

KIC 007283604

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})
007283604-01	OBS	No	3.004971	133.387079	32.3	11.443	8.3	6.9	0.98	6481	0.59	933.68
007283604-02	OBS	No	6.010912	134.436398	154.4	12.000	9.1	-1.0	0.98	6481	1.23	370.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007283604-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007283604-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

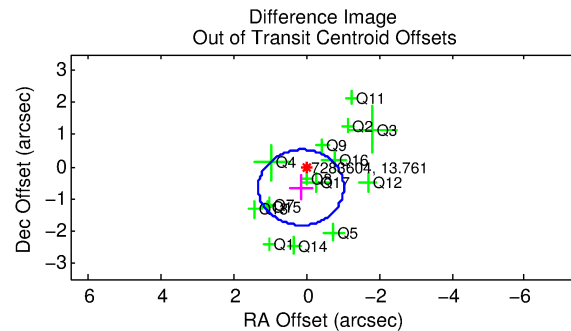
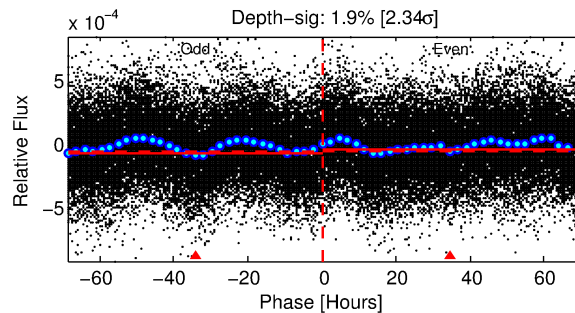
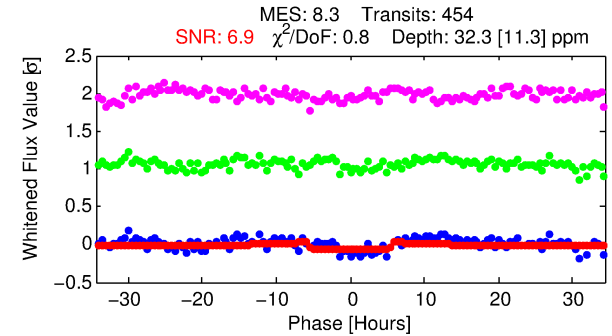
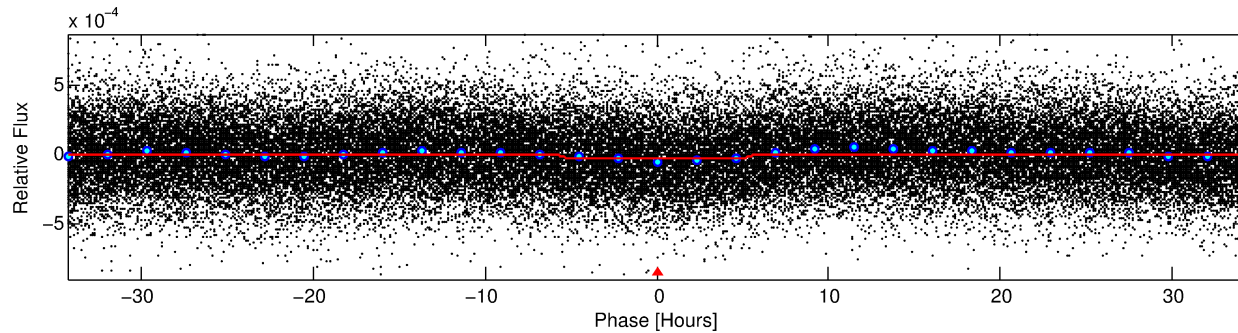
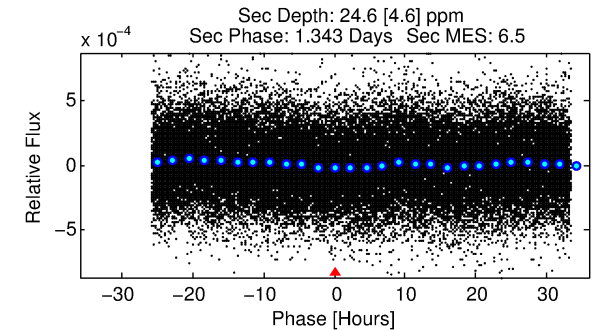
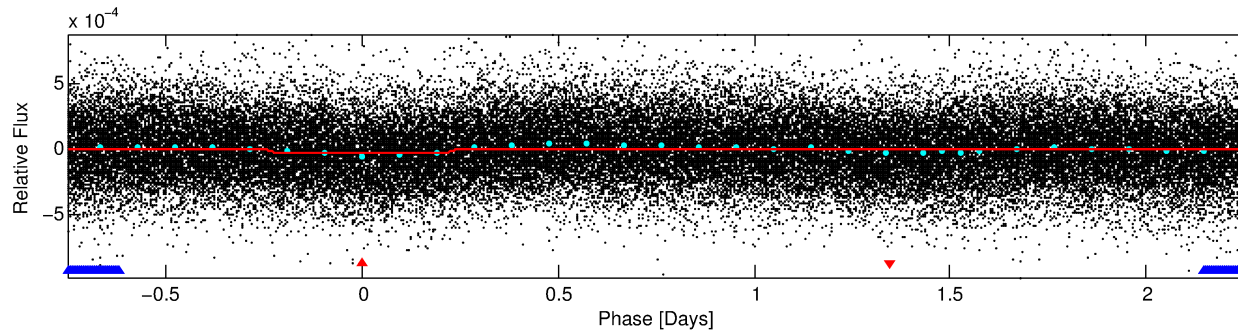
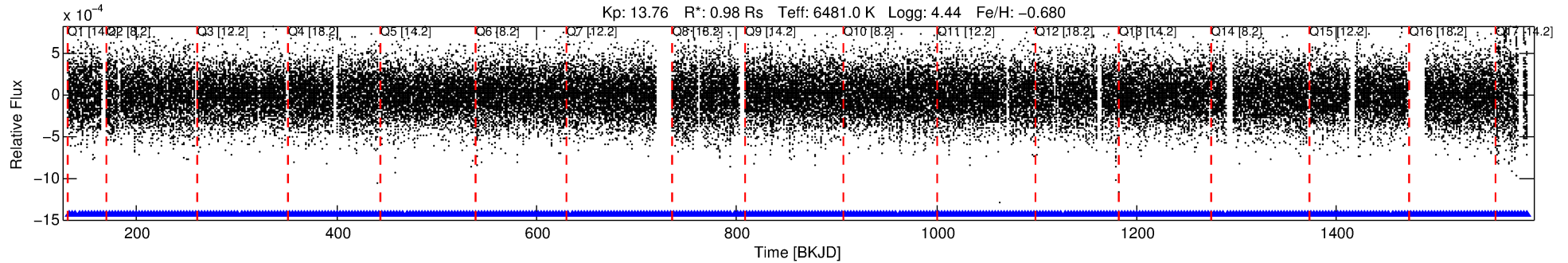
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007283604-01

No Significant Match Found

DV One-Page Summary

KIC: 7283604 Candidate: 1 of 2 Period: 3.005 d



DV Fit Results:

Period = 3.00497 [0.00004] d
Epoch = 133.3871 [0.0080] BKJD
Rp/R* = 0.0055 [0.0006]
a/R* = 1.71 [0.49]
b = 0.67 [0.37]
Seff = 933.68 [343.82]
Teq = 1410 [130] K
Rp = 0.59 [0.18] Re
a = 0.0403 [0.0095] AU
Ag = 62.86 [28.06] [2.20σ]
Teffp = 6136 [480] K [9.51σ]

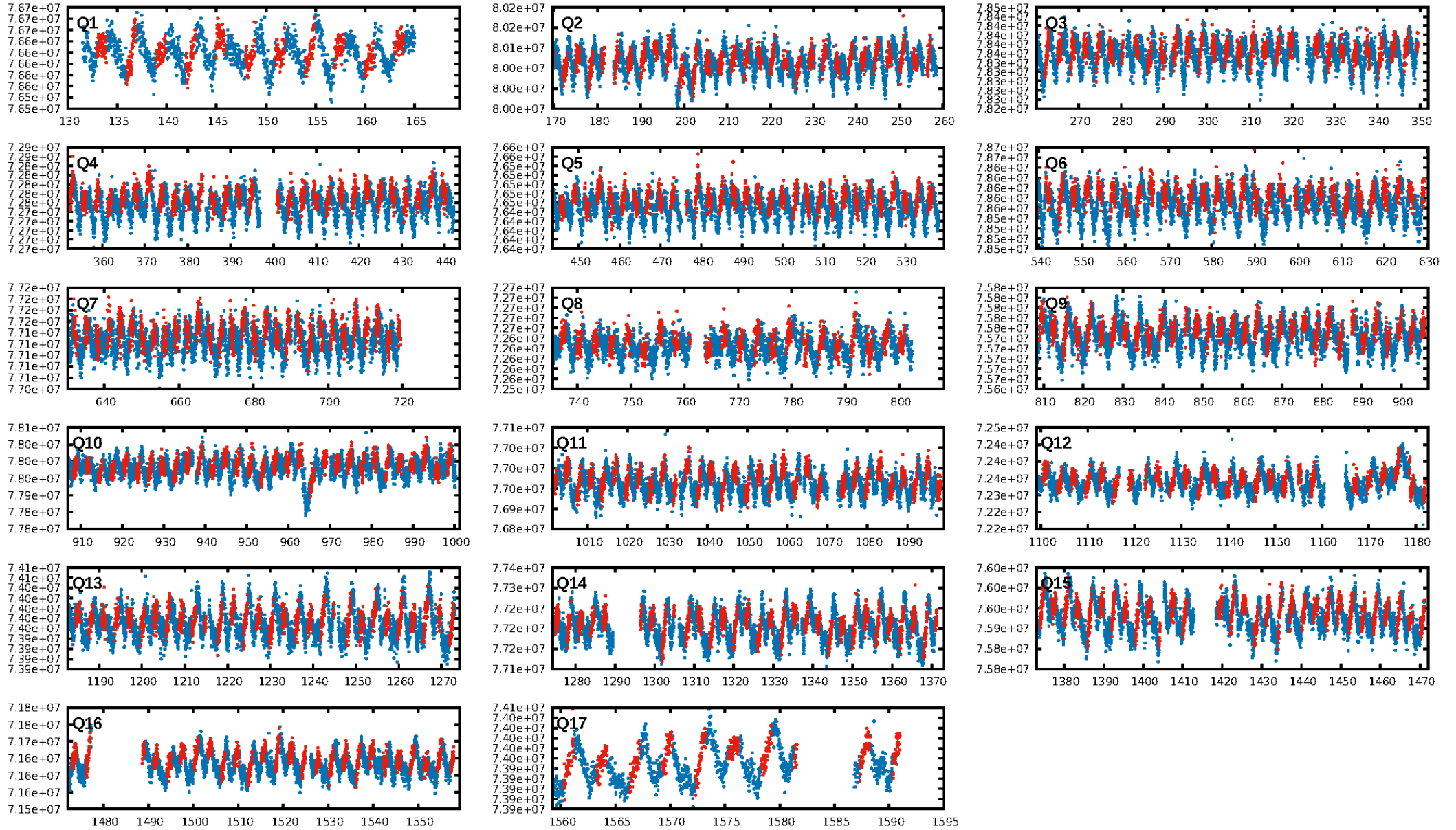
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [4.35σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.61e-10
RollingBand-fgt: 1.00 [433/433]
GhostDiagnostic-chr: 43.61
Centroid-sig: 70.4%
Centroid-so: 0.388 arcsec [0.51σ]
OotOffset-rm: 0.664 arcsec [1.69σ]
OotOffset-st: 2/4/4/5 [15]
KicOffset-rm: 0.680 arcsec [1.70σ]
KicOffset-st: 2/4/4/5 [15]
DiffImageQuality-fgm: 0.20 [3/15]
DiffImageOverlap-fno: 1.00 [17/17]

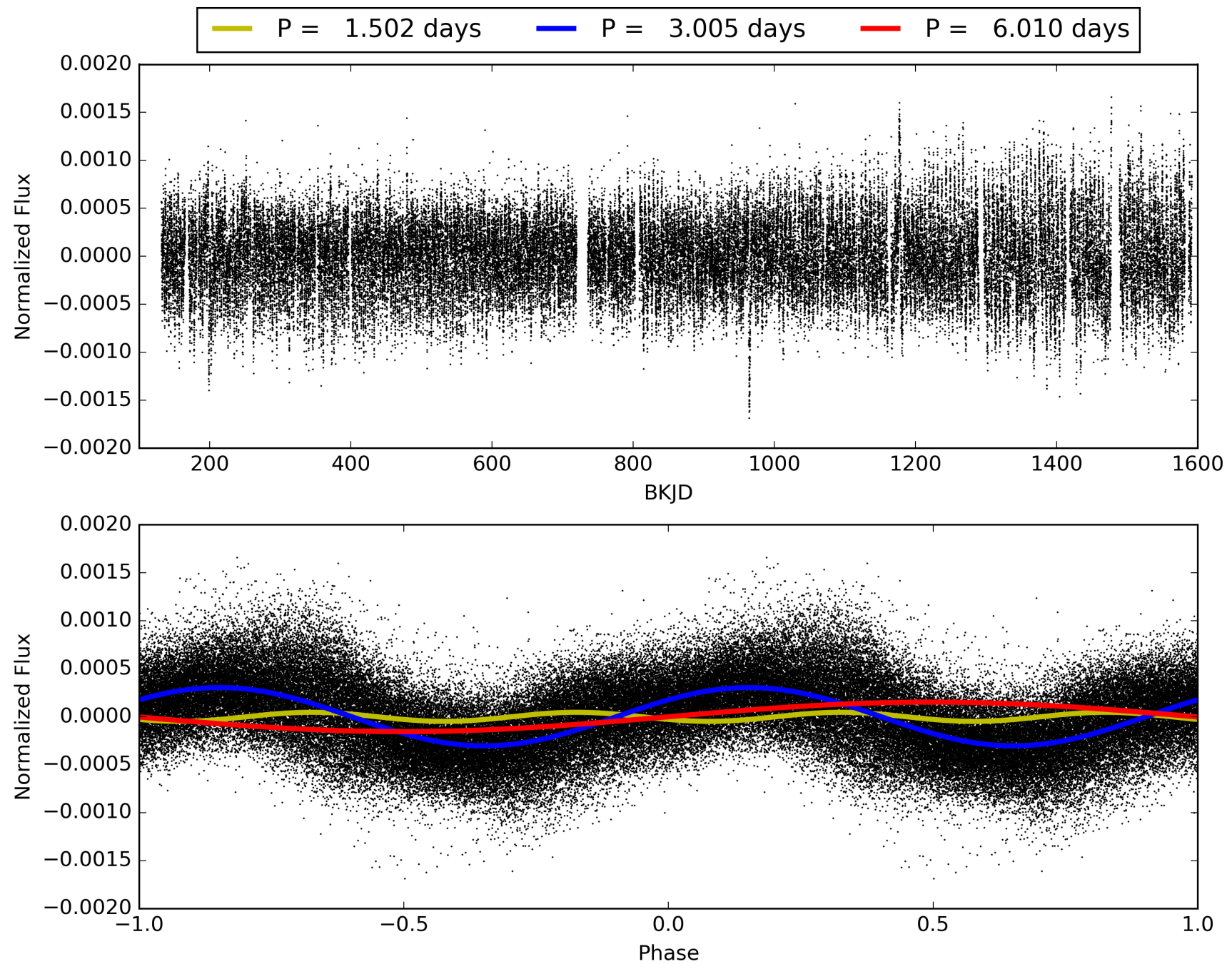
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:48:15 Z

