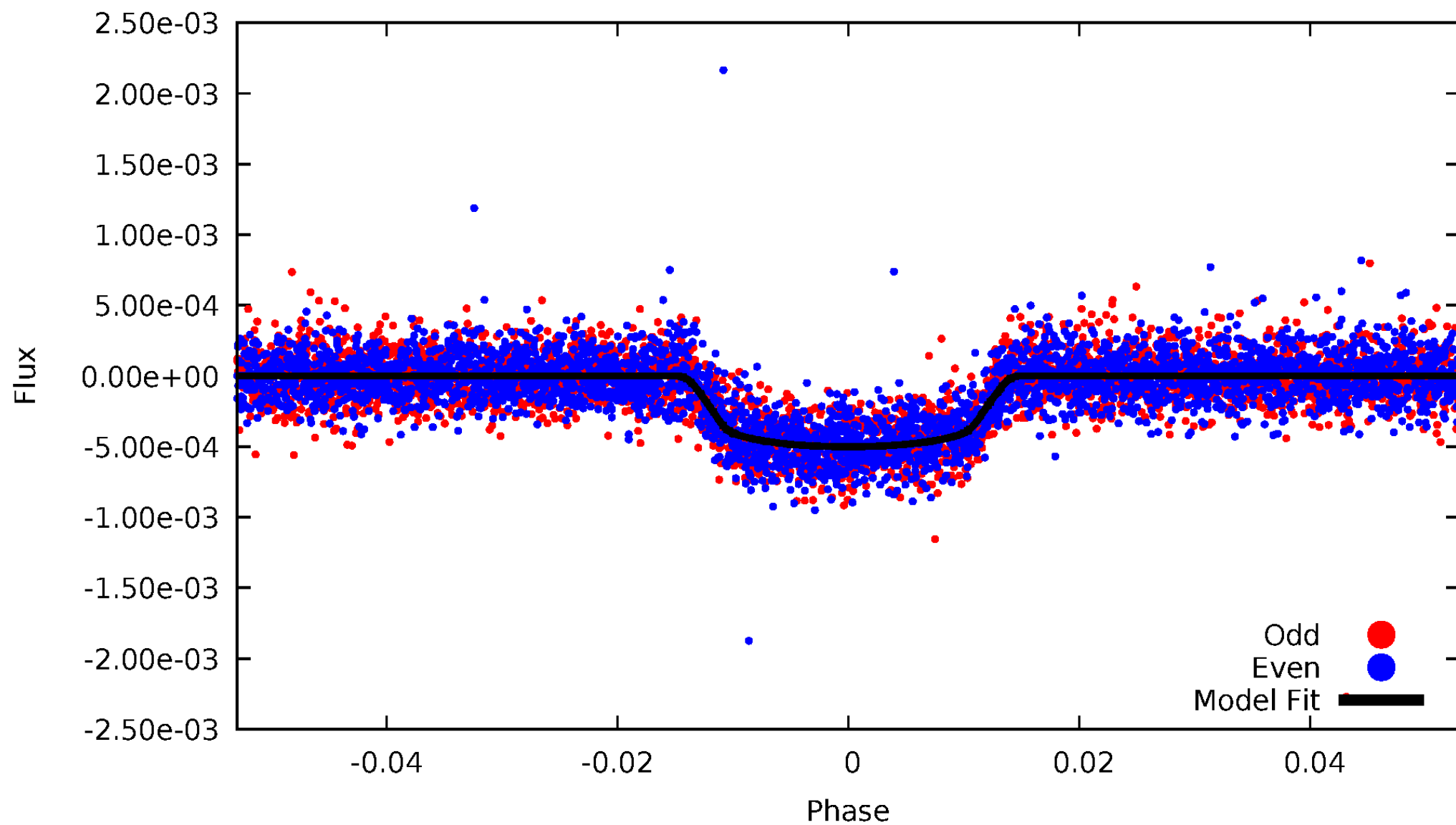


TCE 007831264-01



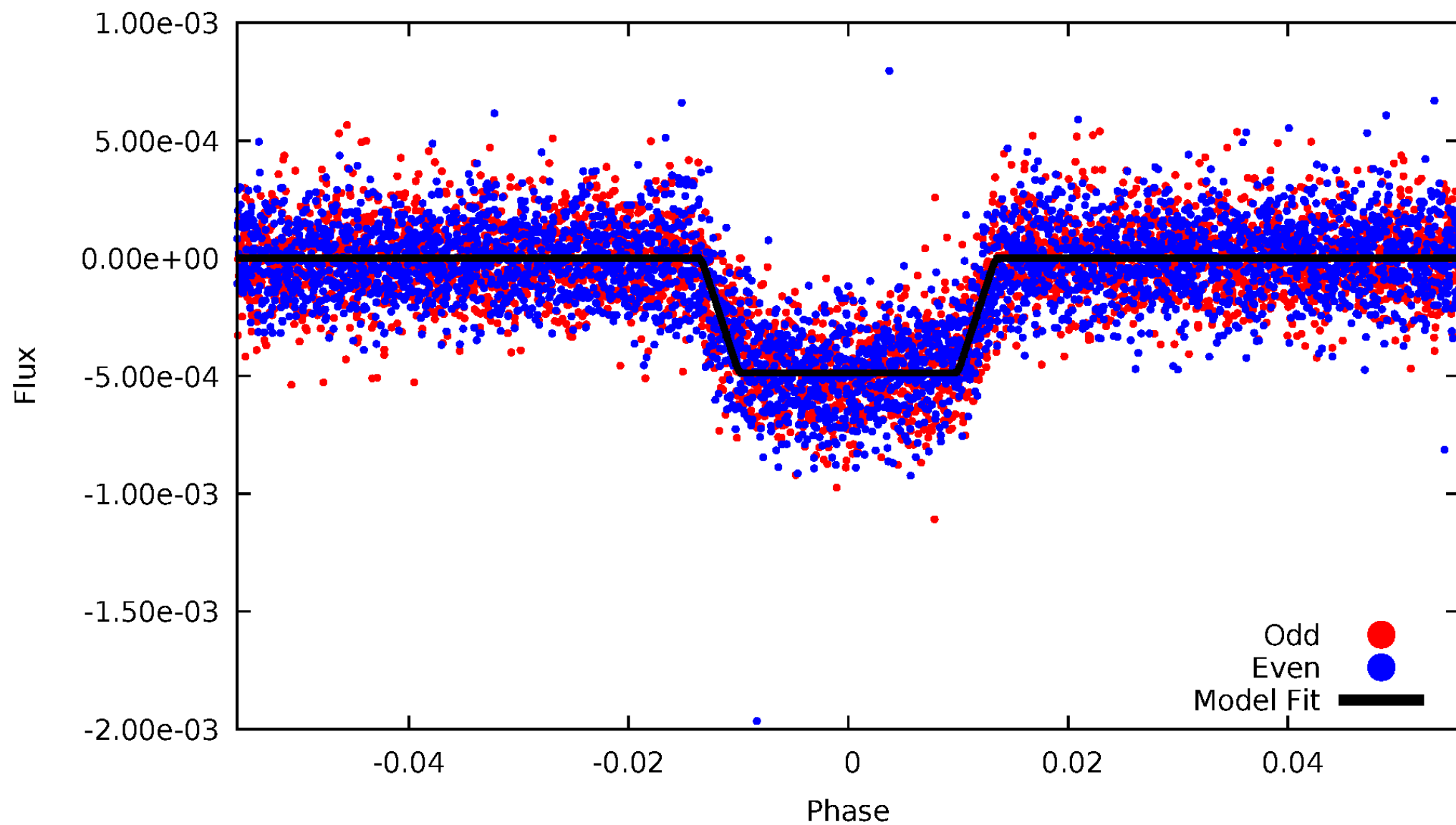
DV Odd/Even

TCE 007831264-01

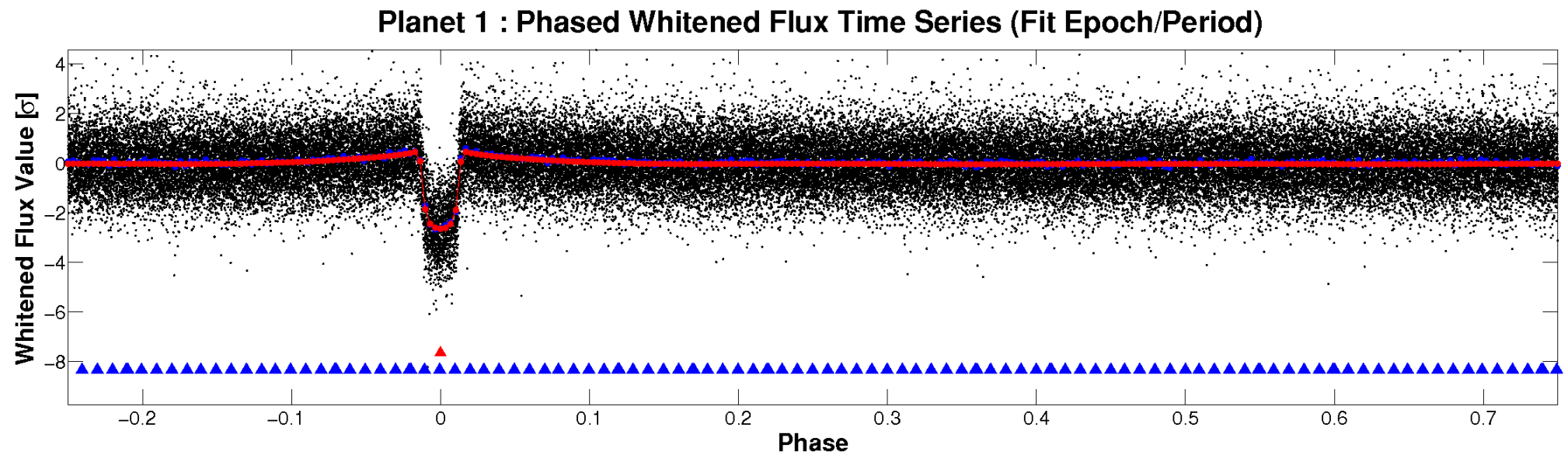
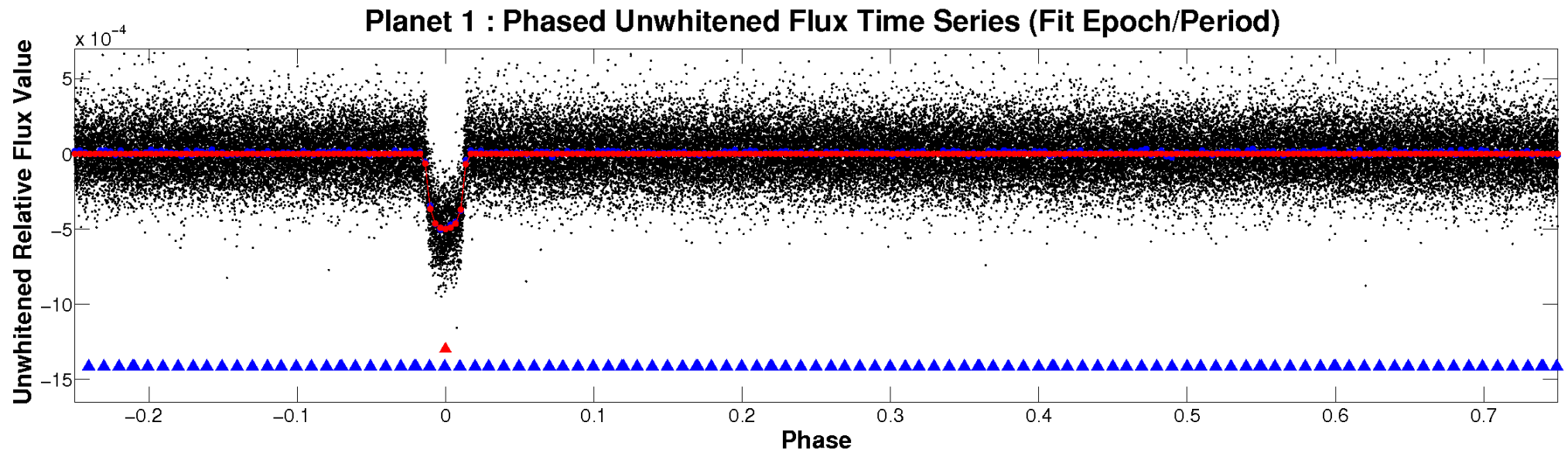


ALT Odd/Even

TCE 007831264-01

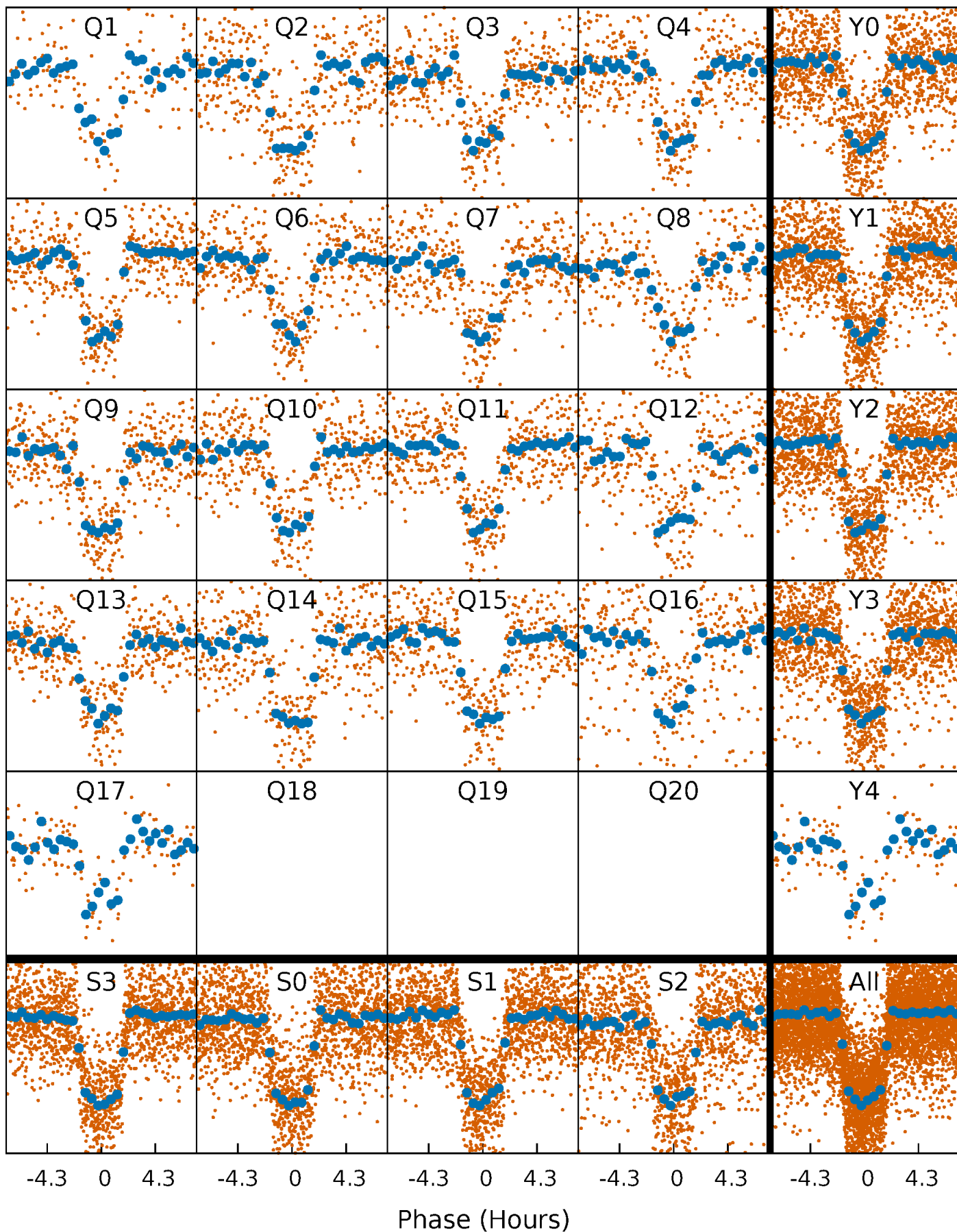


Non-Whitened Vs. Whitened Light Curve



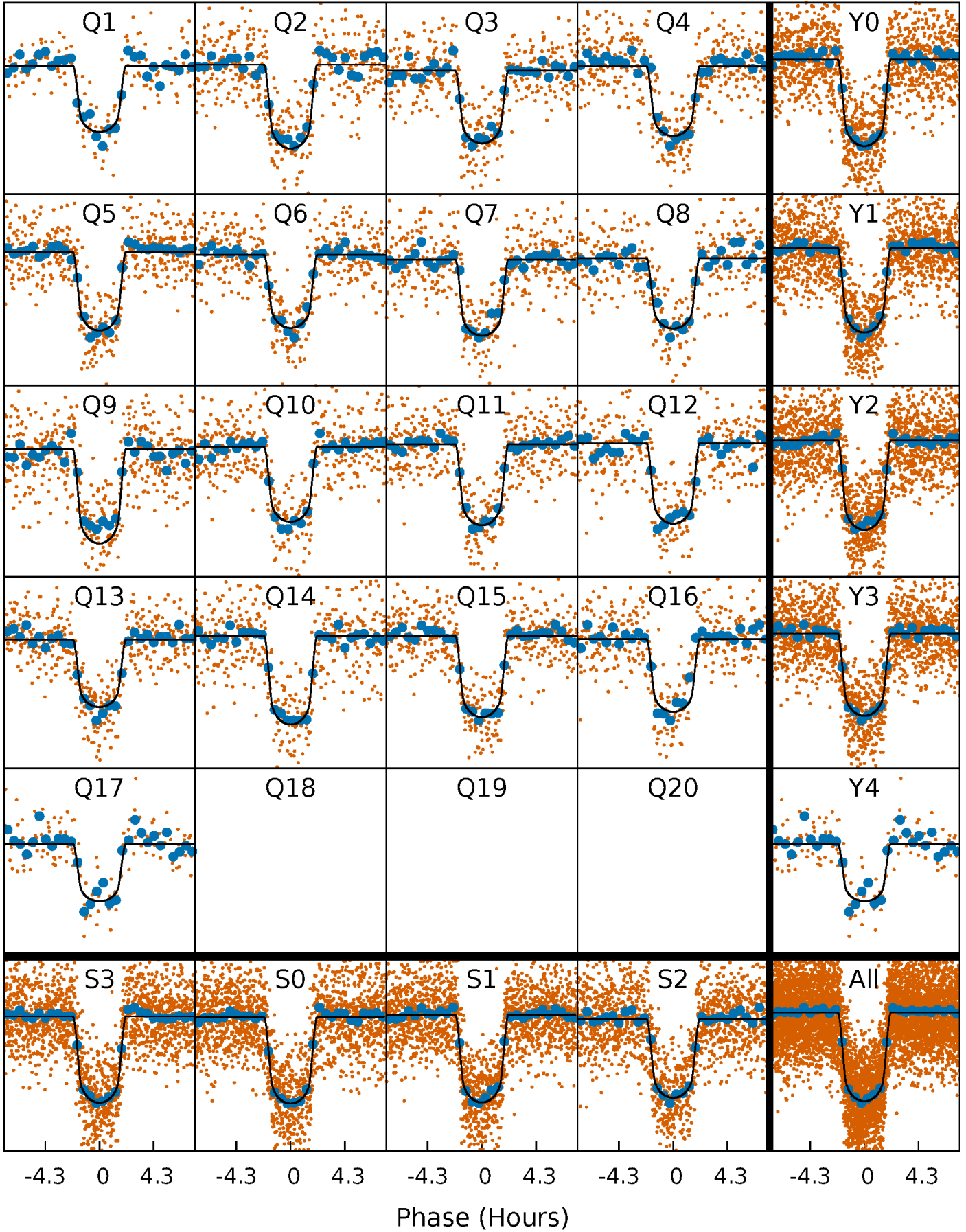
PDC Quarter-Phased Transit Curves

TCE 007831264-01 P= 5.968714 Days $T_0=137.159622$ (BKJD)



