

KIC 002969628

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})
002969628-01	OBS	No	0.657820	131.614239	9.9	4.113	16.0	10.9	3.28	8241	1.06	124830.91
002969628-02	OBS	No	41.424329	163.370503	51.9	24.075	11.0	4.6	3.28	8241	2.57	498.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002969628-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
002969628-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_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.

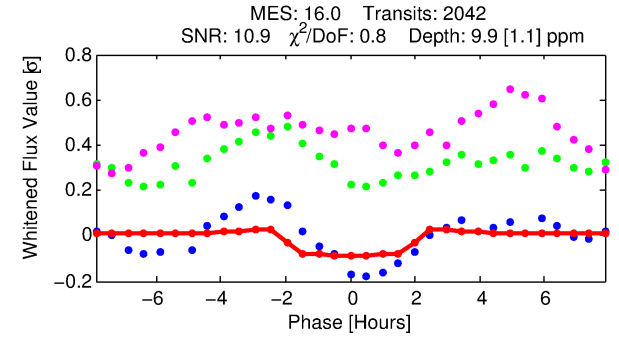
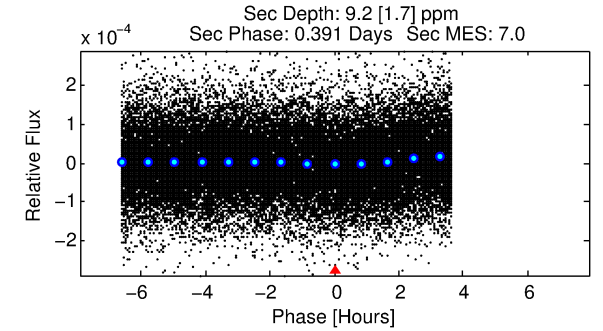
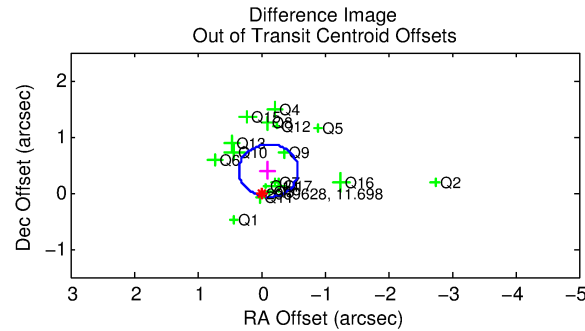
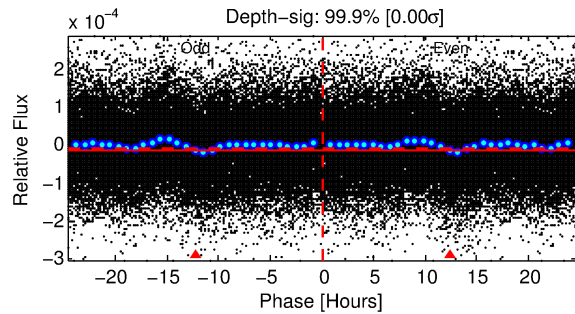
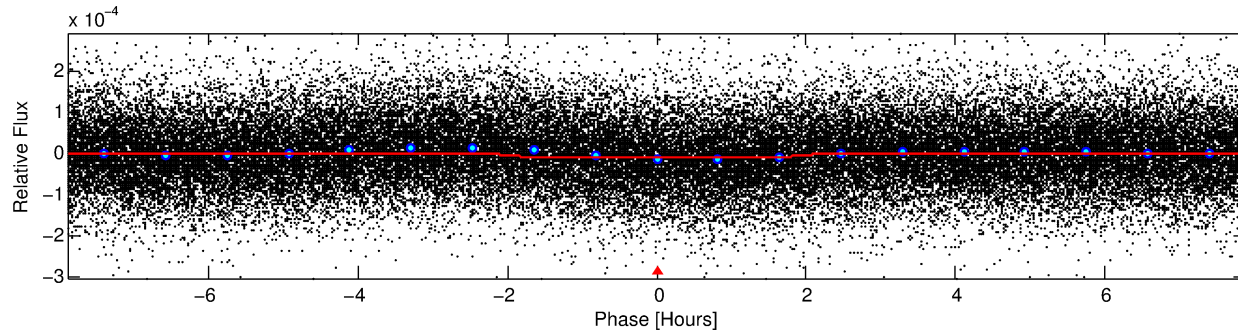
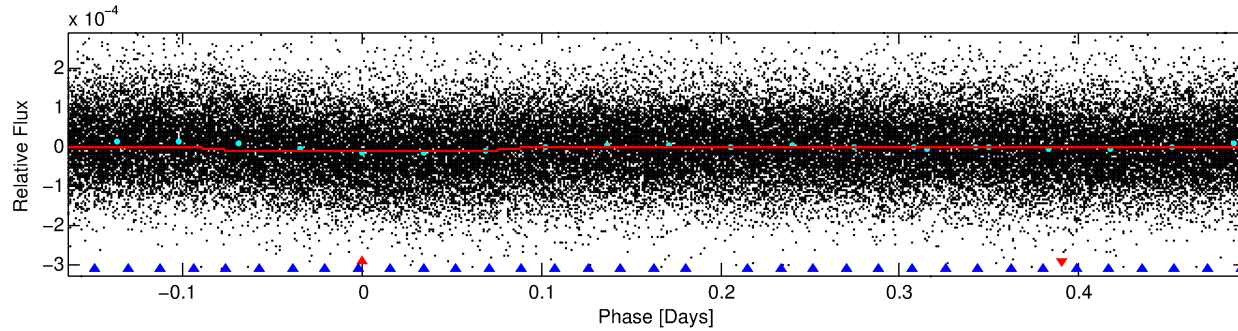
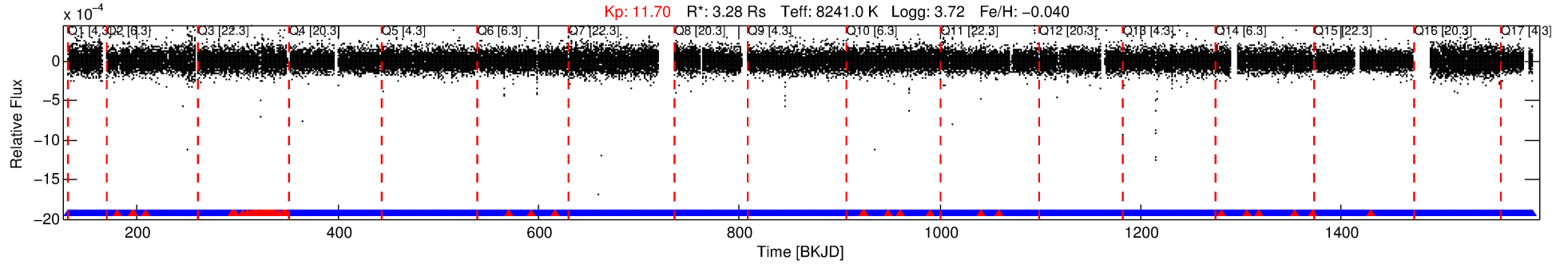
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002969628-01

No Significant Match Found

DV One-Page Summary

KIC: 2969628 Candidate: 1 of 2 Period: 0.658 d



DV Fit Results:

Period = 0.65782 [0.00001] d
Epoch = 131.6142 [0.0032] BKJD
Rp/R* = 0.0030 [0.0009]
a/R* = 1.30 [0.92]
b = 0.48 [2.84]
Seff = 124830.91 [93094.15]
Teq = 4793 [894] K
Rp = 1.06 [0.58] Re
a = 0.0189 [0.0084] AU
Ag = 1.59 [1.54] [0.39 σ]
Teffp = 8325 [1382] K [2.15 σ]

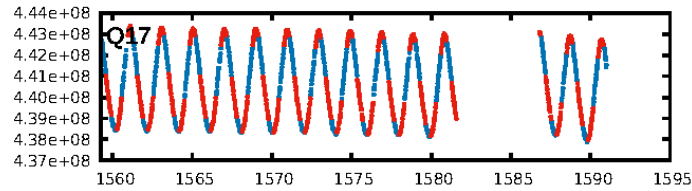
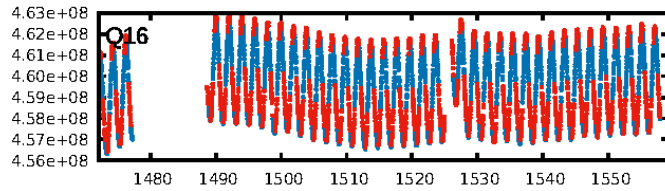
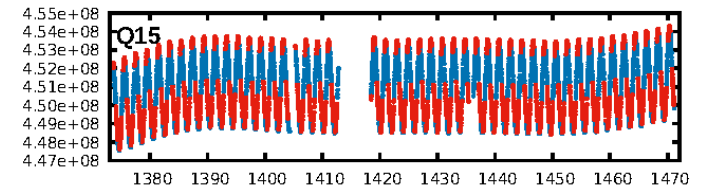
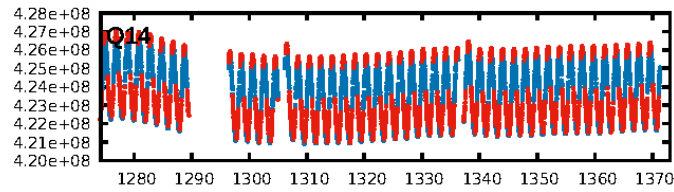
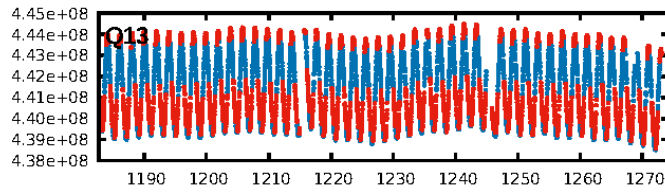
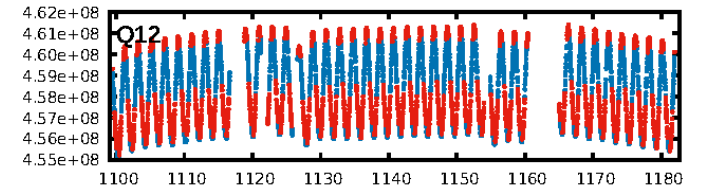
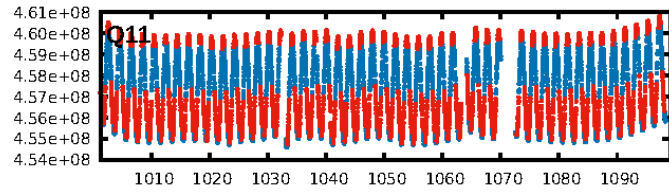
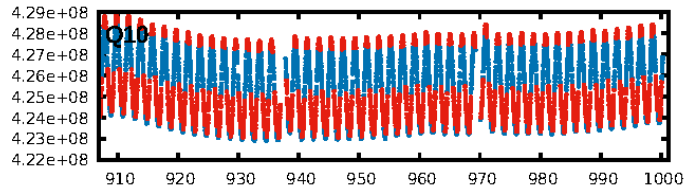
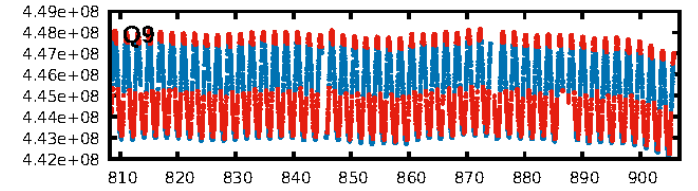
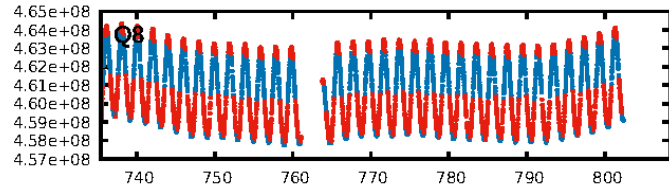
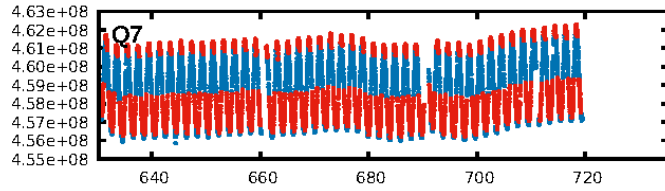
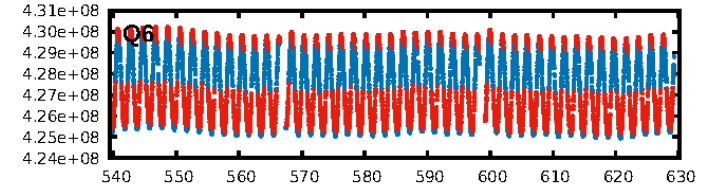
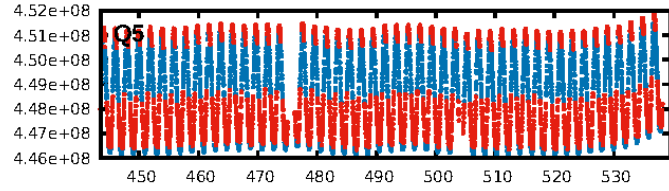
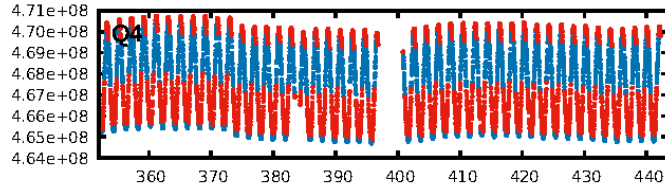
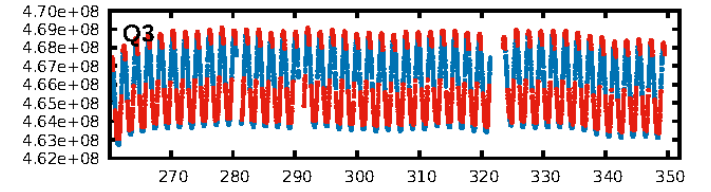
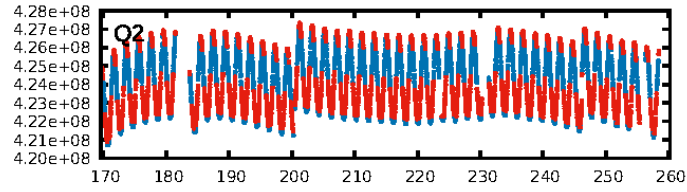
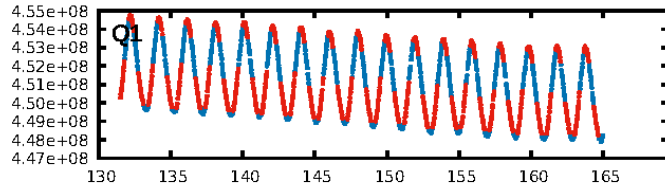
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [40.06 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.31e-35
RollingBand-fgt: 0.97 [1897/1951]
GhostDiagnostic-chr: 0.3015
Centroid-sig: 0.0%
Centroid-so: 5.153 arcsec [3.34 σ]
OotOffset-rm: 0.411 arcsec [2.64 σ]
KicOffset-rm: 0.137 arcsec [0.75 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

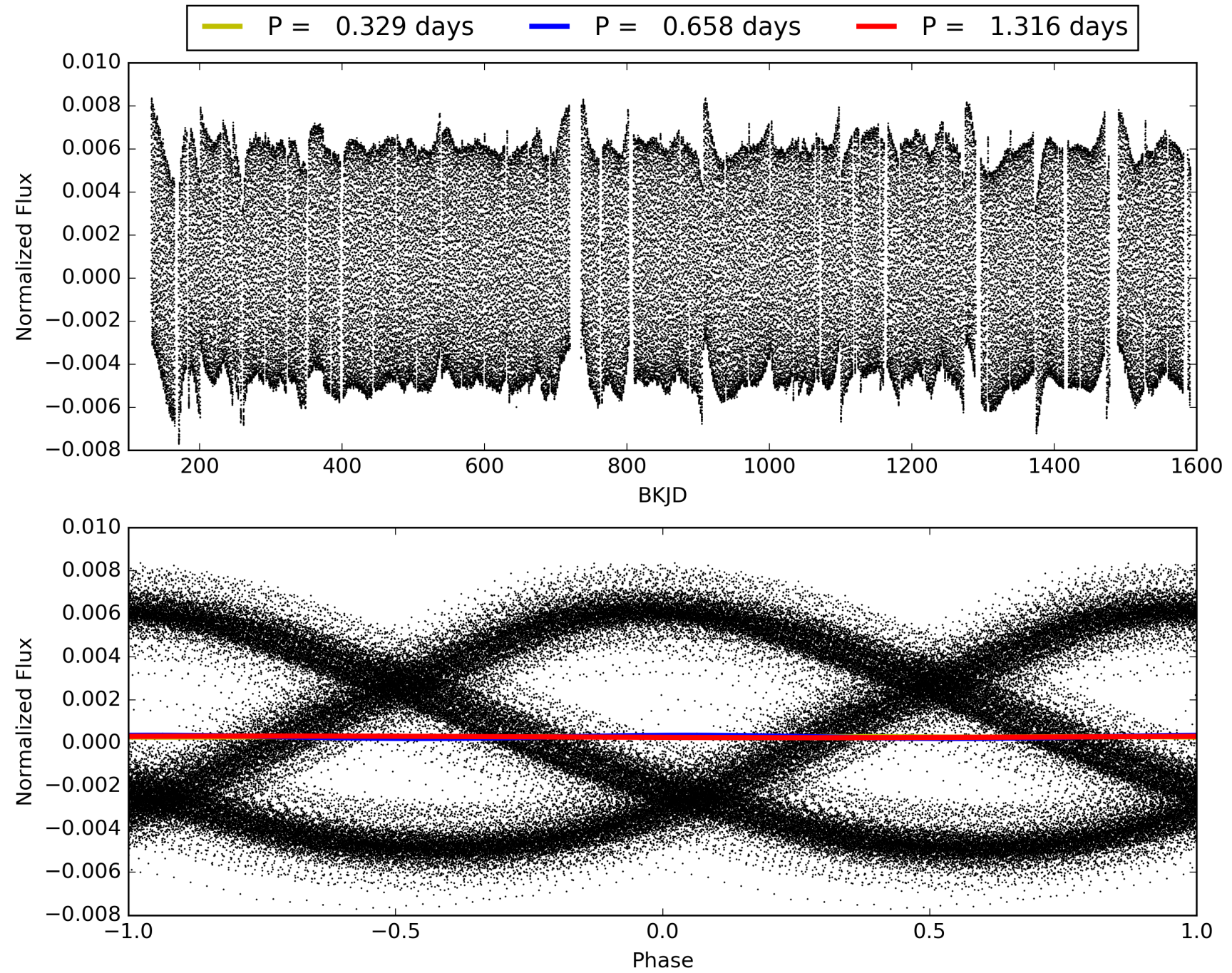
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 002969628-01, PDC Light Curves