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

TCE 007283604-01, PDC Light Curves

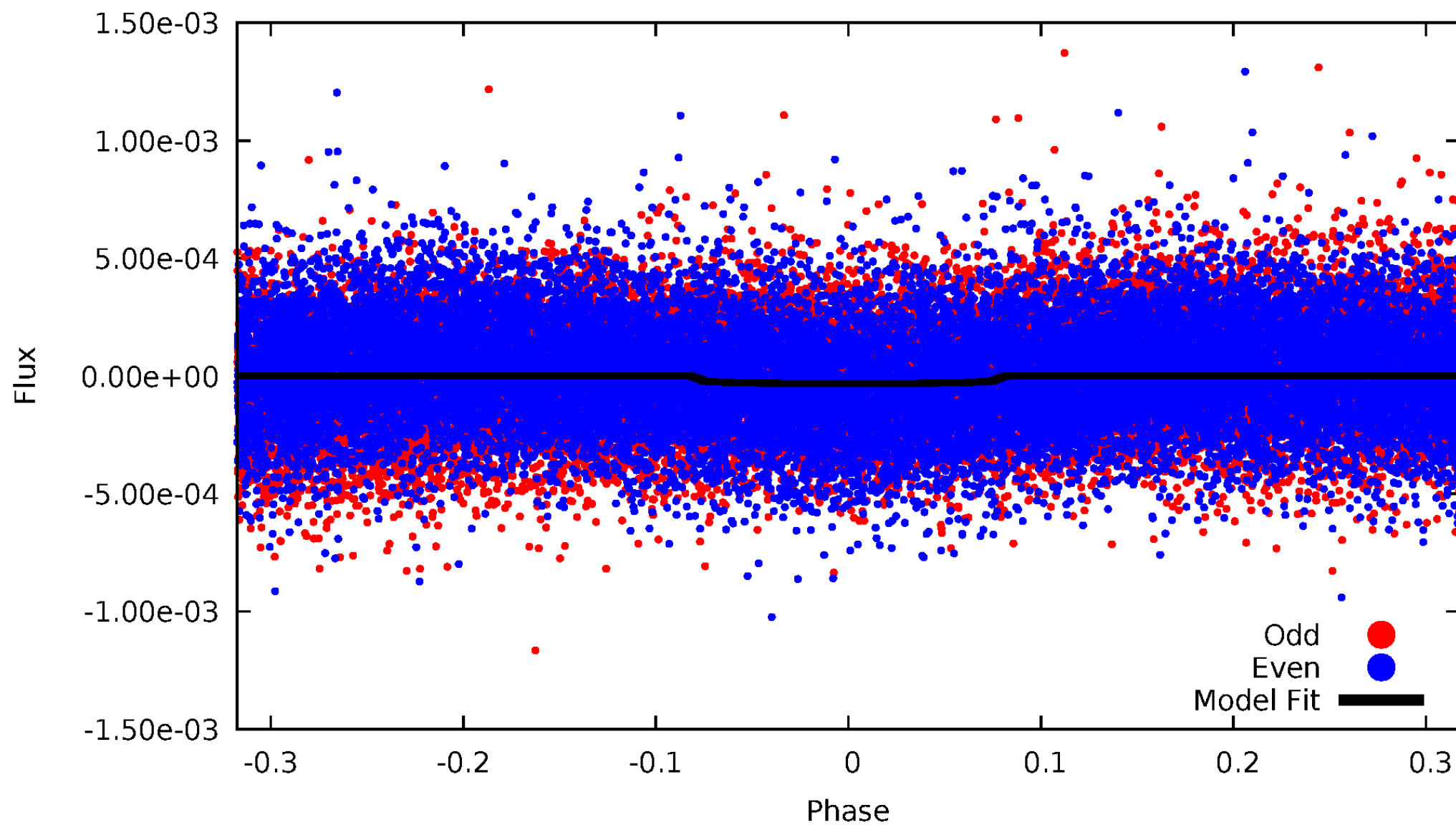


TCE 007283604-01



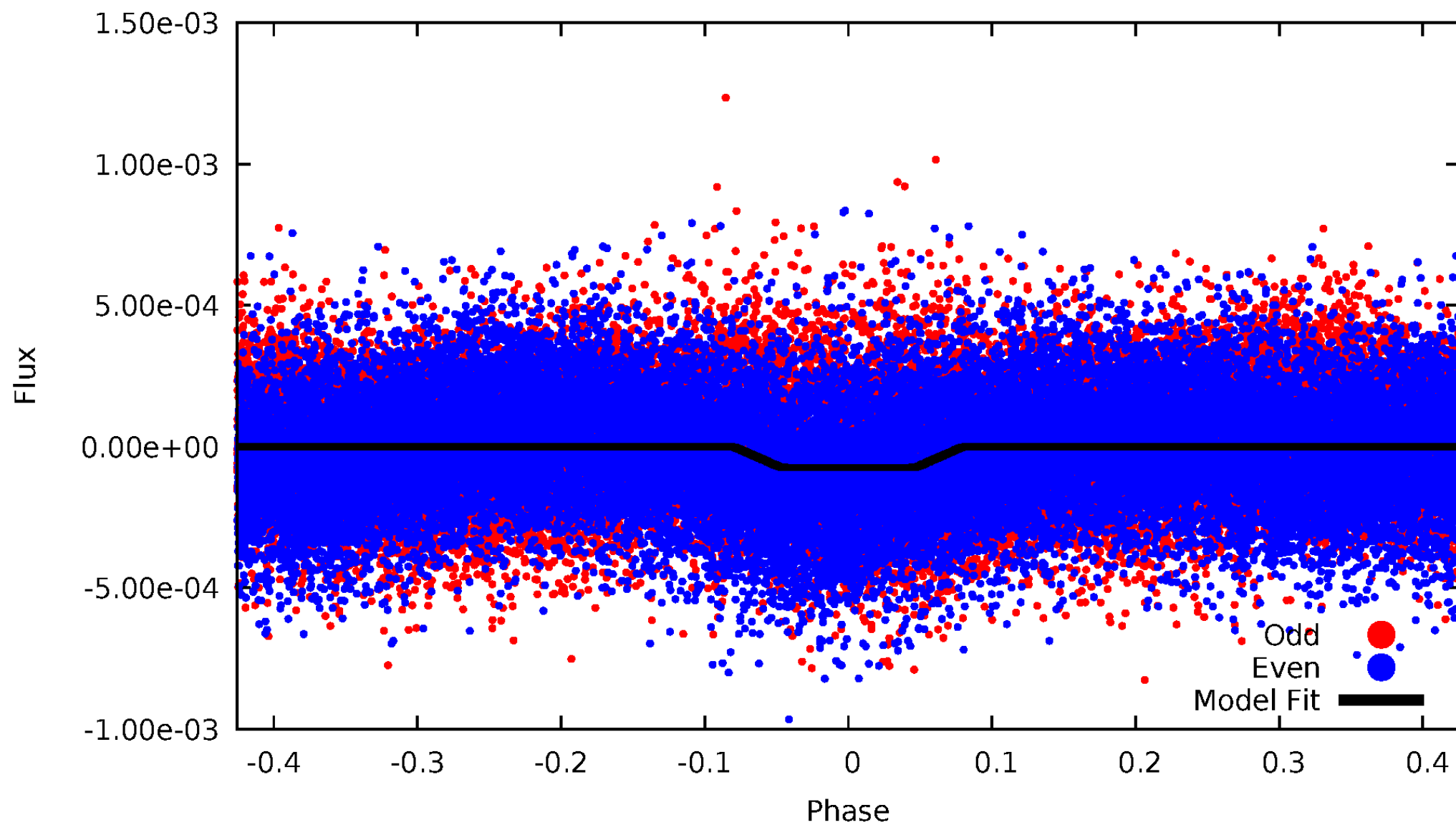
DV Odd/Even

TCE 007283604-01



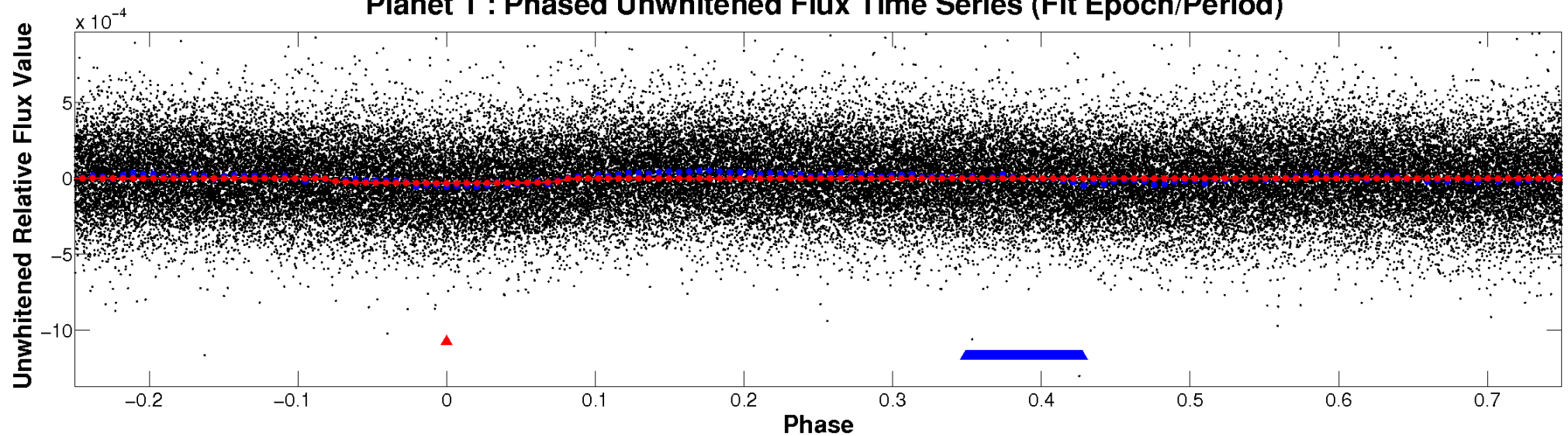
ALT Odd/Even

TCE 007283604-01

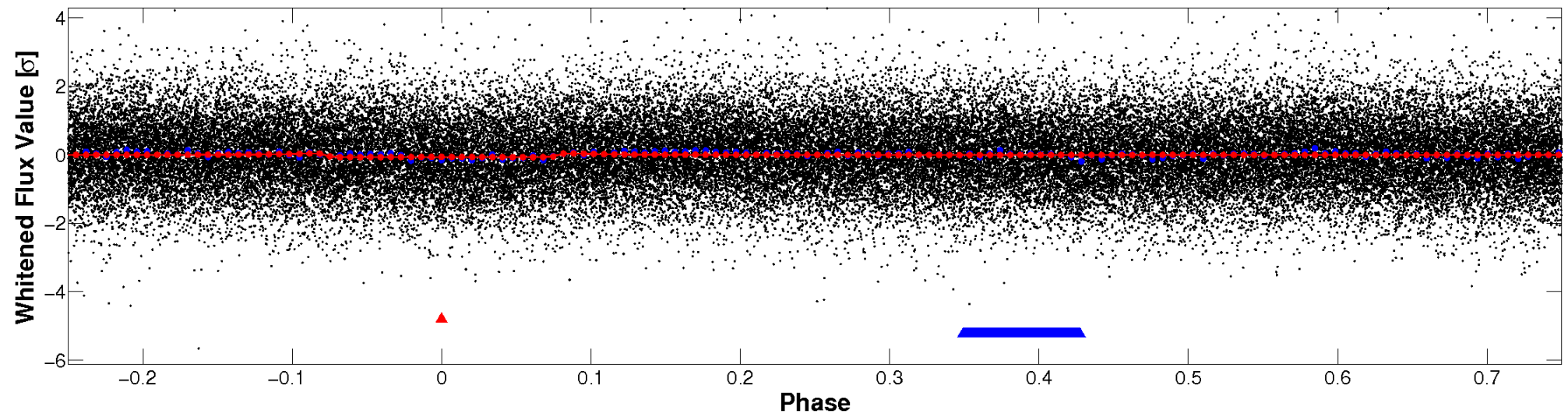


Non-Whitened Vs. Whitened Light Curve

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

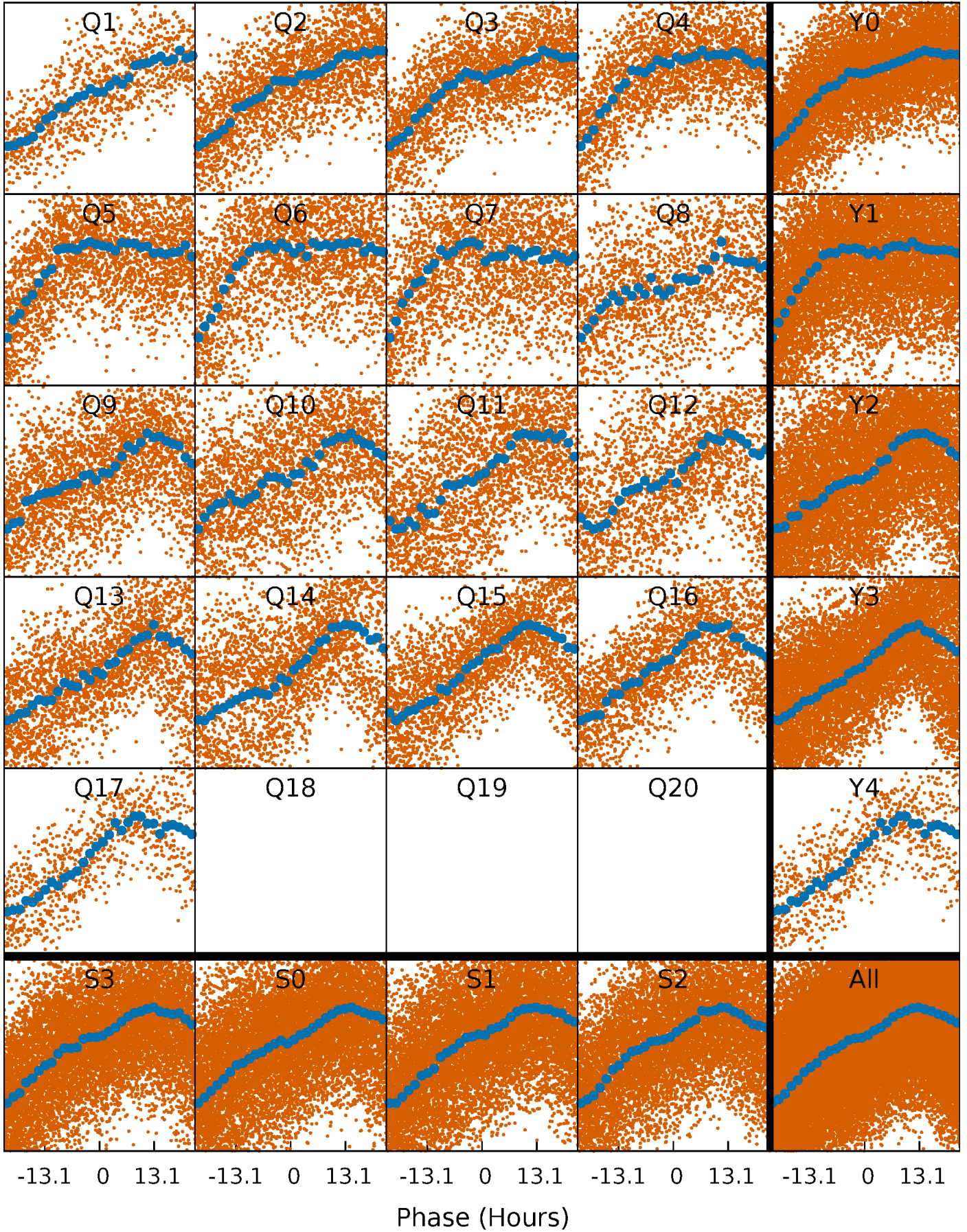