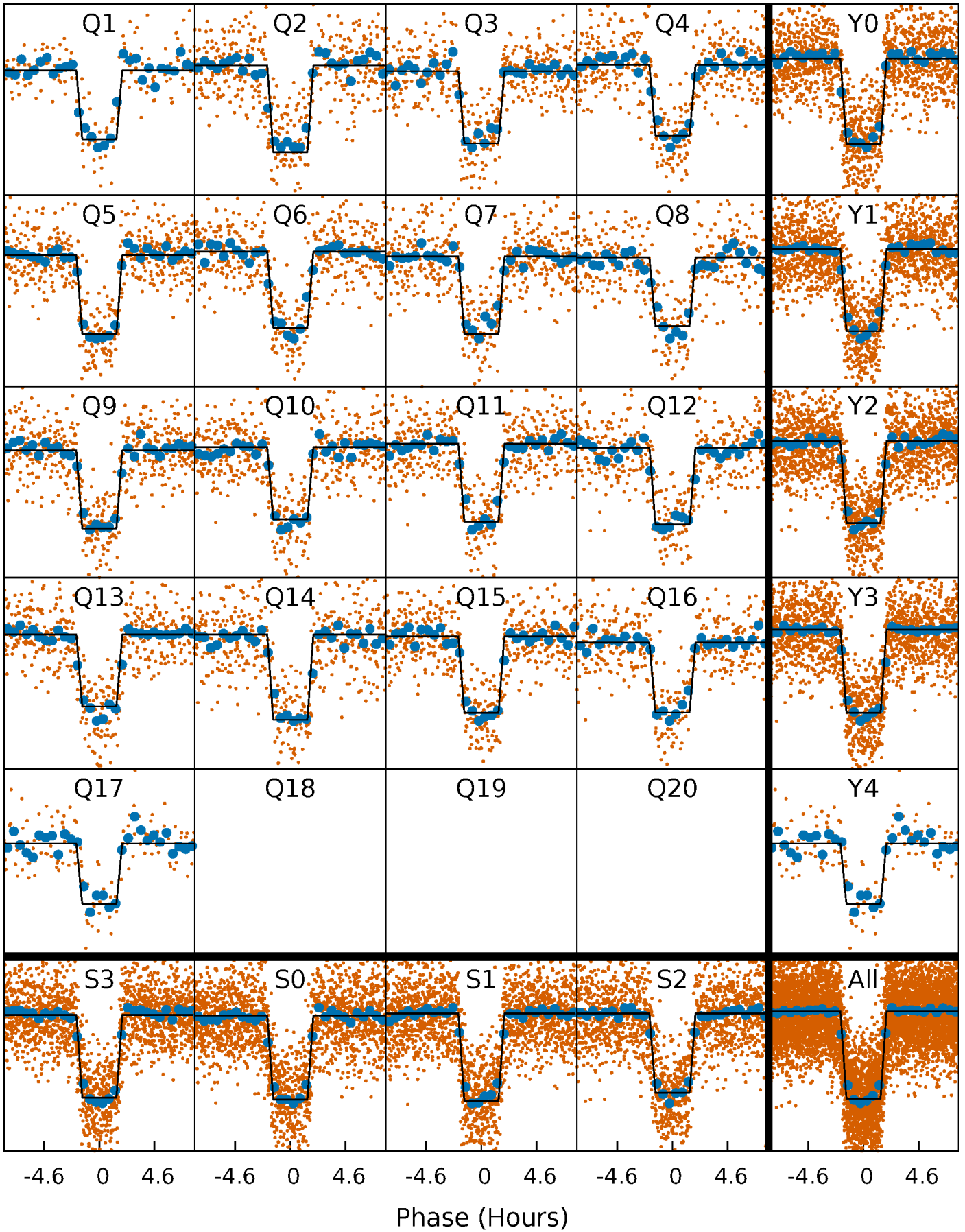
DV Quarter-Phased Transit Curves

TCE 007831264-01 P= 5.968714 Days $T_0=137.159622$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

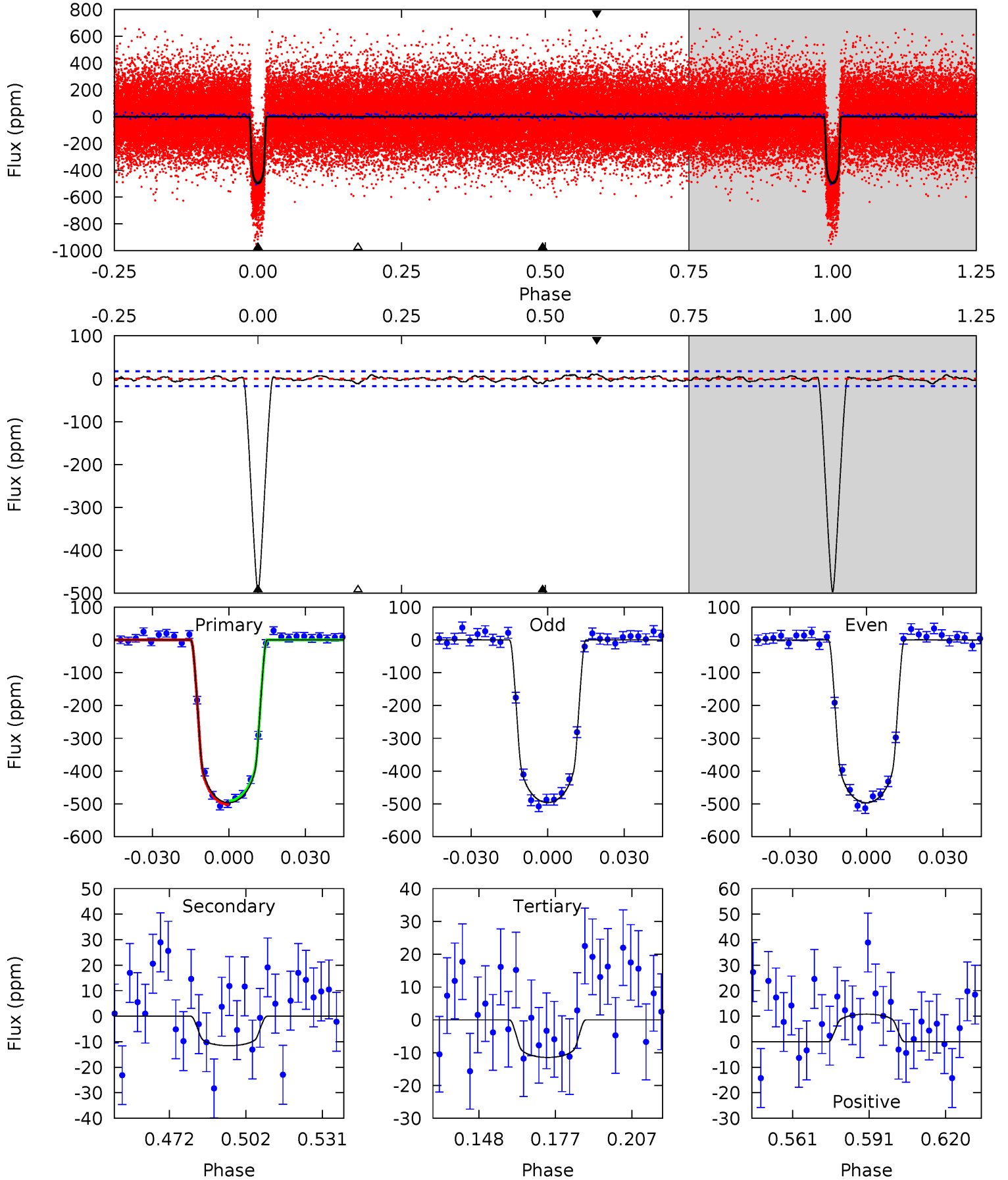
TCE 007831264-01 P= 5.968679 Days $T_0=137.163867$ (BKJD)



DV Model-Shift Uniqueness Test

007831264-01, P = 5.968714 Days, E = 131.190908 Days

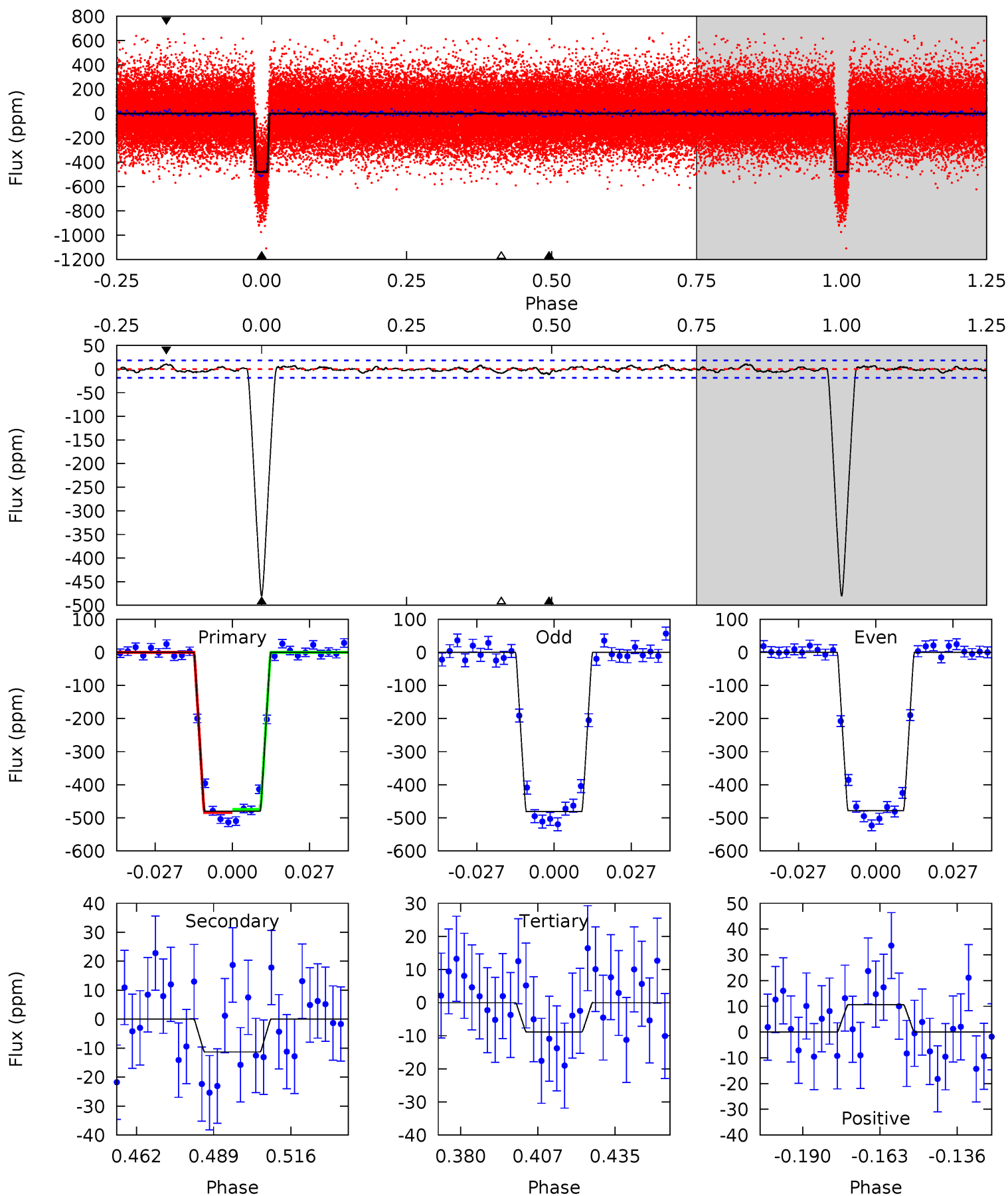
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
136.8	3.18	3.16	2.98	4.81	2.18	1.10	133.6	133.8	0.03	0.21	0.07	0.99	0.02	1.47



Alt Model-Shift Uniqueness Test

007831264-01, P = 5.968679 Days, E = 131.195188 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
126.3	2.98	2.33	2.79	4.83	2.21	0.95	124.0	123.5	0.65	0.18	0.39	1.00	0.02	1.27



Stellar Parameters For KIC 007831264

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6122^{+136}_{-124}	$4.173^{+0.168}_{-0.112}$	$0.020^{+0.150}_{-0.150}$	$1.439^{+0.257}_{-0.257}$	$1.123^{+0.116}_{-0.085}$	$0.531^{+0.442}_{-0.176}$
	+2%/-2%	+4%/-3%	+750%/-750%	+18%/-18%	+10%/-8%	+83%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007831264-01 / KOI 0171.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 4	$3.57^{+0.43}_{-0.45}$	1745^{+92}_{-99}	2967^{+151}_{-190}	$2.279^{+1.009}_{-0.841}$
Alt.	-11 ± 4	$3.46^{+0.38}_{-0.40}$	1741^{+94}_{-87}	2984^{+164}_{-187}	$2.367^{+1.051}_{-0.831}$

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 $A_{obs} \gg 1.0$

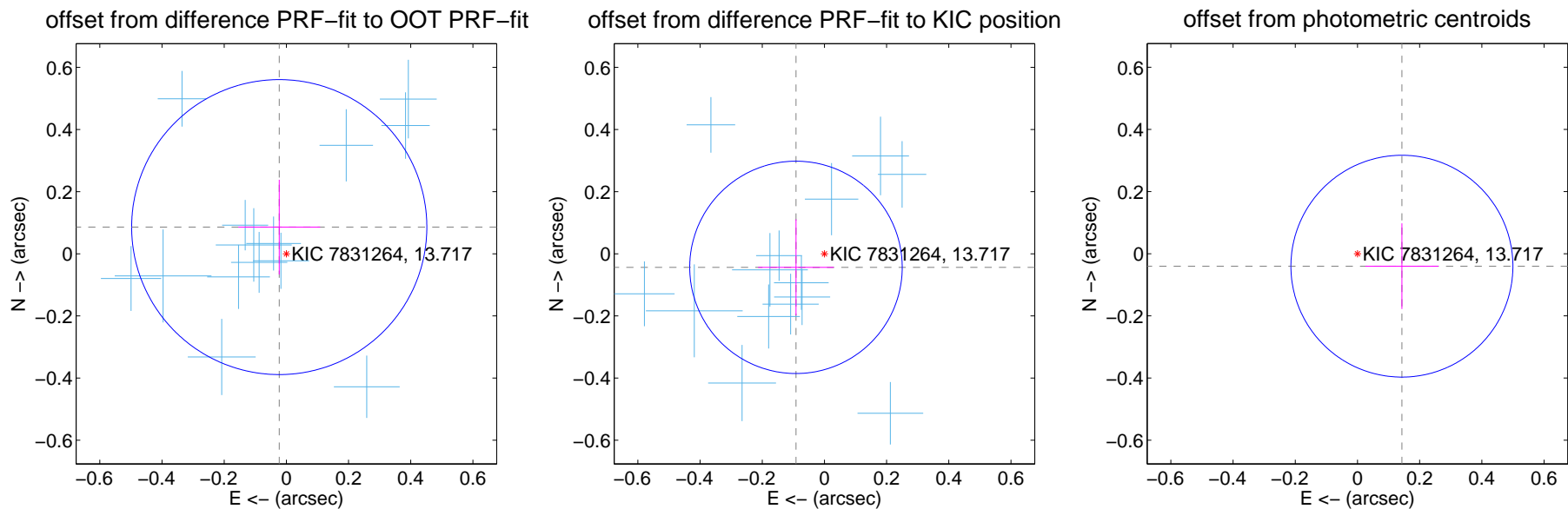
DV Centroid Data

Supplemental centroid analysis for 007831264-01. Kepler magnitude: 13.72. Transit SNR 93.00

There are 17 quarters with good PRF difference image offsets

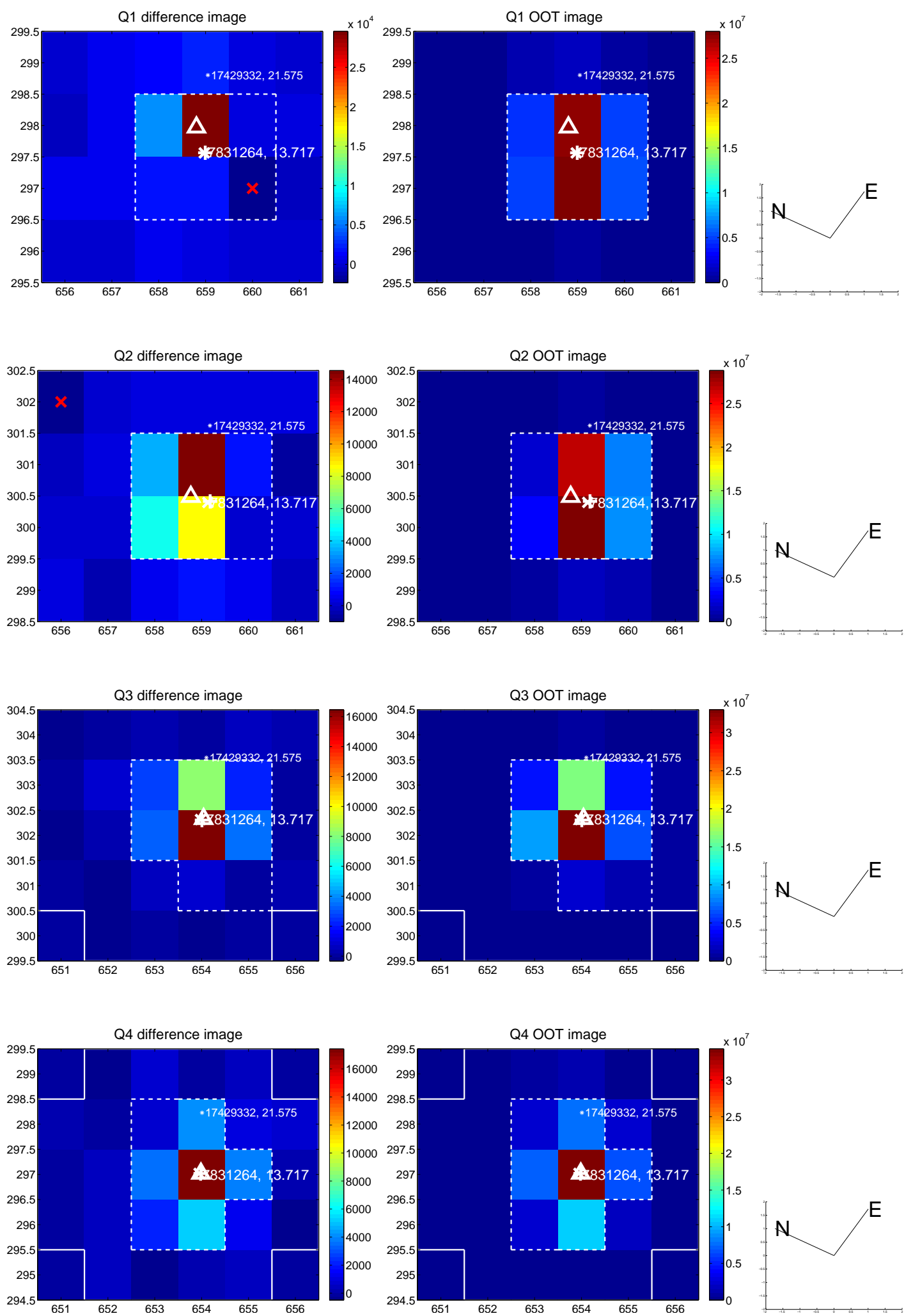
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.089 ± 0.158	0.56	0.023 ± 0.131	0.086 ± 0.152
PRF-fit source offset from KIC position	0.101 ± 0.114	0.89	0.092 ± 0.122	-0.044 ± 0.155
photometric centroid source offset	0.15 ± 0.12	1.25	-0.14 ± 0.12	-0.04 ± 0.14