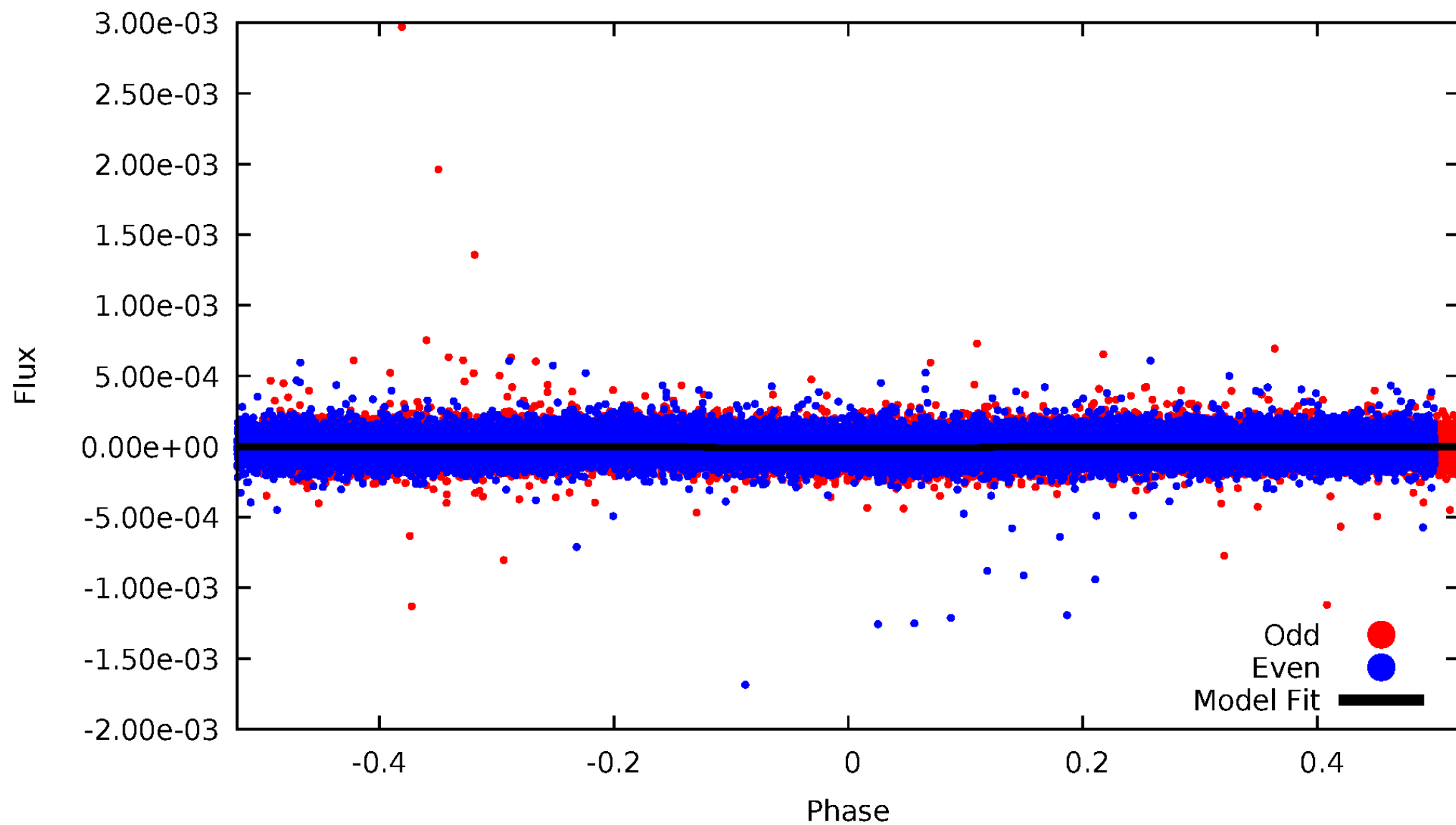


TCE 002969628-01



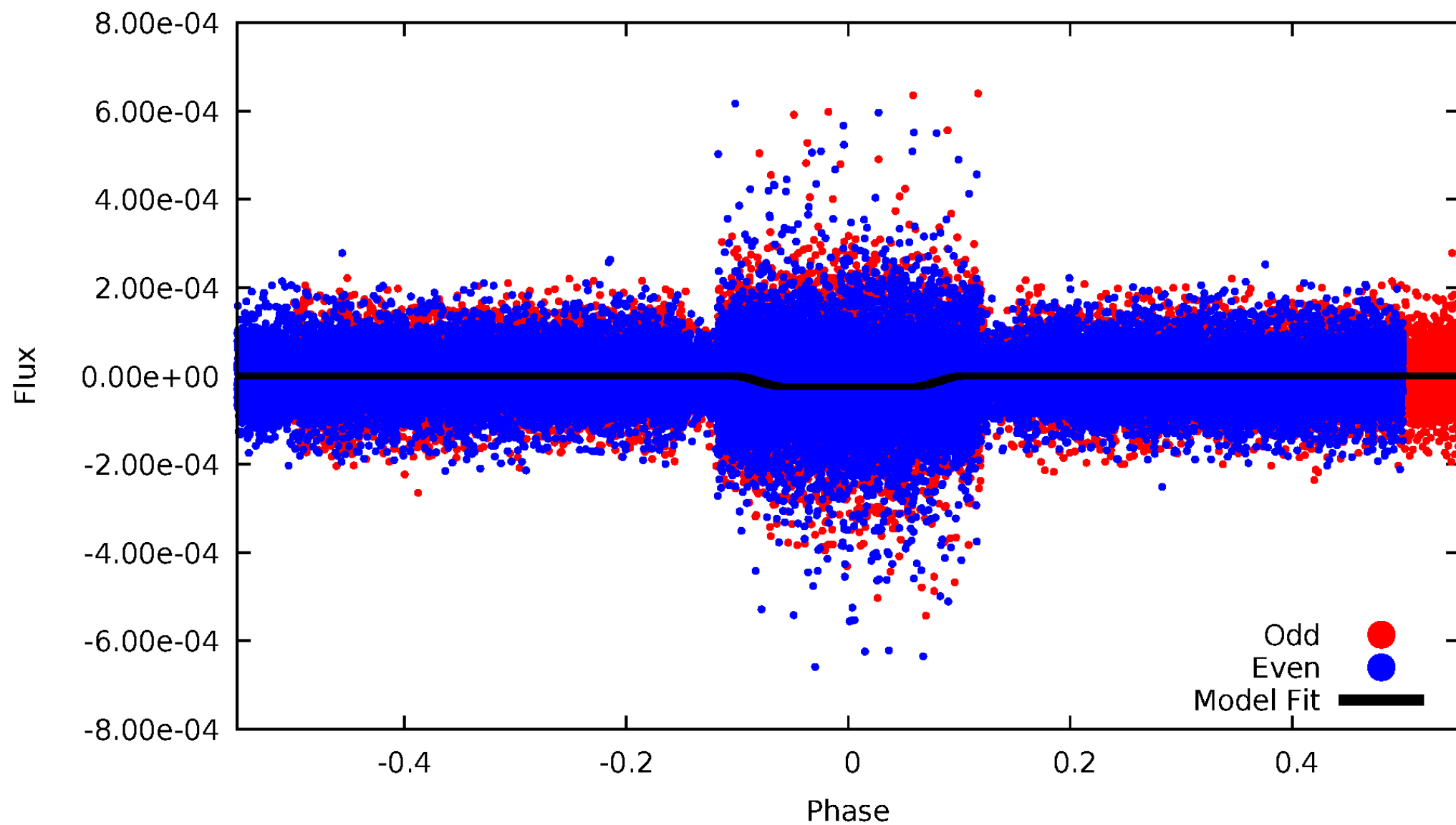
DV Odd/Even

TCE 002969628-01



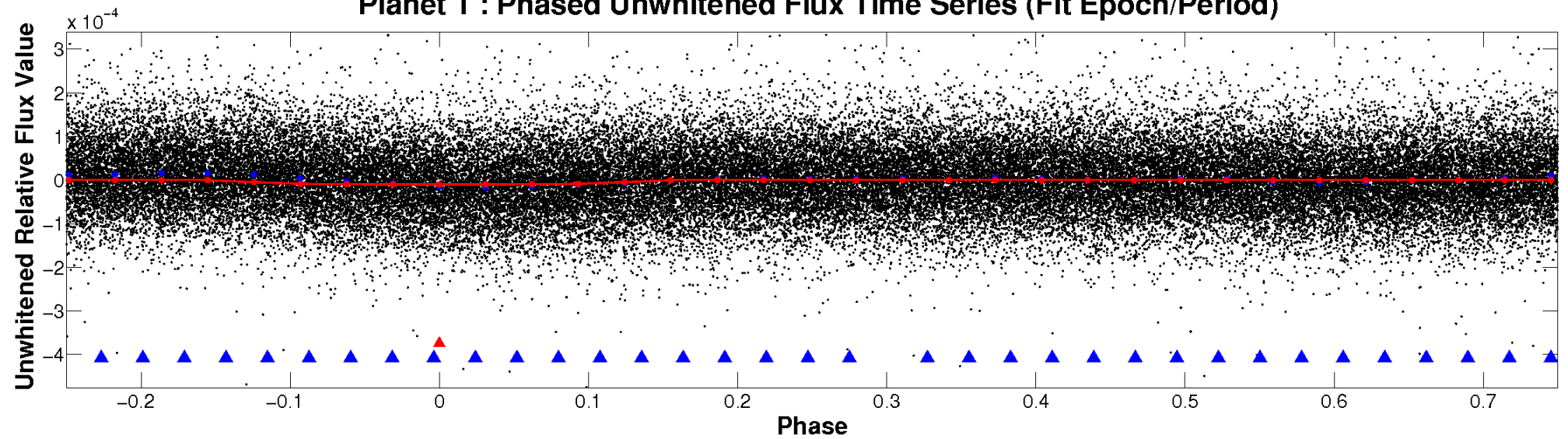
ALT Odd/Even

TCE 002969628-01

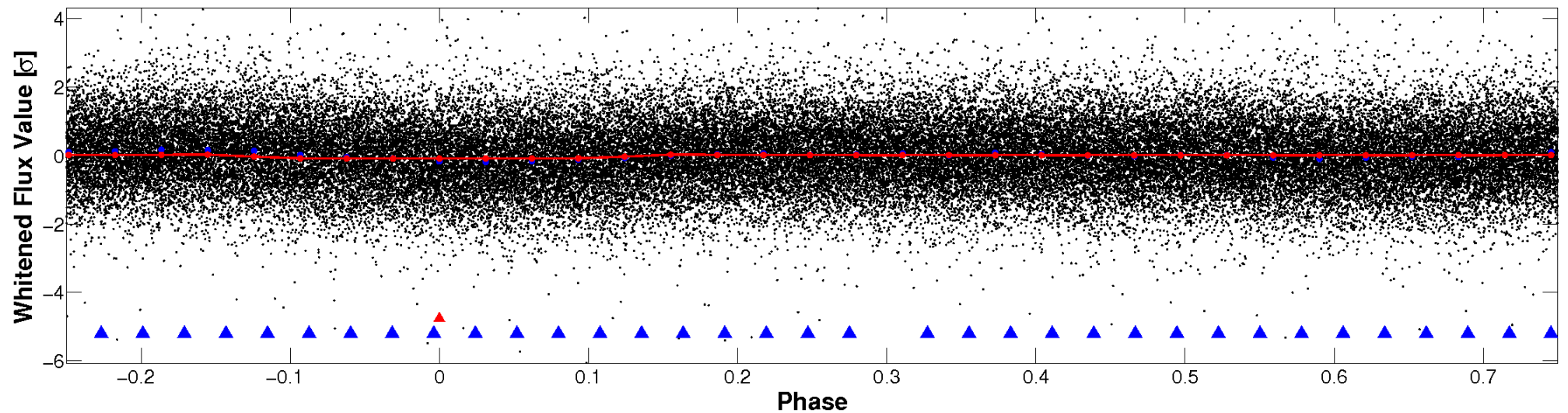


Non-Whitened Vs. Whitened Light Curve

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

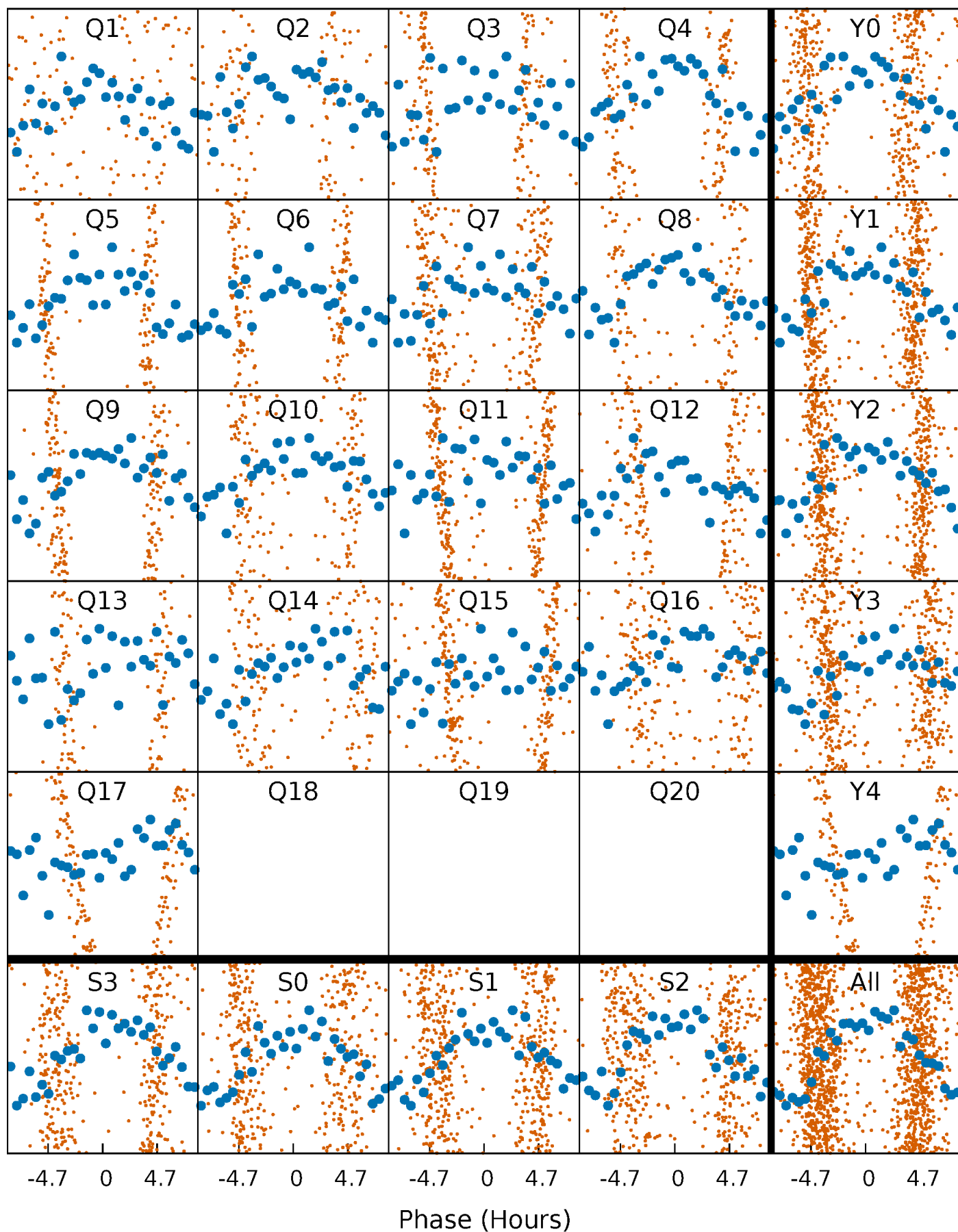


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



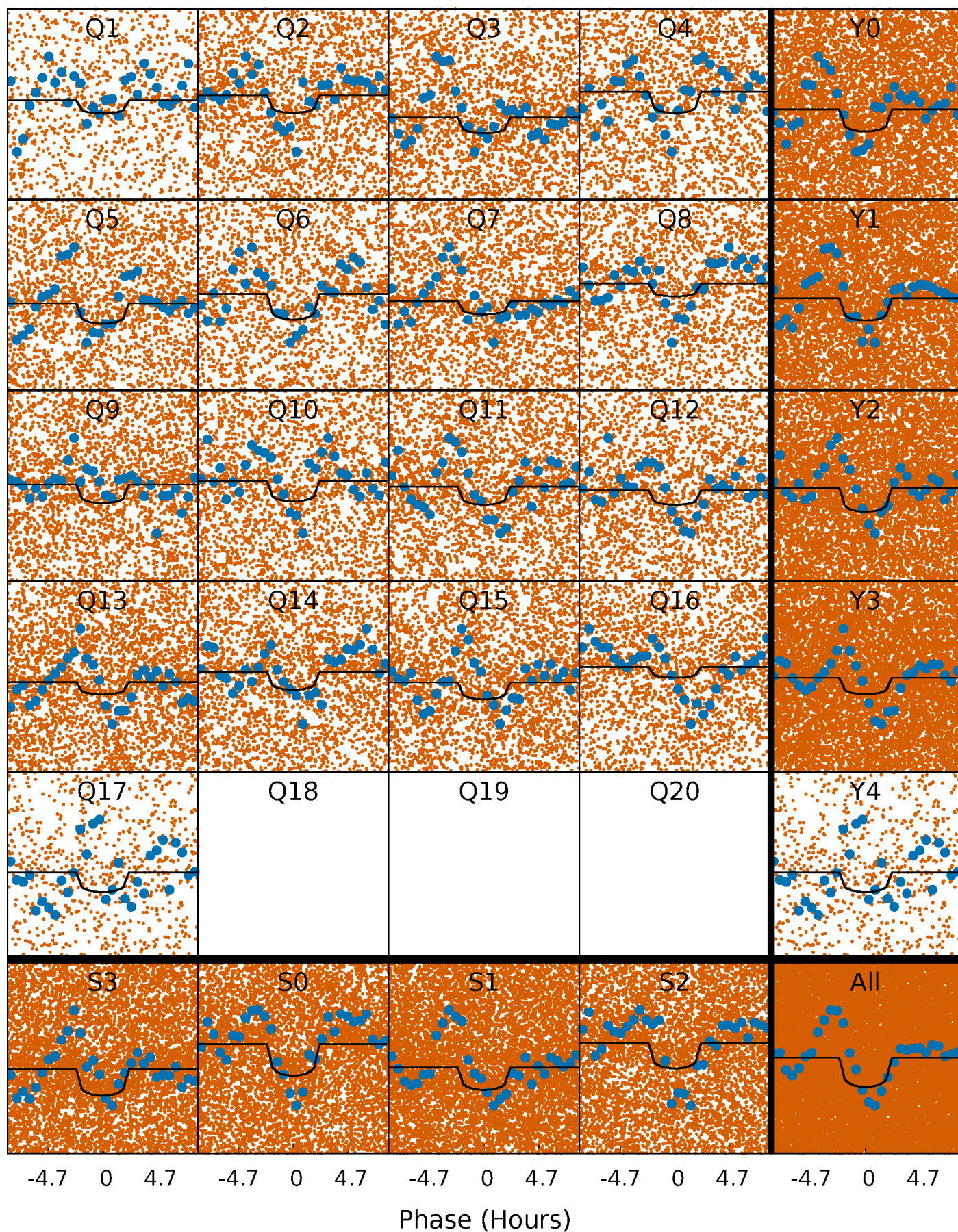
PDC Quarter-Phased Transit Curves

TCE 002969628-01 P= 0.657820 Days $T_0=131.614239$ (BKJD)



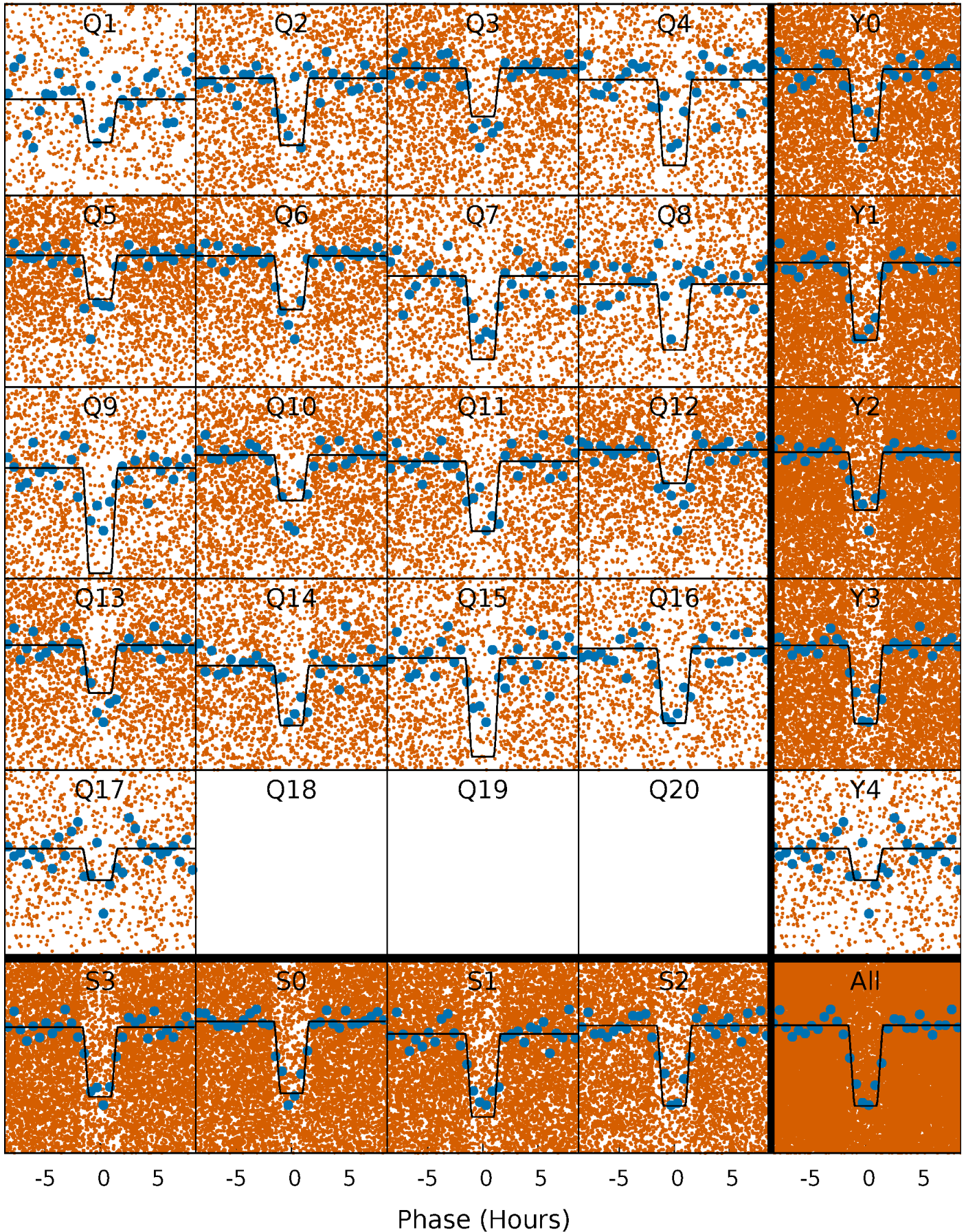
DV Quarter-Phased Transit Curves

TCE 002969628-01 P= 0.657820 Days $T_0=131.614239$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