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



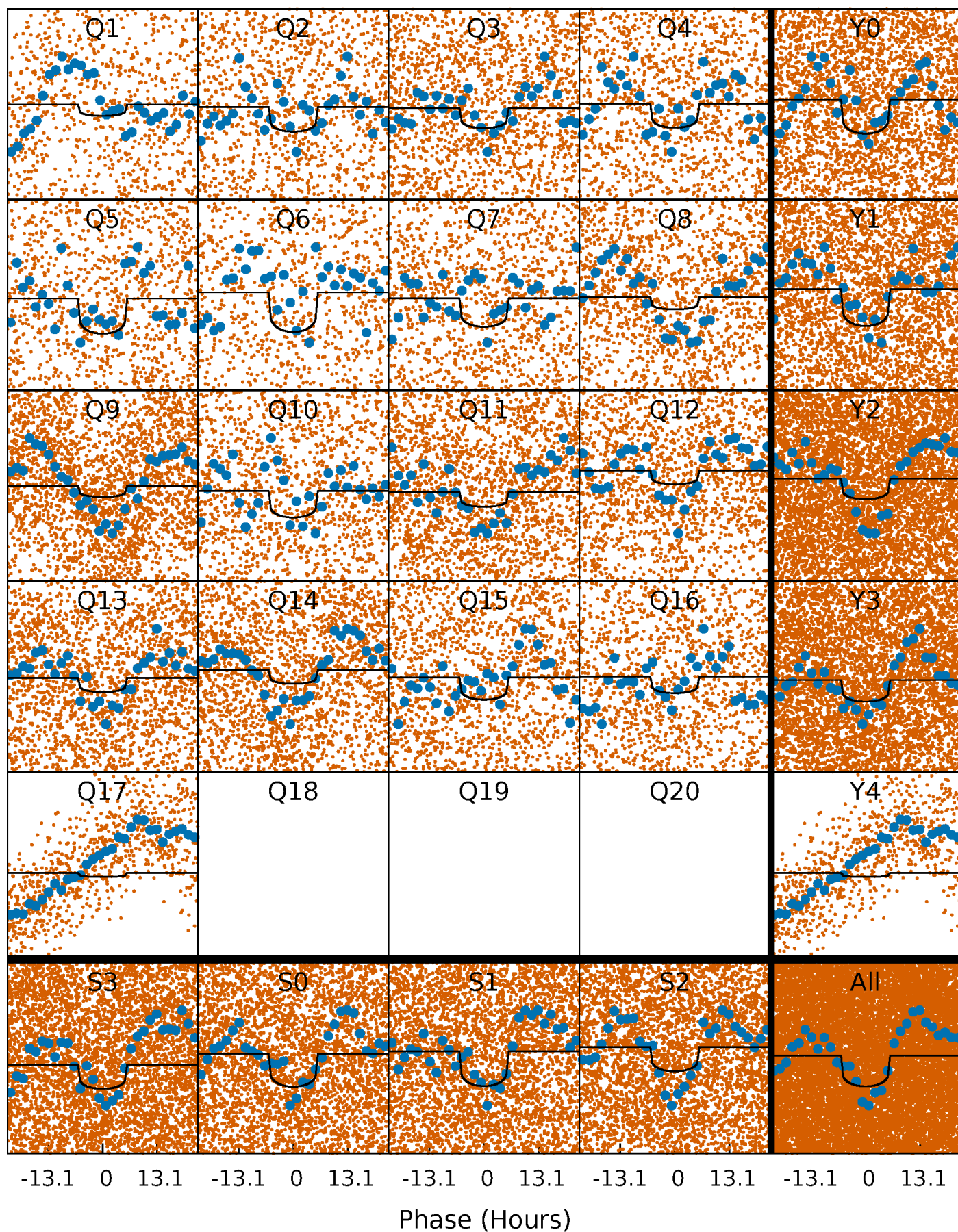
PDC Quarter-Phased Transit Curves

TCE 007283604-01 P= 3.004971 Days $T_0=133.387079$ (BKJD)



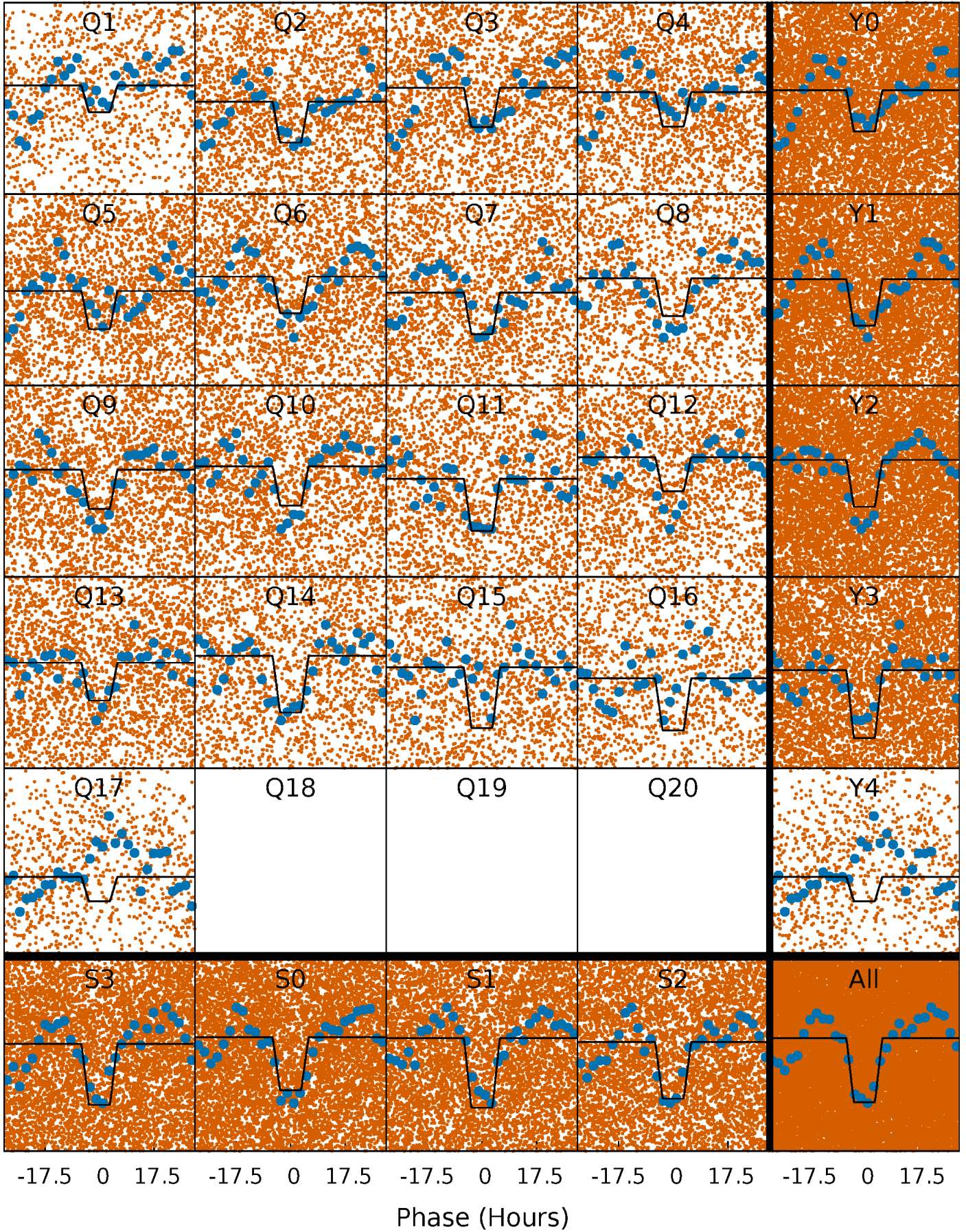
DV Quarter-Phased Transit Curves

TCE 007283604-01 P= 3.004971 Days $T_0=133.387079$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

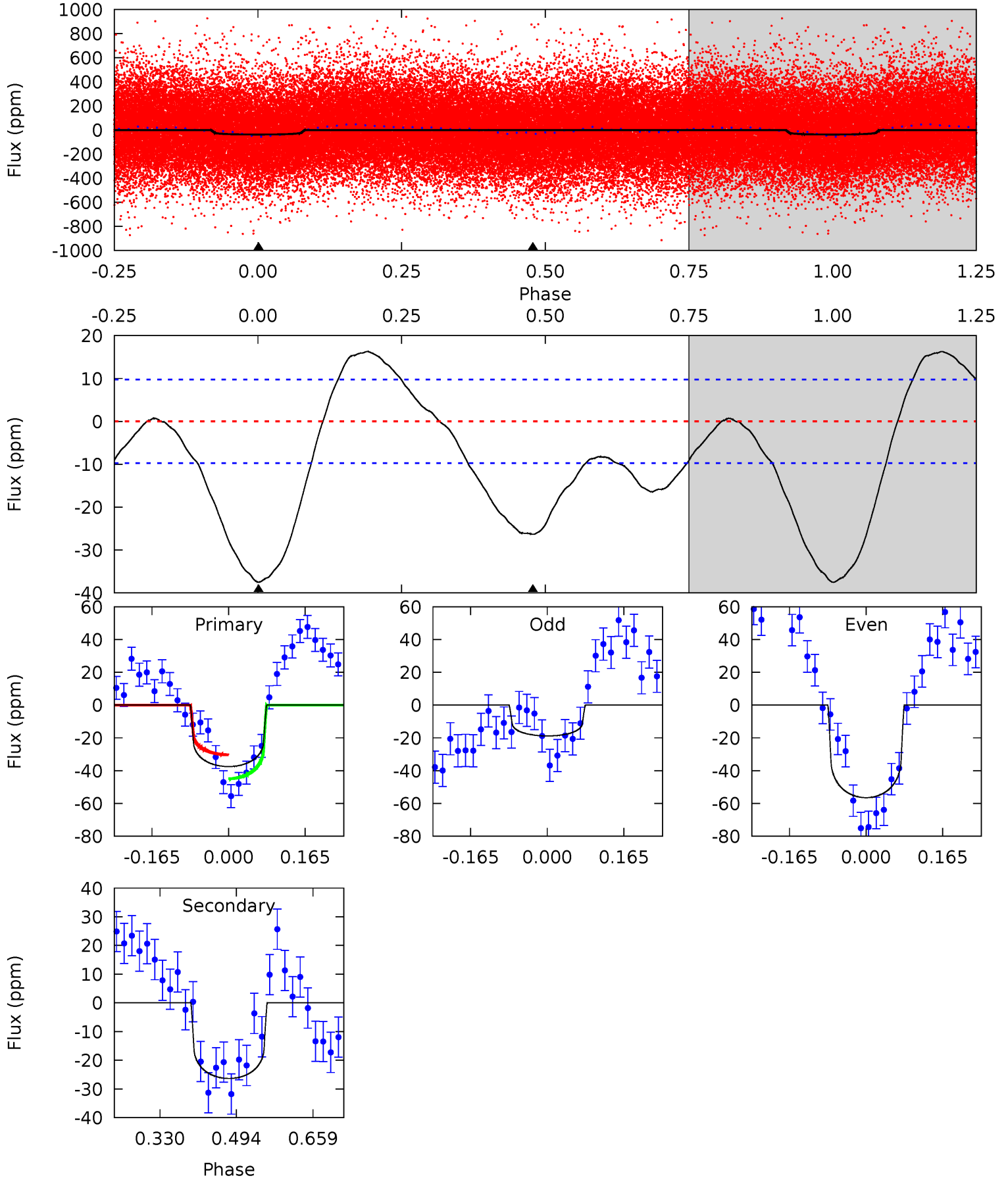
TCE 007283604-01 P= 3.004713 Days $T_0=133.544270$ (BKJD)