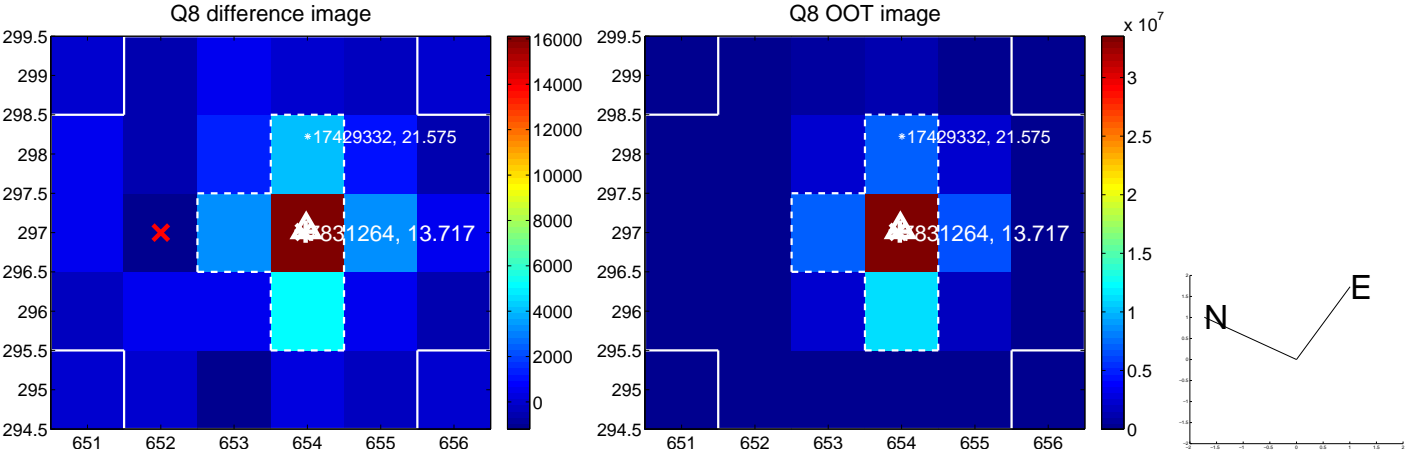
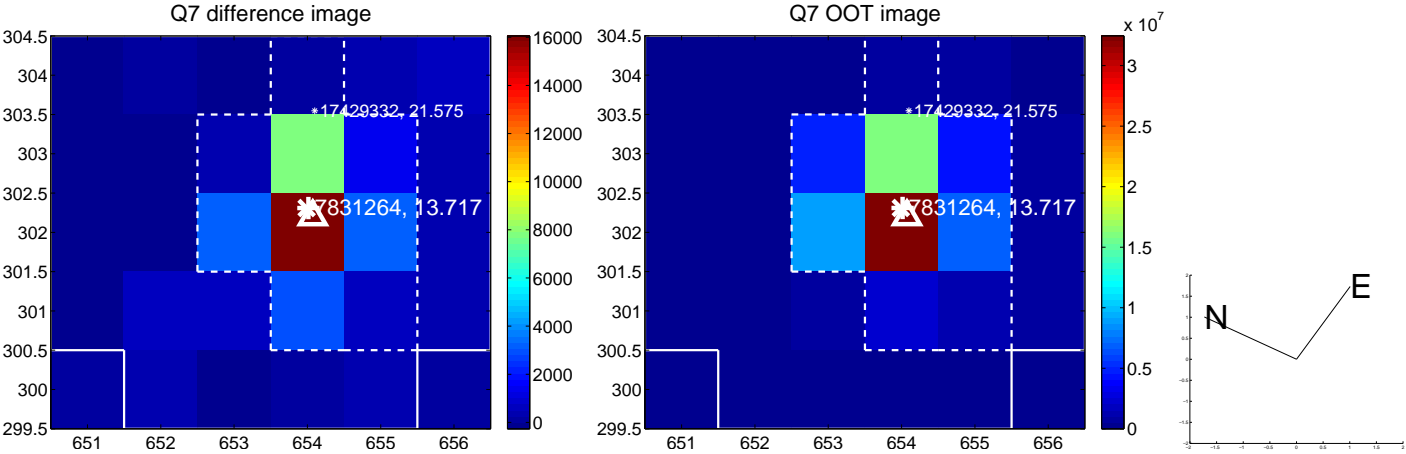
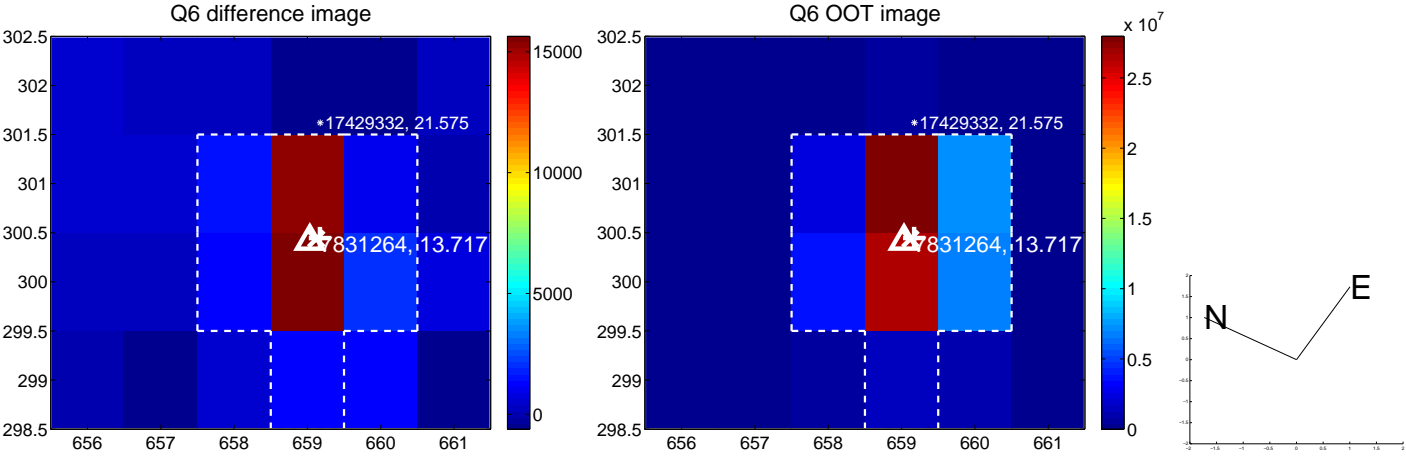
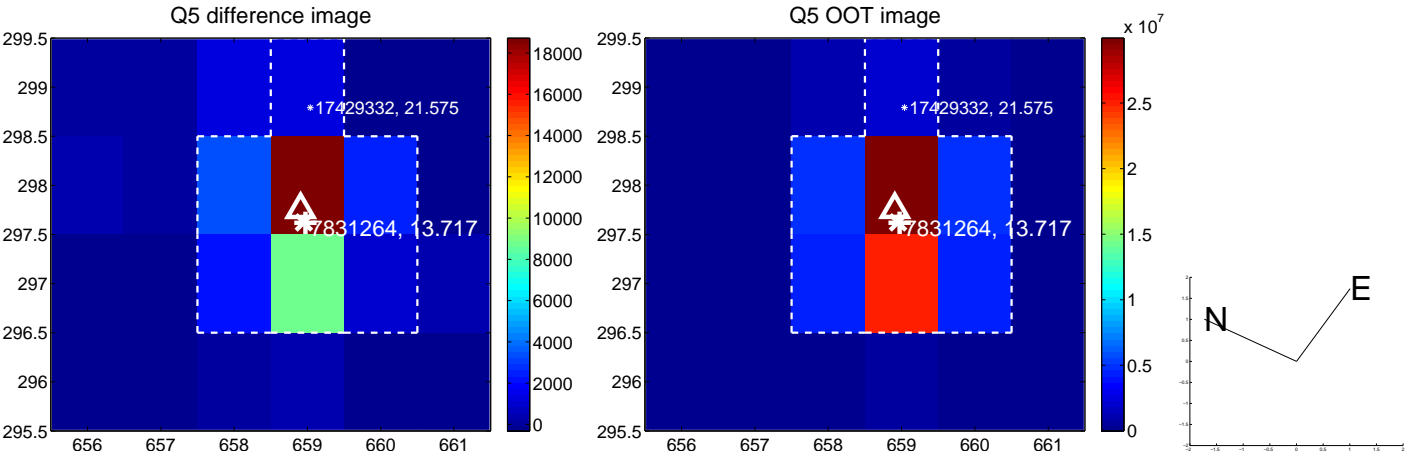


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

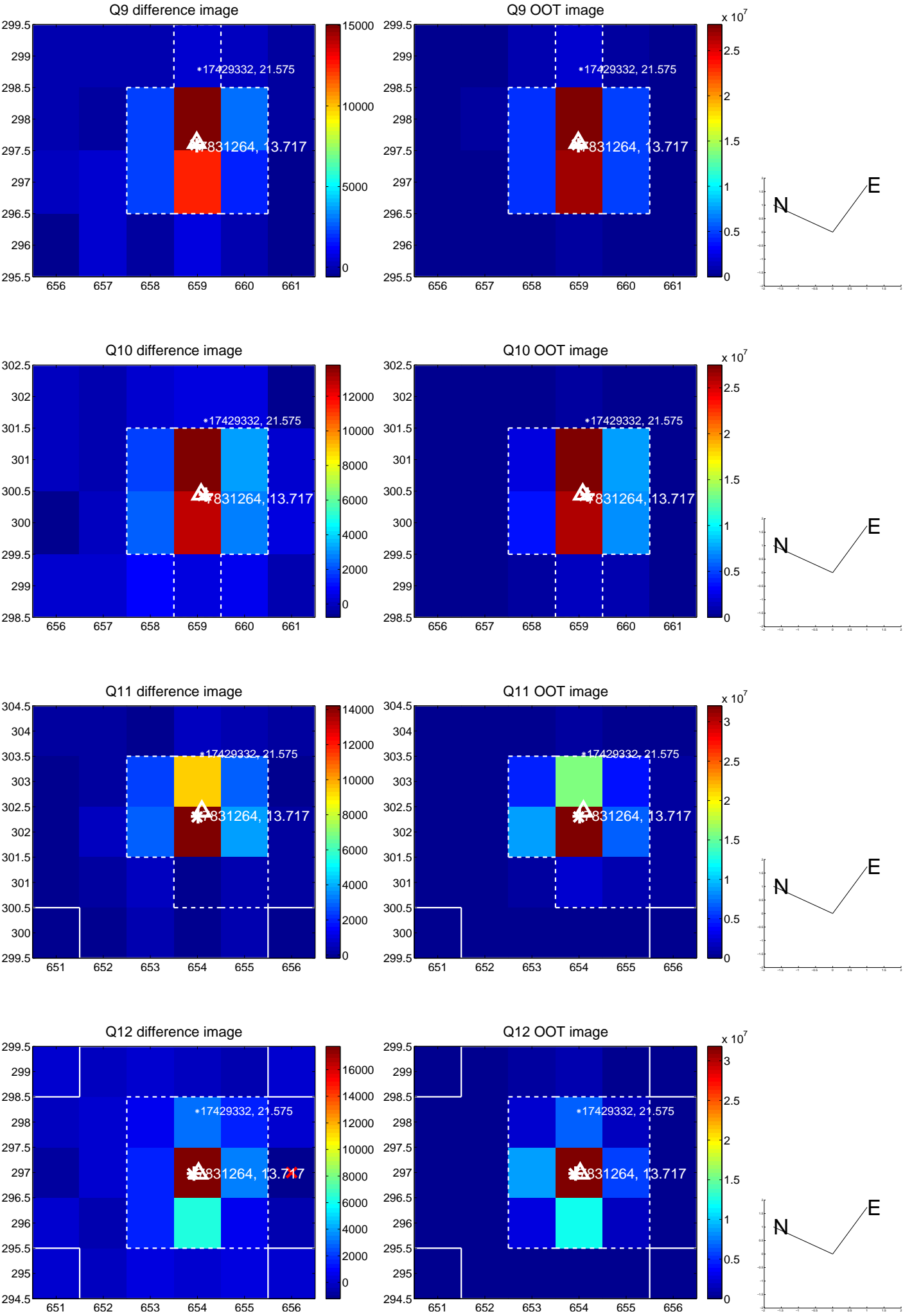
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



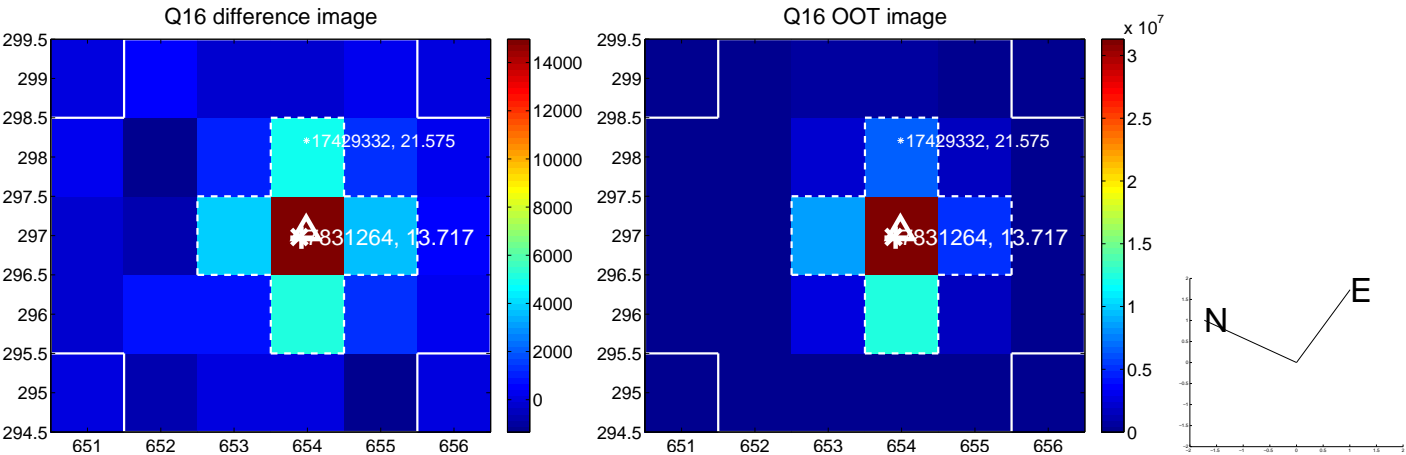
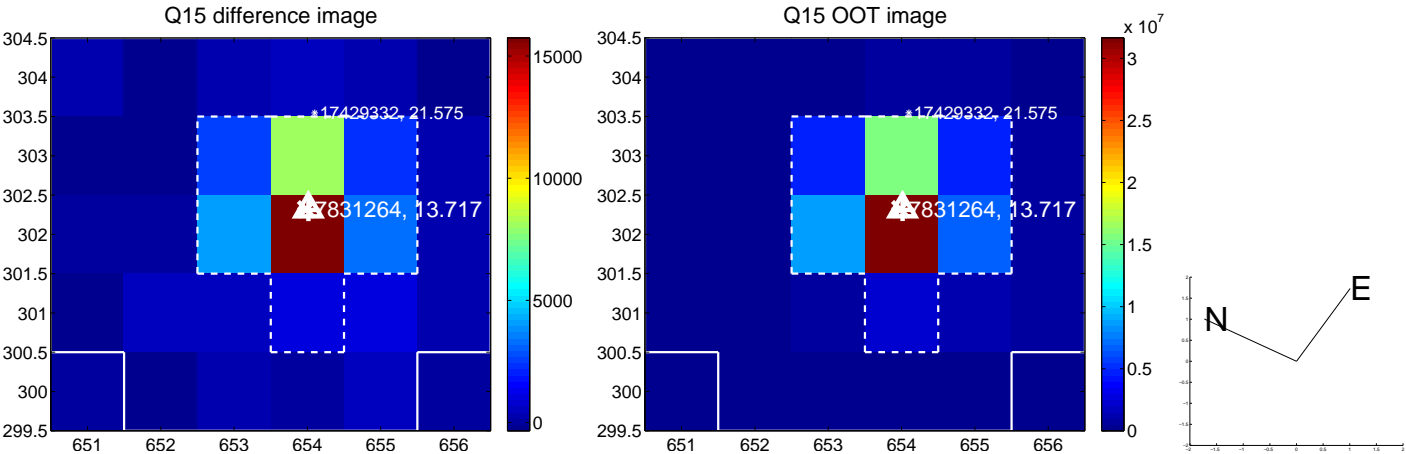
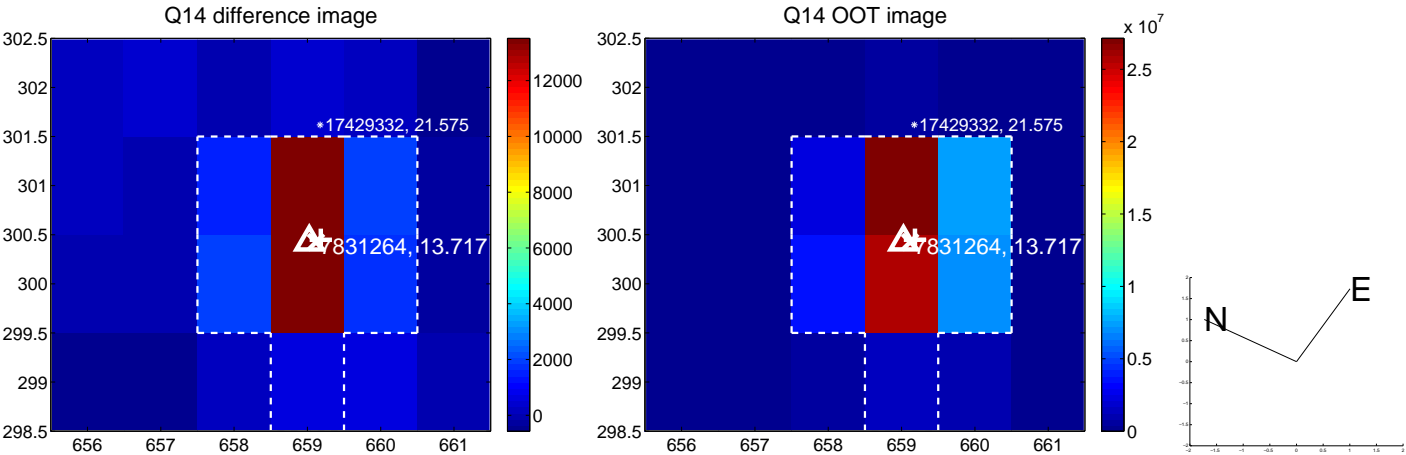
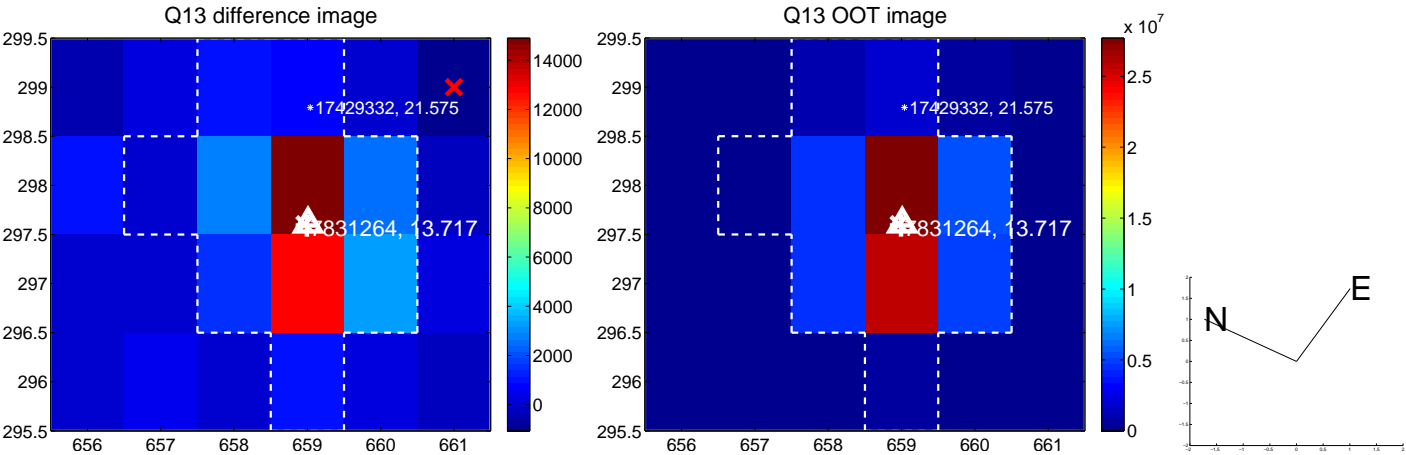
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