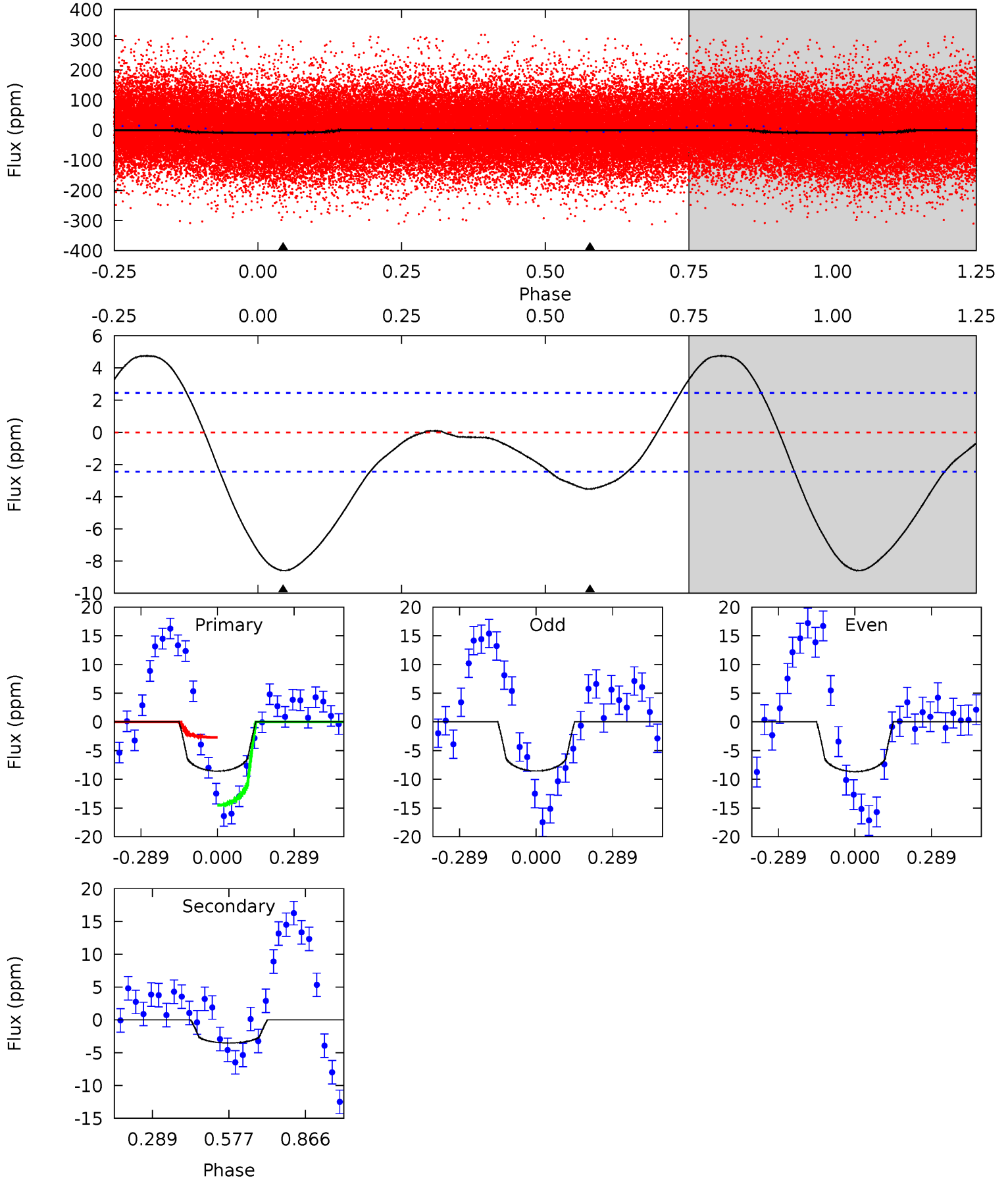
TCE 002969628-01 P= 0.657869 Days $T_0=131.573597$ (BKJD)



DV Model-Shift Uniqueness Test

002969628-01, P = 0.657820 Days, E = 130.956419 Days

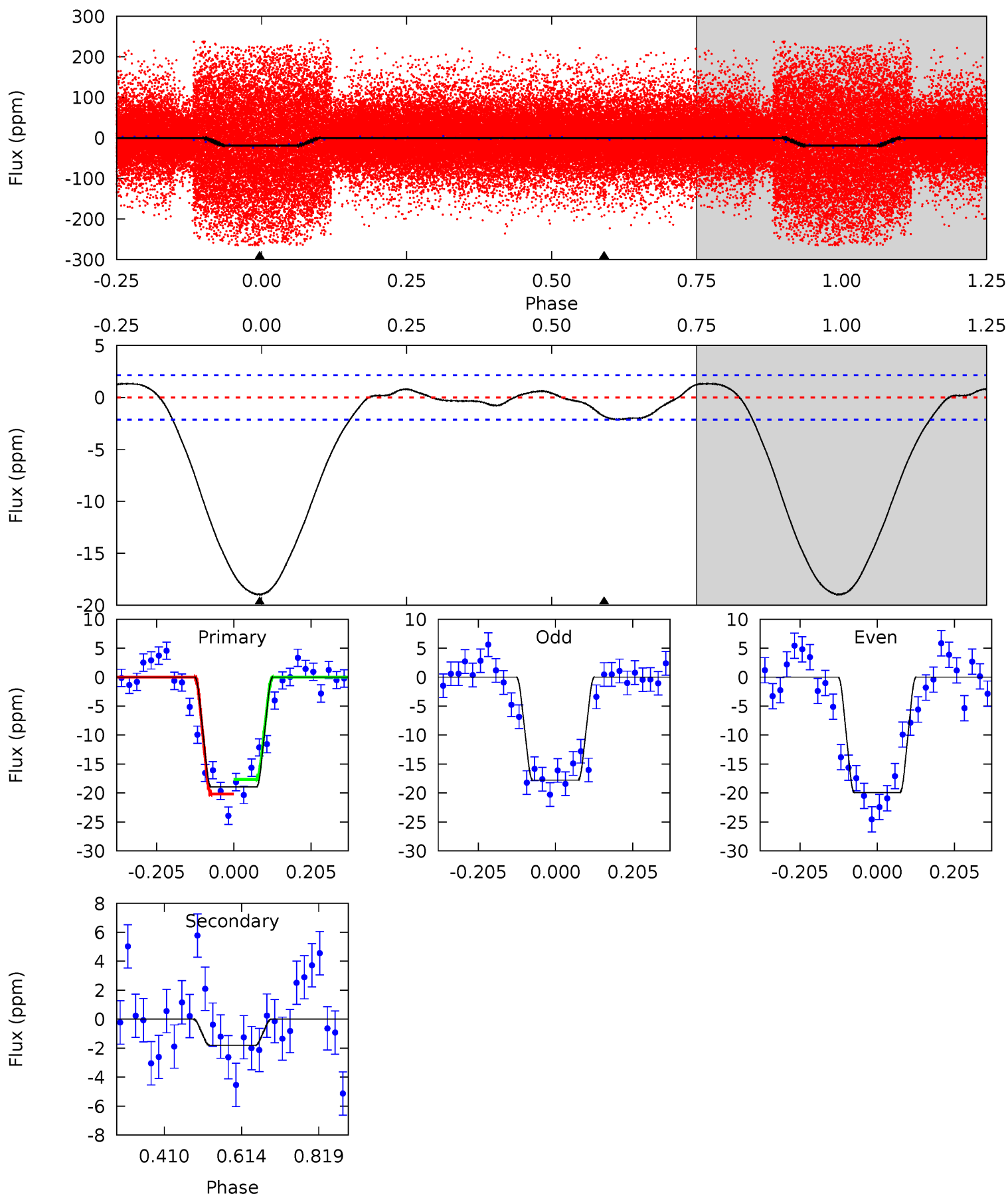
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	6.26	0	0	4.34	1.06	3.26	15.2	15.2	6.26	6.26	0.10	1.15	0.36	10.7



Alt Model-Shift Uniqueness Test

002969628-01, P = 0.657869 Days, E = 130.915728 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.1	3.72	0	0	4.41	1.27	0.85	39.1	39.1	3.72	3.72	2.19	1.33	0.06	2.60



Stellar Parameters For KIC 002969628

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8241^{+228}_{-370}	$3.722^{+0.428}_{-0.143}$	$-0.040^{+0.250}_{-0.400}$	$3.277^{+0.996}_{-1.493}$	$2.068^{+0.389}_{-0.519}$	$0.083^{+0.304}_{-0.036}$
	+3%/-4%	+11%/-4%	+625%/-1000%	+30%/-46%	+19%/-25%	+368%/-43%
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 002969628-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 1	$0.96^{+0.39}_{-0.35}$	6466^{+622}_{-814}	5494^{+1675}_{-1408}	$0.746^{+0.984}_{-0.363}$
Alt.	-2 ± 0	$1.62^{+0.48}_{-0.46}$	6492^{+629}_{-718}	-4557^{+1230}_{-615}	$0.134^{+0.127}_{-0.057}$

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

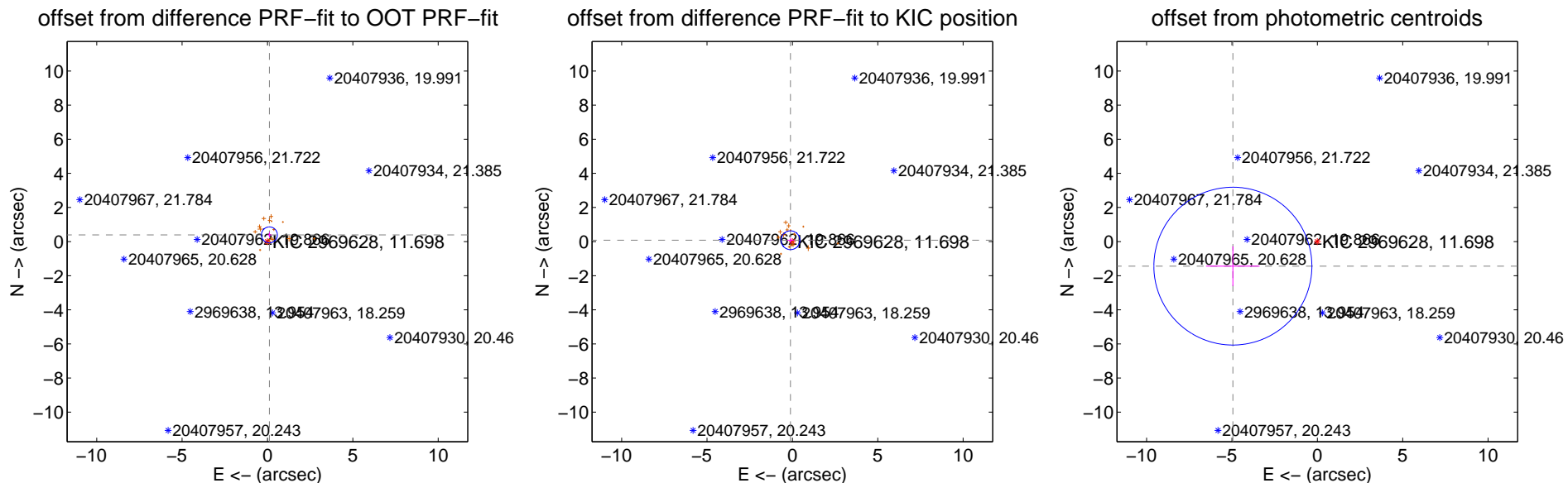
DV Centroid Data

Supplemental centroid analysis for 002969628-01. **Kepler magnitude: 11.70.** Transit SNR 10.86

There are 0 quarters with good PRF difference image offsets

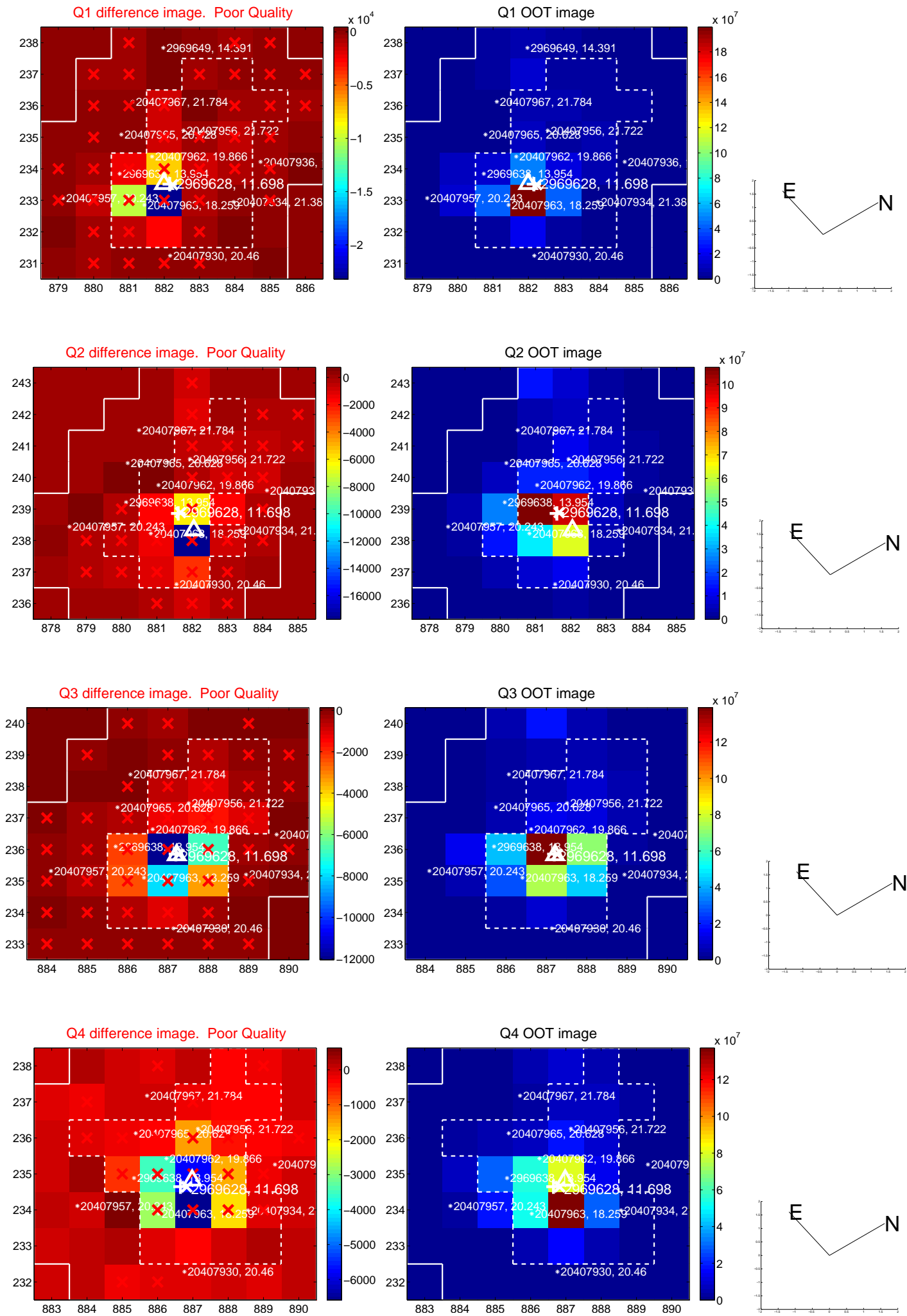
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.411 ± 0.156	2.64	-0.115 ± 0.120	0.394 ± 0.158
PRF-fit source offset from KIC position	0.137 ± 0.183	0.75	0.112 ± 0.188	0.079 ± 0.146
photometric centroid source offset	5.15 ± 1.54	3.34	4.95 ± 1.57	-1.44 ± 1.16

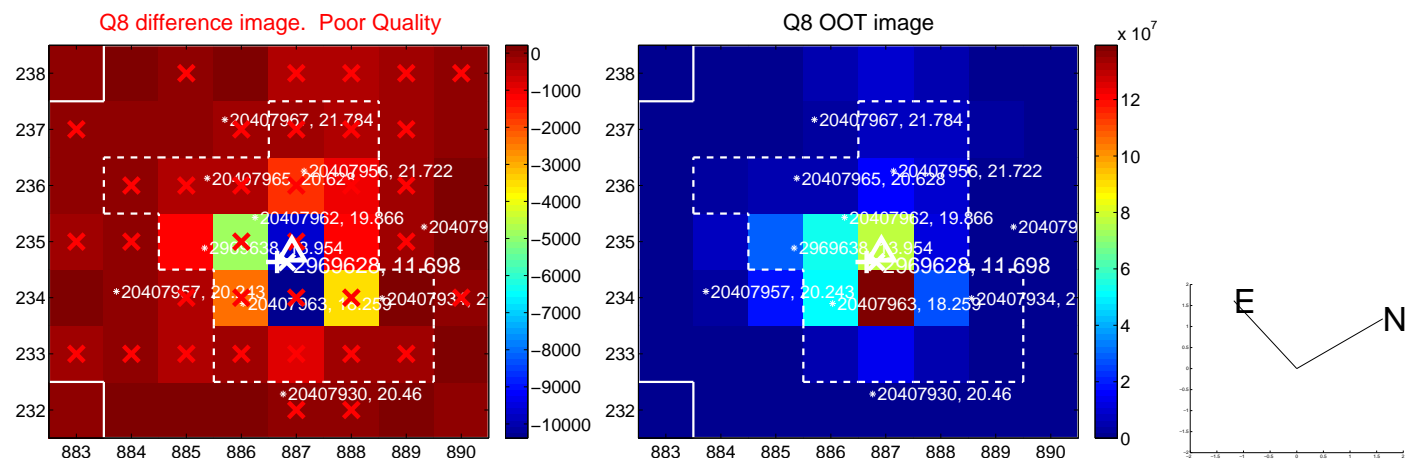
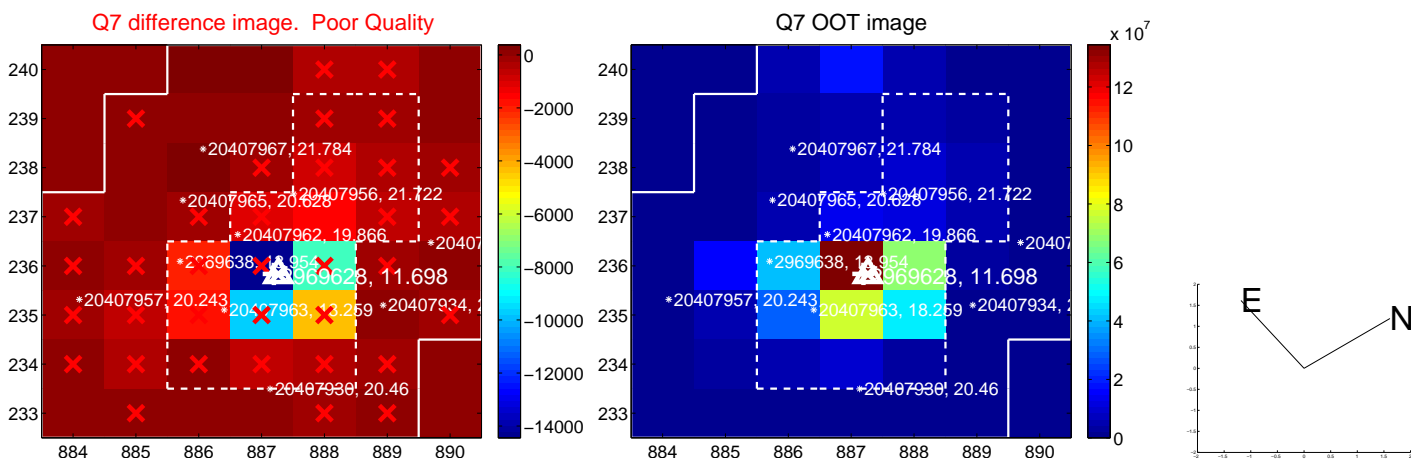
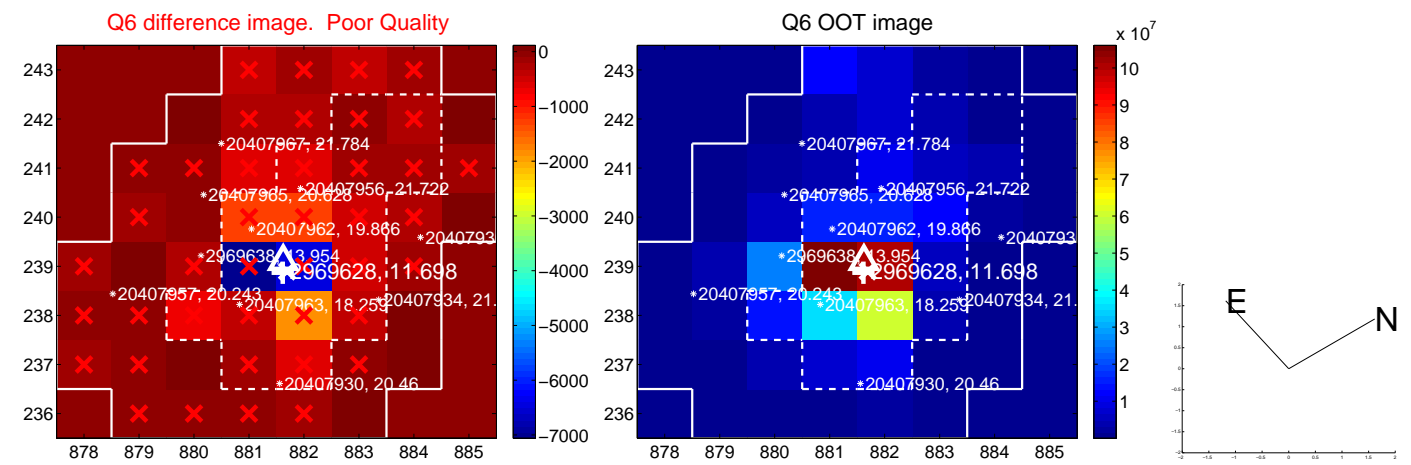
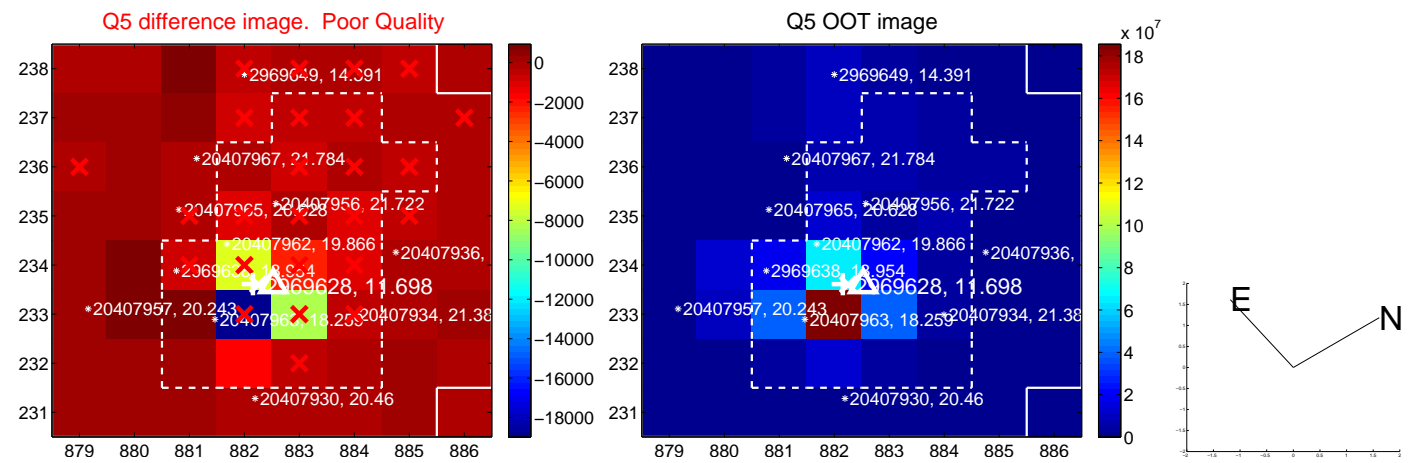