DV Model-Shift Uniqueness Test

007283604-01, P = 3.004971 Days, E = 130.382108 Days

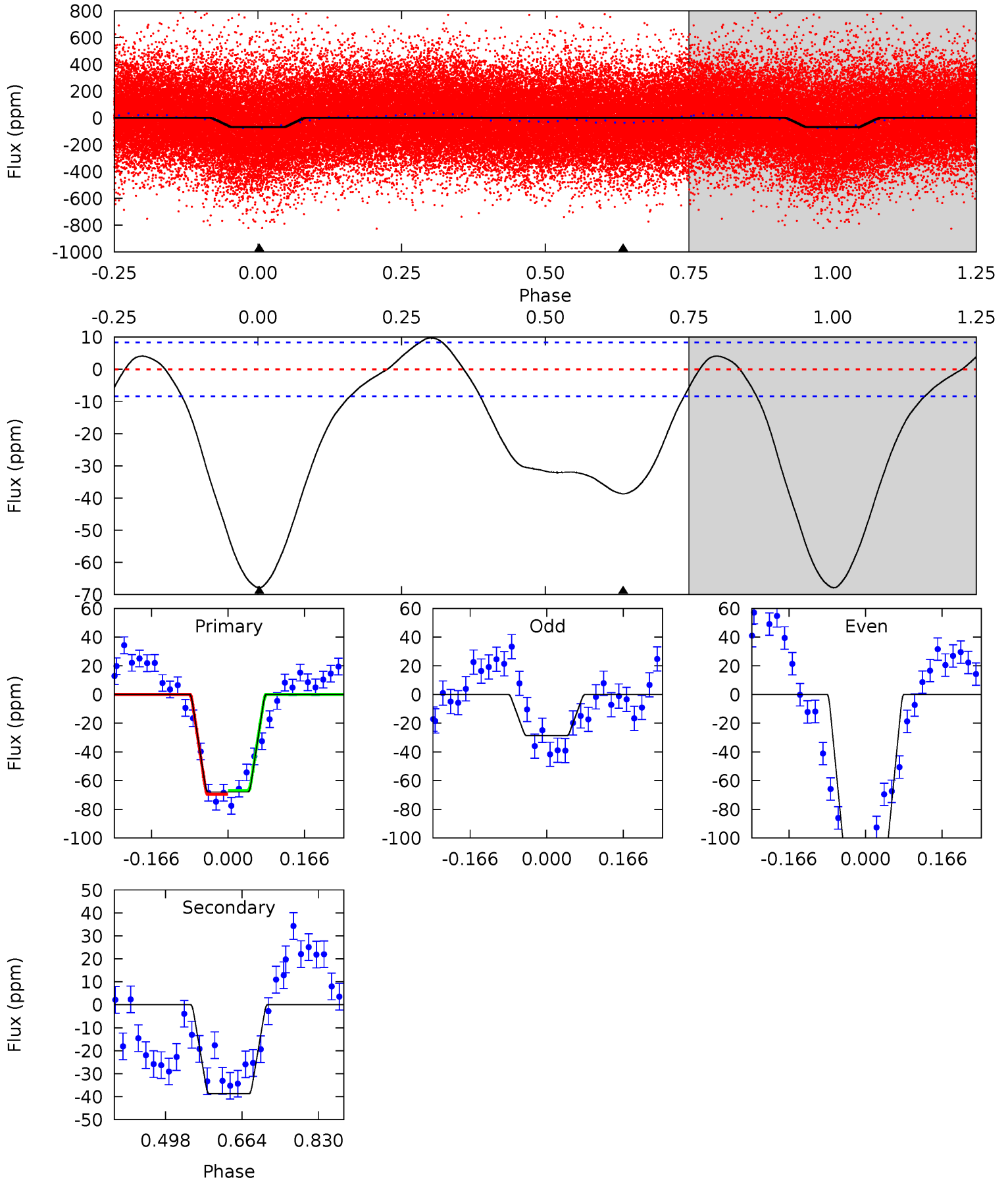
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	12.0	0	0	4.46	1.39	5.06	17.1	17.1	12.0	12.0	8.64	0.86	0.30	3.34



Alt Model-Shift Uniqueness Test

007283604-01, P = 3.004713 Days, E = 130.539557 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.1	20.6	0	0	4.46	1.39	6.27	36.1	36.1	20.6	20.6	20.6	0.93	0.13	0.68



Stellar Parameters For KIC 007283604

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6481^{+163}_{-212}	$4.441^{+0.067}_{-0.189}$	$-0.680^{+0.300}_{-0.300}$	$0.979^{+0.272}_{-0.117}$	$0.966^{+0.112}_{-0.101}$	$1.448^{+0.463}_{-0.684}$
	+3%/-3%	+2%/-4%	+44%/-44%	+28%/-12%	+12%/-10%	+32%/-47%
Source	PHO1	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 007283604-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-26 ± 2	$0.62^{+0.11}_{-0.09}$	1993^{+141}_{-90}	6212^{+468}_{-388}	62^{+21}_{-17}
Alt.	-39 ± 2	$0.93^{+0.15}_{-0.10}$	1996^{+136}_{-100}	5514^{+247}_{-228}	39^{+9}_{-10}

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

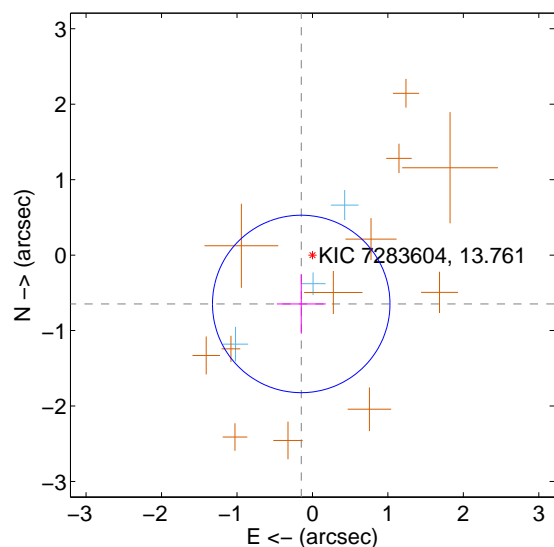
Supplemental centroid analysis for 007283604-01. Kepler magnitude: 13.76. Transit SNR 6.92

There are 3 quarters with good PRF difference image offsets

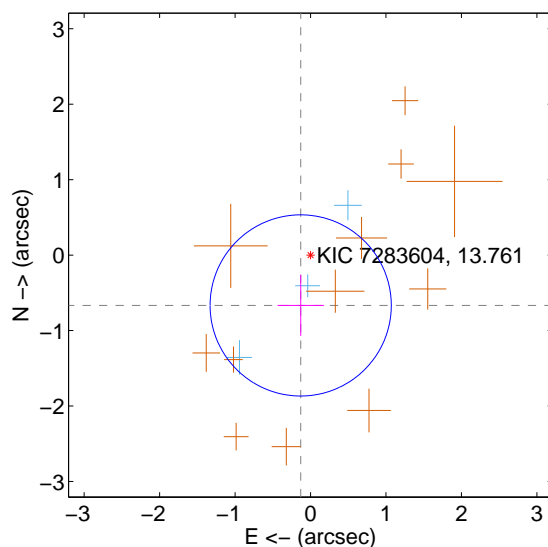
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.664 ± 0.392	1.69	0.149 ± 0.325	-0.647 ± 0.395
PRF-fit source offset from KIC position	0.680 ± 0.400	1.70	0.130 ± 0.308	-0.667 ± 0.403
photometric centroid source offset	0.39 ± 0.76	0.51	0.38 ± 0.76	0.05 ± 0.68

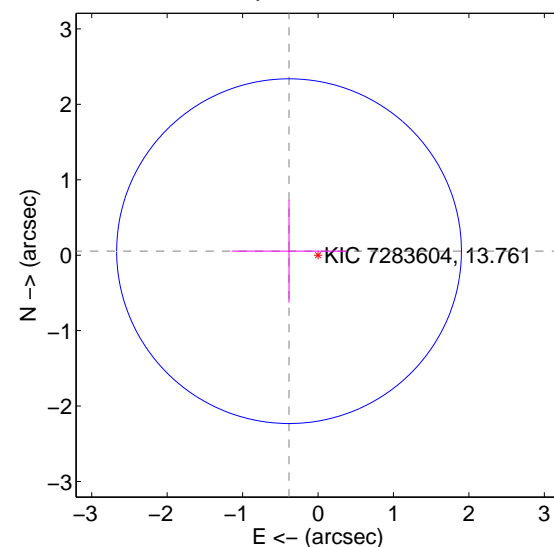
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

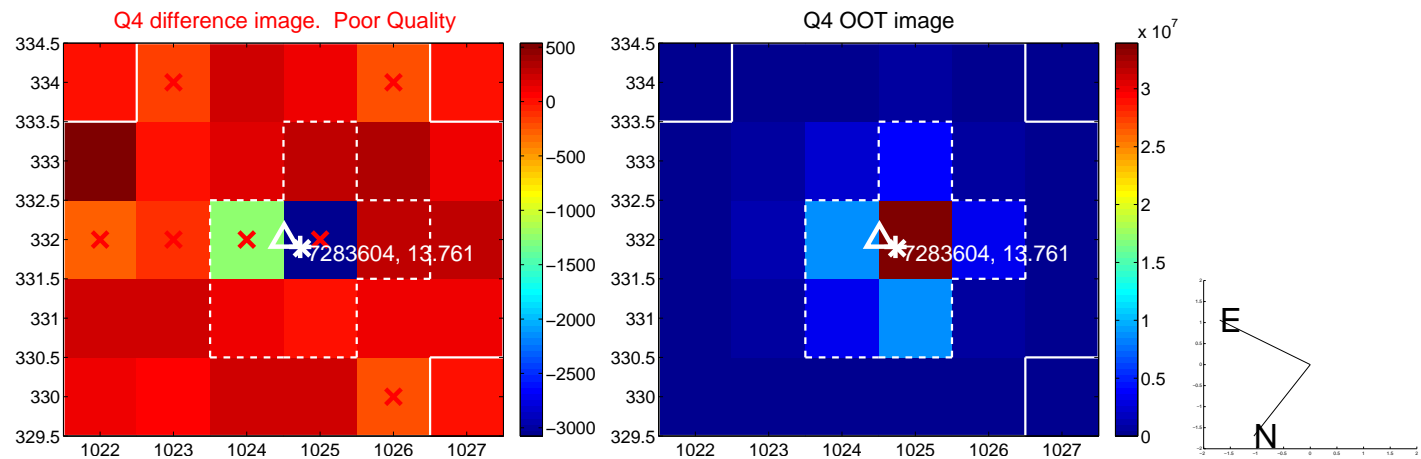
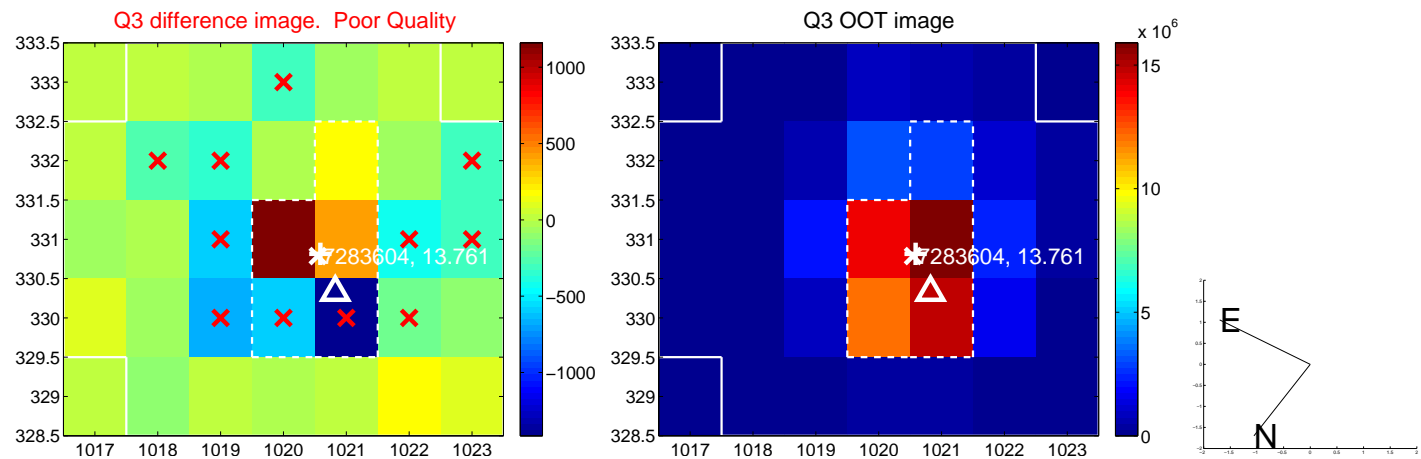
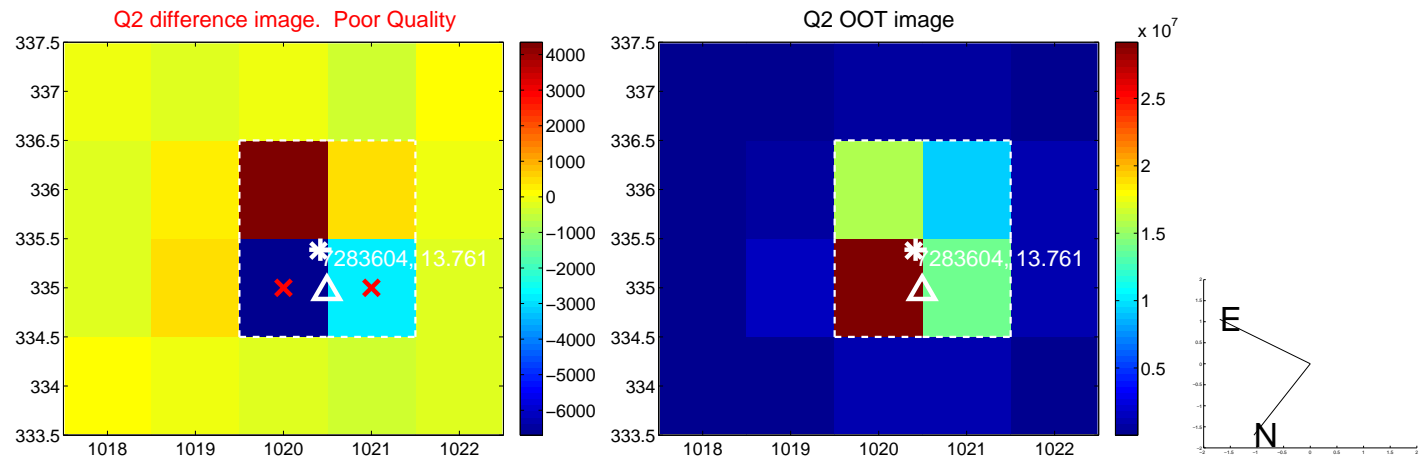
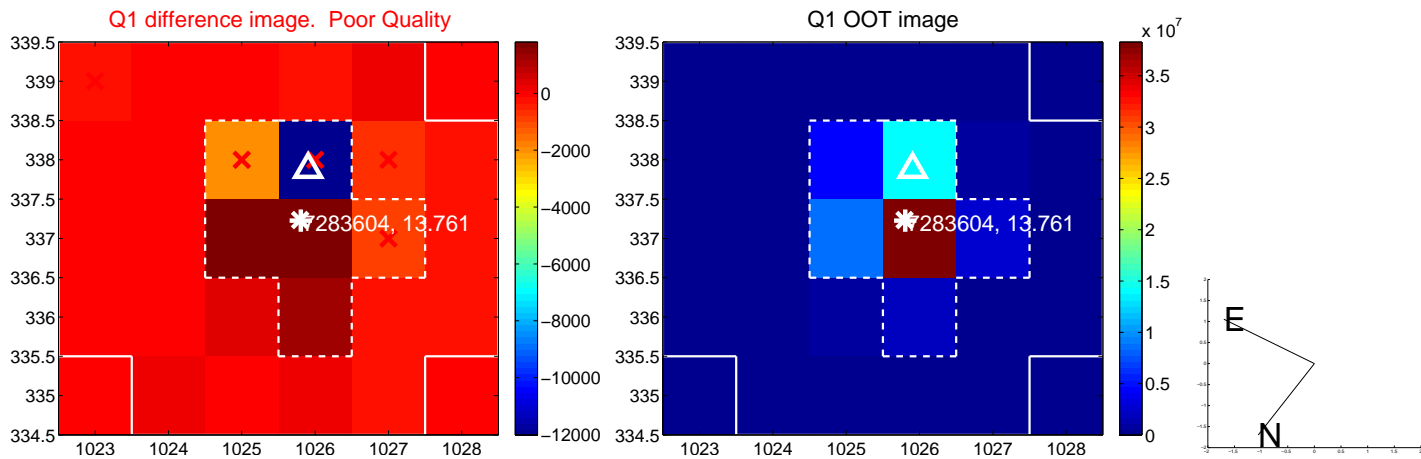