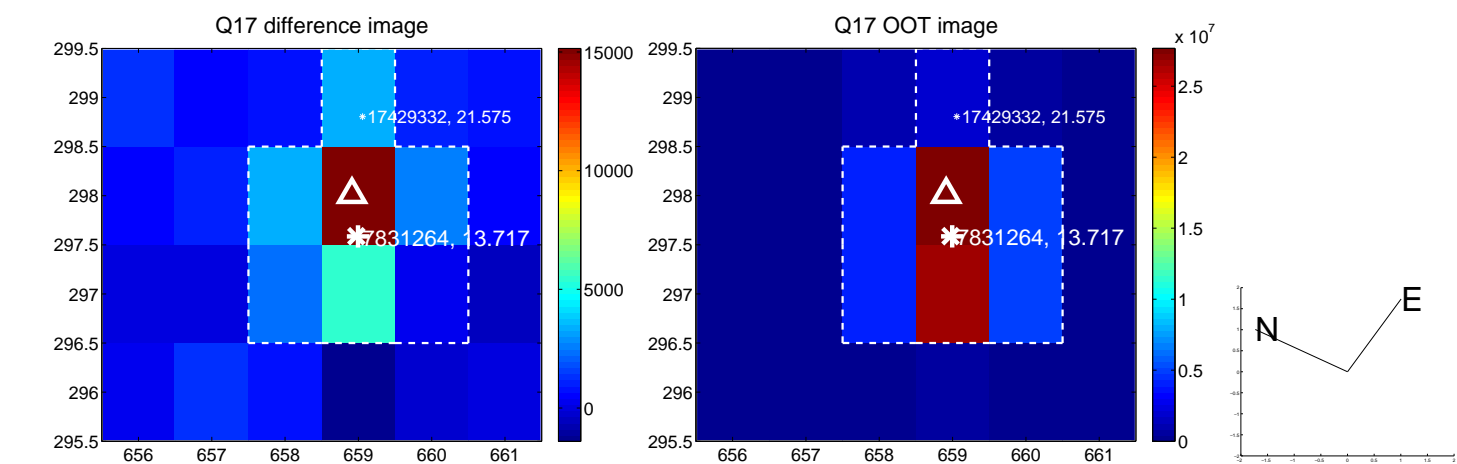
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



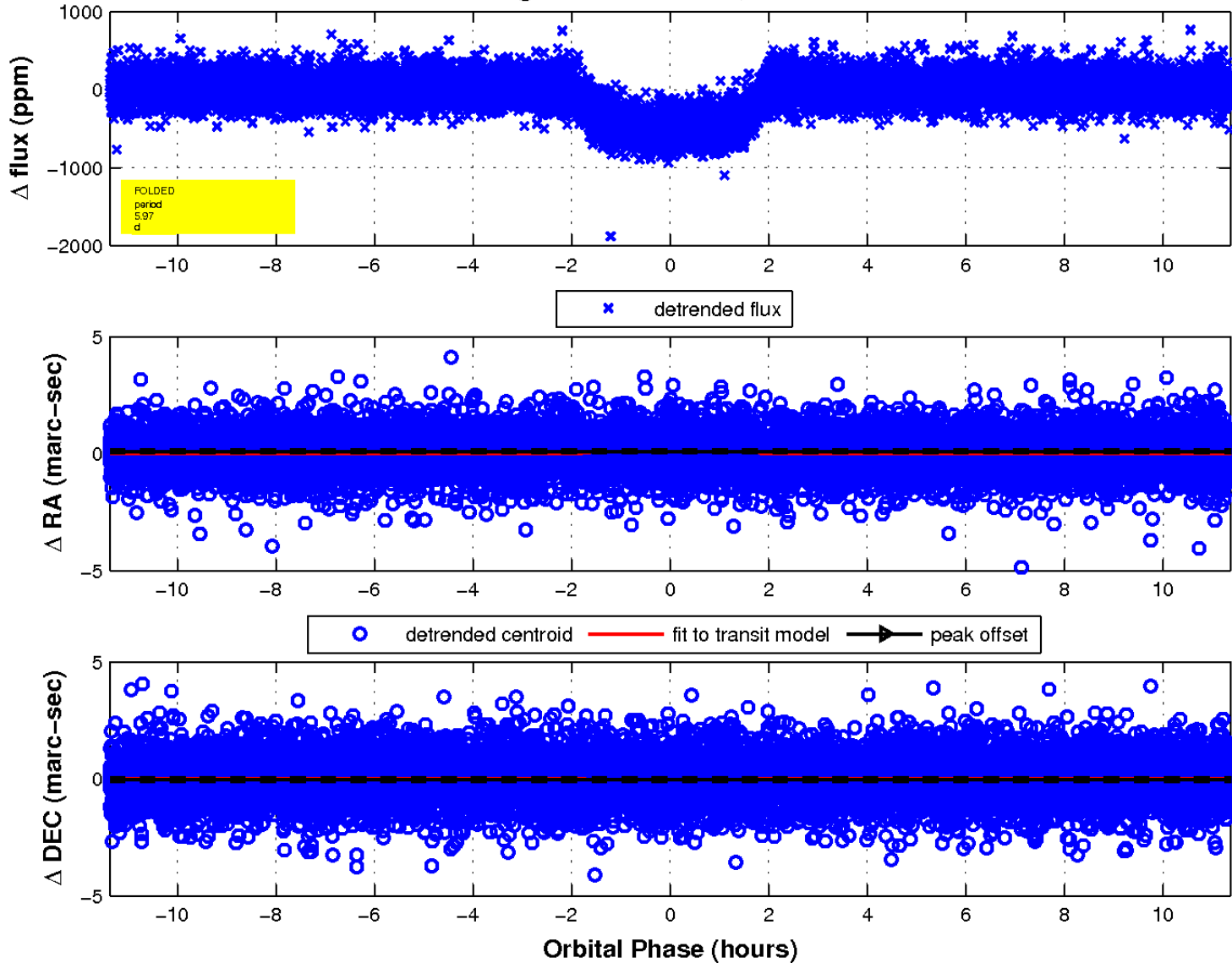
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

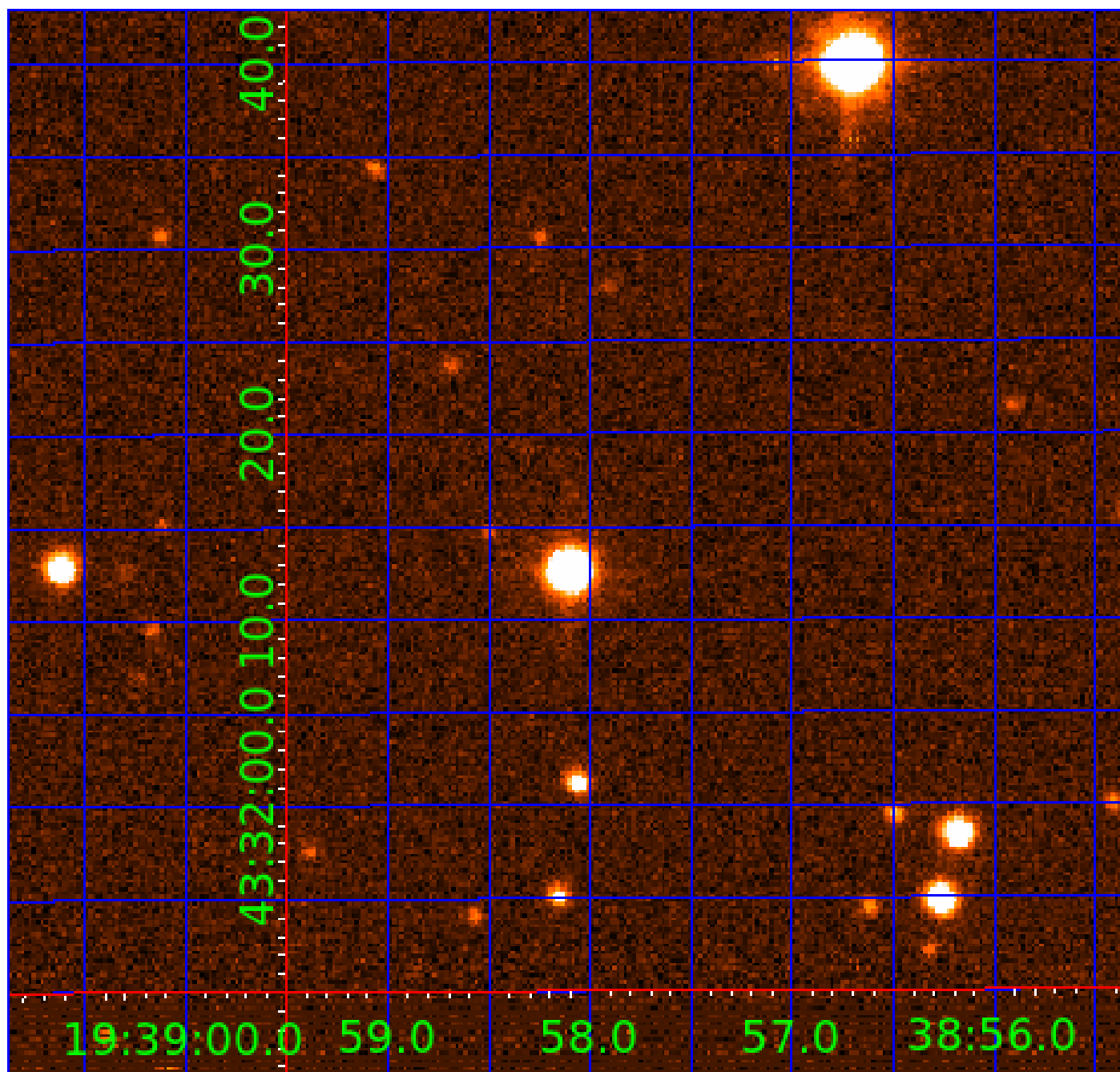


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 007831264

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})
007831264-01	OBS	0171.01	5.968714	137.159622	500.8	3.792	85.6	93.0	1.44	6122	3.59	580.76
007831264-02	OBS	0171.02	13.071423	144.442250	242.0	3.170	25.7	27.2	1.44	6122	2.63	204.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007831264-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
007831264-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

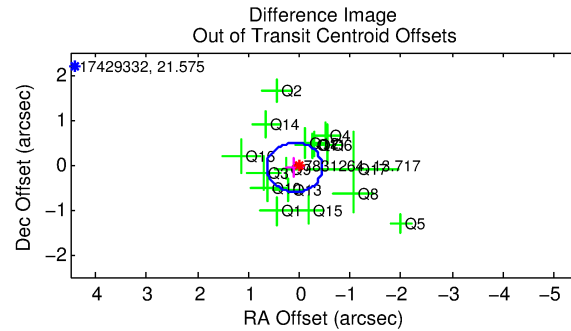
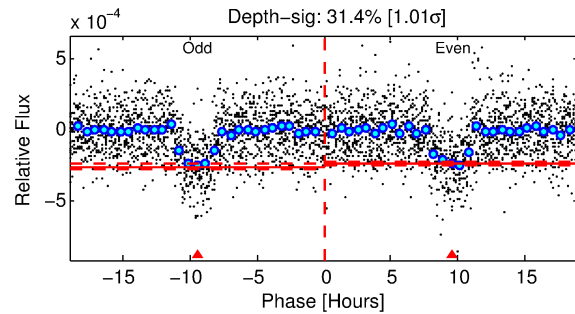
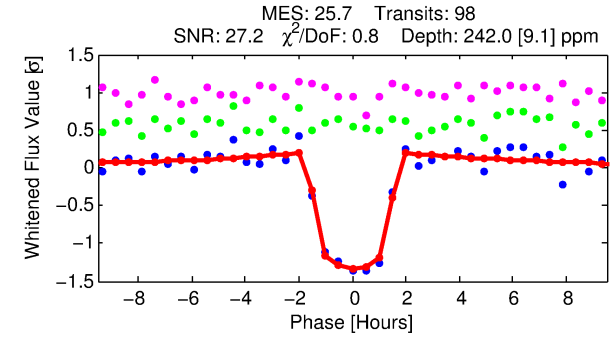
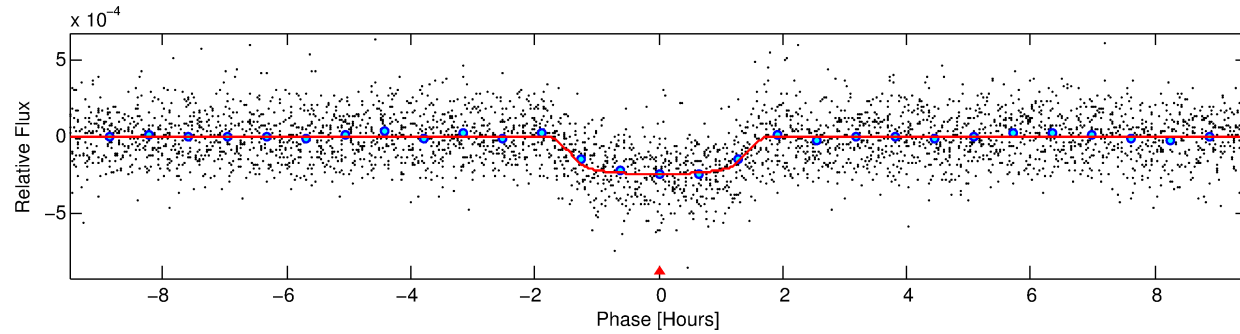
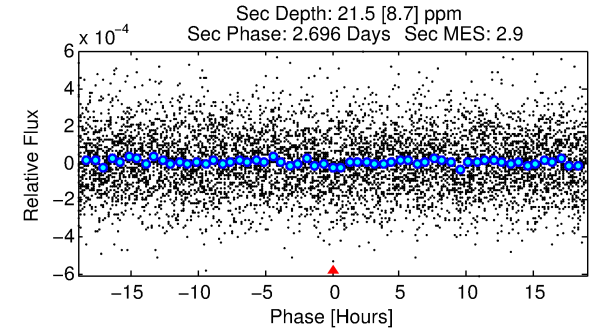
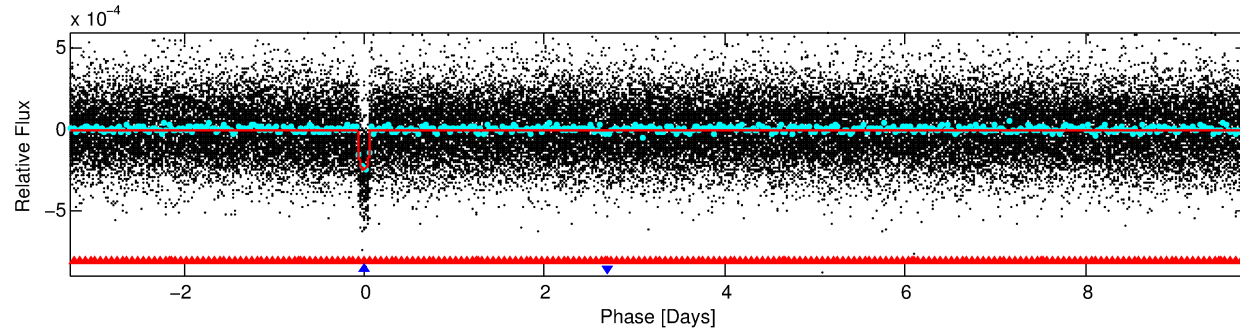
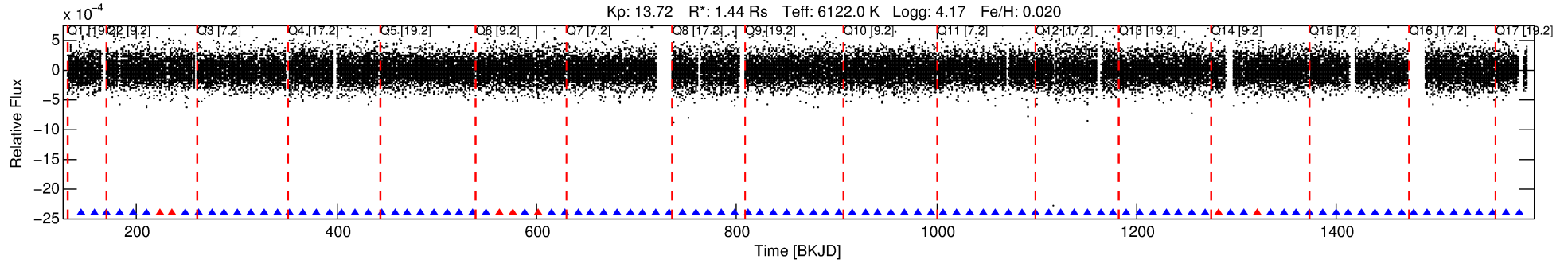
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007831264-02