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

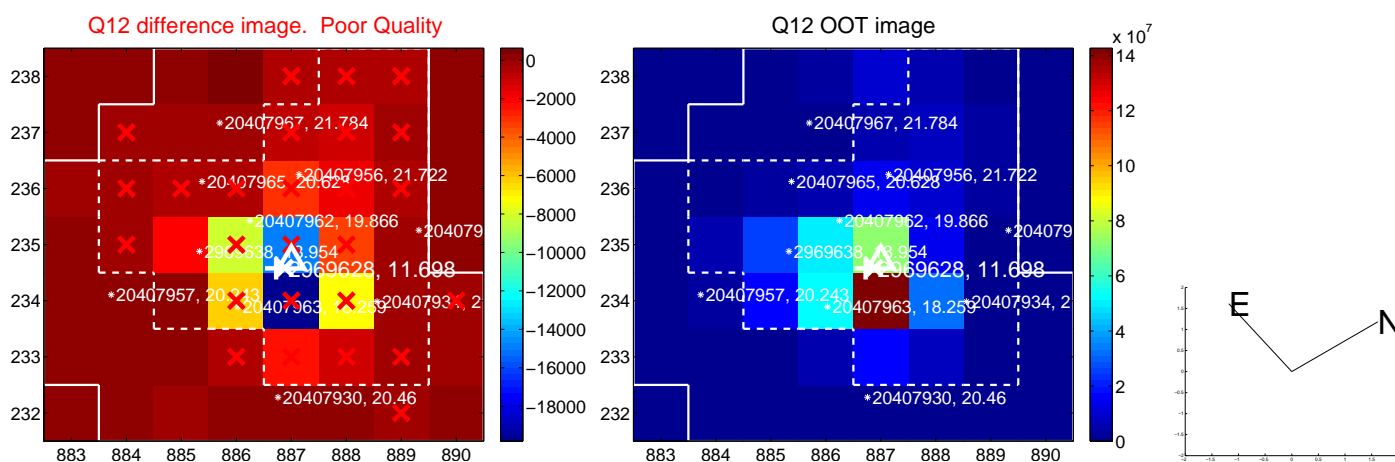
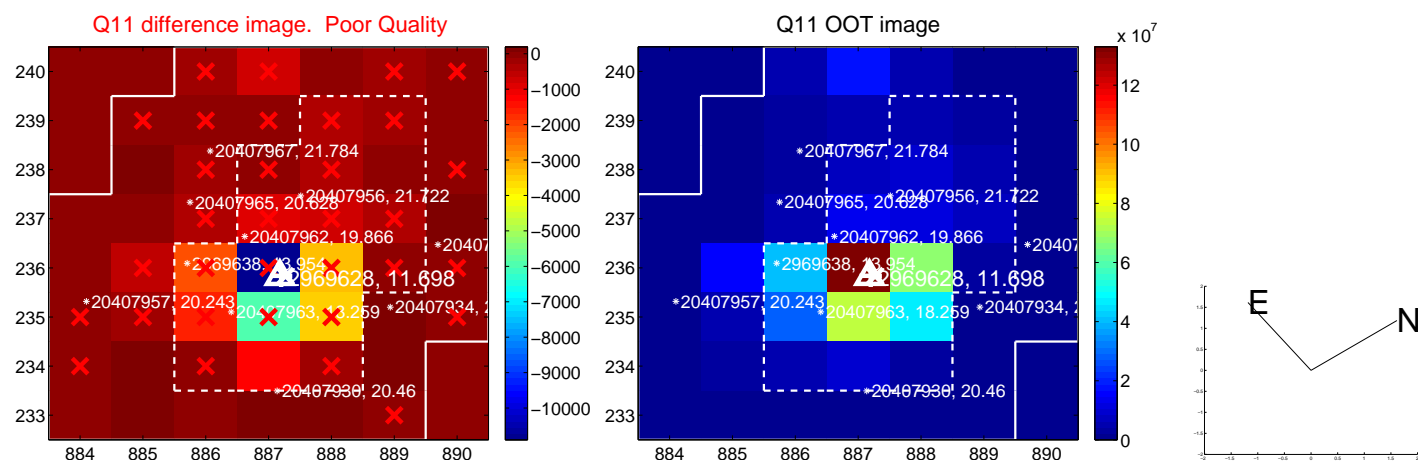
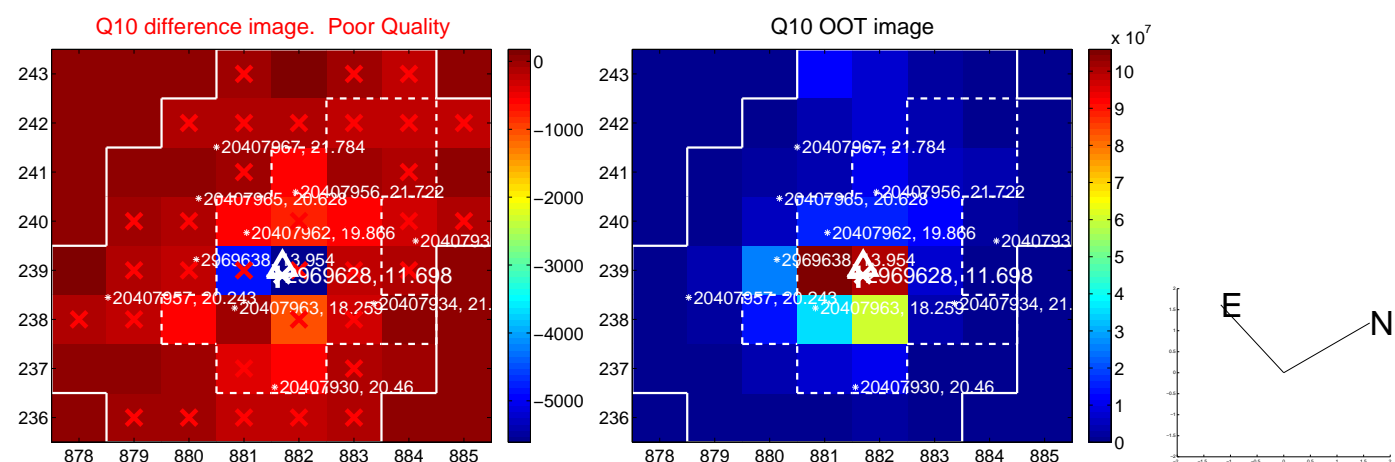
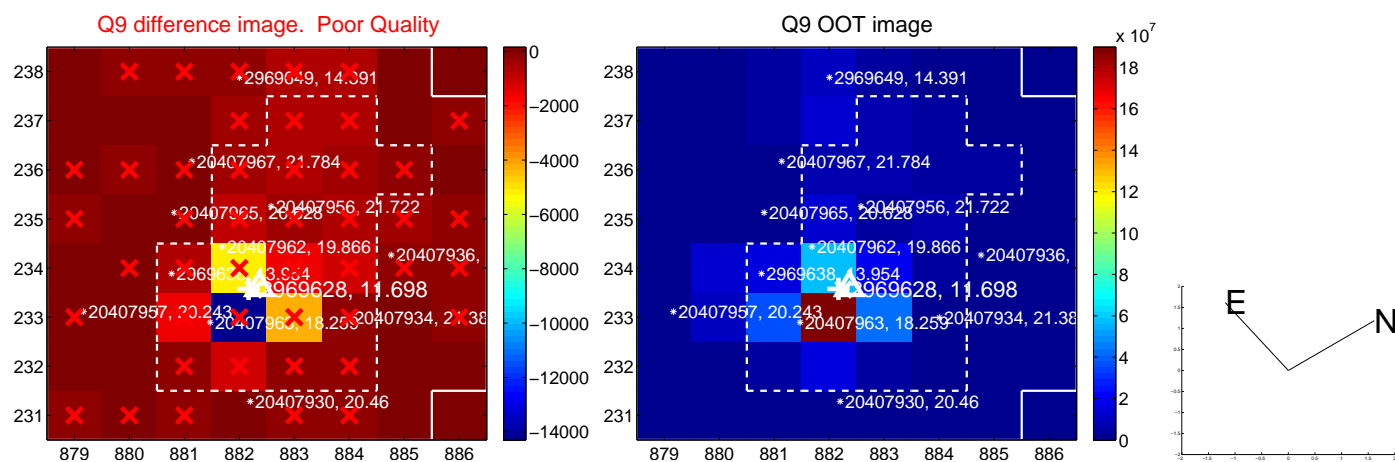
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



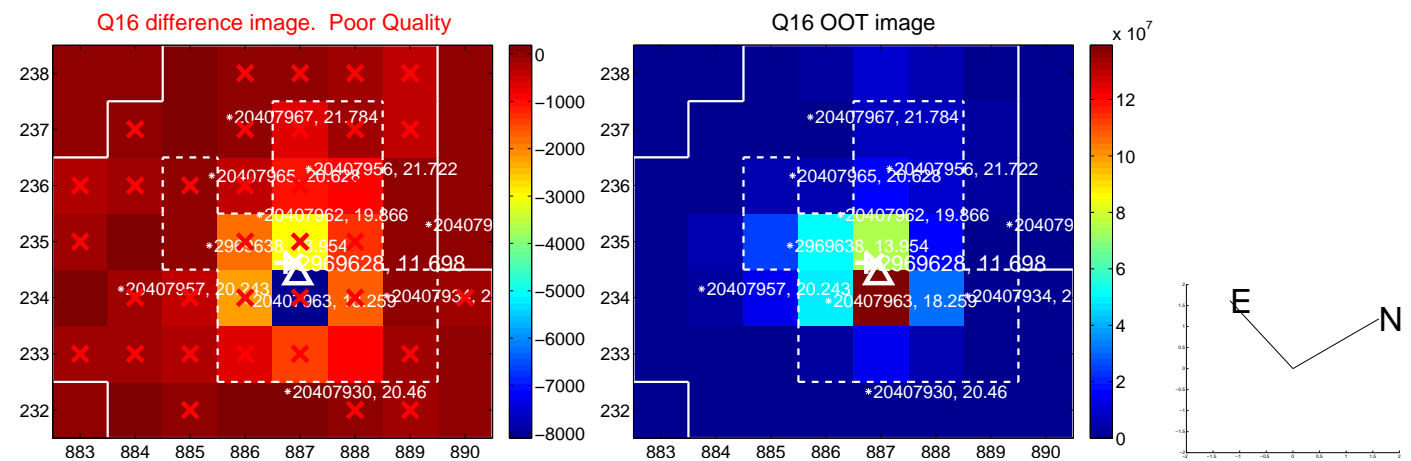
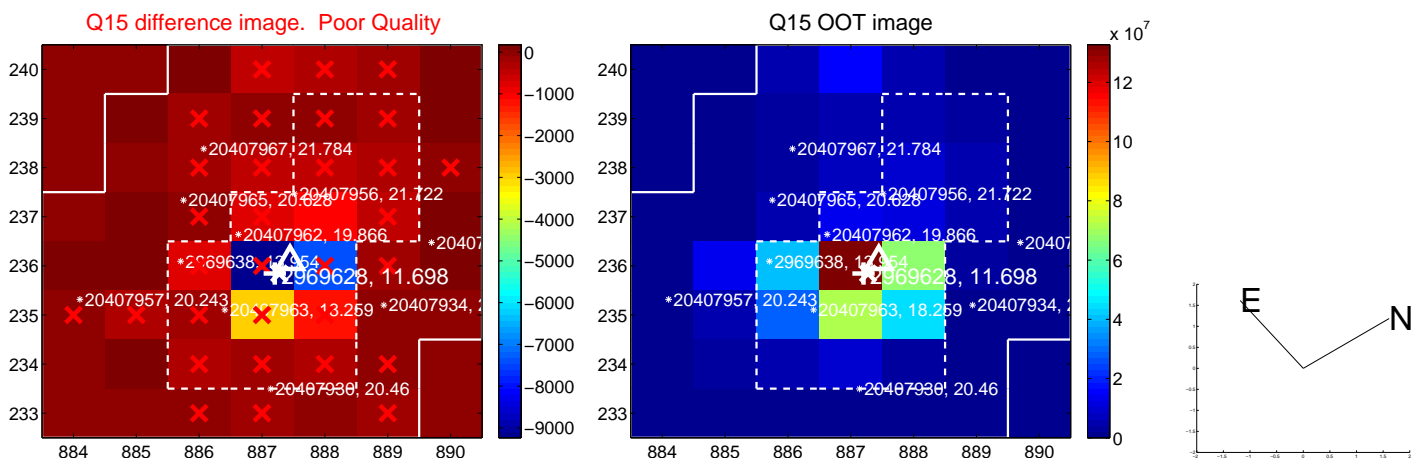
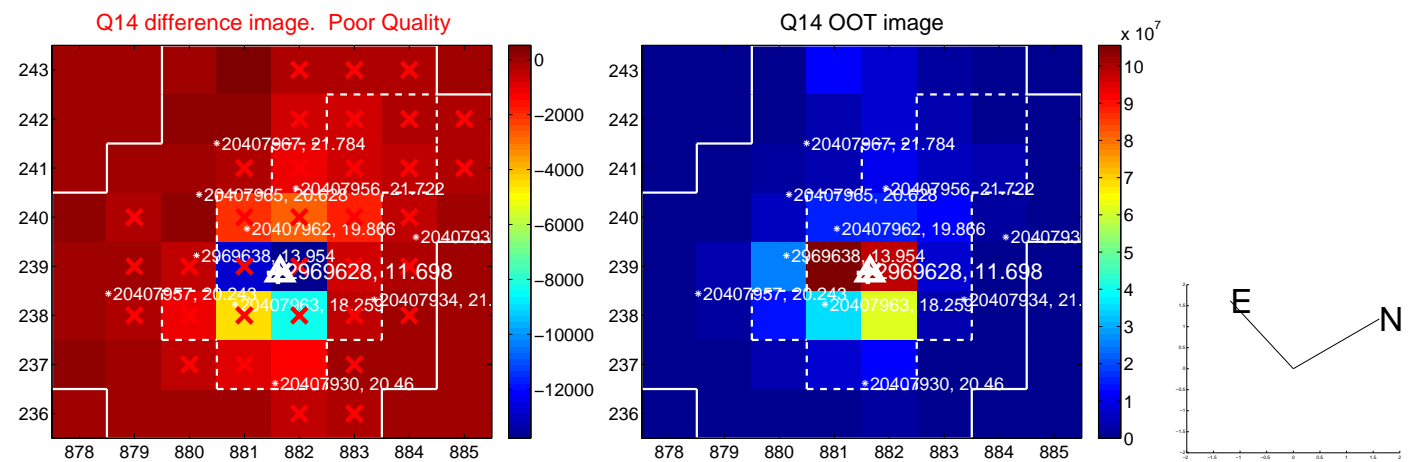
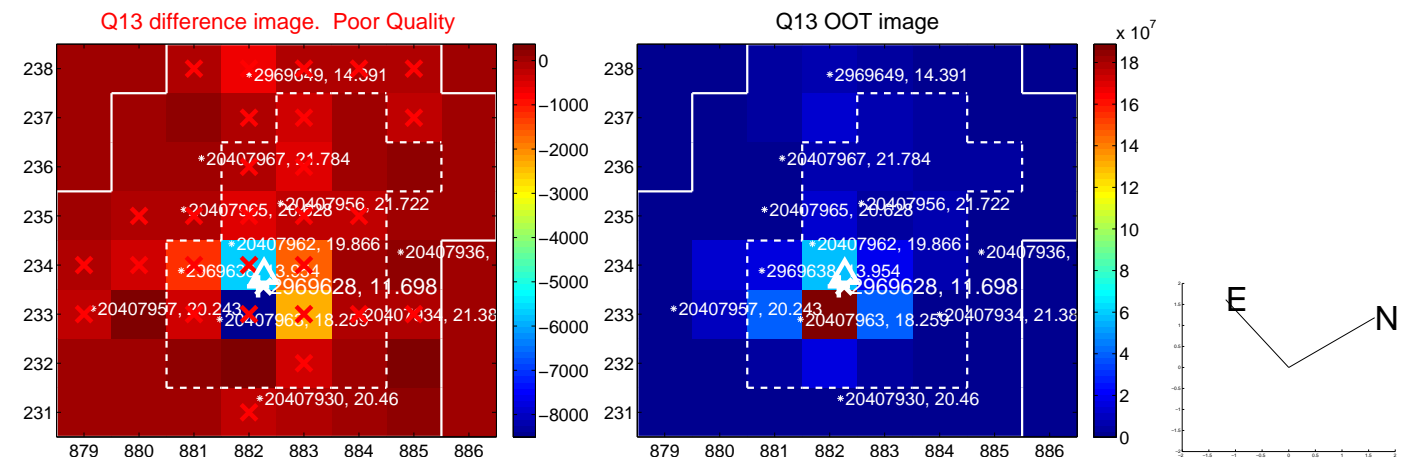
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