offset from photometric centroids

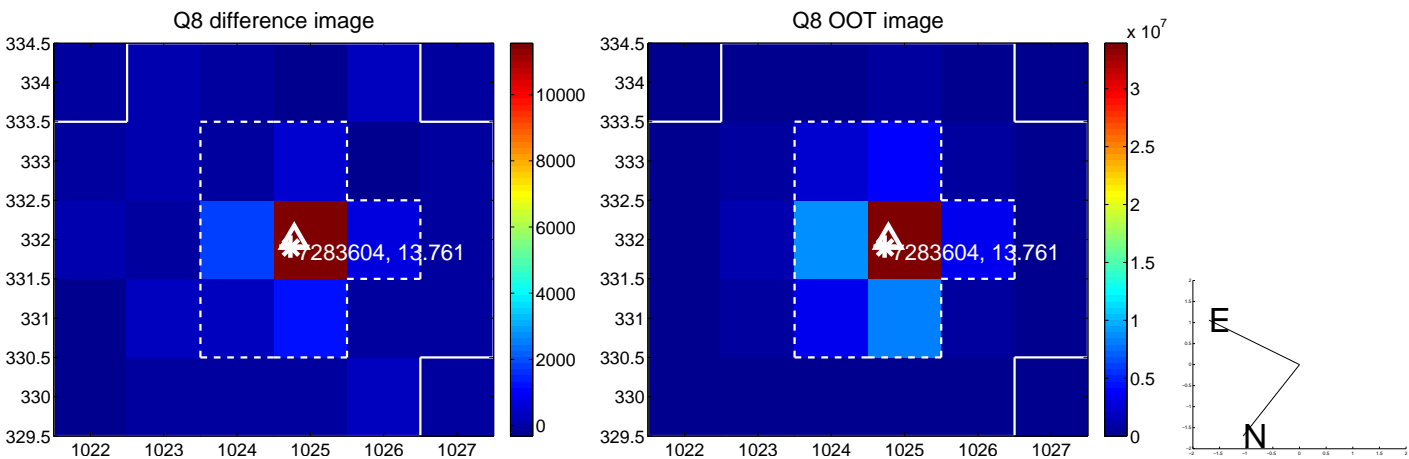
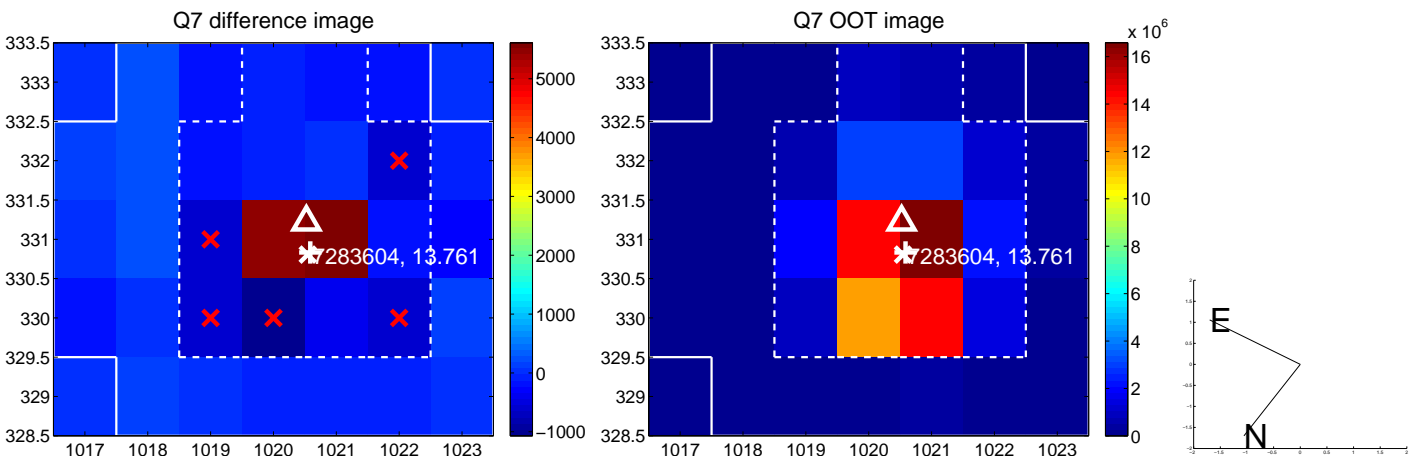
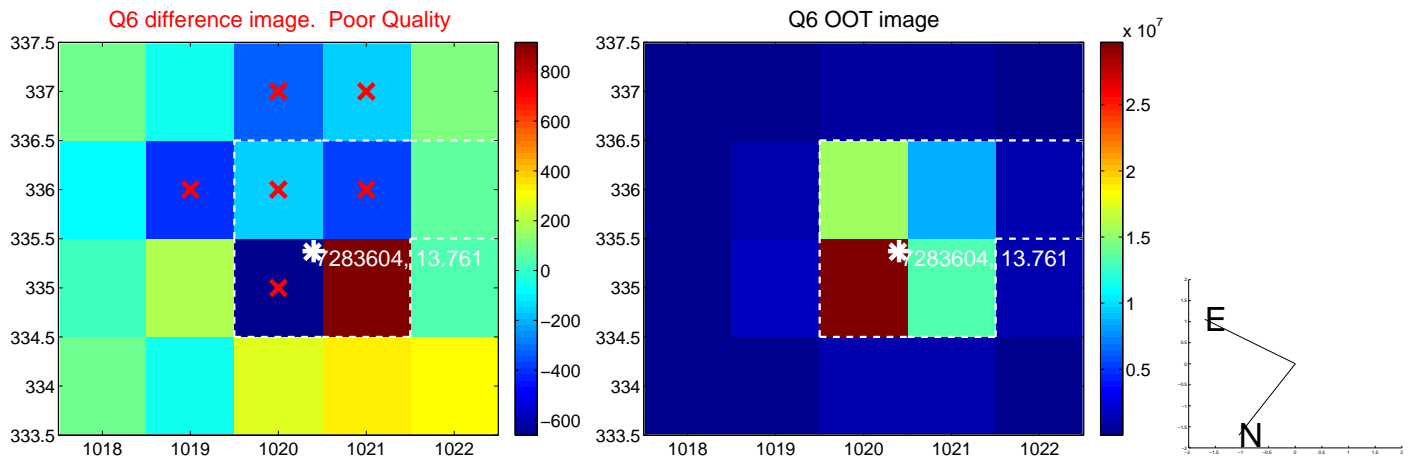
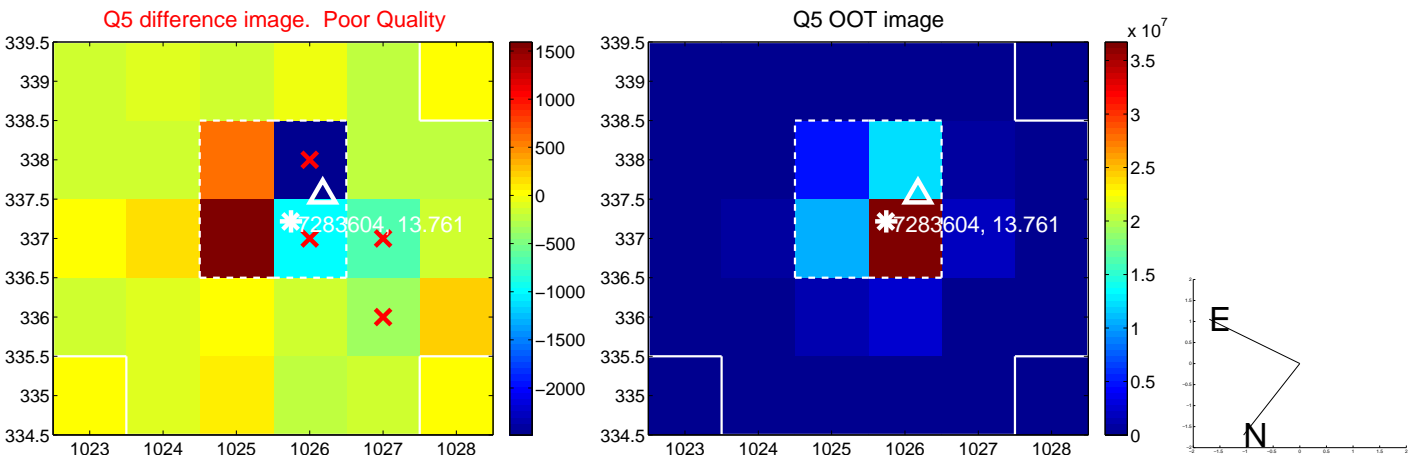


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

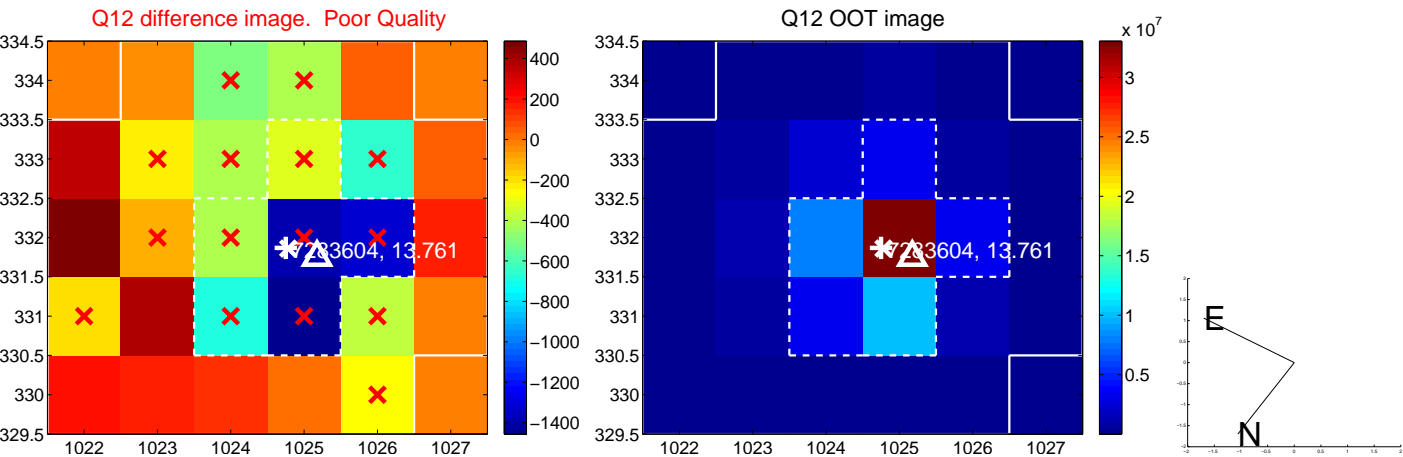
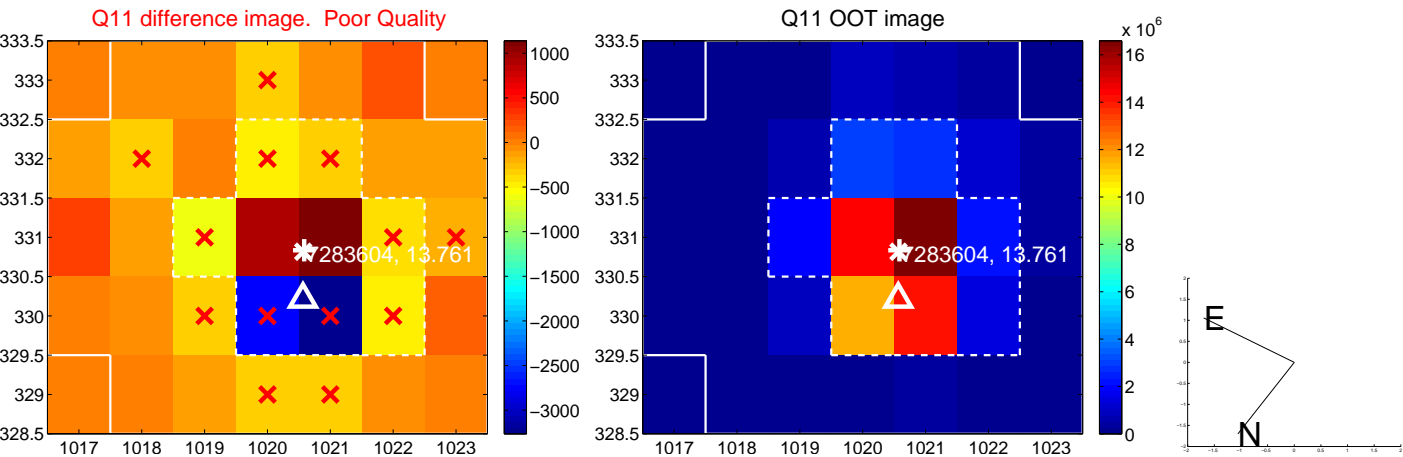
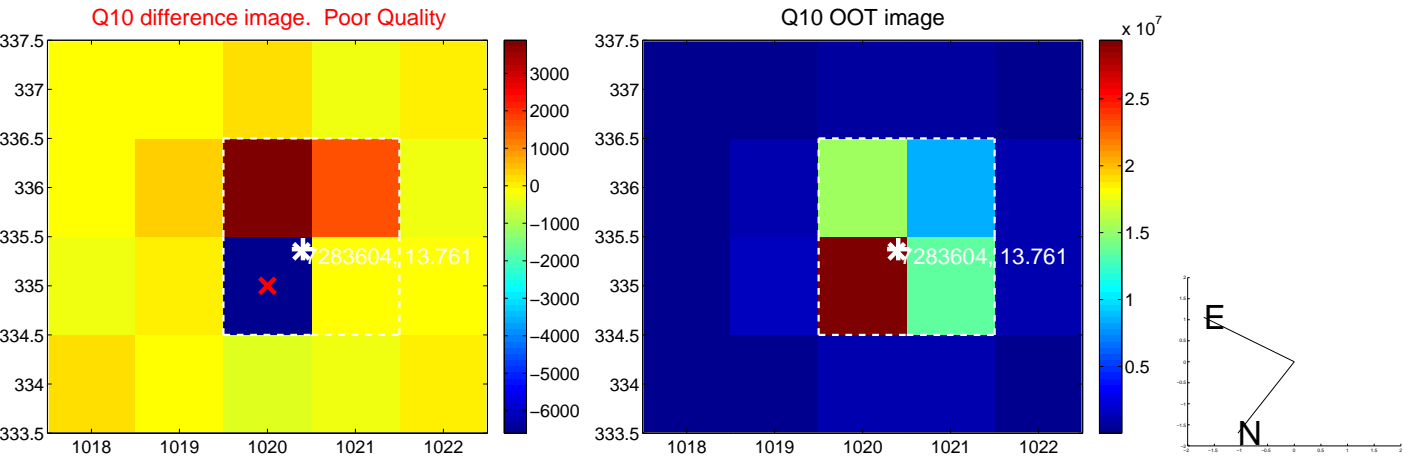
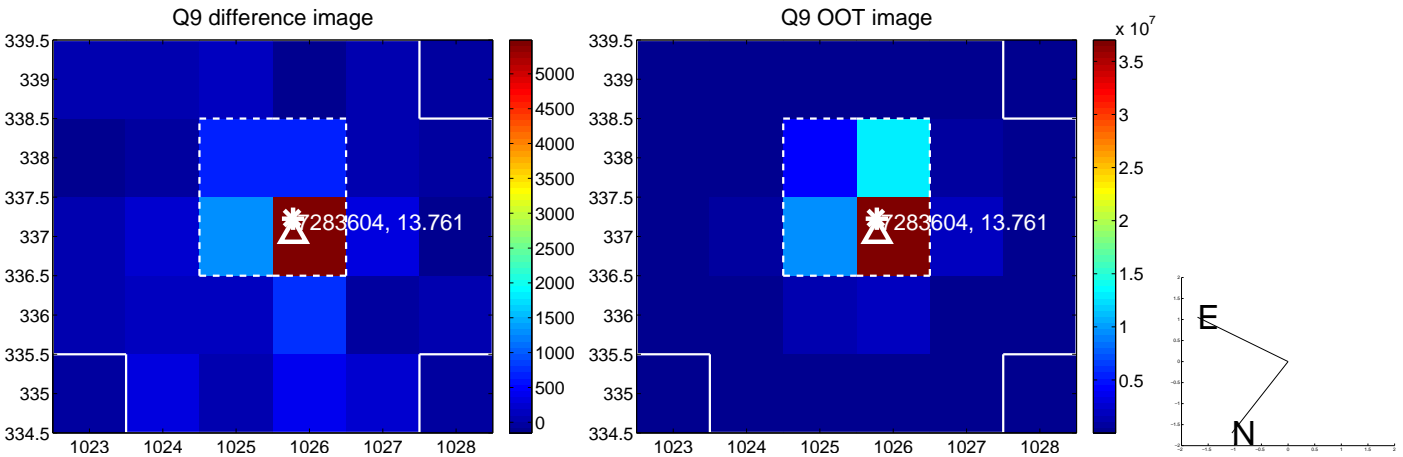
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