No Significant Match Found

DV One-Page Summary

KIC: 7831264 Candidate: 2 of 2 Period: 13.071 d
KOI: K00171.02 Name: Kepler-116c Corr: 0.979



DV Fit Results:

Period = 13.07142 [0.00004] d
Epoch = 144.4423 [0.0023] BKJD
Rp/R* = 0.0167 [0.0026]
a/R* = 15.19 [11.88]
b = 0.90 [0.18]
Seff = 204.21 [60.78]
Teq = 964 [72] K
Rp = 2.63 [0.62] Re
a = 0.1130 [0.0198] AU
Ag = 21.88 [12.72] [1.64σ]
Teffp = 3223 [415] K [5.37σ]

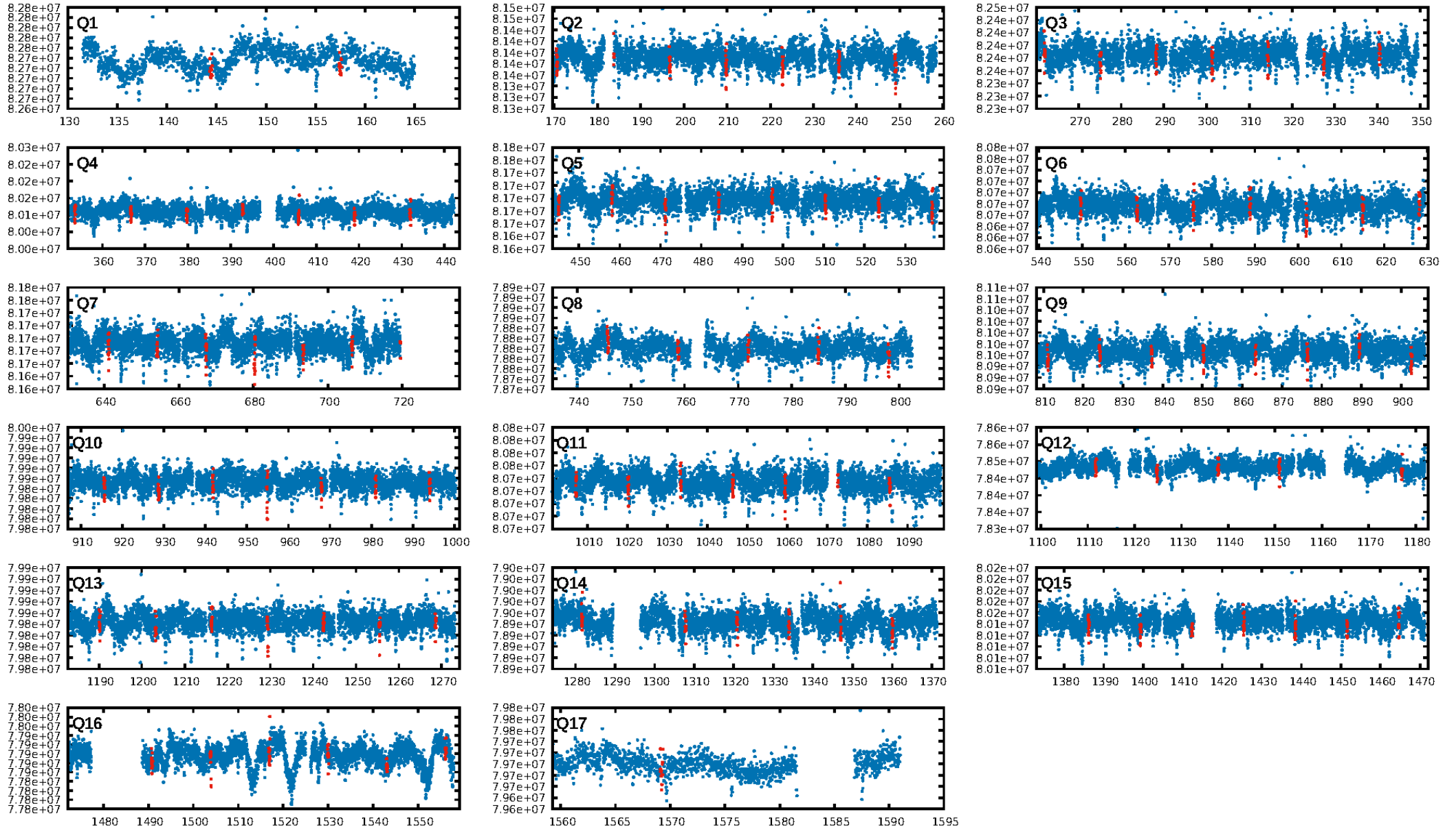
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [34.49σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.48e-143
RollingBand-fgt: 0.93 [88/95]
GhostDiagnostic-chr: 9.551
Centroid-sig: 28.4%
Centroid-so: 0.496 arcsec [1.25σ]
OotOffset-rm: 0.109 arcsec [0.60σ]
KicOffset-rm: 0.234 arcsec [1.20σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

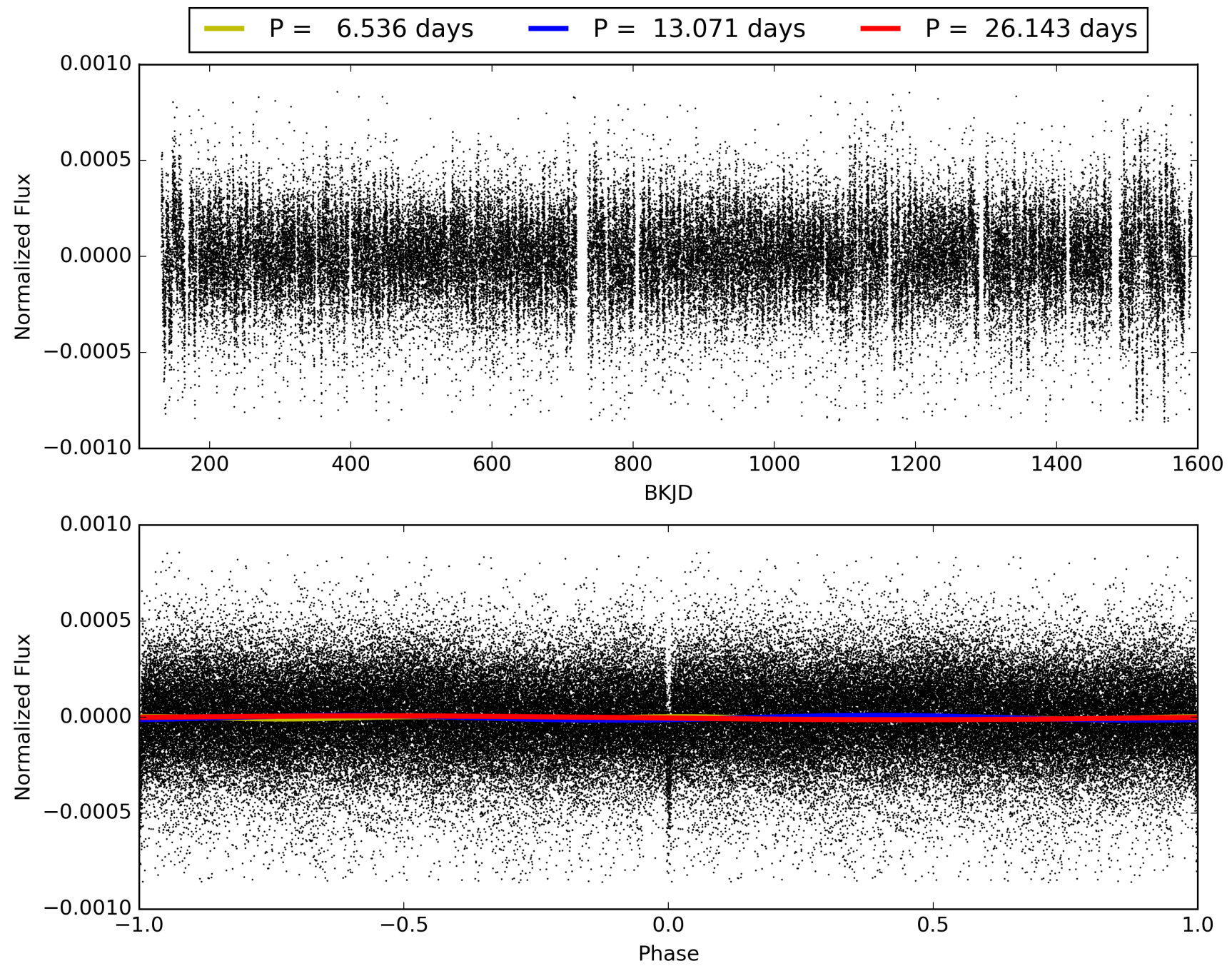
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:27:54 Z