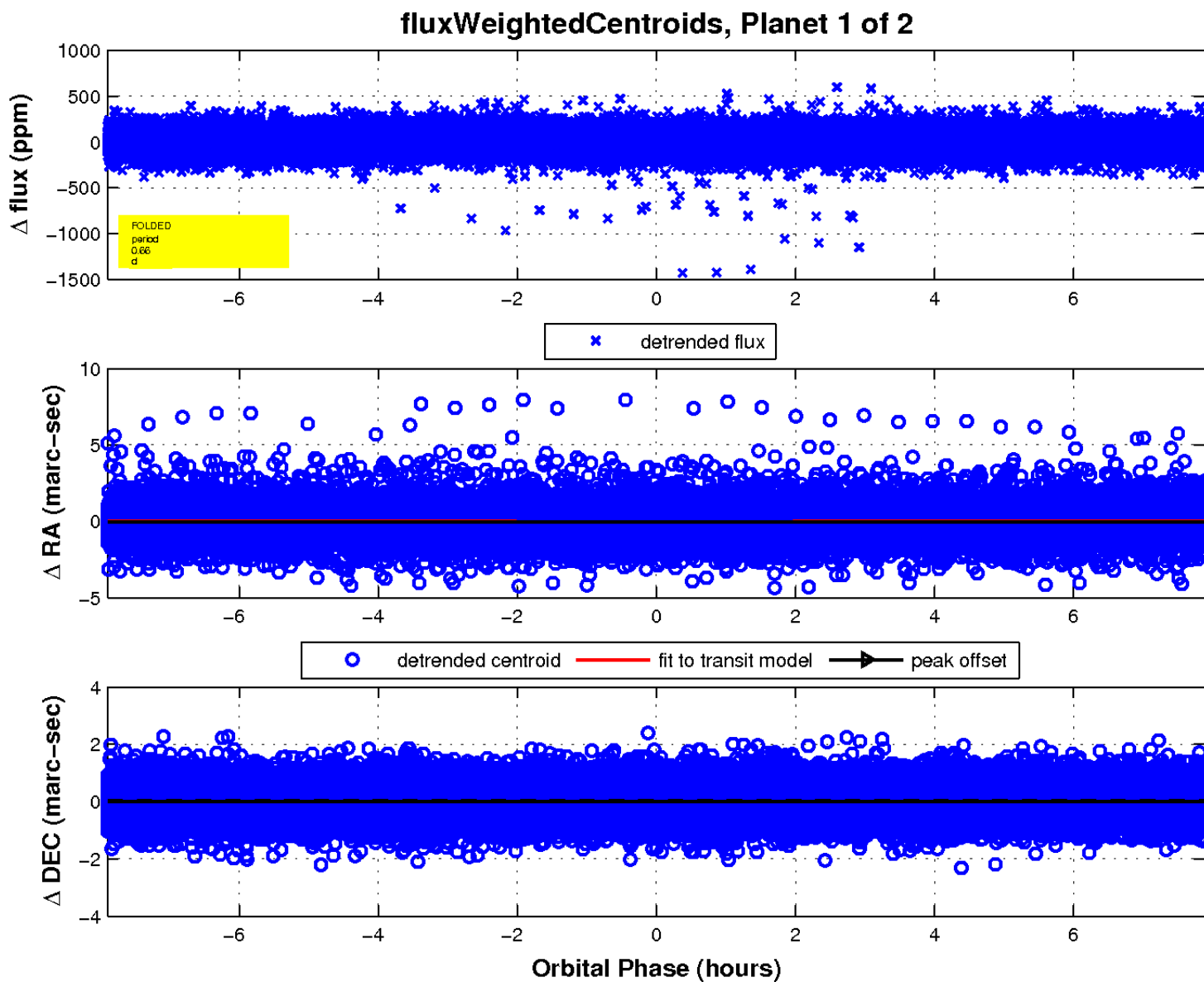
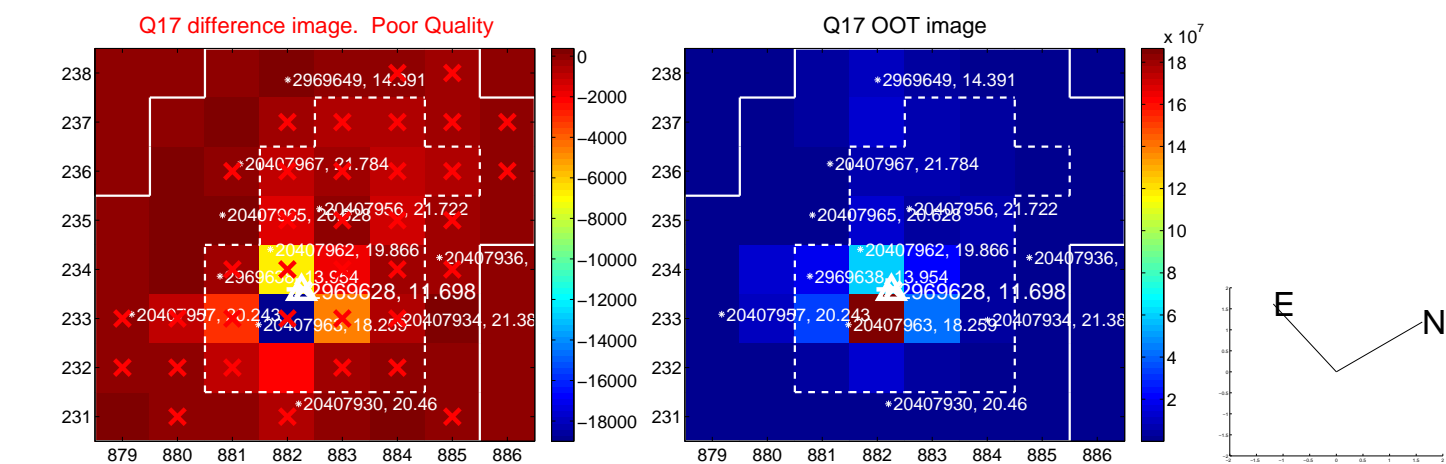
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

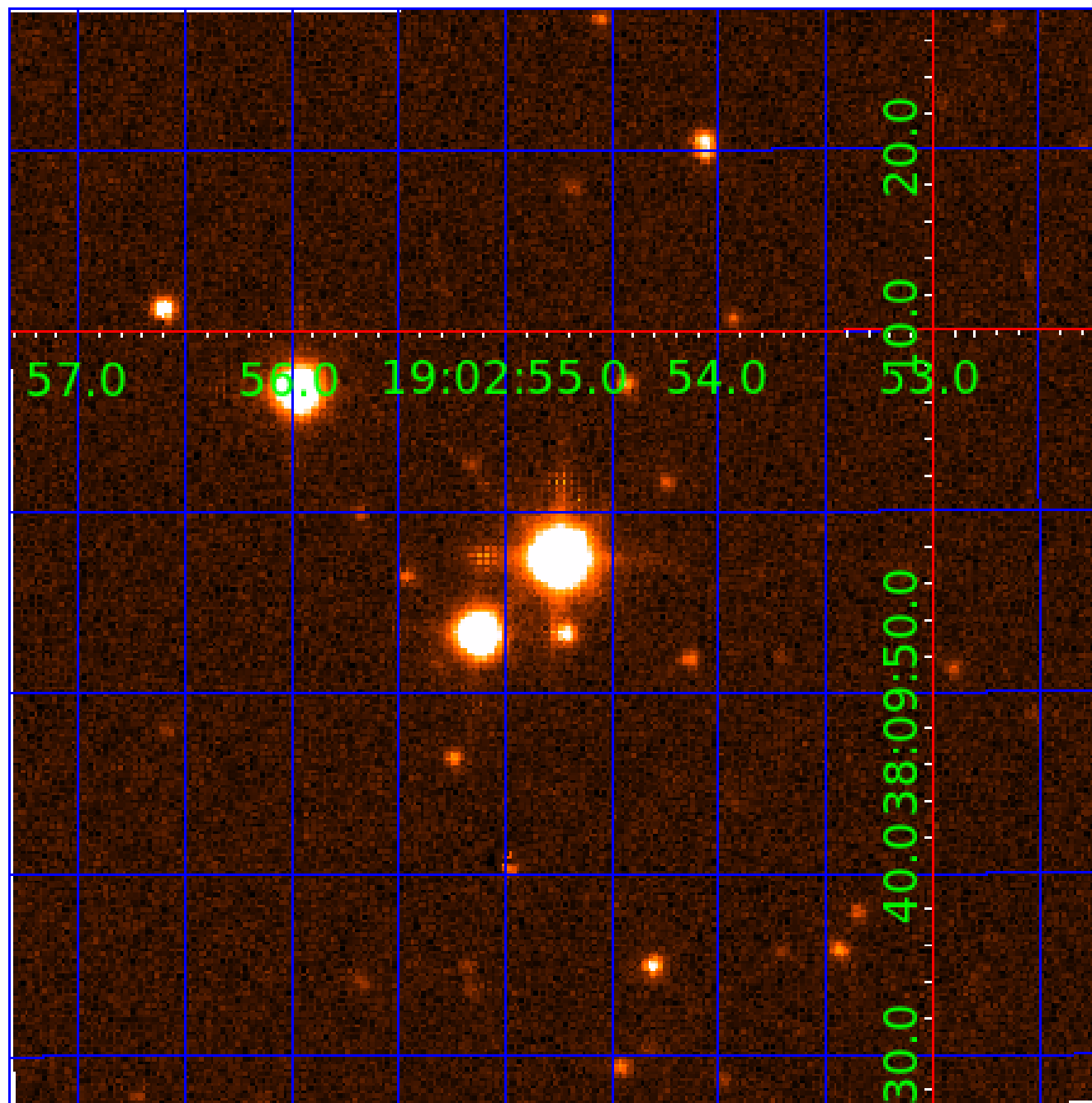


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 002969628

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})
002969628-01	OBS	No	0.657820	131.614239	9.9	4.113	16.0	10.9	3.28	8241	1.06	124830.91
002969628-02	OBS	No	41.424329	163.370503	51.9	24.075	11.0	4.6	3.28	8241	2.57	498.26

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002969628-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
002969628-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_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.

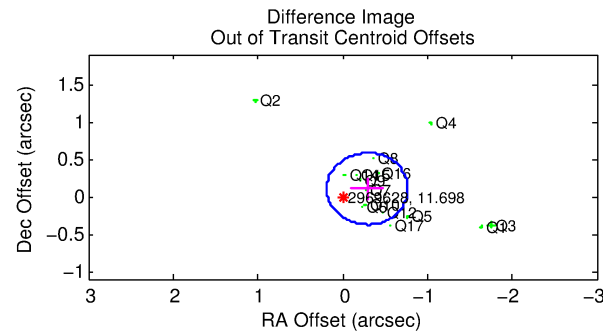
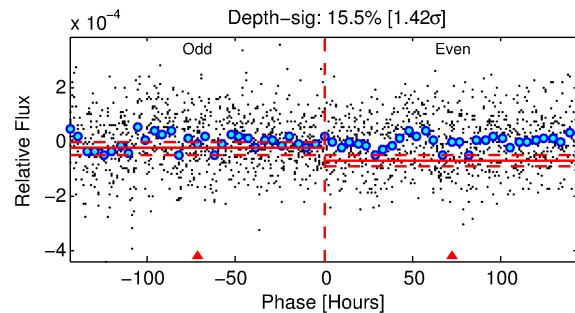
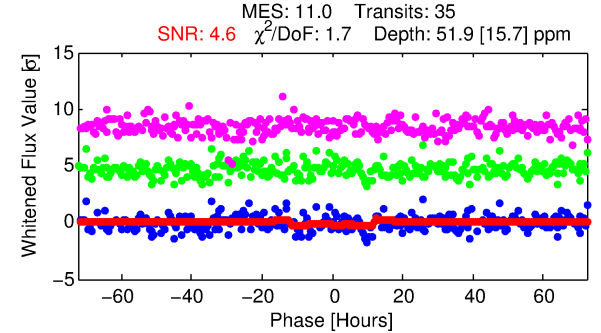
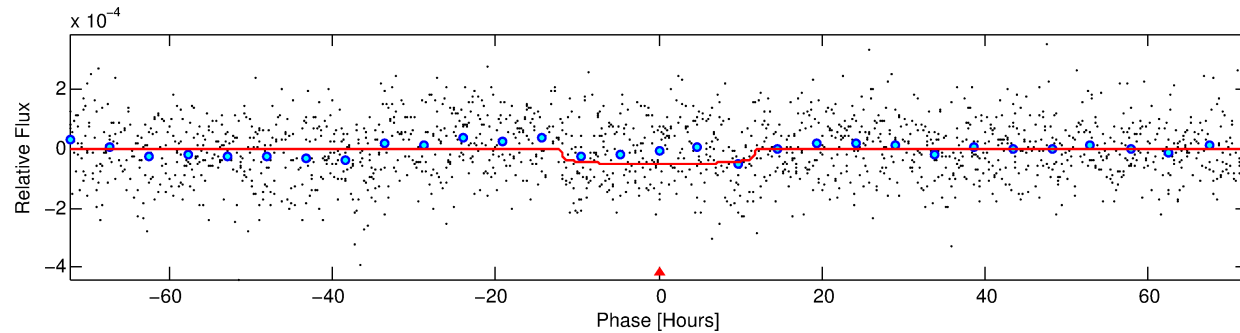
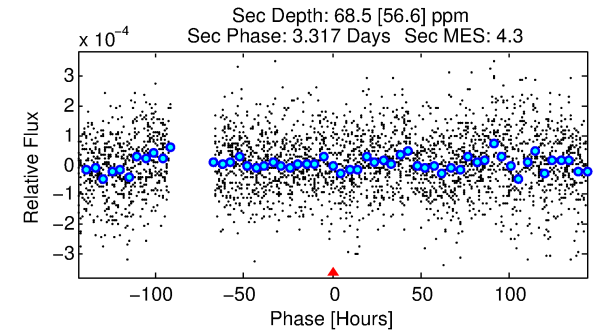
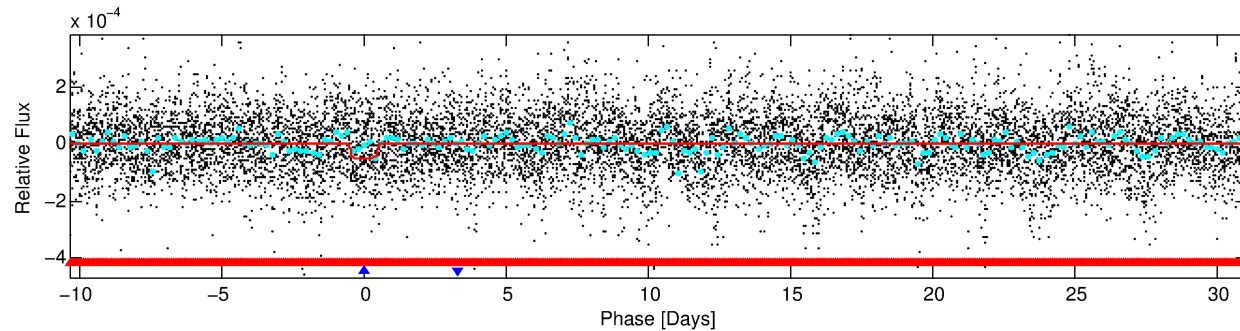
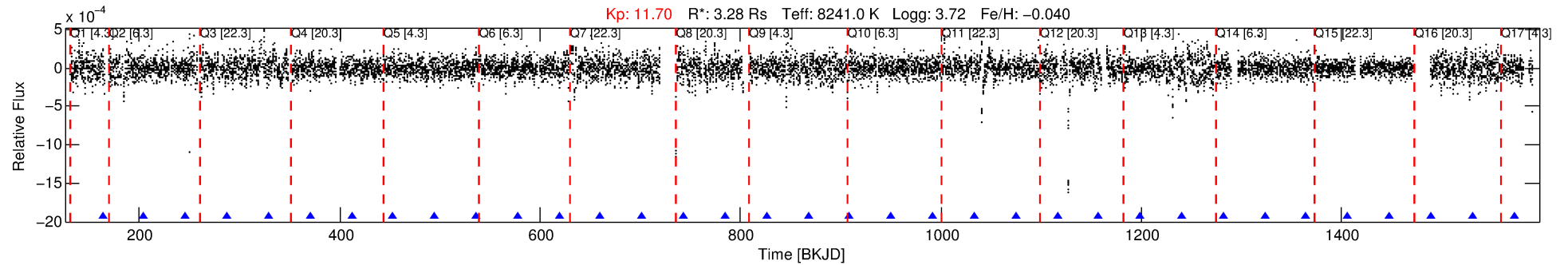
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 002969628-02

No Significant Match Found

DV One-Page Summary

KIC: 2969628 Candidate: 2 of 2 Period: 41.424 d



DV Fit Results:

Period = 41.42433 [0.00190] d
Epoch = 163.3705 [0.0325] BKJD
Rp/R* = 0.0072 [0.0023]
a/R* = 8.68 [13.54]
b = 0.76 [0.87]
Seff = 498.26 [371.58]
Teq = 1205 [225] K
Rp = 2.57 [1.43] Re
a = 0.2984 [0.1335] AU
Ag = 507.61 [643.19] [0.79σ]
Teffp = 8841 [2333] K [3.26σ]

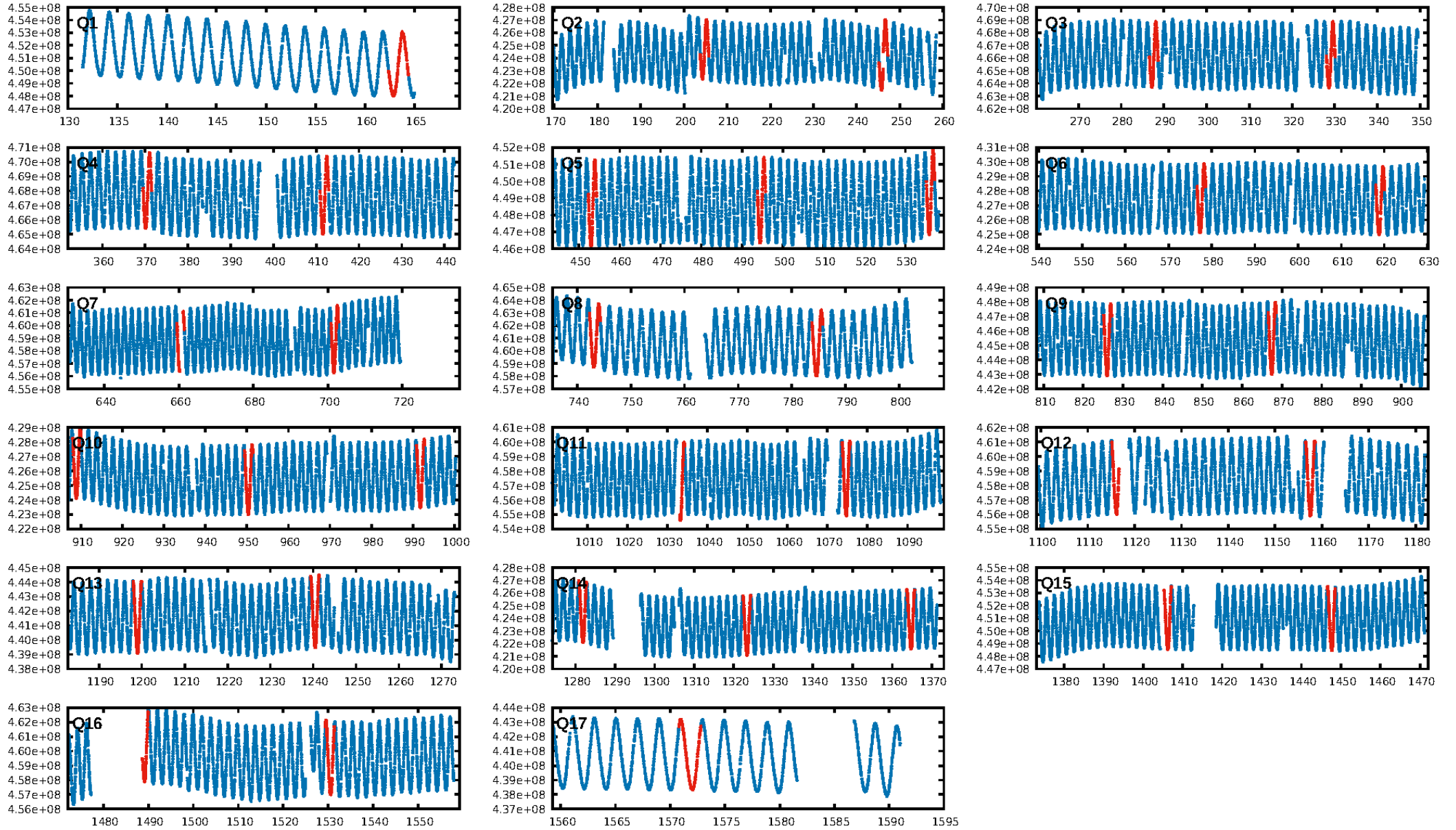
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.06σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.57e-19
RollingBand-fgt: 1.00 [33/33]
GhostDiagnostic-chr: -0.2651
Centroid-sig: 0.2%
Centroid-so: 6.101 arcsec [2.71σ]
OotOffset-rm: 0.308 arcsec [1.93σ]
KicOffset-rm: 0.223 arcsec [1.44σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
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DiffImageOverlap-fno: 0.00 [0/15]