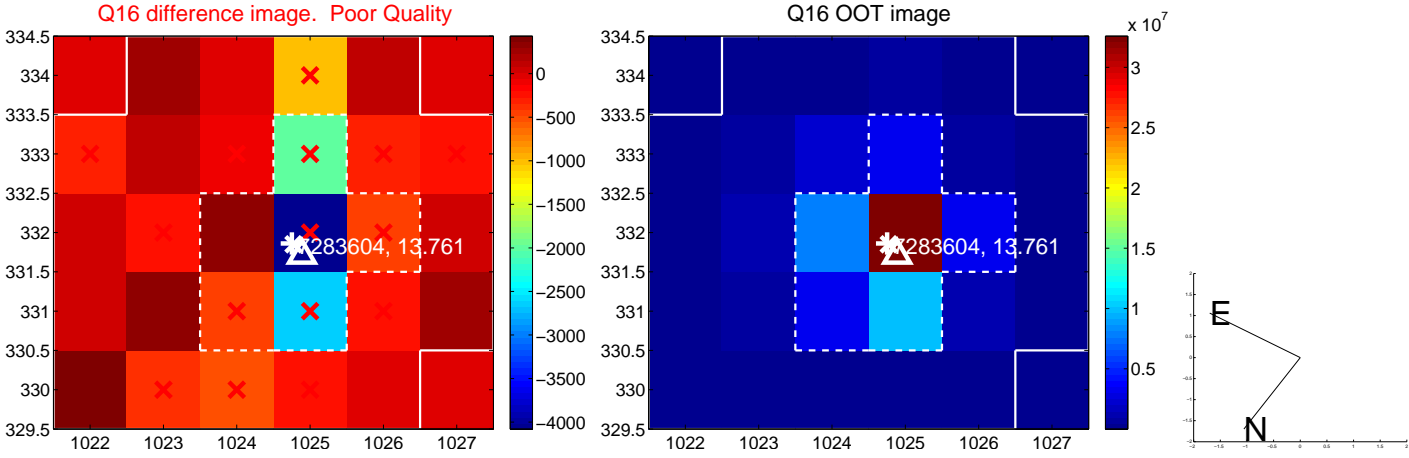
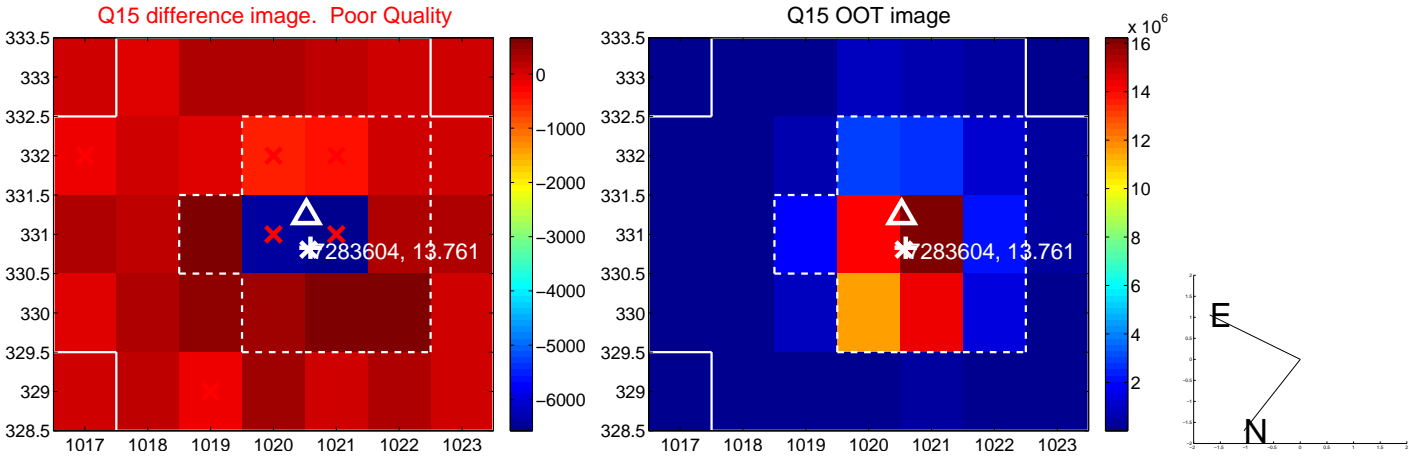
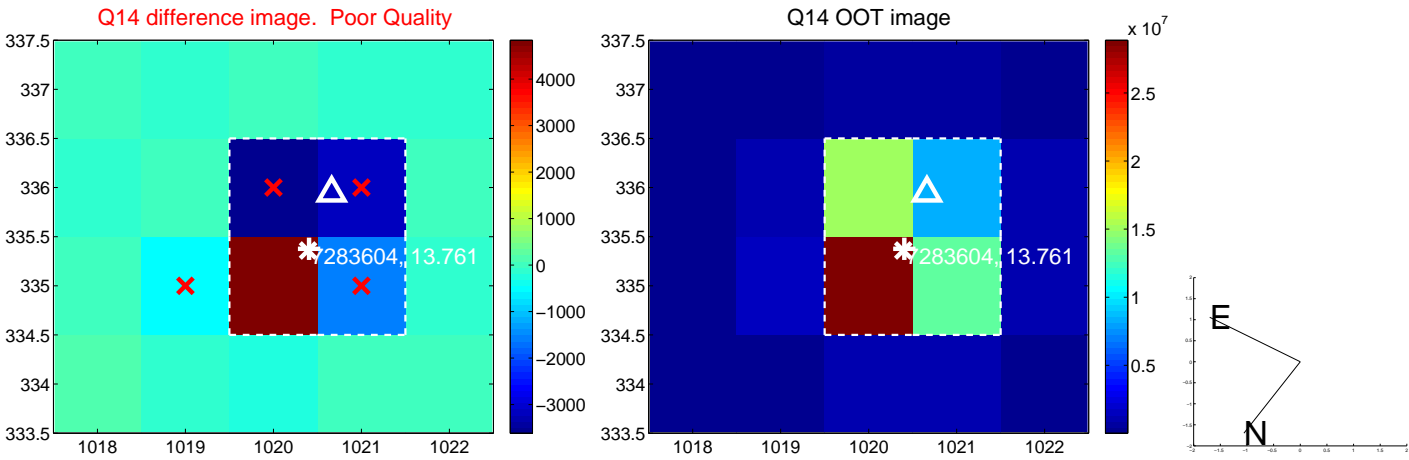
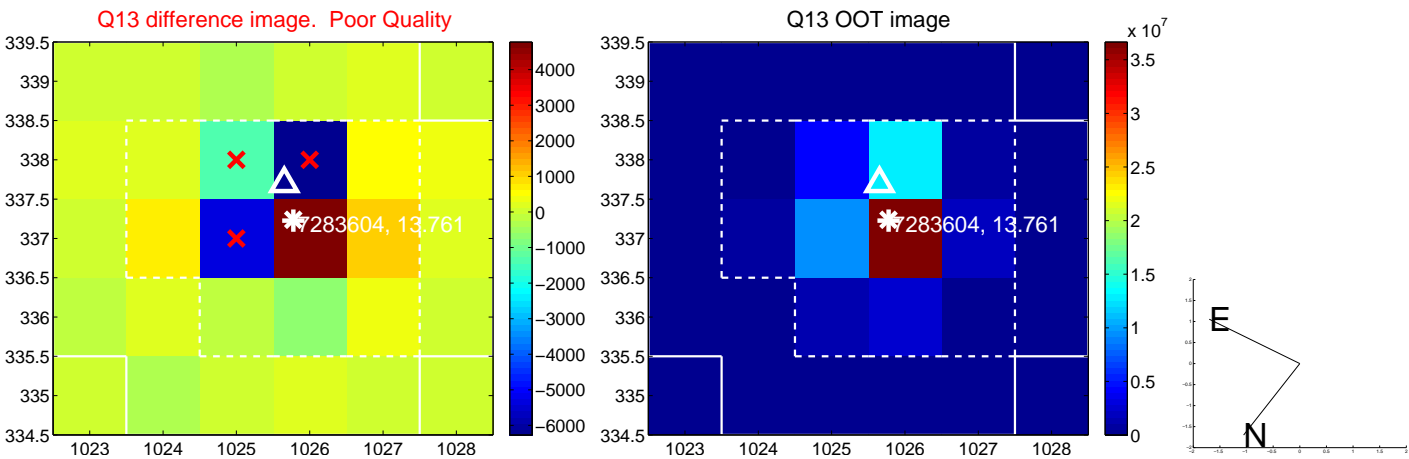
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