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

TCE 007831264-02, PDC Light Curves

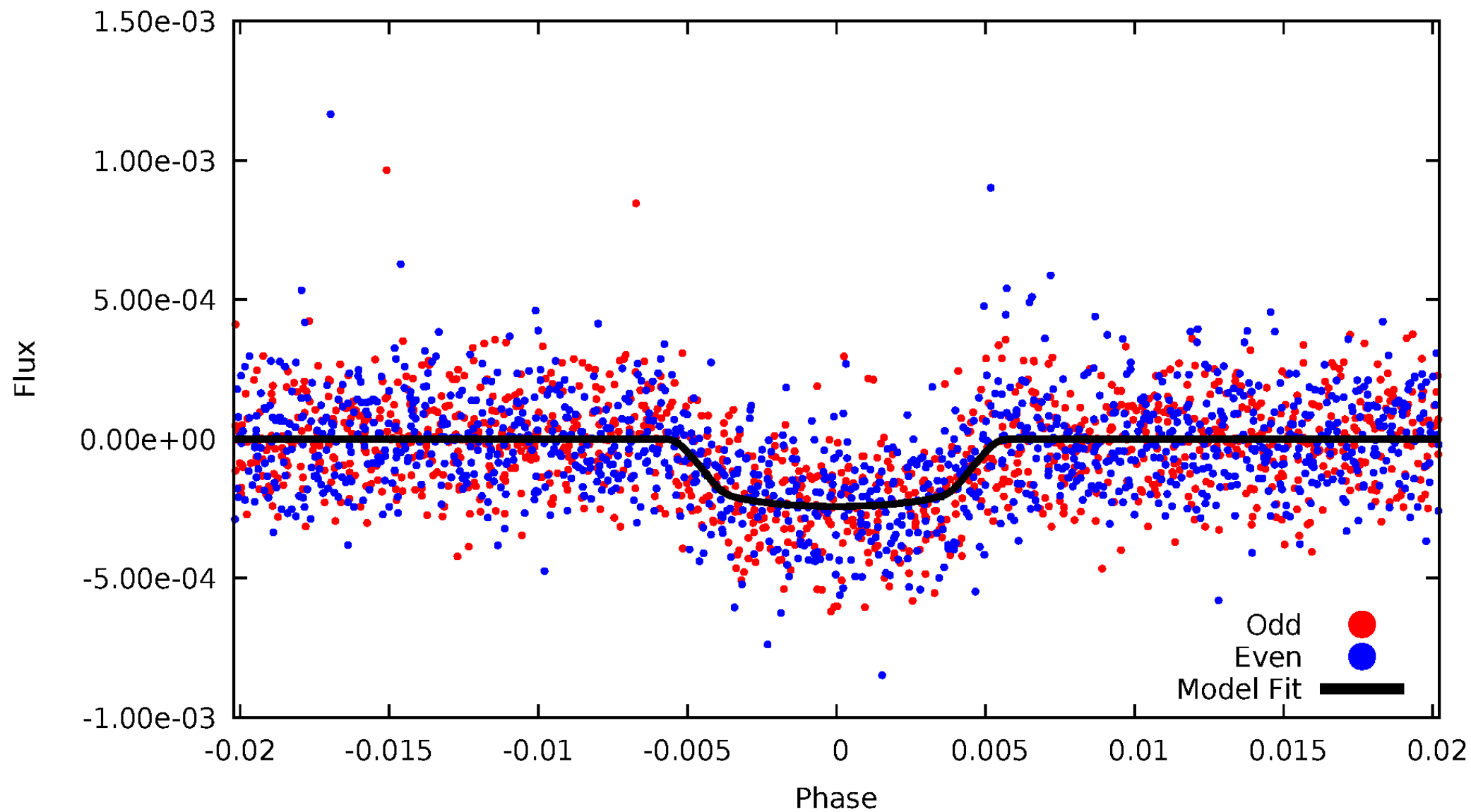


TCE 007831264-02



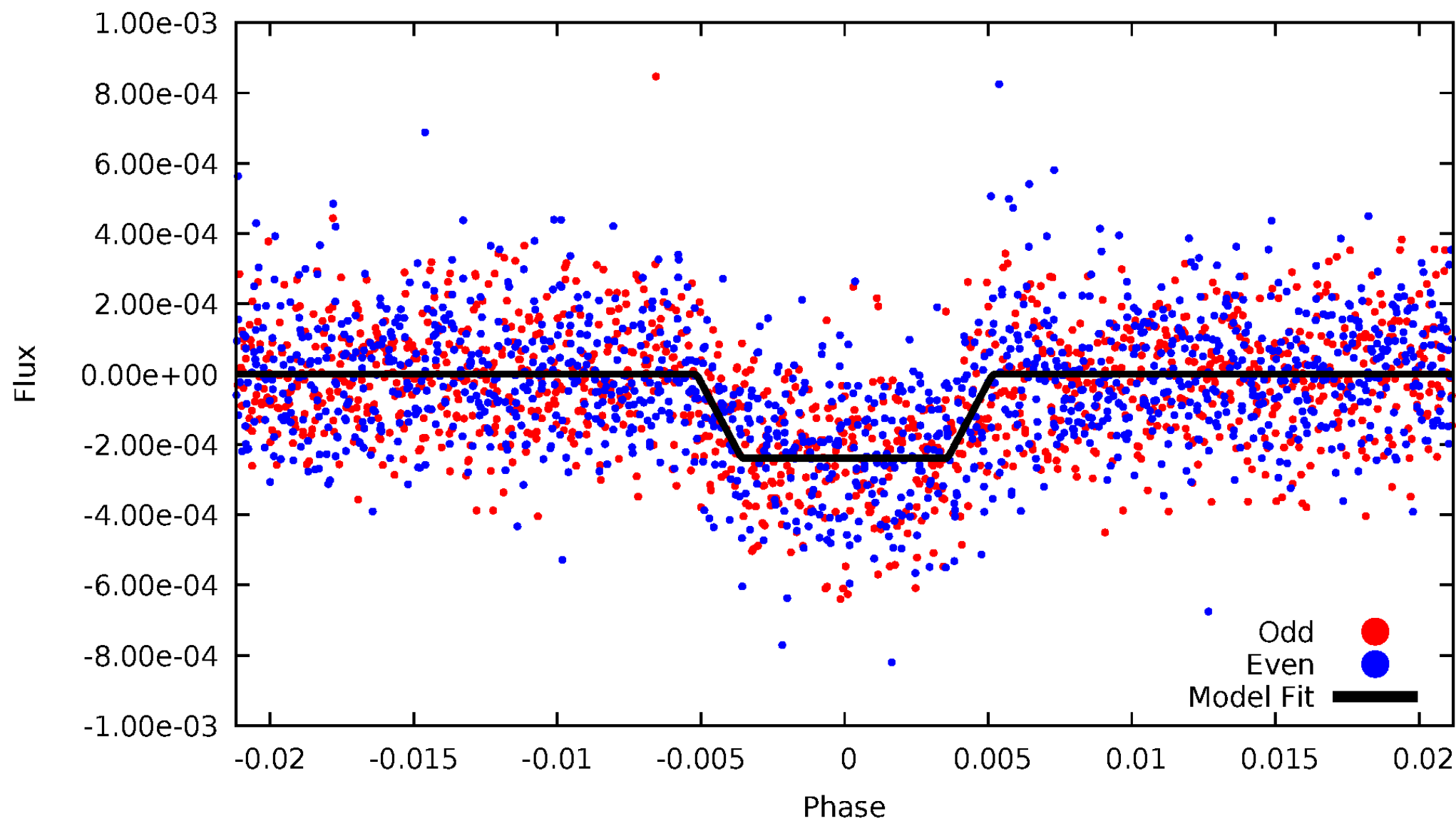
DV Odd/Even

TCE 007831264-02



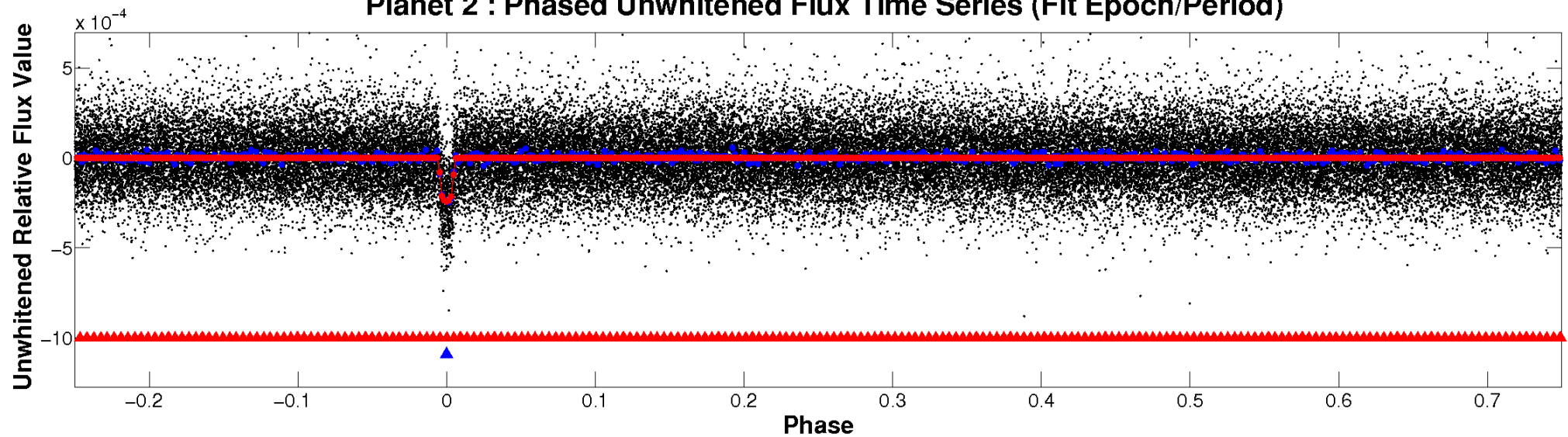
ALT Odd/Even

TCE 007831264-02

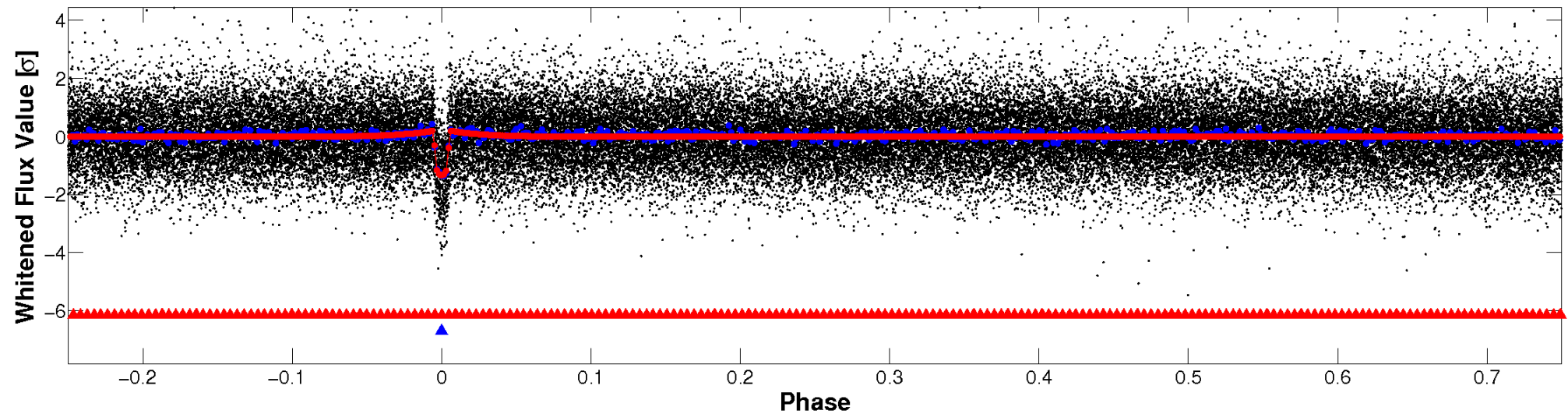


Non-Whitened Vs. Whitened Light Curve

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

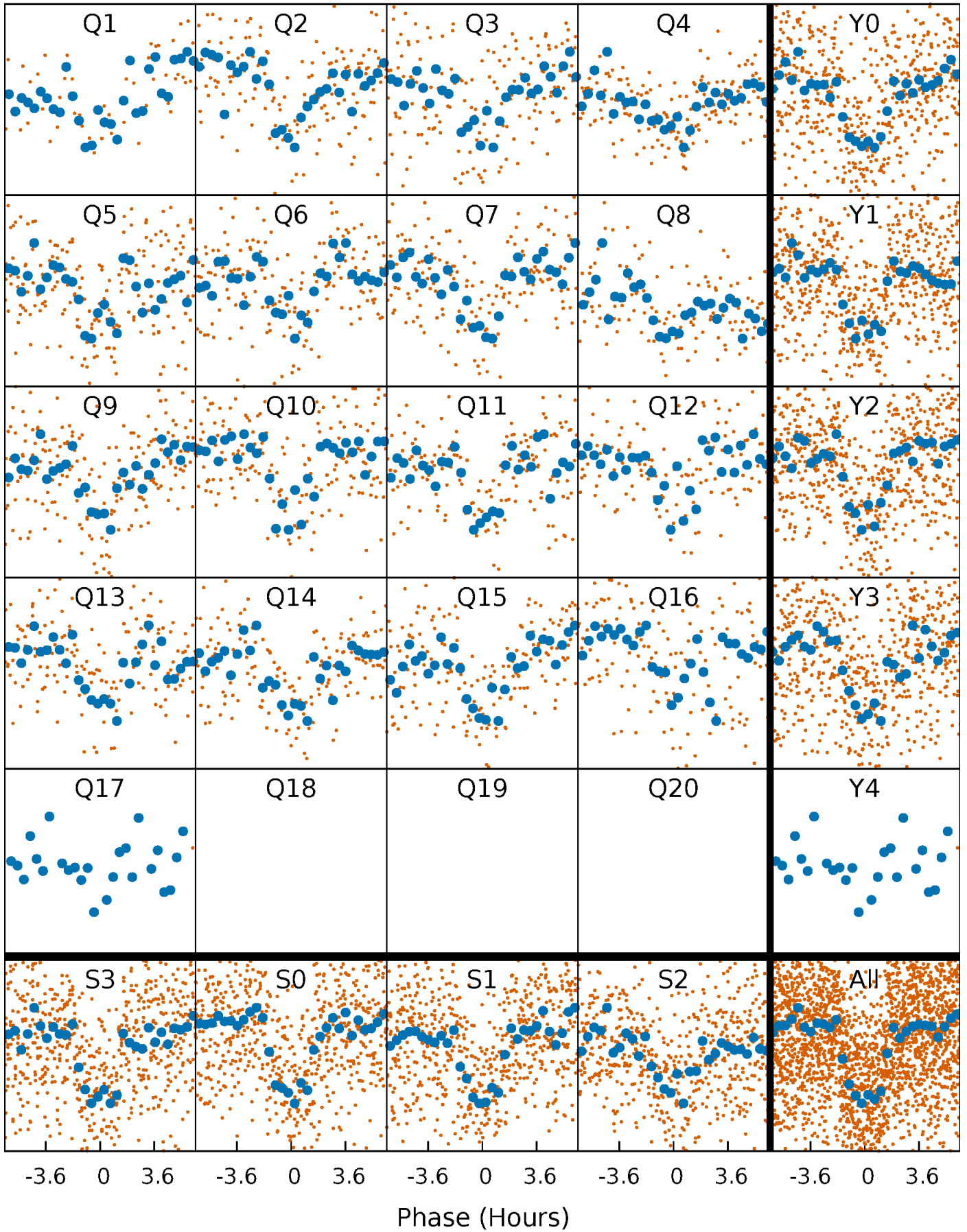


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



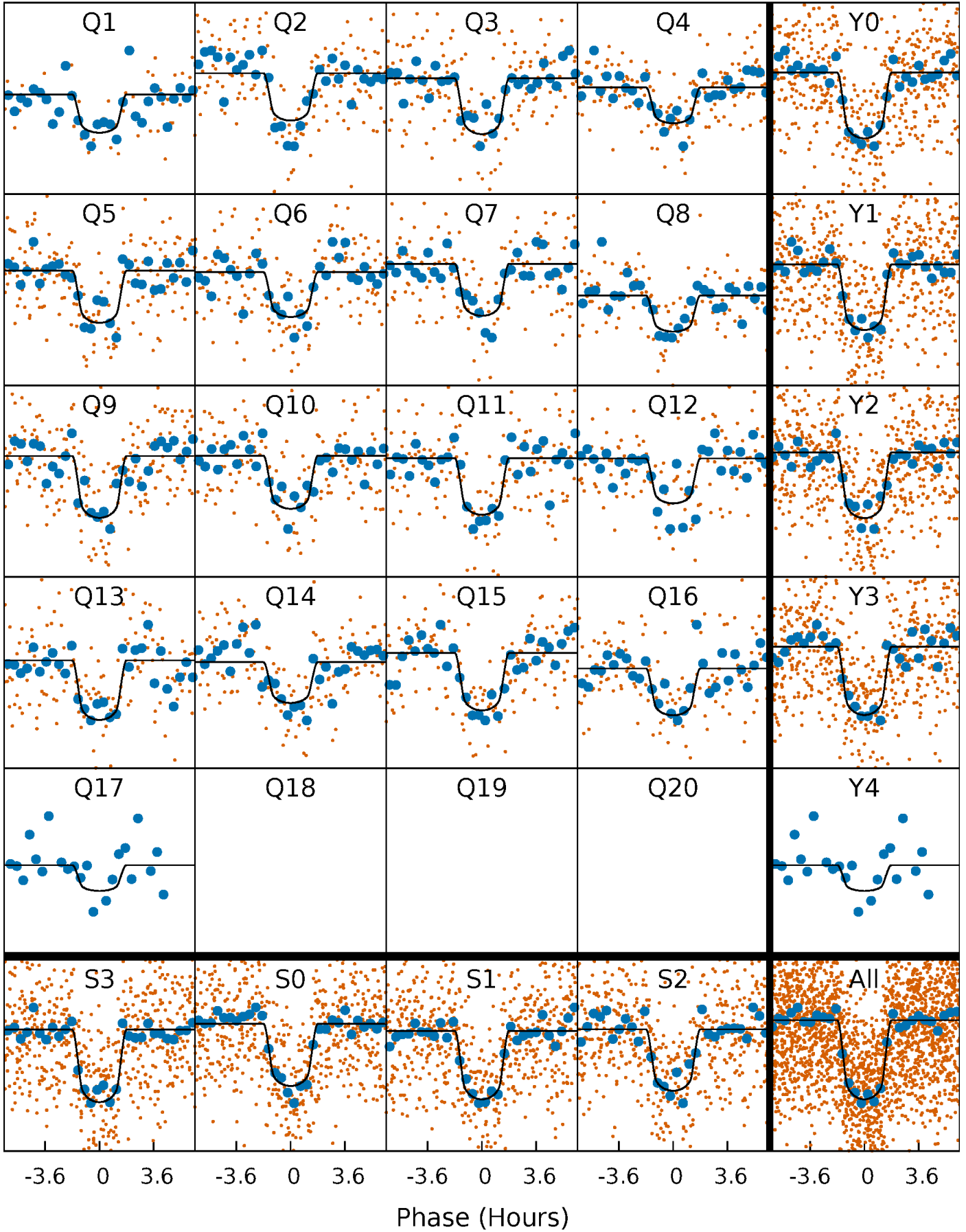
PDC Quarter-Phased Transit Curves

TCE 007831264-02 P= 13.071423 Days $T_0=144.442250$ (BKJD)



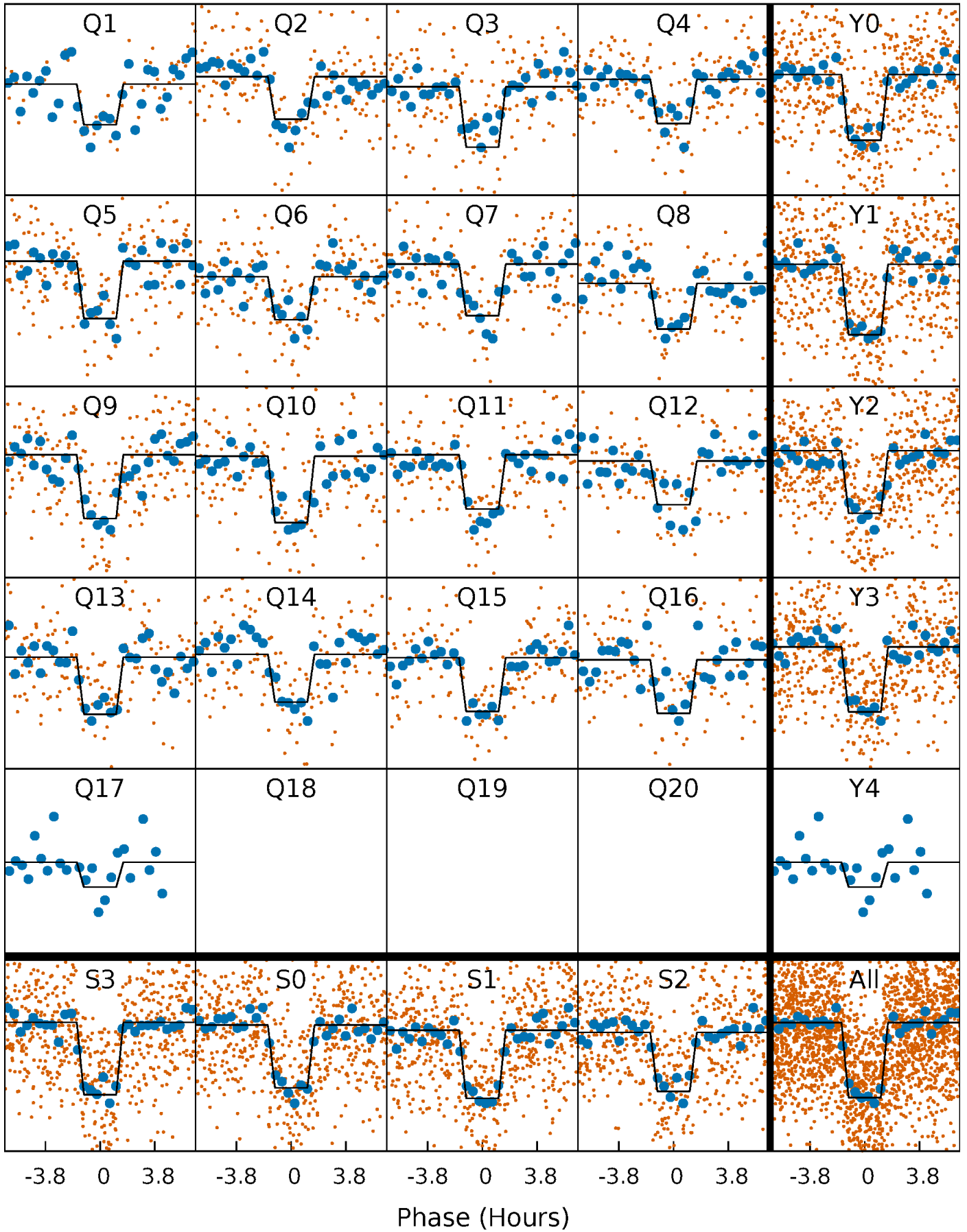
DV Quarter-Phased Transit Curves

TCE 007831264-02 P= 13.071423 Days $T_0=144.442250$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

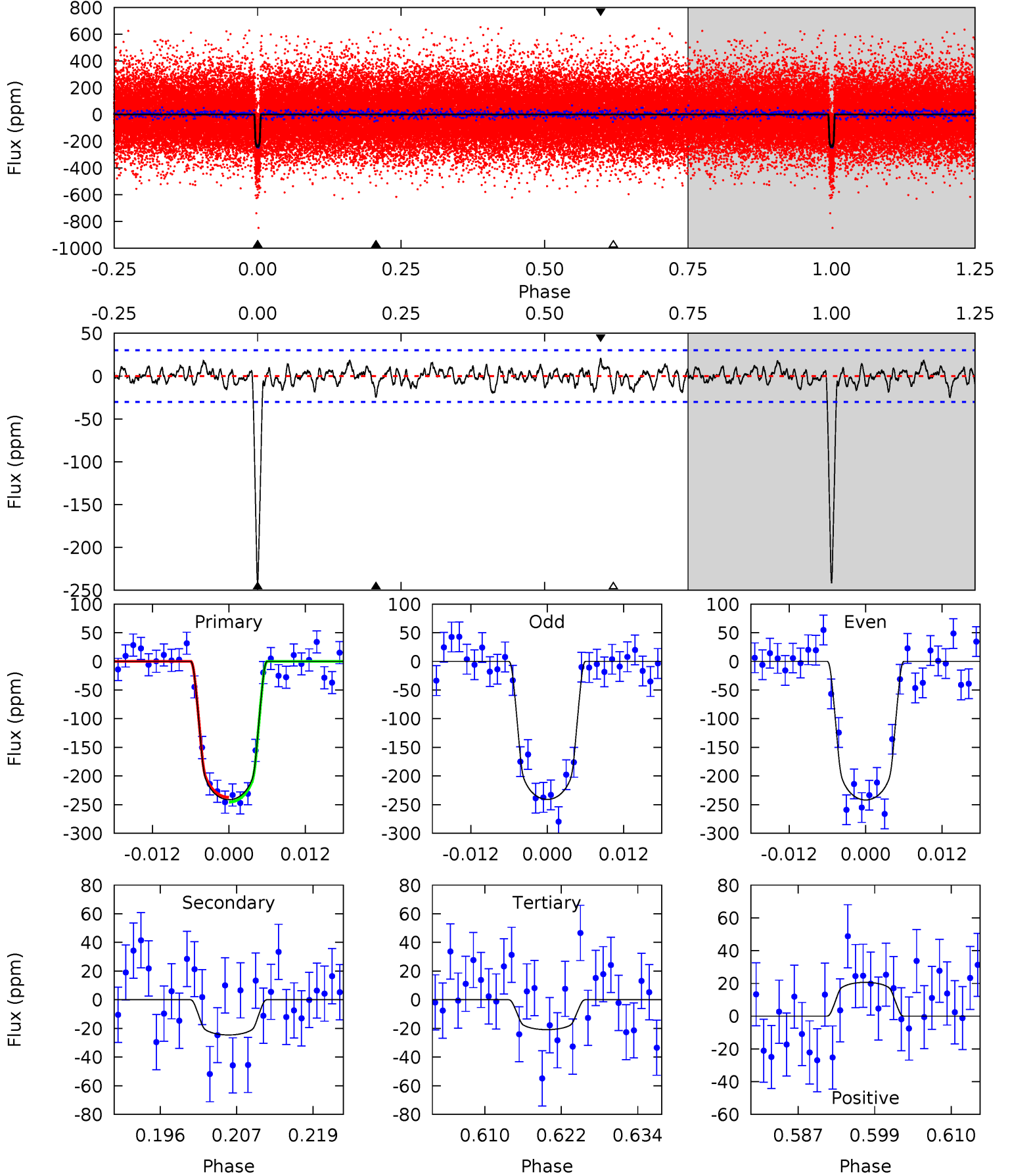
TCE 007831264-02 P= 13.071378 Days $T_0=144.444283$ (BKJD)