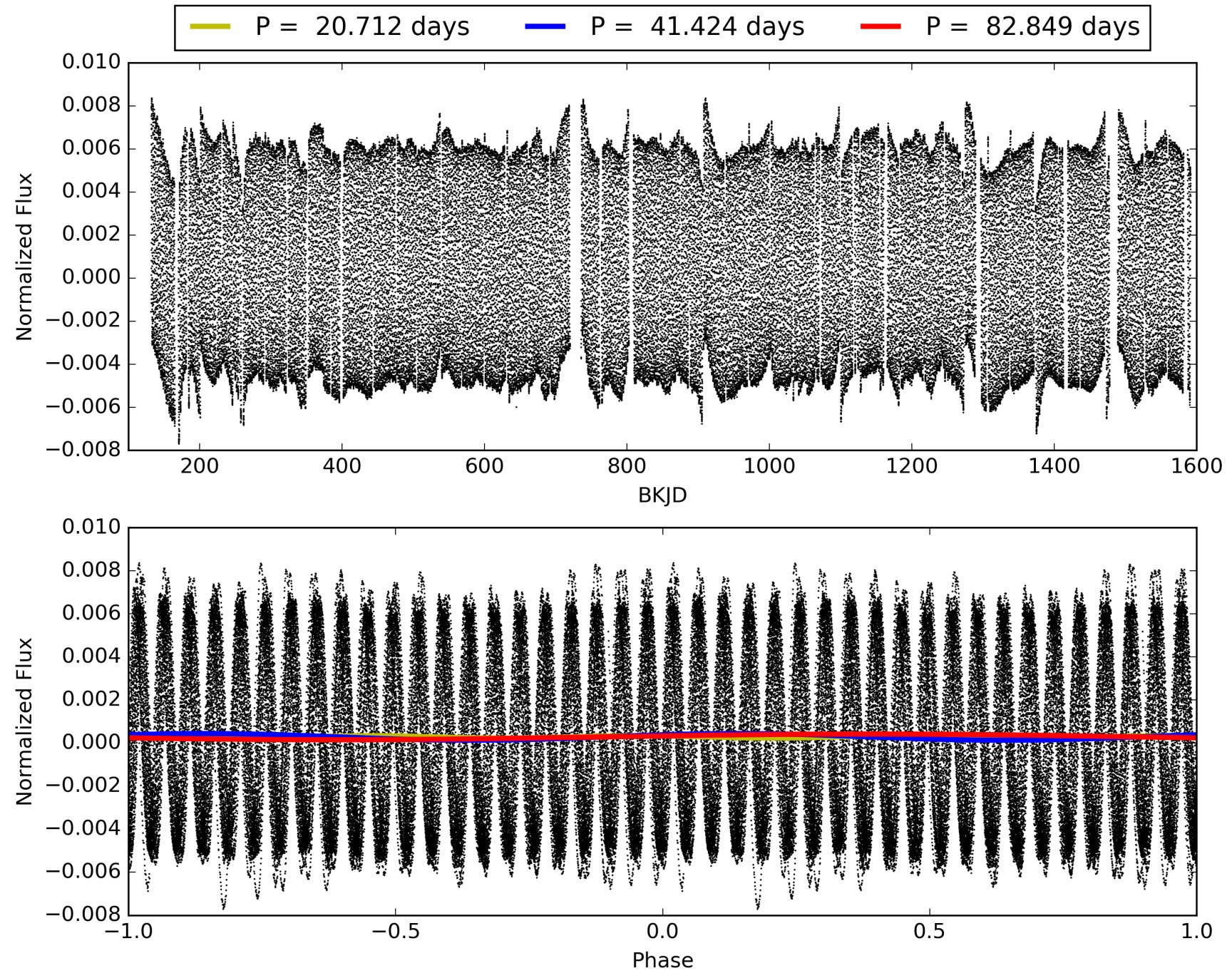
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:51:34 Z

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

TCE 002969628-02, PDC Light Curves

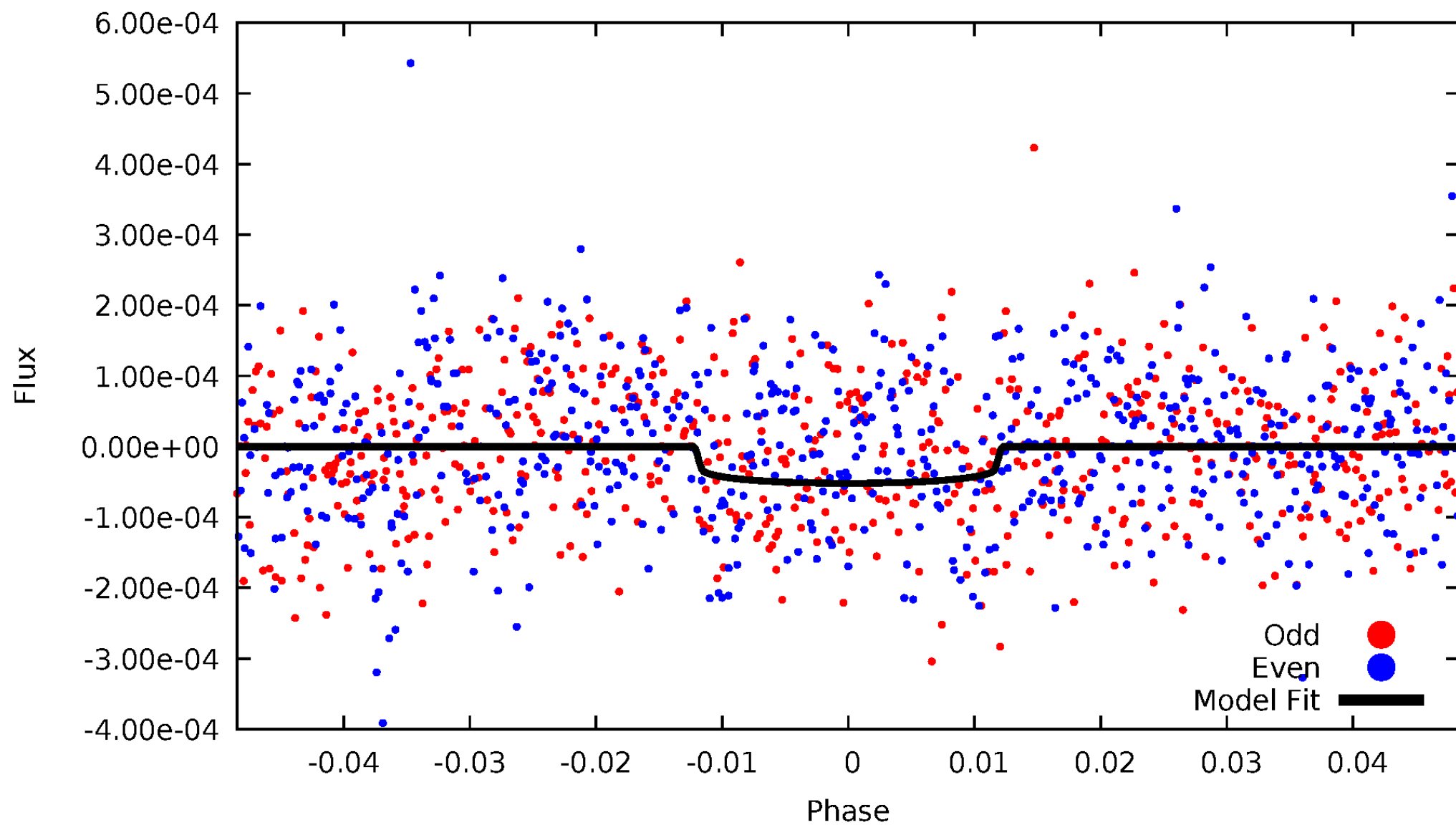


TCE 002969628-02



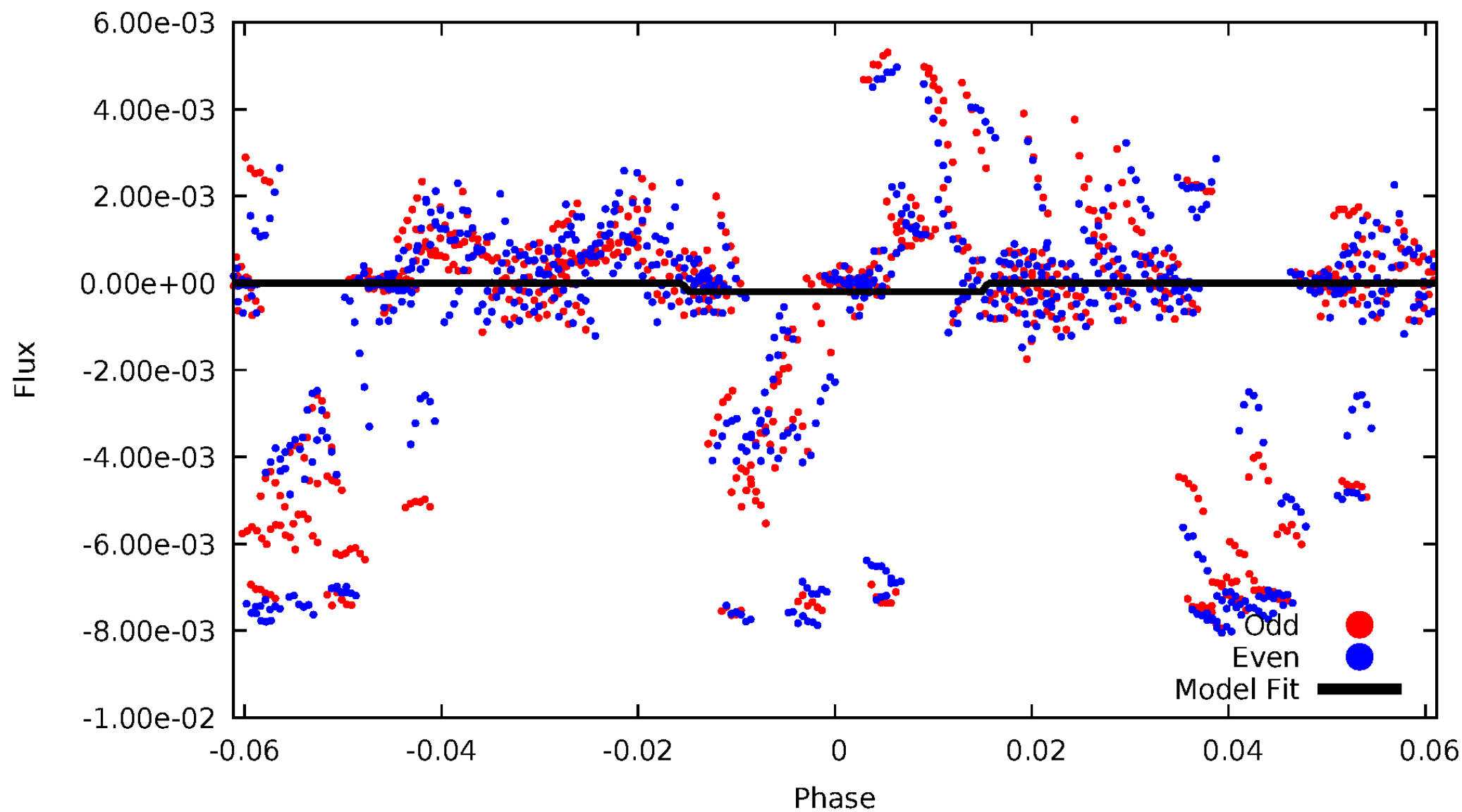
DV Odd/Even

TCE 002969628-02



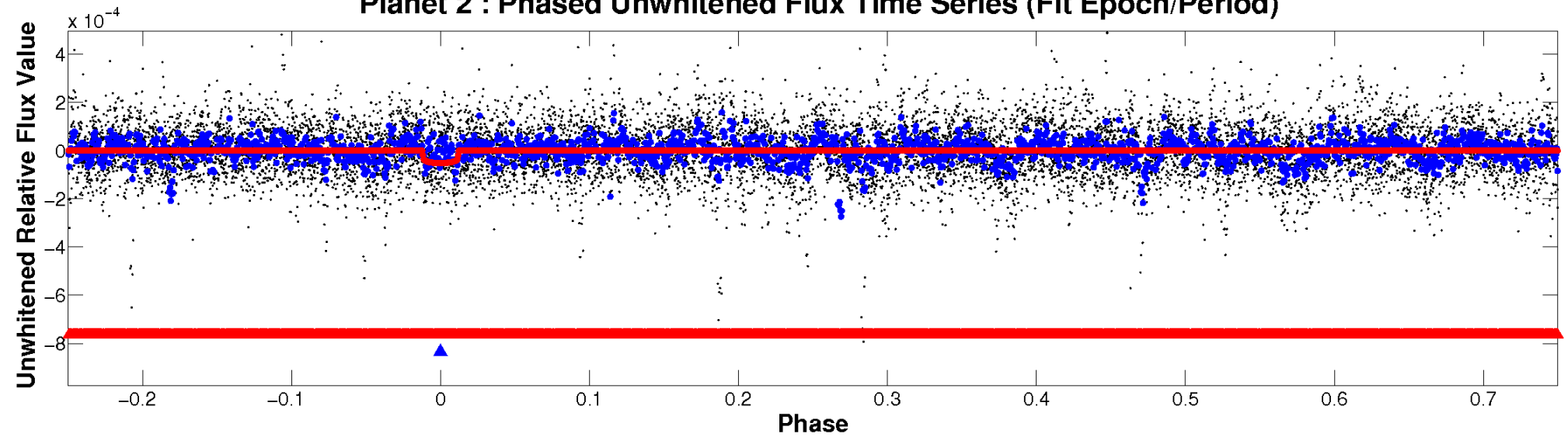
ALT Odd/Even

TCE 002969628-02

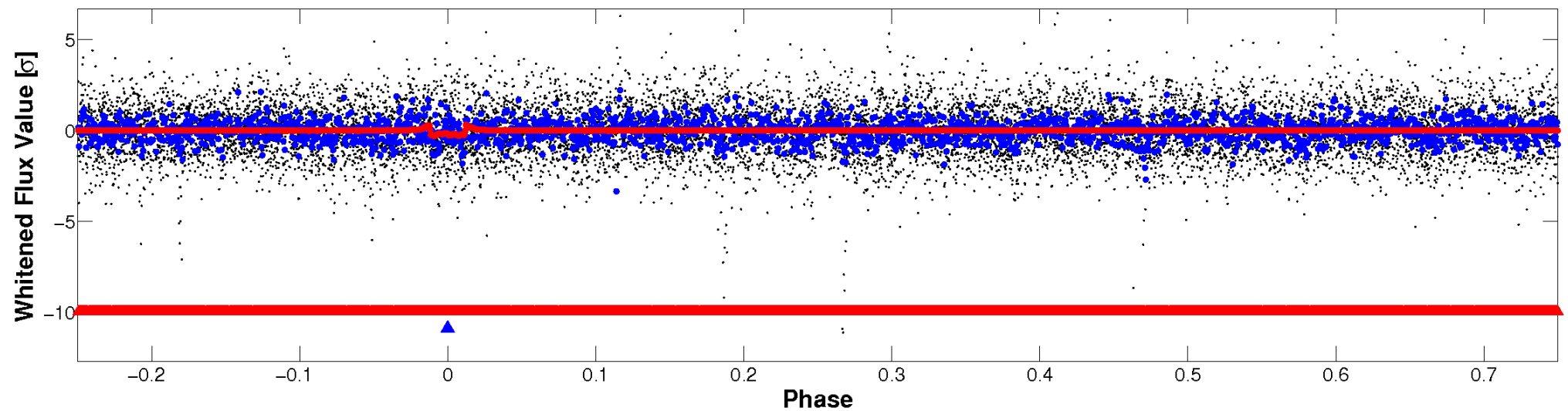


Non-Whitened Vs. Whitened Light Curve

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

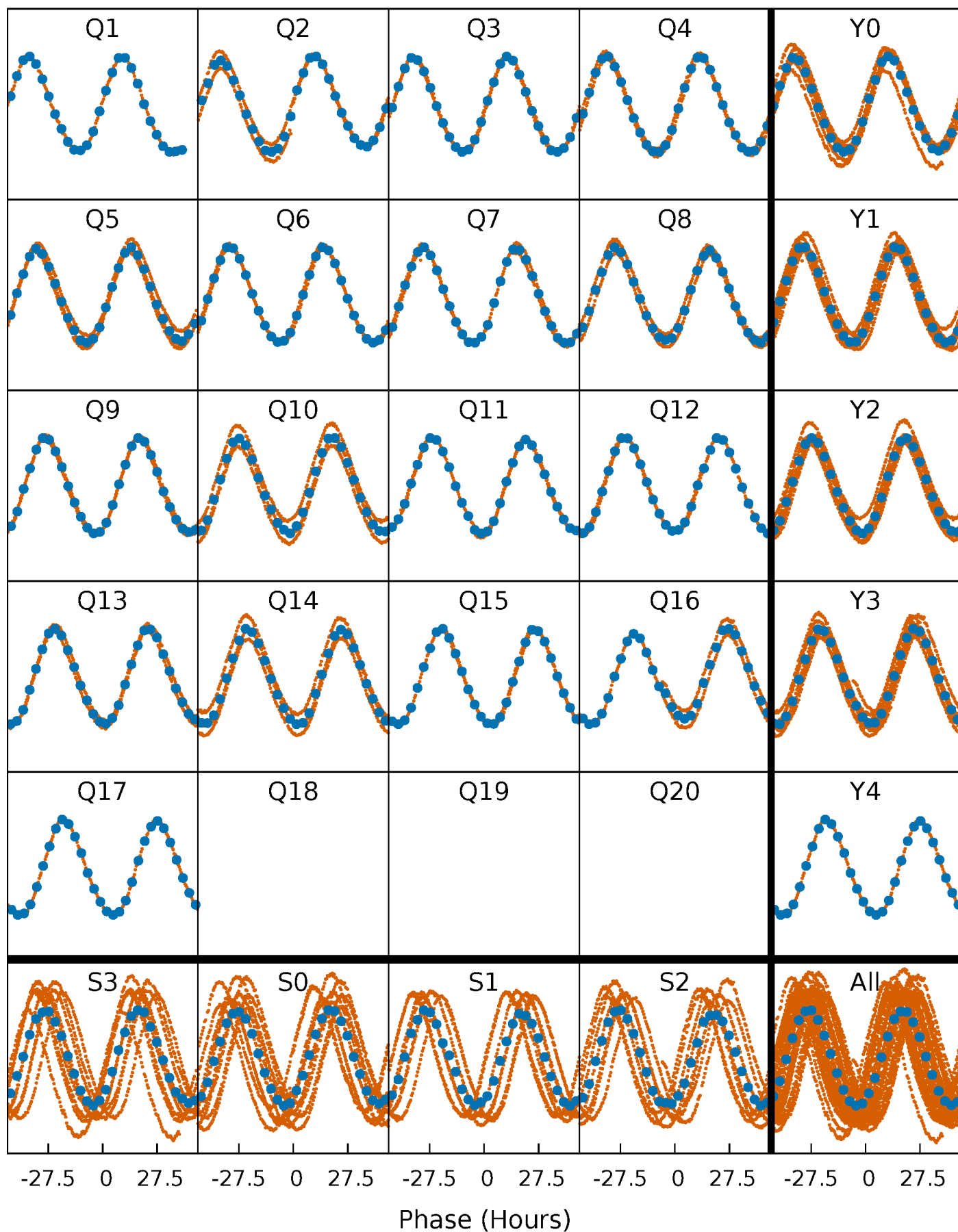


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



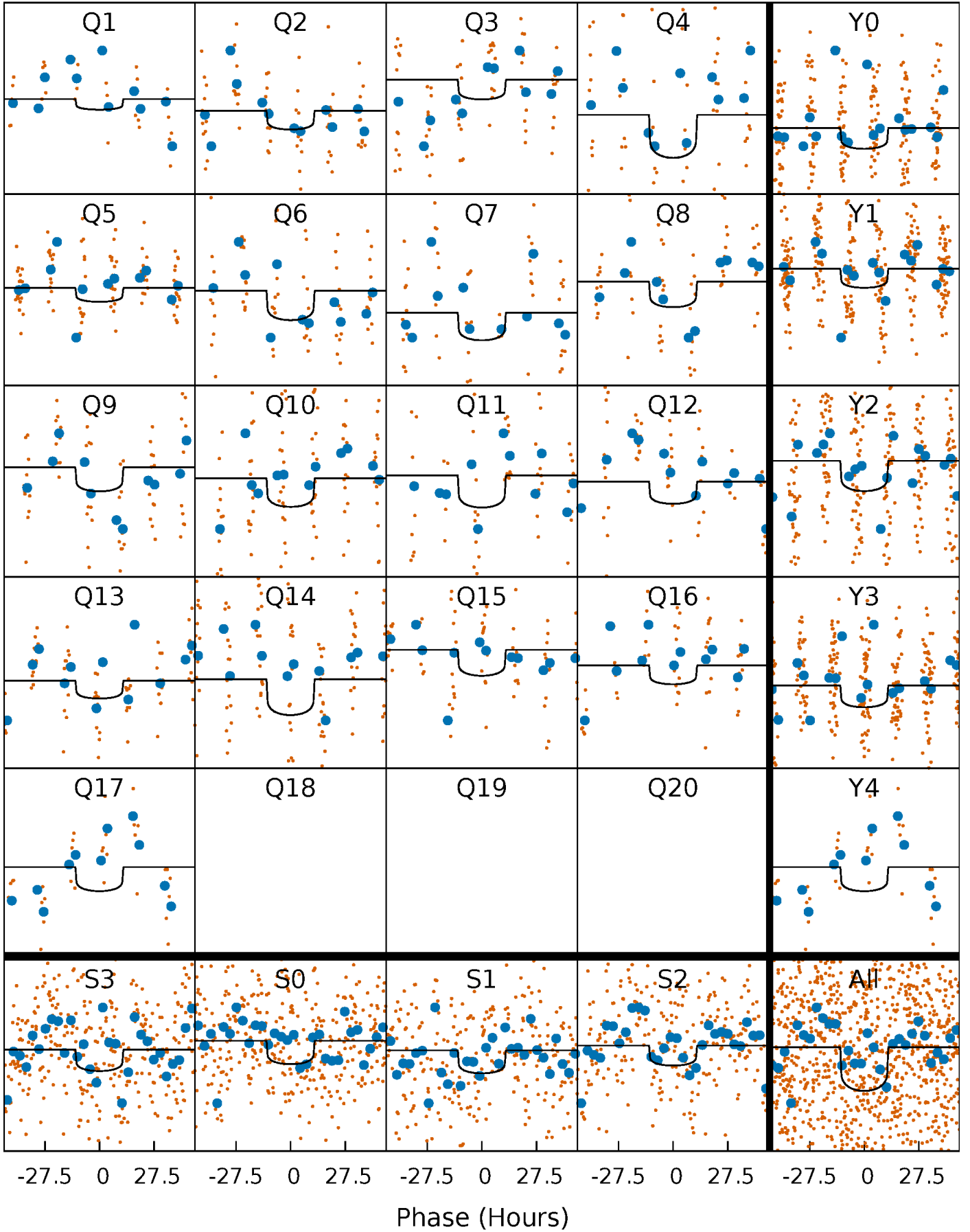
PDC Quarter-Phased Transit Curves

TCE 002969628-02 $P = 41.424329$ Days $T_0 = 163.370503$ (BKJD)



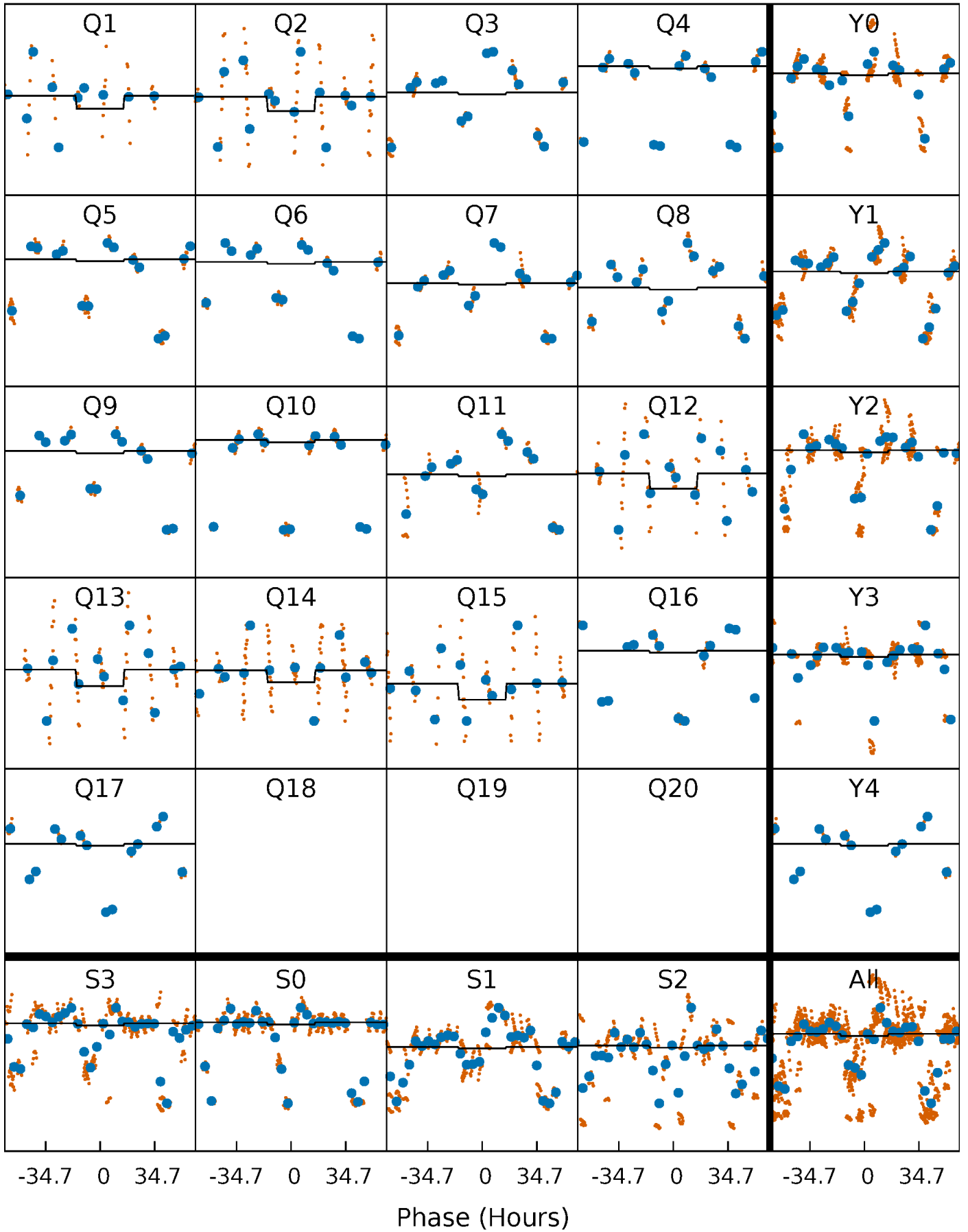
DV Quarter-Phased Transit Curves

TCE 002969628-02 P= 41.424329 Days $T_0=163.370503$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

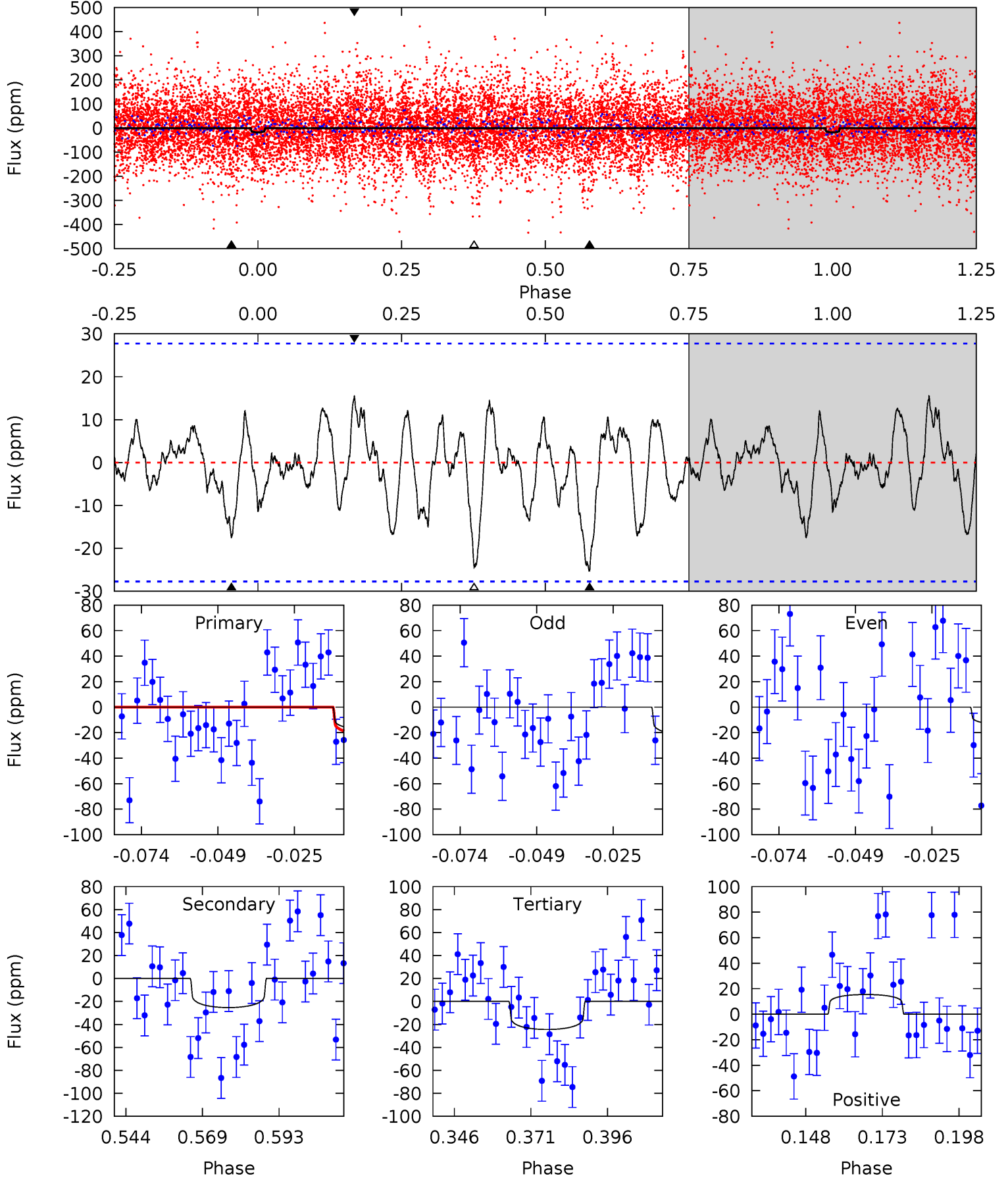
TCE 002969628-02 P= 41.419741 Days $T_0=163.408641$ (BKJD)



DV Model-Shift Uniqueness Test

002969628-02, P = 41.424329 Days, E = 121.946174 Days

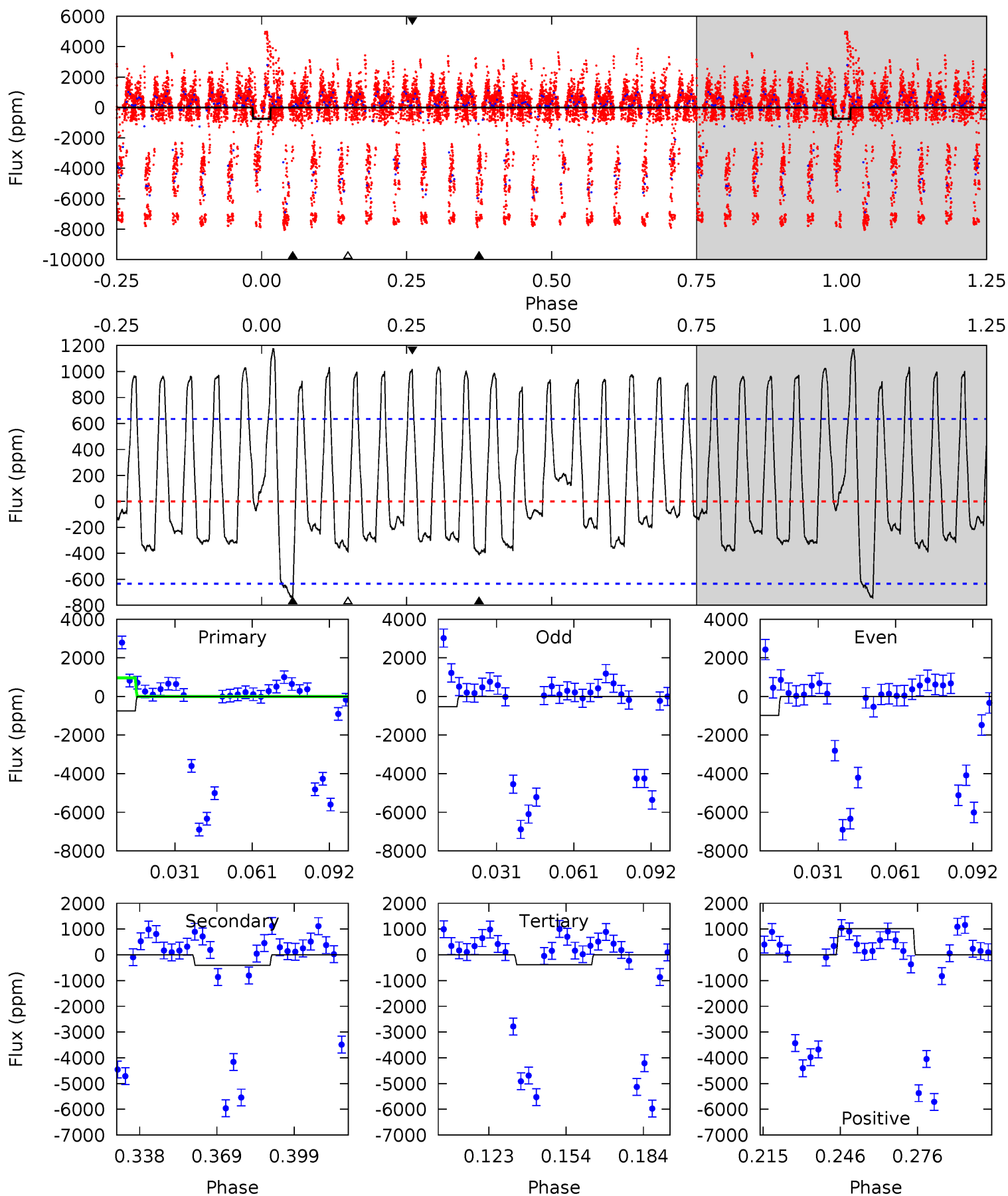
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.06	4.43	4.27	2.70	4.85	2.25	1.28	-1.21	0.35	0.16	1.73	0.69	0.76	0.38	0.68



Alt Model-Shift Uniqueness Test

002969628-02, P = 41.419741 Days, E = 121.988900 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.63	3.10	2.93	7.71	4.81	2.16	3.61	2.69	-2.08	0.16	-4.61	1.71	4.66	0.61	4.84



Stellar Parameters For KIC 002969628

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8241^{+228}_{-370}	$3.722^{+0.428}_{-0.143}$	$-0.040^{+0.250}_{-0.400}$	$3.277^{+0.996}_{-1.493}$	$2.068^{+0.389}_{-0.519}$	$0.083^{+0.304}_{-0.036}$
	+3%/-4%	+11%/-4%	+625%/-1000%	+30%/-46%	+19%/-25%	+368%/-43%
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 002969628-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-25 ± 6	$2.36^{+1.00}_{-0.84}$	1630^{+139}_{-179}	6630^{+1641}_{-951}	210^{+327}_{-102}
Alt.	-409 ± 132	$4.68^{+1.26}_{-1.23}$	1626^{+145}_{-168}	10563^{+2124}_{-1693}	888^{+784}_{-385}

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 $A_{obs} \gg 1.0$

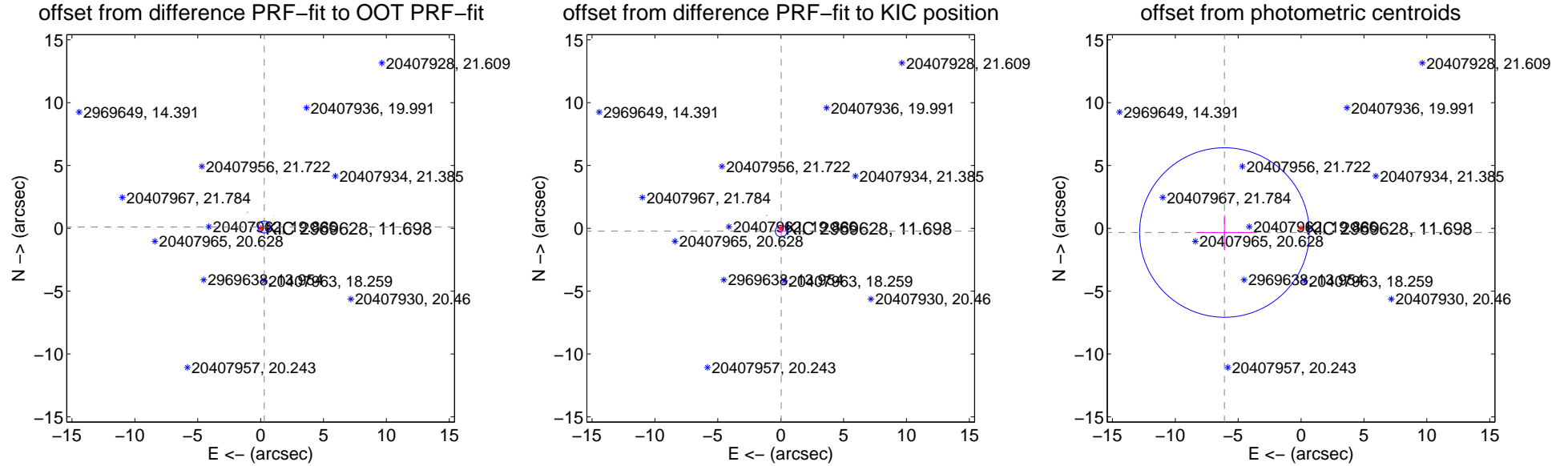
DV Centroid Data

Supplemental centroid analysis for 002969628-02. **Kepler magnitude: 11.70.** Transit SNR 4.58

There are 13 quarters with good PRF difference image offsets

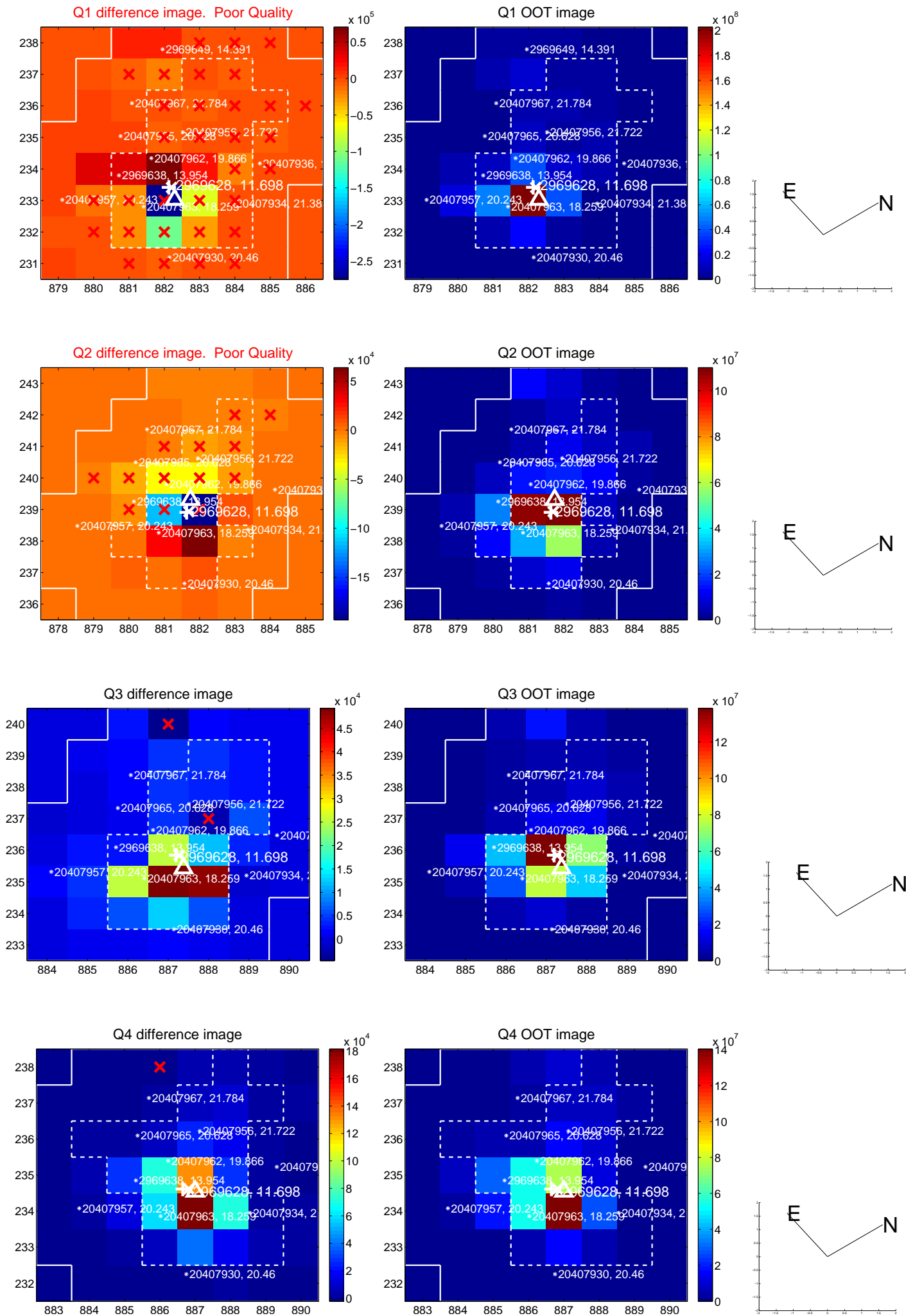
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.308 ± 0.160	1.93	-0.290 ± 0.189	0.104 ± 0.140
PRF-fit source offset from KIC position	0.223 ± 0.155	1.44	-0.039 ± 0.177	-0.220 ± 0.139
photometric centroid source offset	6.10 ± 2.25	2.71	6.09 ± 2.25	-0.33 ± 1.38