DV Model-Shift Uniqueness Test

007831264-02, P = 13.071423 Days, E = 131.370827 Days

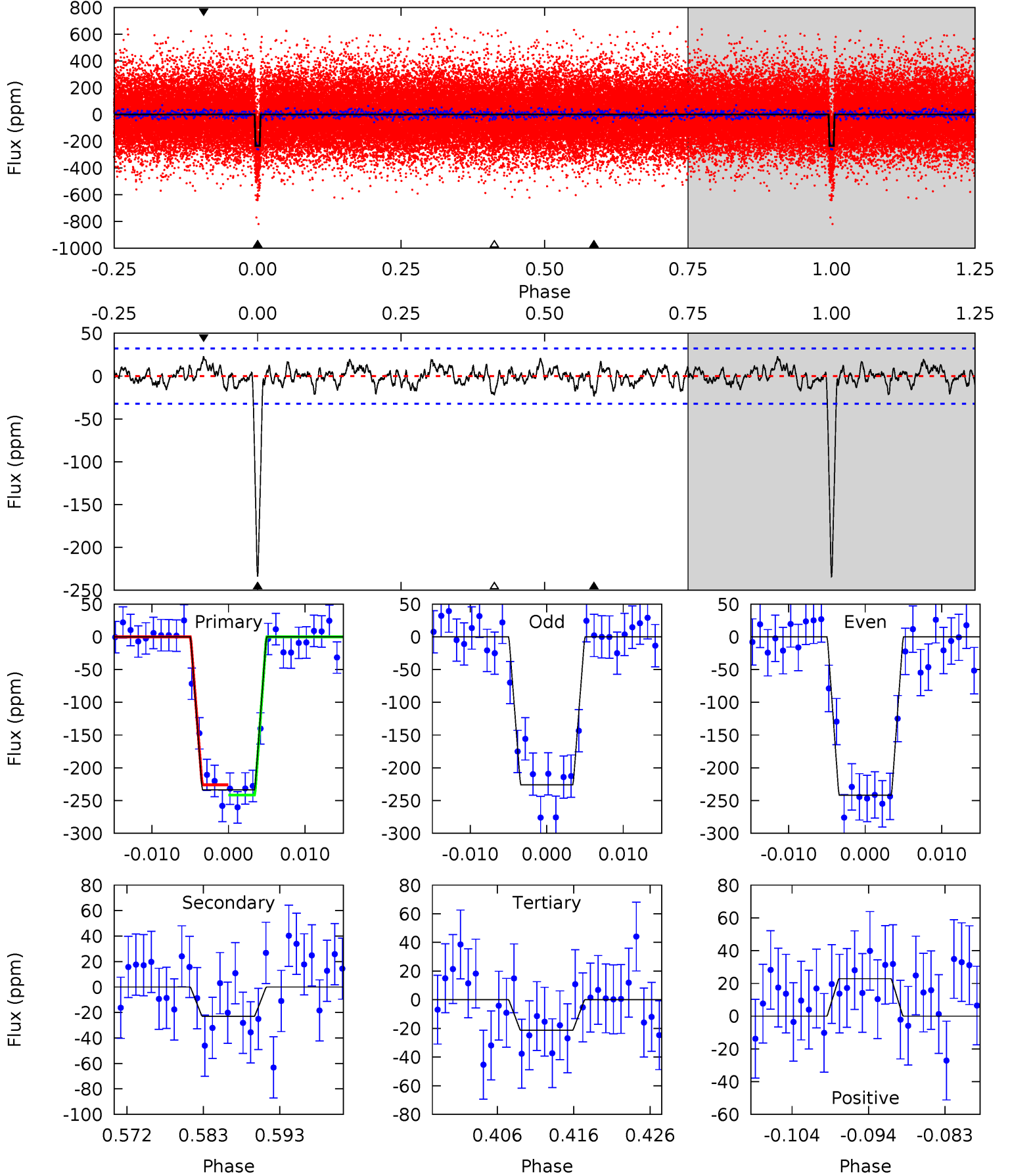
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.9	4.06	3.45	3.41	5.00	2.53	1.21	36.5	36.5	0.61	0.65	0.08	0.99	0.08	0.69



Alt Model-Shift Uniqueness Test

007831264-02, P = 13.071378 Days, E = 131.372905 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.3	3.57	3.31	3.55	5.02	2.56	1.23	33.0	32.8	0.26	0.02	1.22	1.00	0.09	1.21



Stellar Parameters For KIC 007831264

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6122^{+136}_{-124}	$4.173^{+0.168}_{-0.112}$	$0.020^{+0.150}_{-0.150}$	$1.439^{+0.257}_{-0.257}$	$1.123^{+0.116}_{-0.085}$	$0.531^{+0.442}_{-0.176}$
	+2%/-2%	+4%/-3%	+750%/-750%	+18%/-18%	+10%/-8%	+83%/-33%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 007831264-02 / KOI 0171.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25 ± 6	$2.62^{+0.52}_{-0.47}$	1344^{+63}_{-71}	3715^{+293}_{-249}	25^{+14}_{-10}
Alt.	-23 ± 6	$2.40^{+0.49}_{-0.47}$	1341^{+67}_{-74}	3778^{+298}_{-273}	28^{+17}_{-11}

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

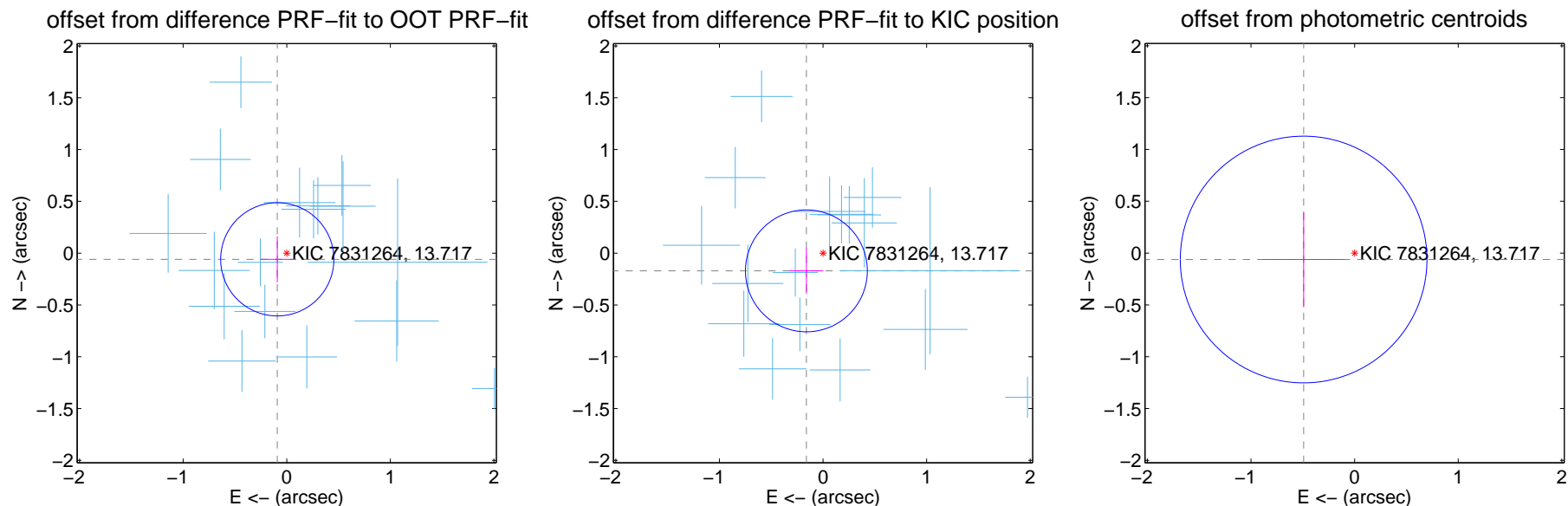
DV Centroid Data

Supplemental centroid analysis for 007831264-02. Kepler magnitude: 13.72. Transit SNR 27.23

There are 17 quarters with good PRF difference image offsets

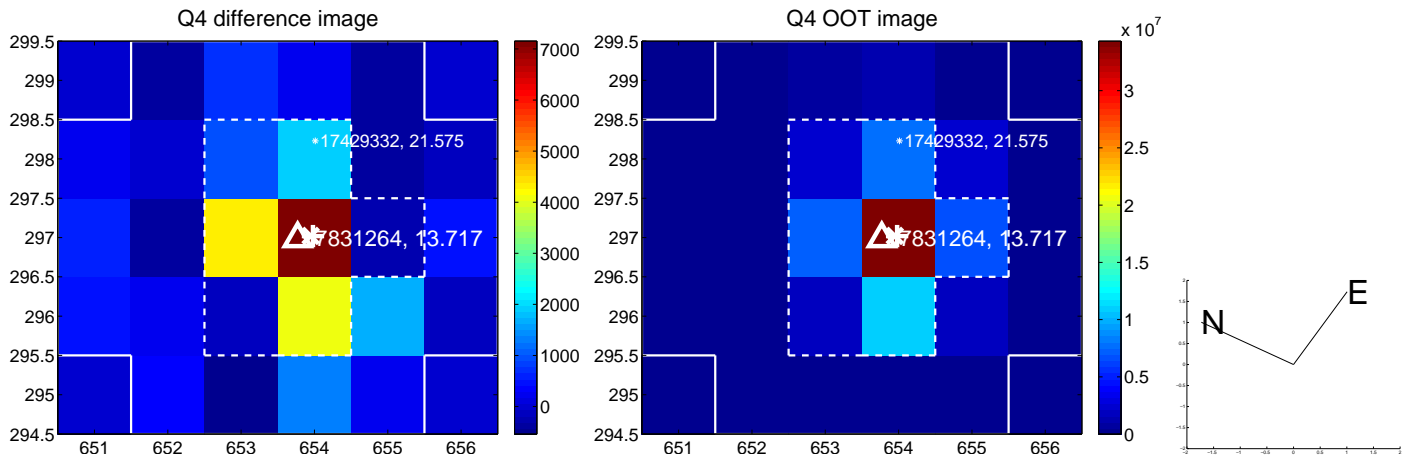
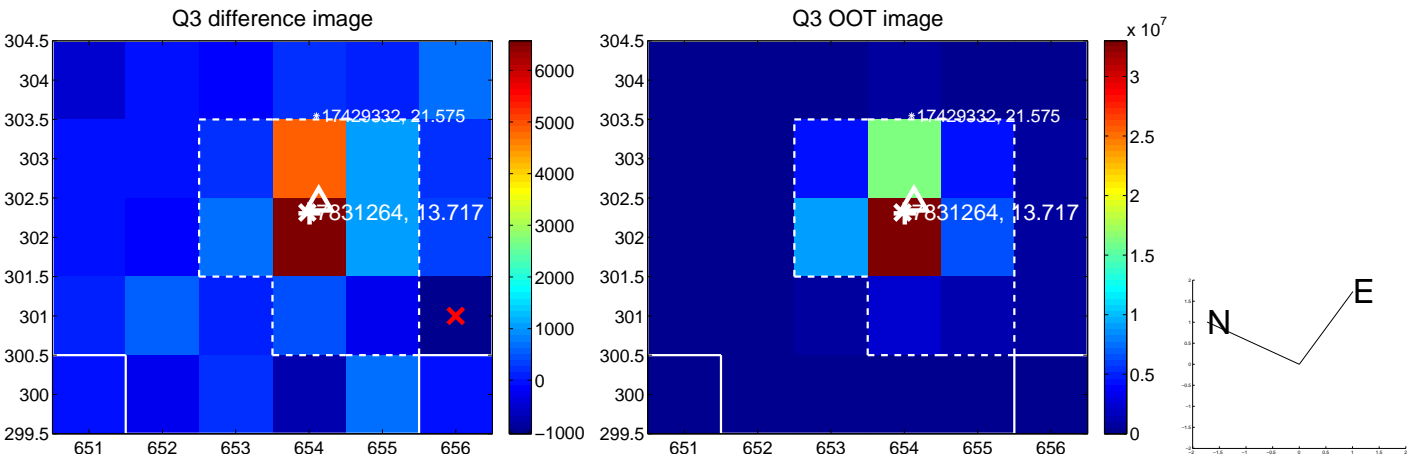
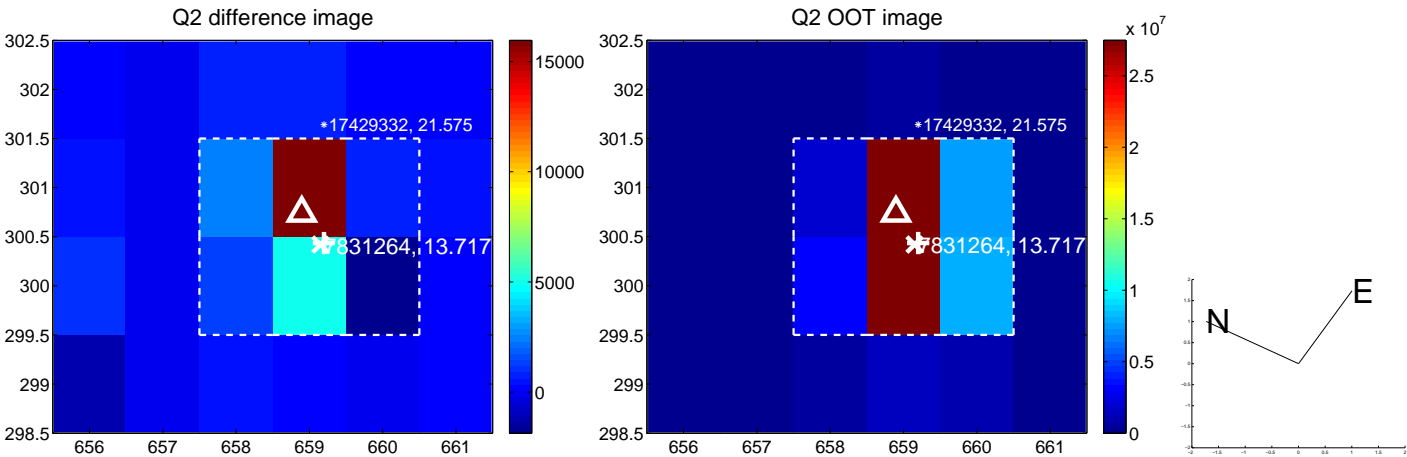
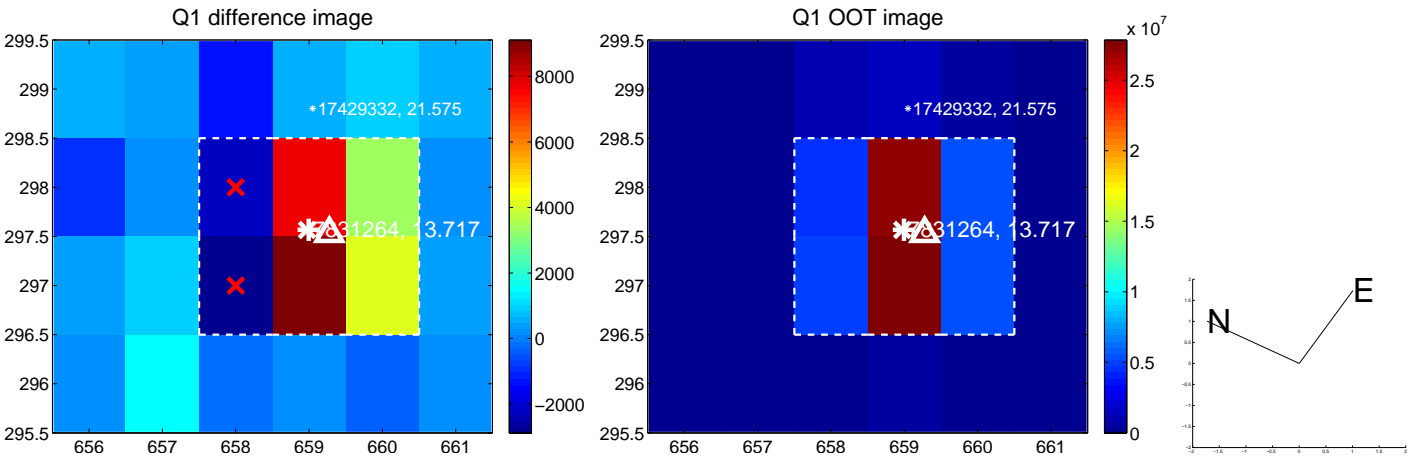
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.109 ± 0.182	0.60	0.091 ± 0.163	-0.059 ± 0.221
PRF-fit source offset from KIC position	0.234 ± 0.196	1.20	0.161 ± 0.164	-0.171 ± 0.221
photometric centroid source offset	0.50 ± 0.40	1.25	0.49 ± 0.40	-0.06 ± 0.46