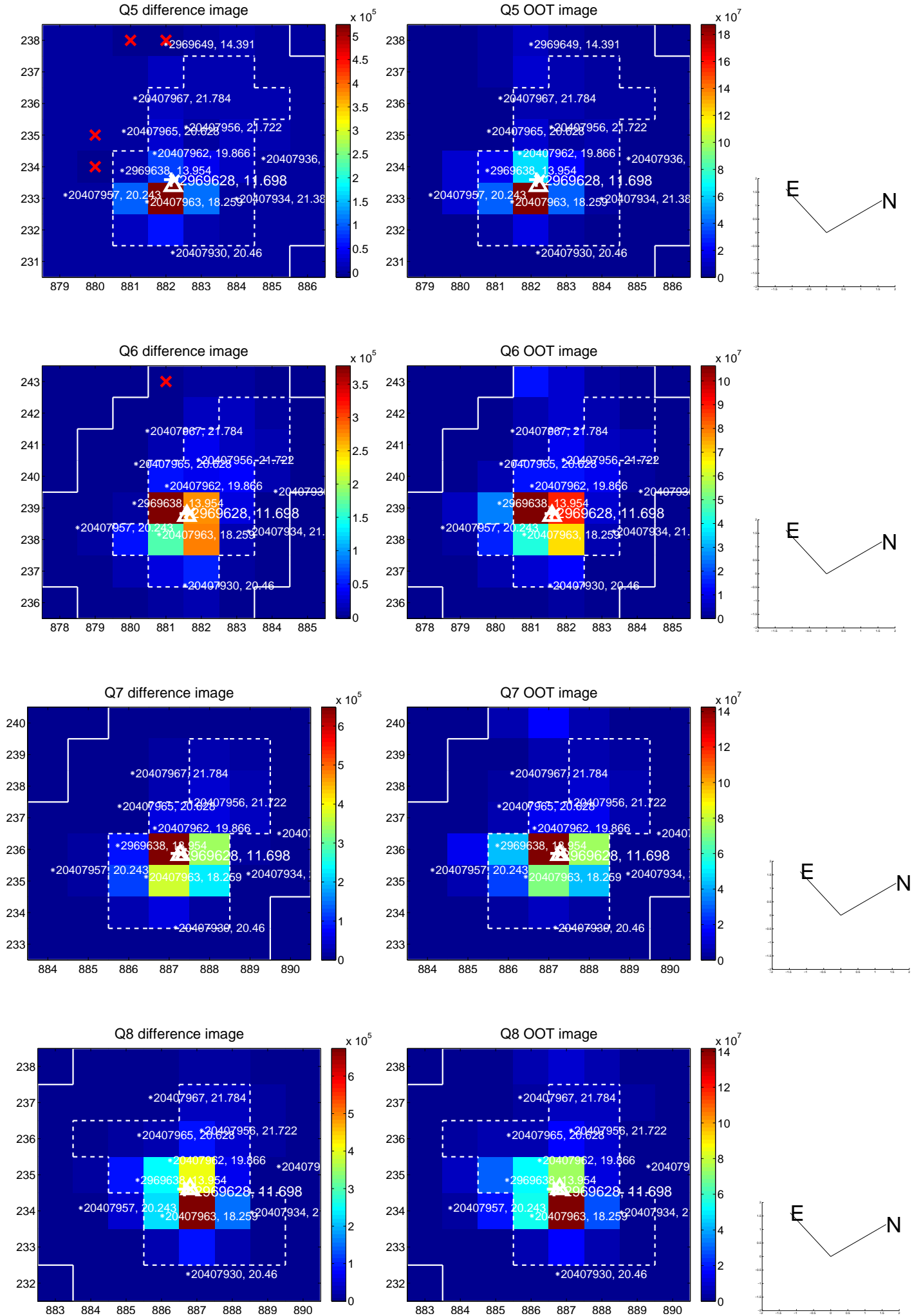


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

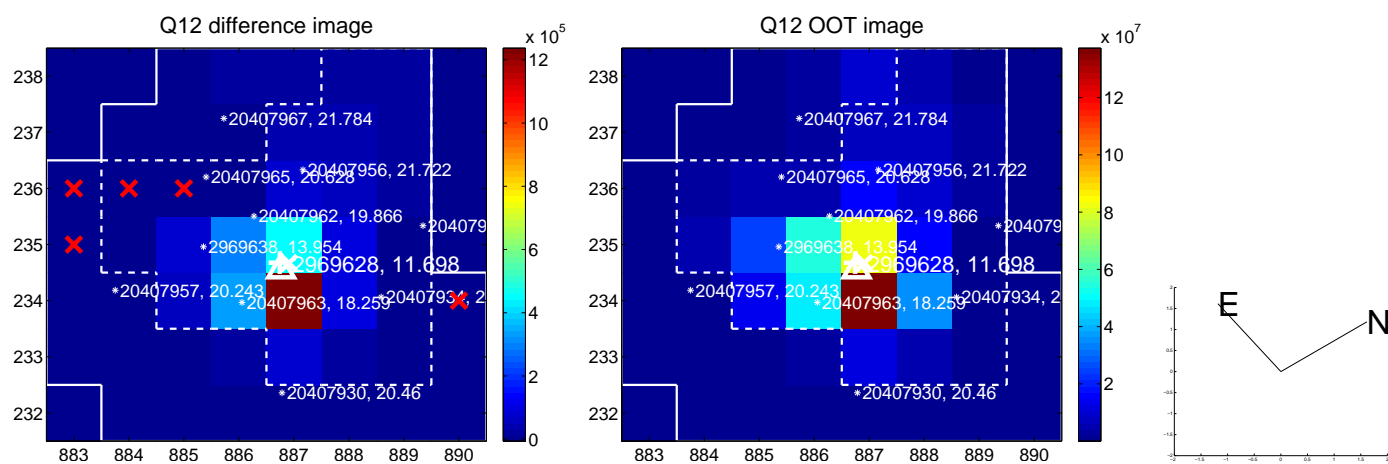
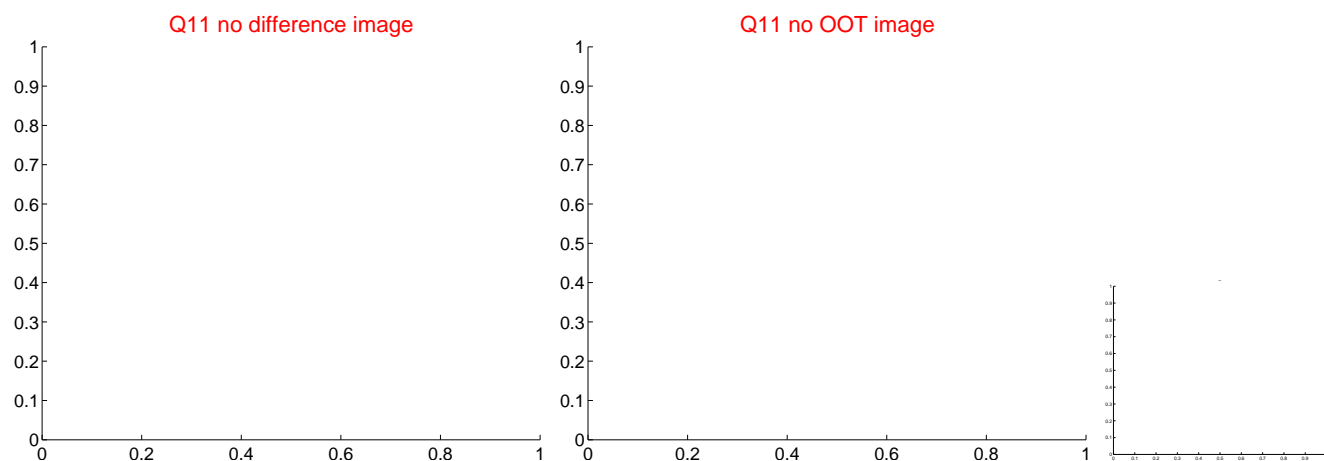
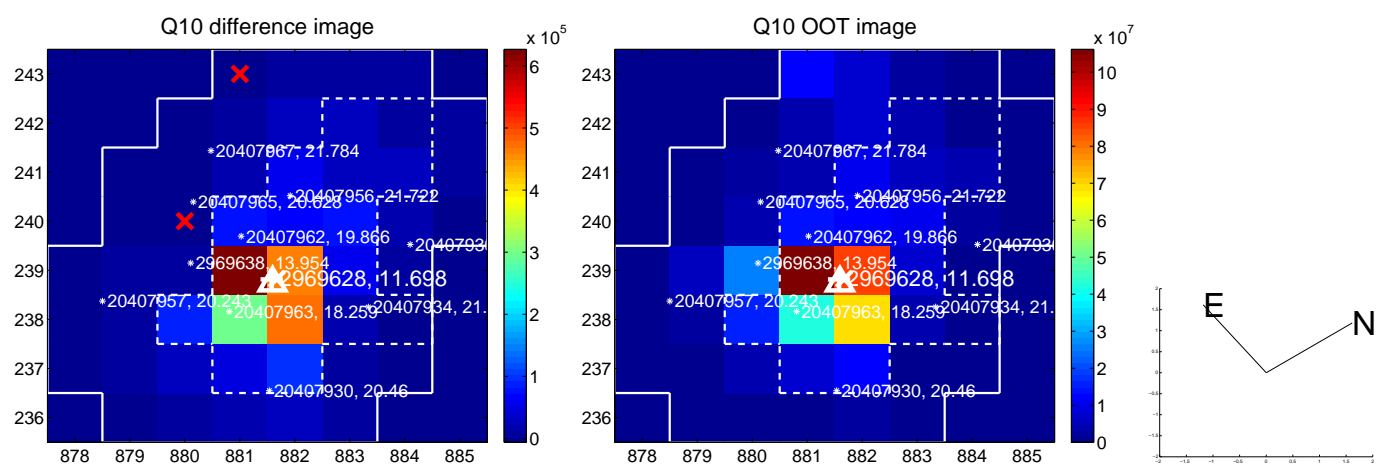
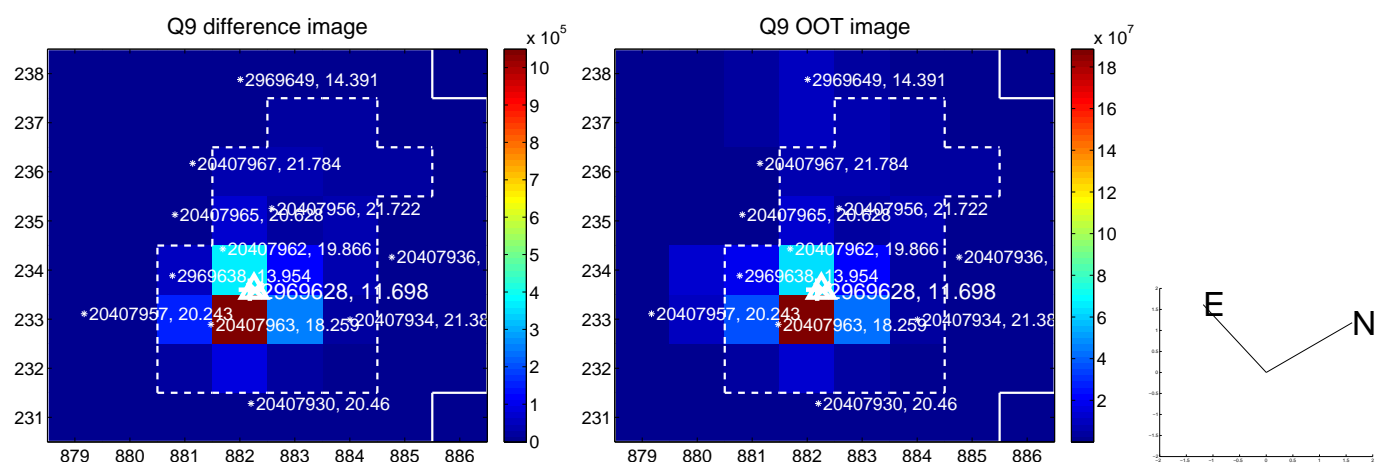
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



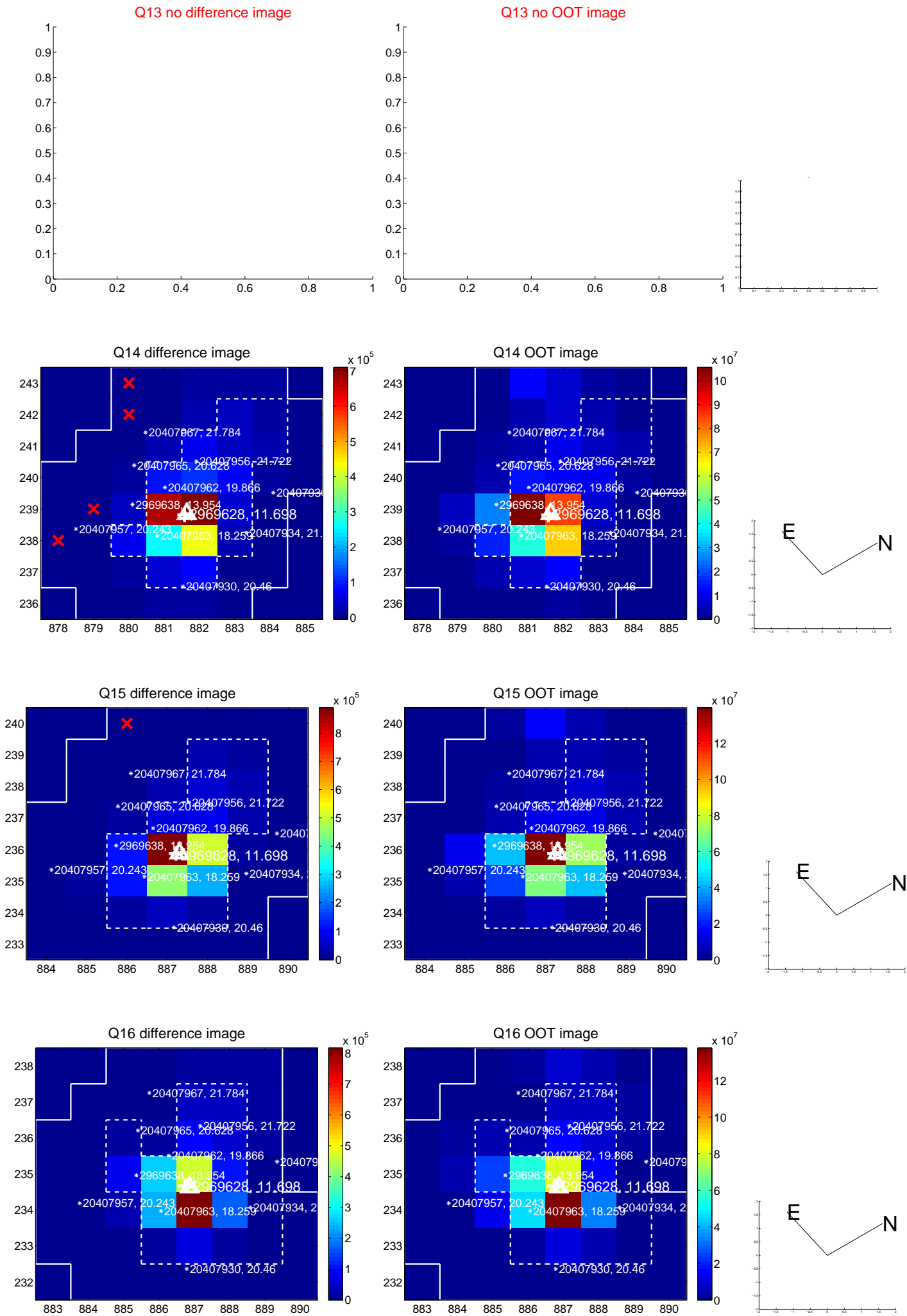
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



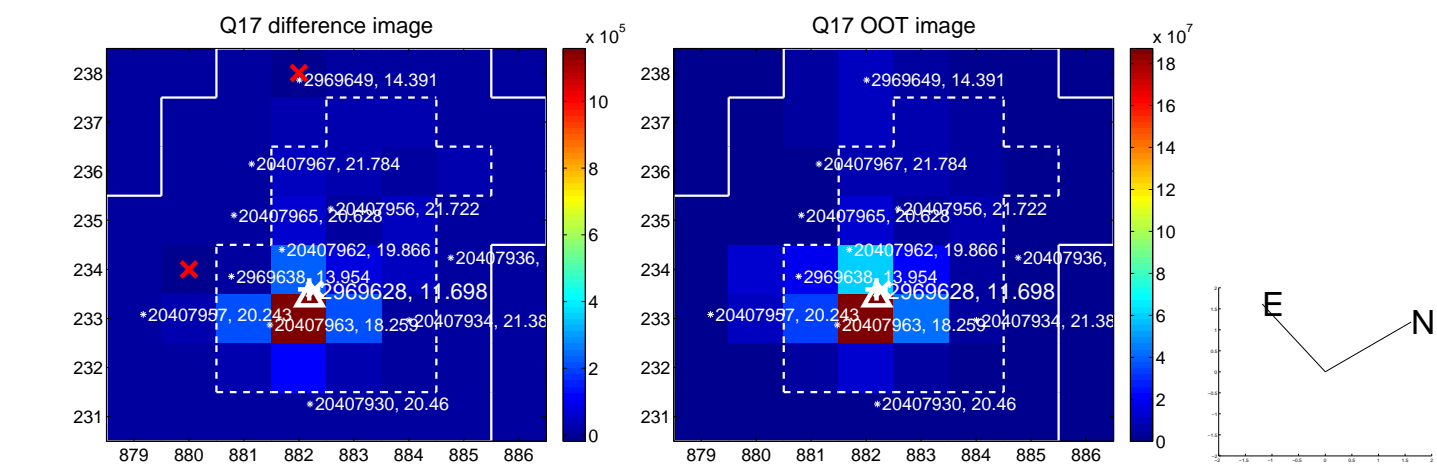
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



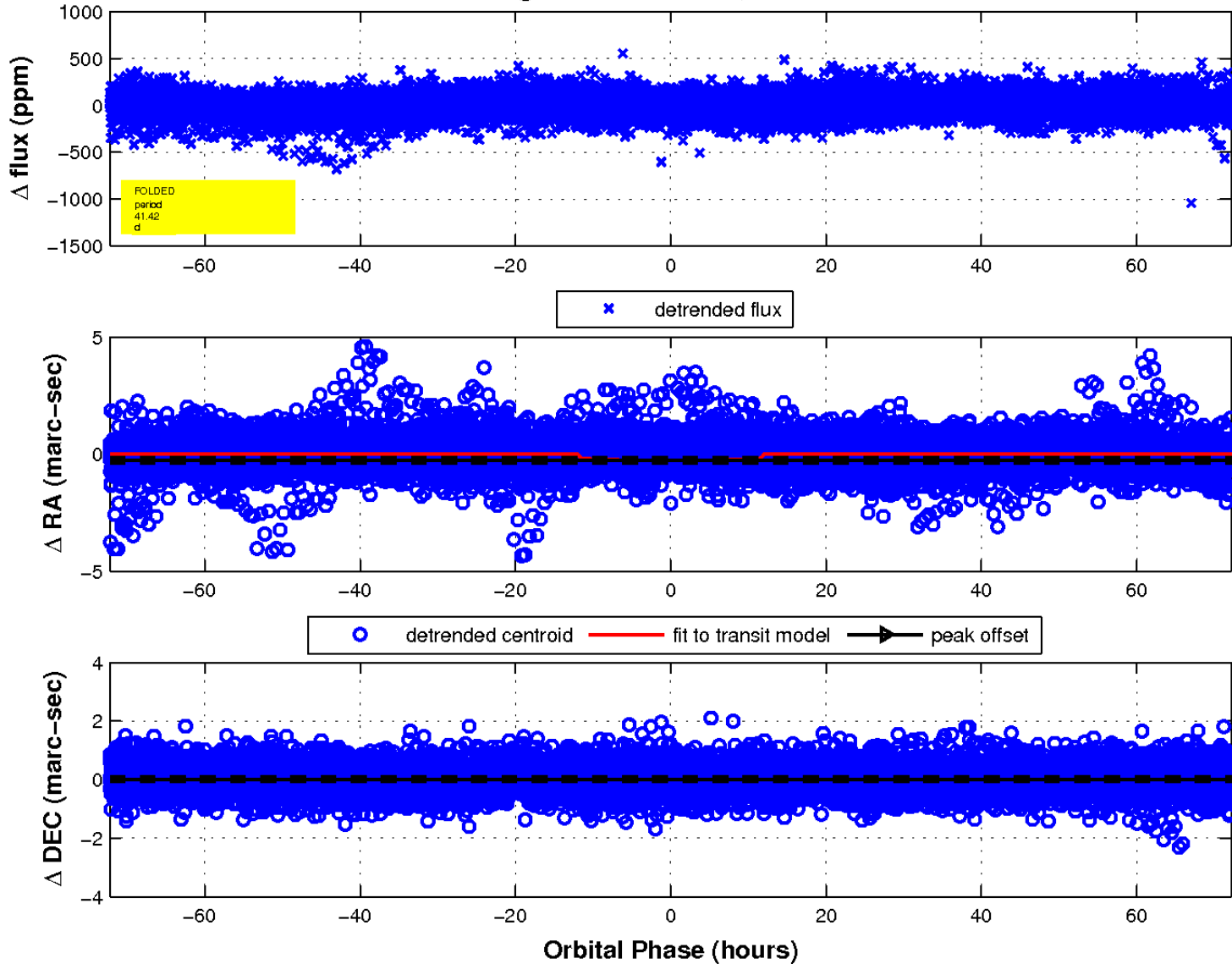
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