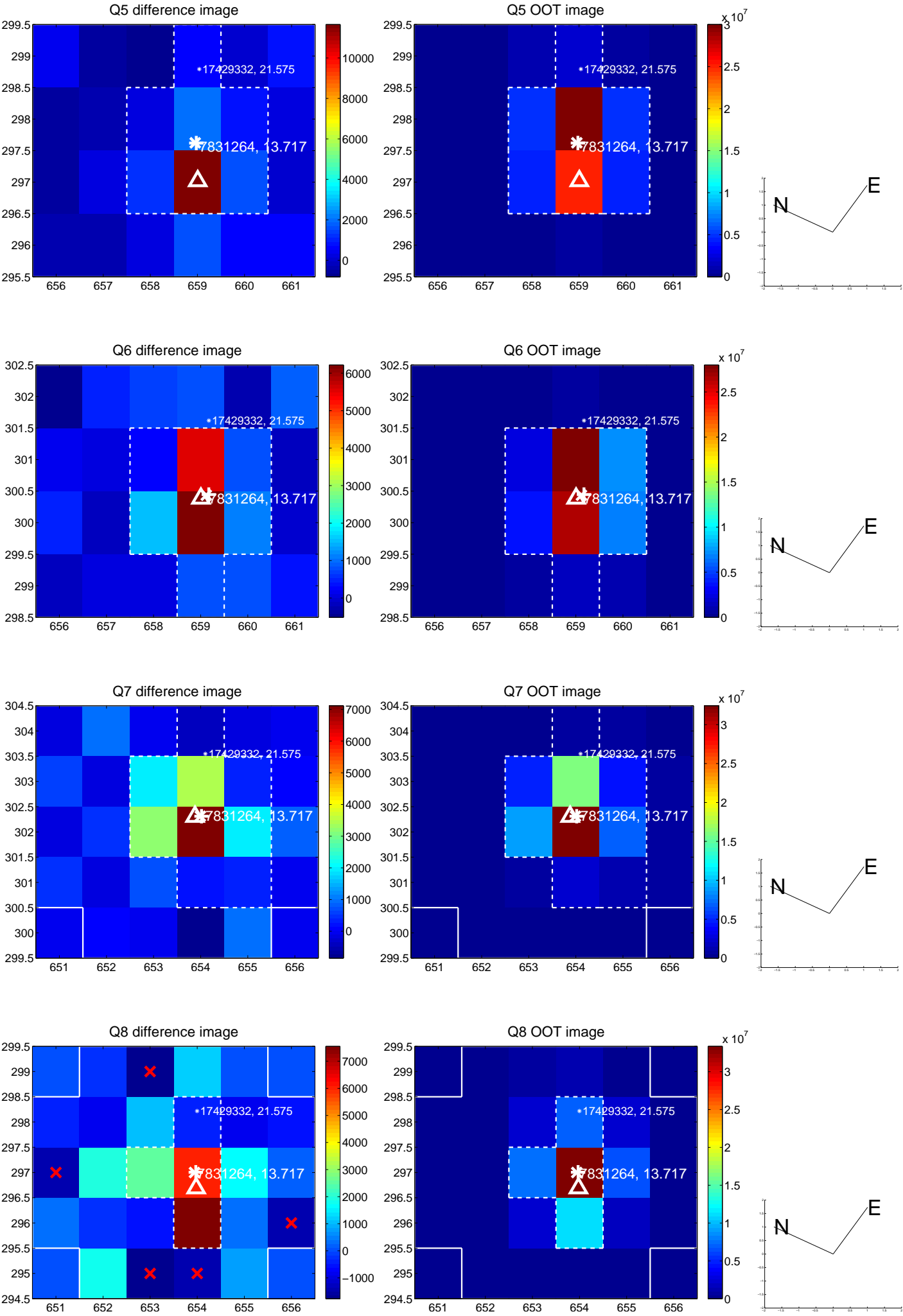


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

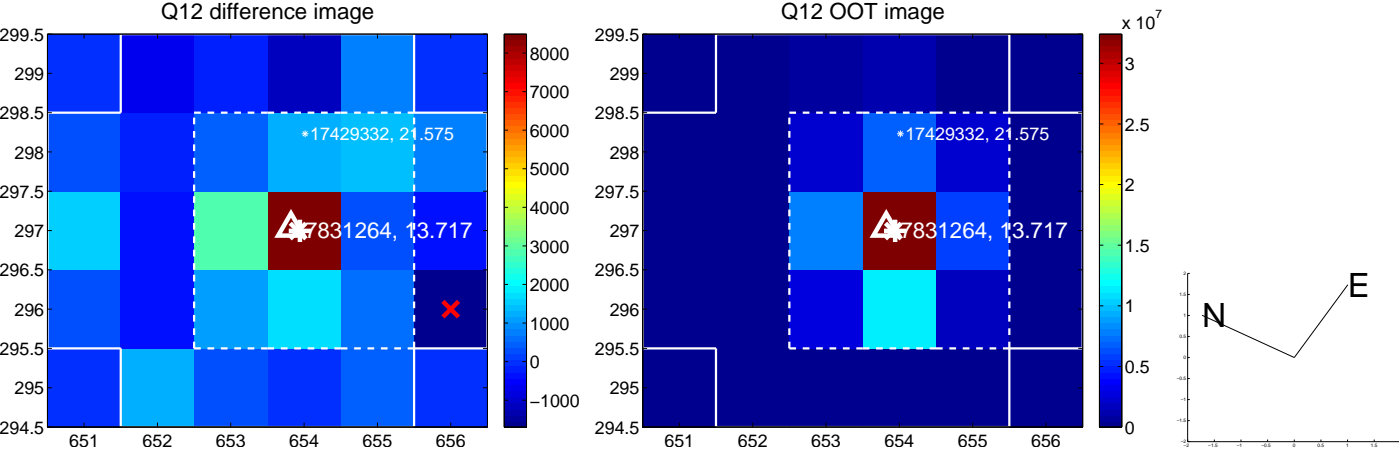
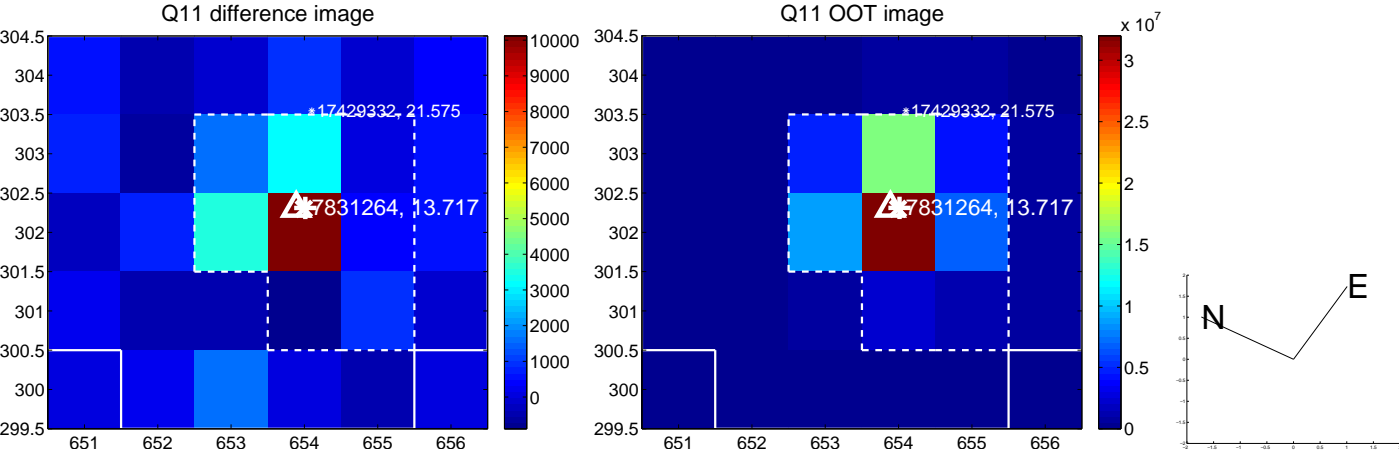
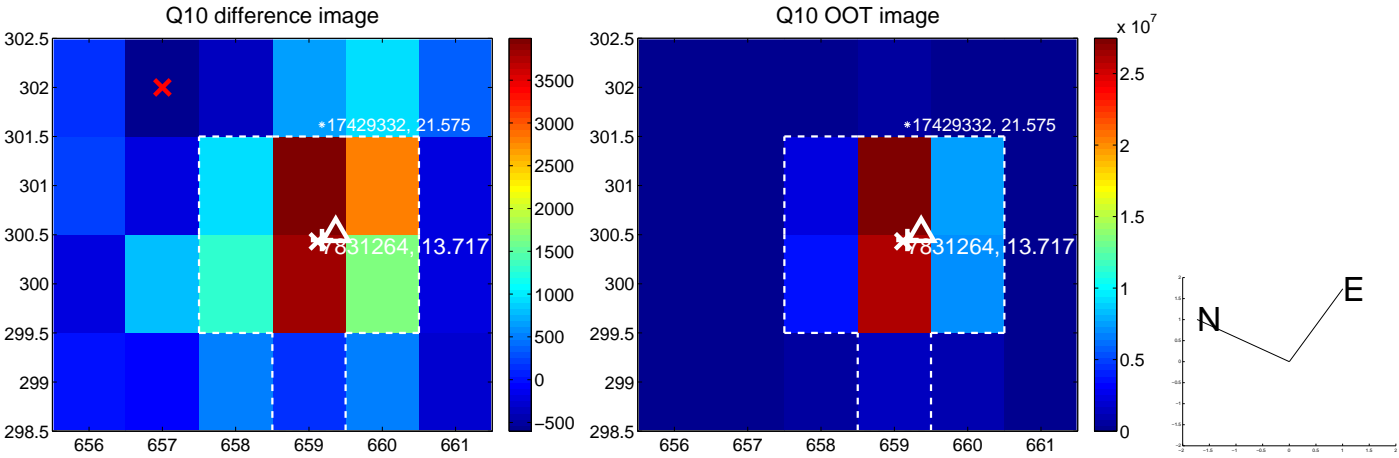
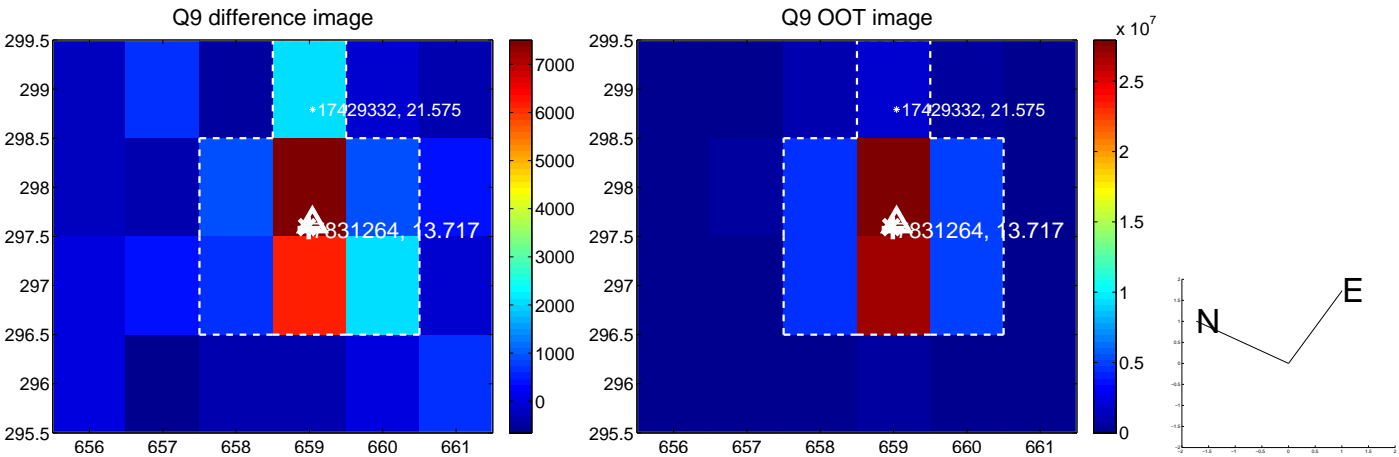
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



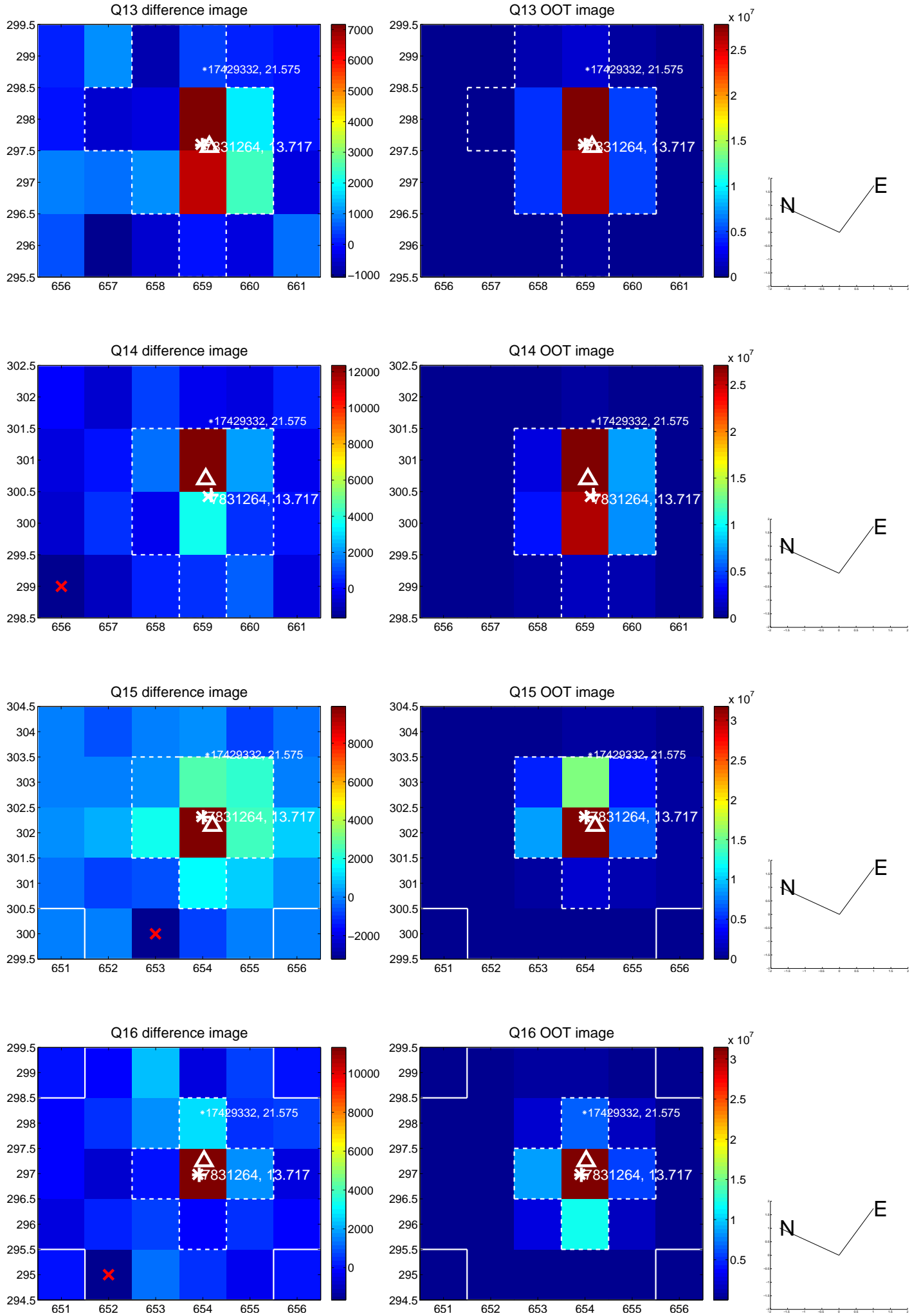
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



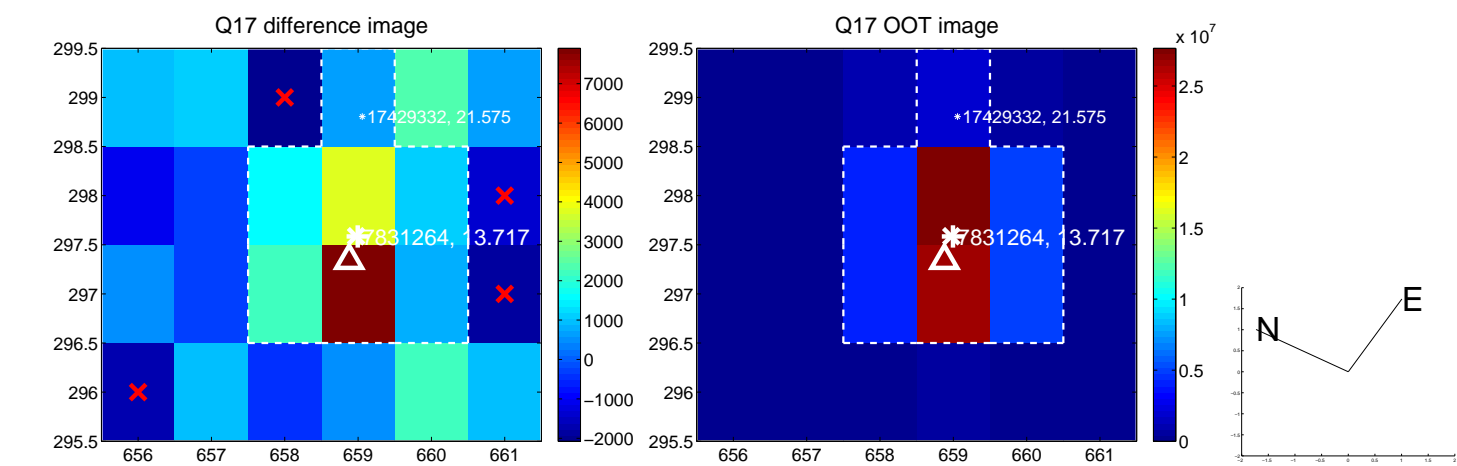
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



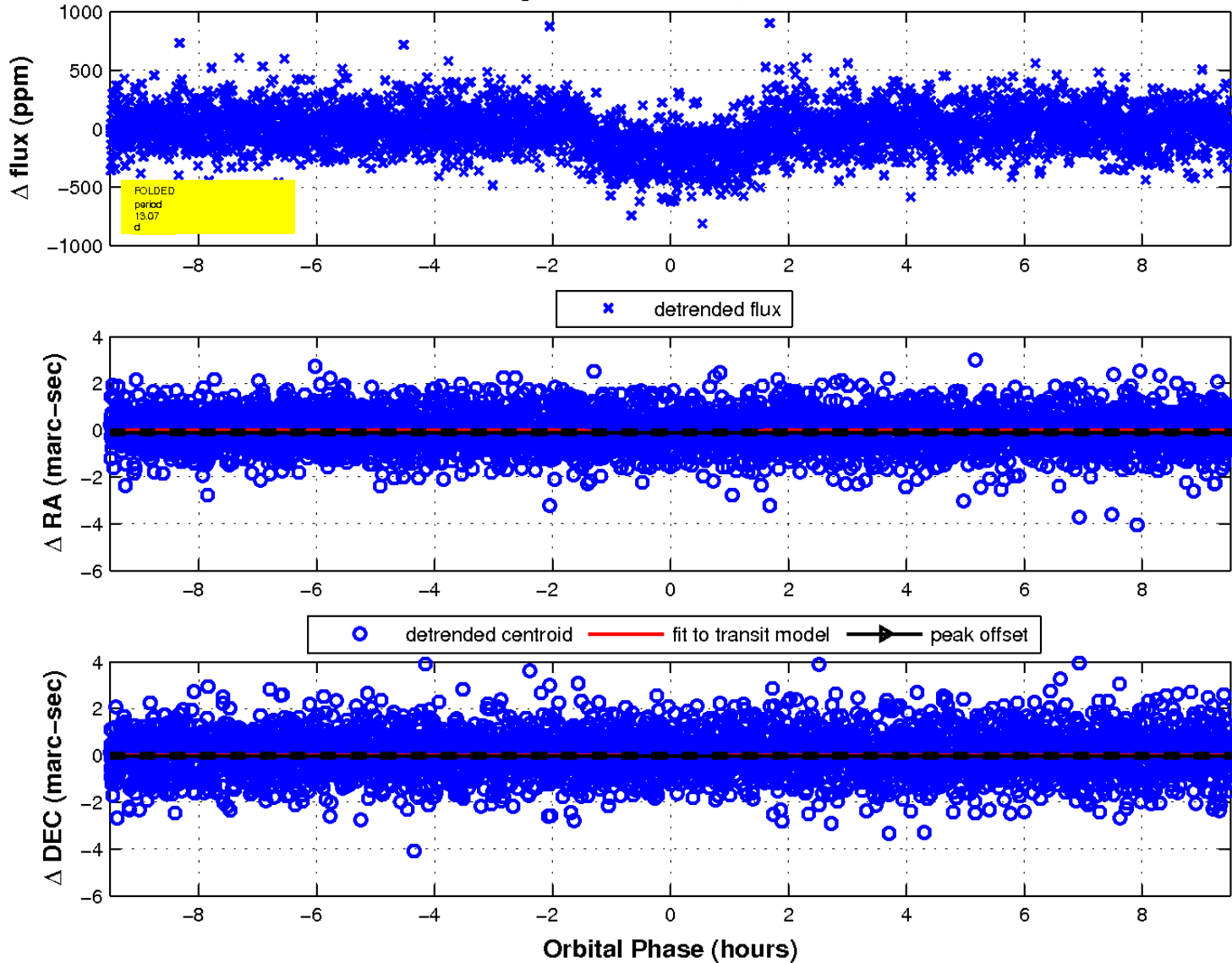
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