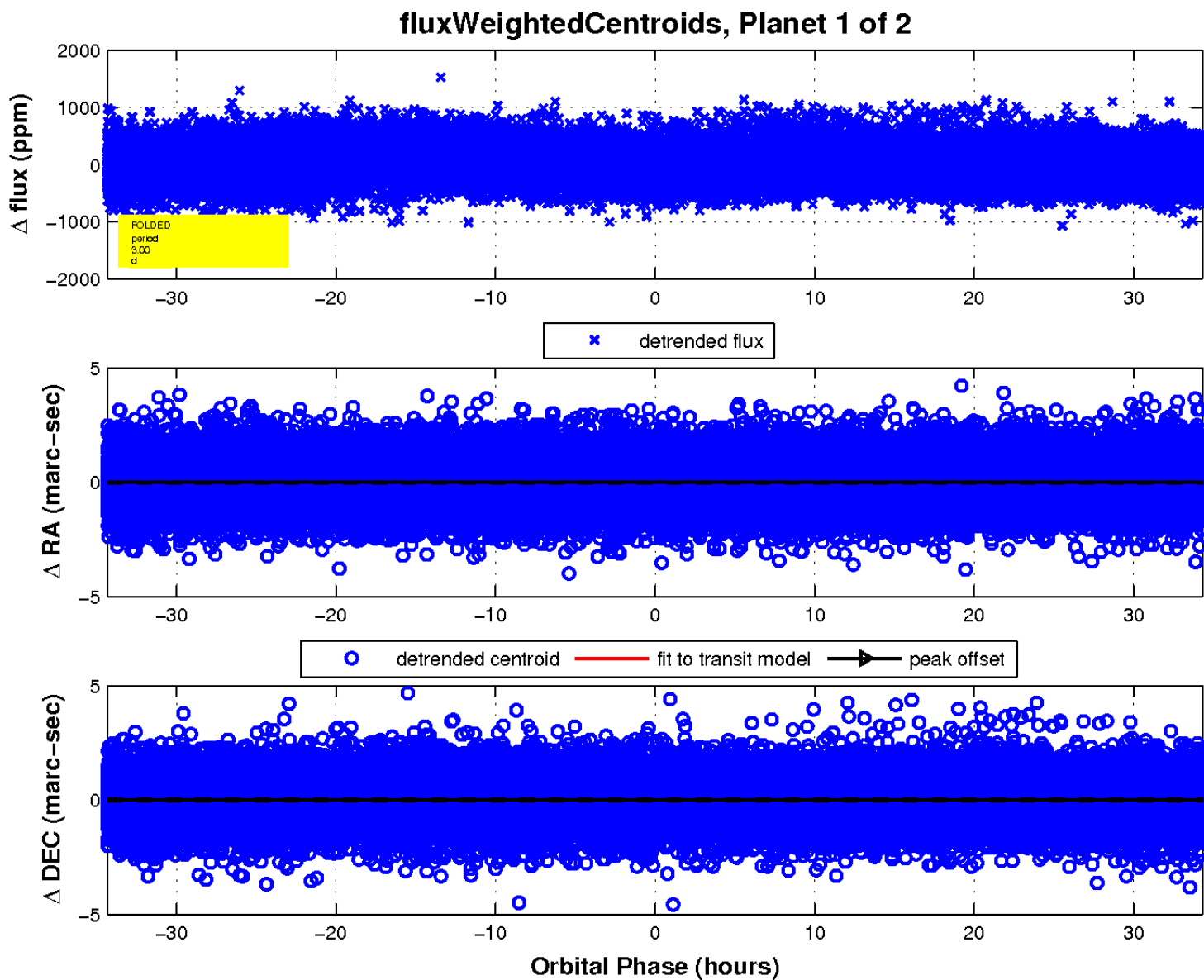
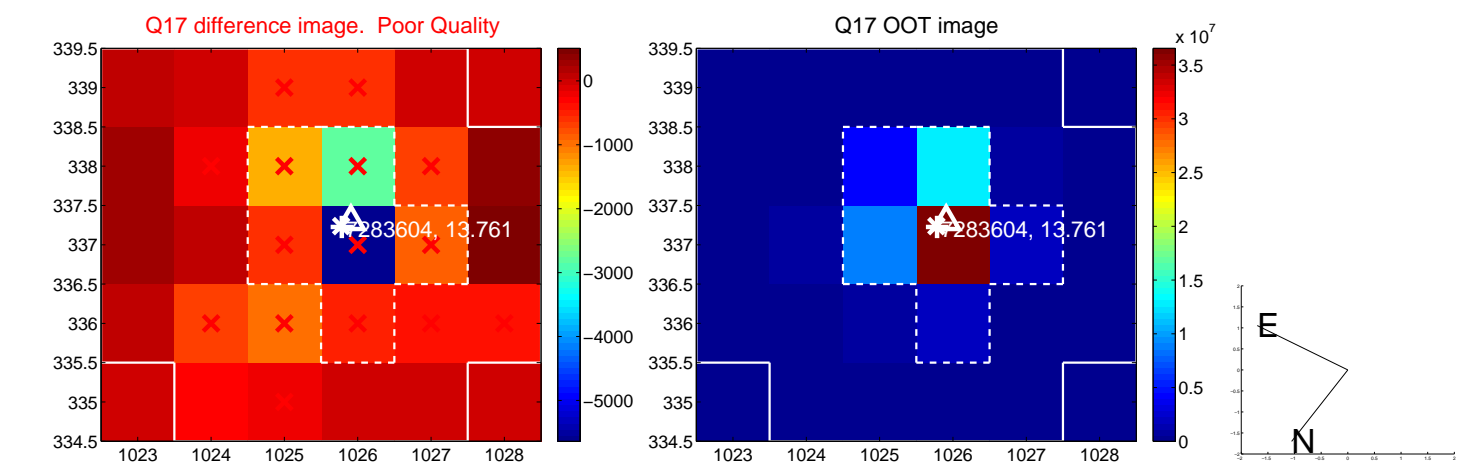
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

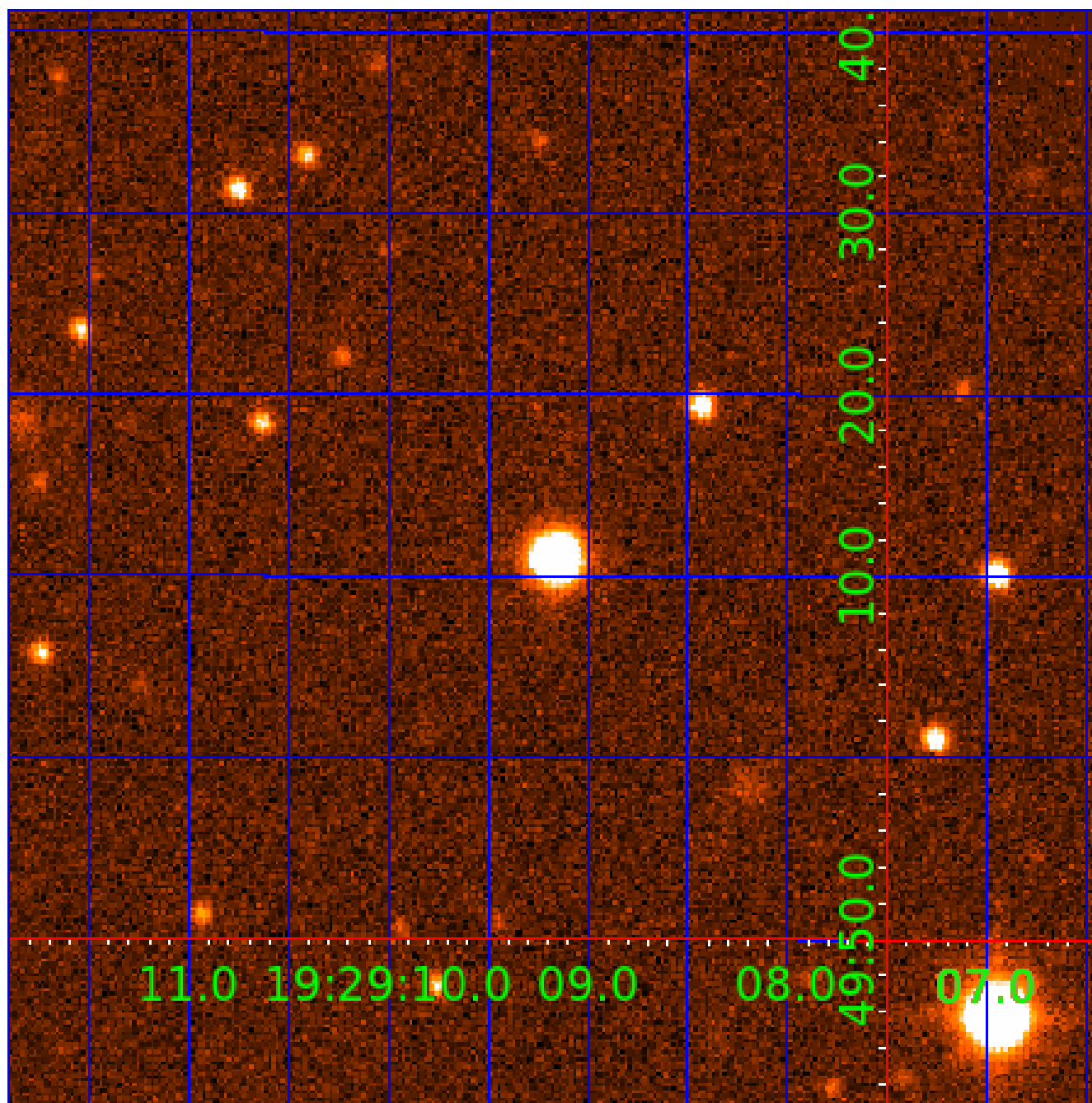


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007283604

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})
007283604-01	OBS	No	3.004971	133.387079	32.3	11.443	8.3	6.9	0.98	6481	0.59	933.68
007283604-02	OBS	No	6.010912	134.436398	154.4	12.000	9.1	-1.0	0.98	6481	1.23	370.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007283604-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007283604-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

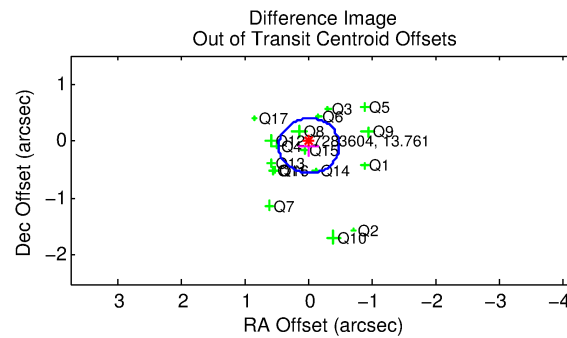
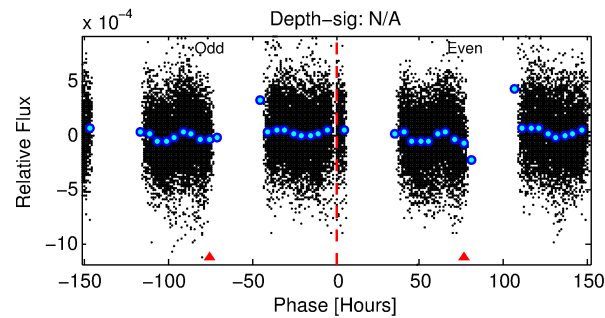
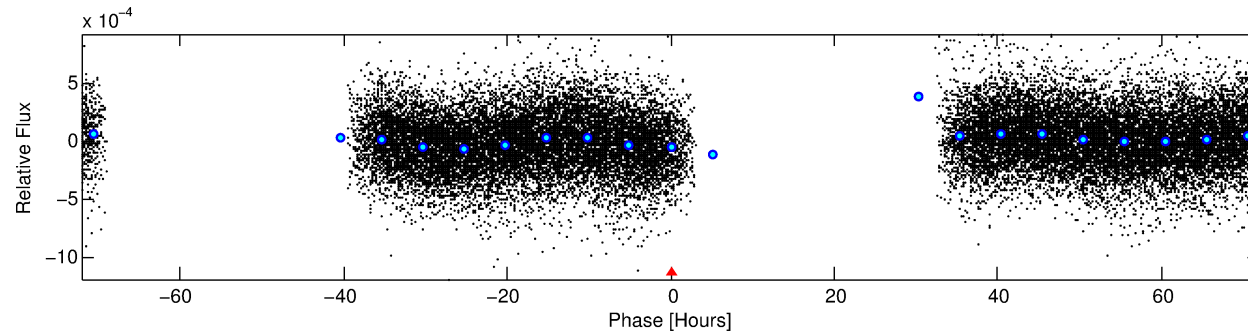
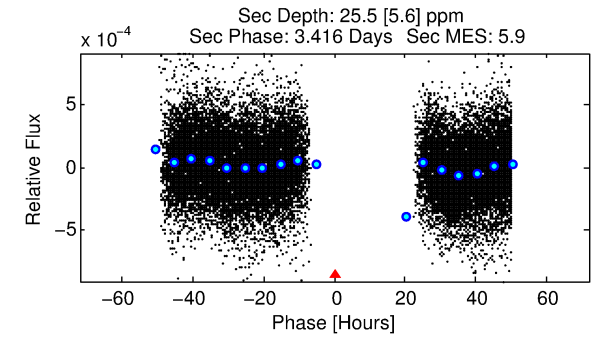
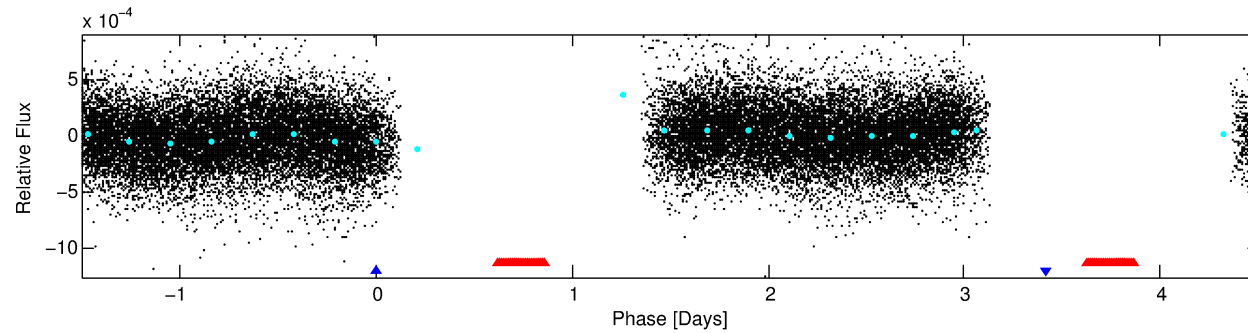
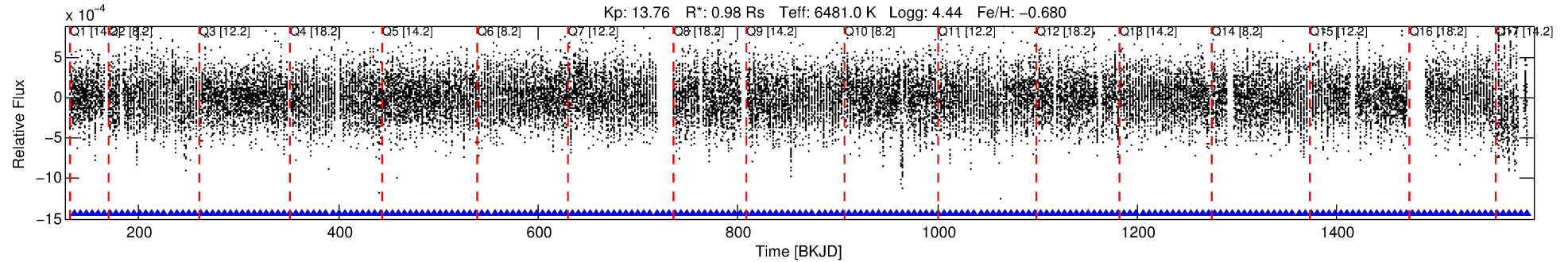
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007283604-02

No Significant Match Found

DV One-Page Summary

KIC: 7283604 Candidate: 2 of 2 Period: 6.011 d



TPS TCE Results:

Period = 6.01091 d
Epoch = 134.4364 BKJD

DV fit results are unavailable

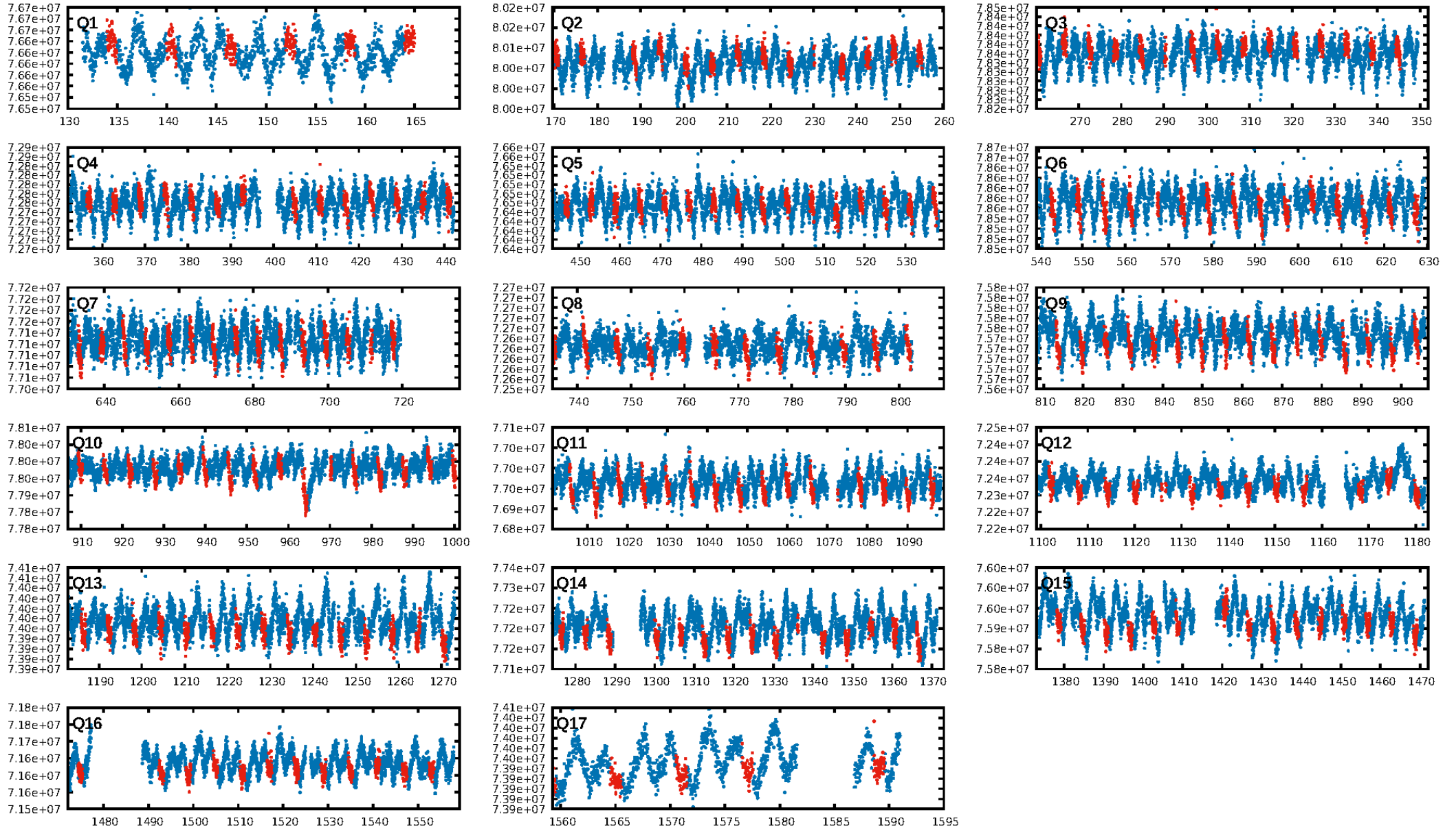
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.35 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.86e-12
RollingBand-fgt: 1.00 [220/220]
GhostDiagnostic-chr: 0.5428
Centroid-sig: 54.4%
Centroid-so: 0.028 arcsec [0.29 σ]
OotOffset-rm: 0.080 arcsec [0.50 σ]
KicOffset-rm: 0.133 arcsec [0.70 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

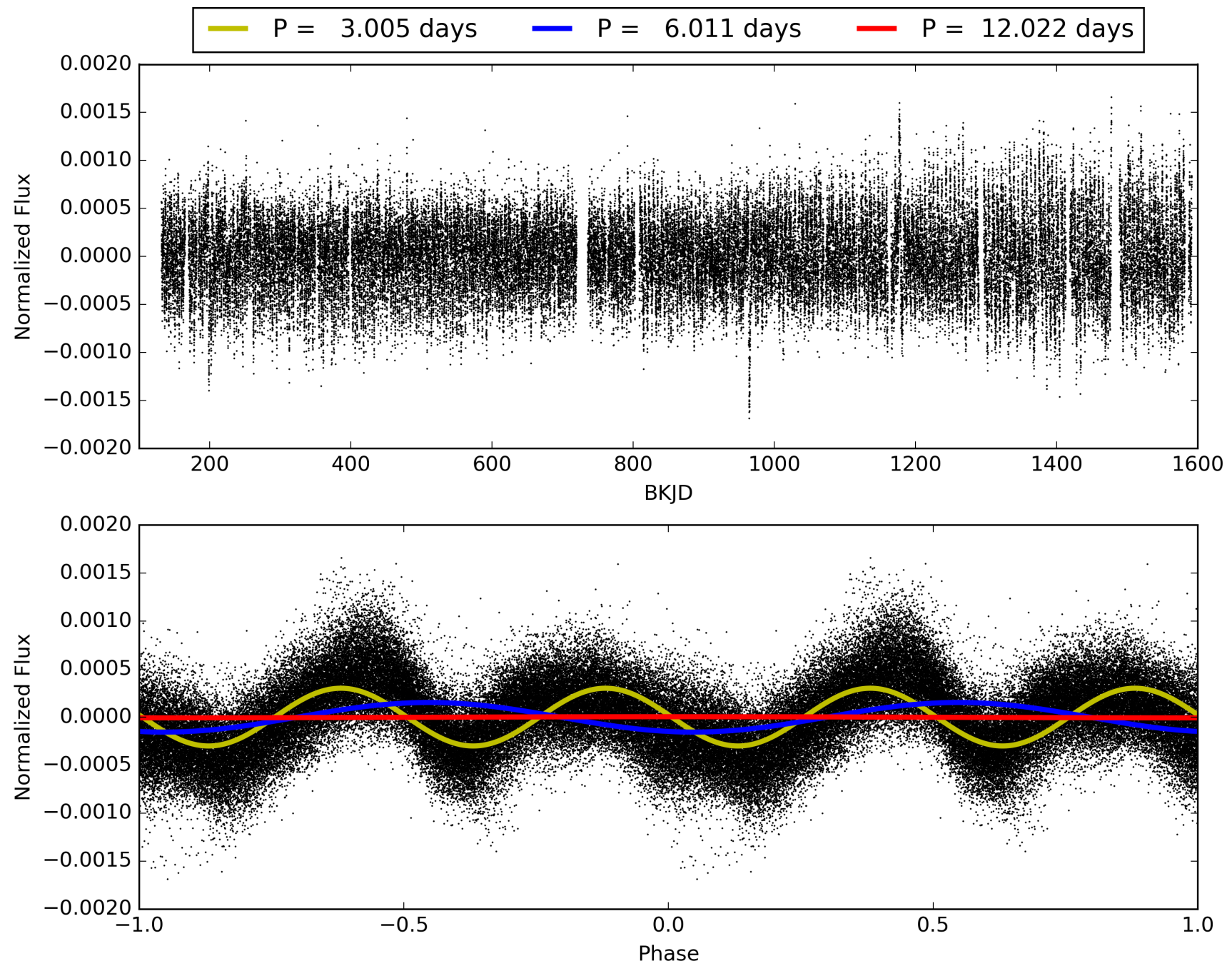
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:48:28 Z

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

TCE 007283604-02, PDC Light Curves

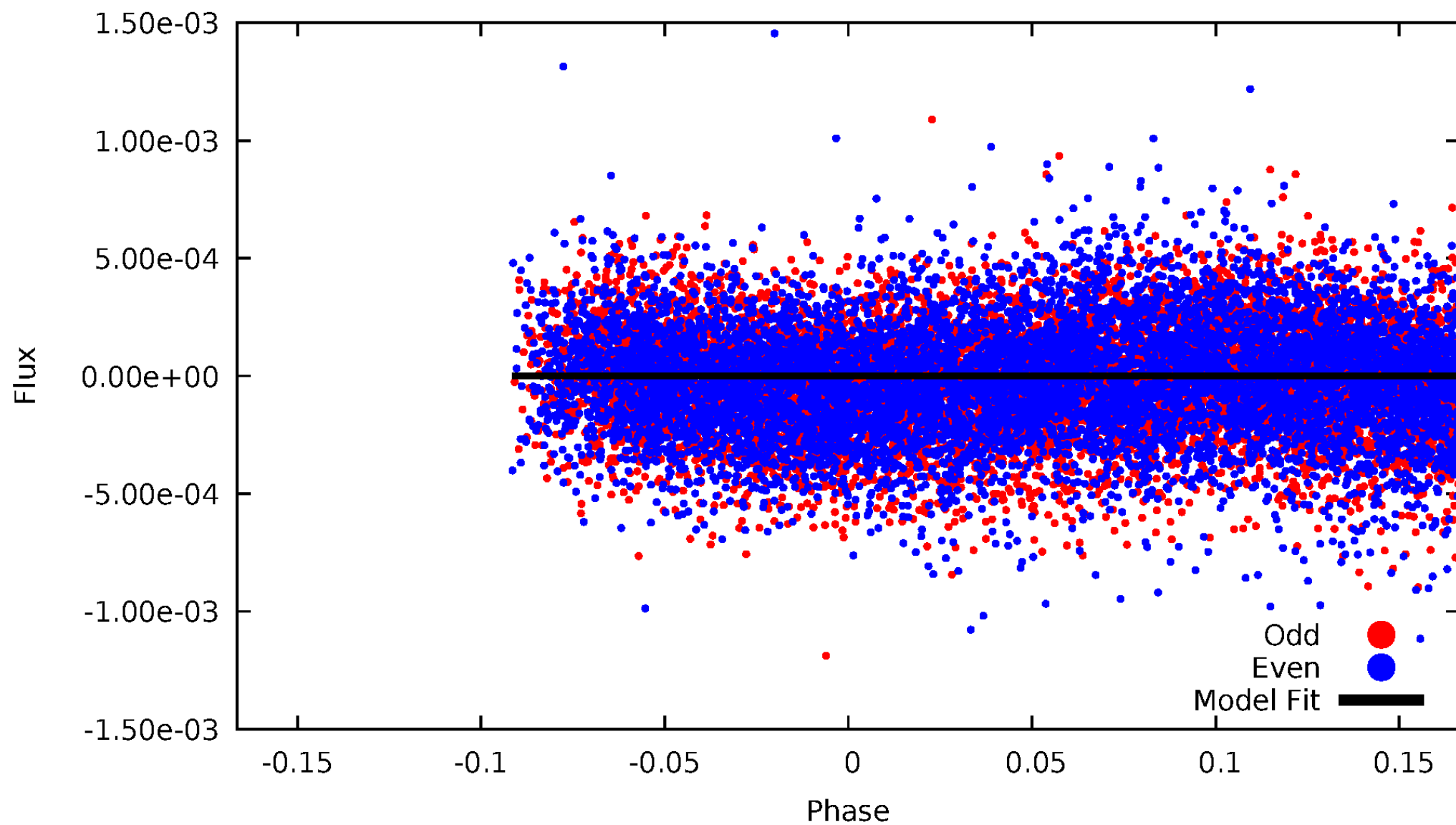


TCE 007283604-02



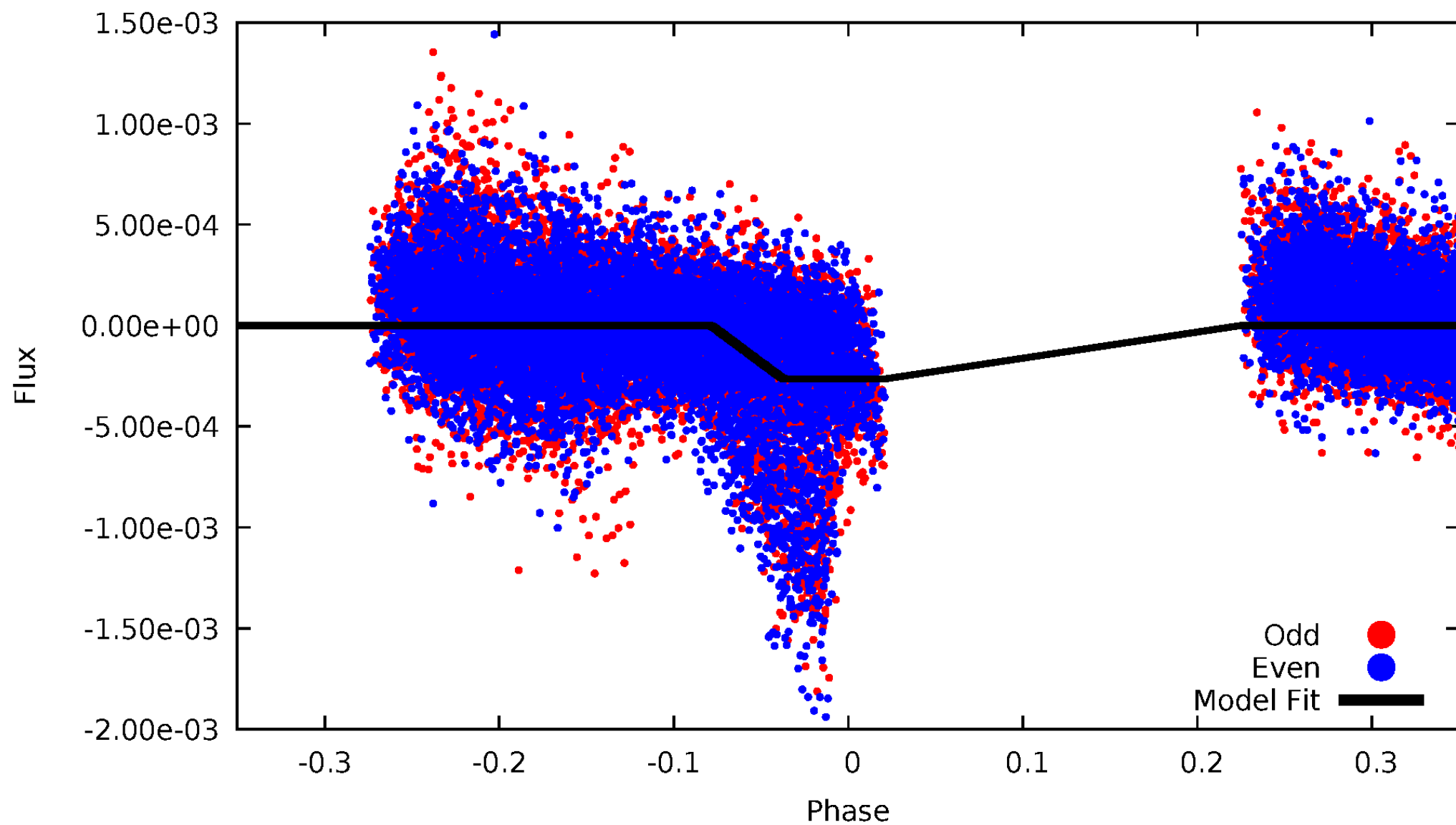
DV Odd/Even

TCE 007283604-02



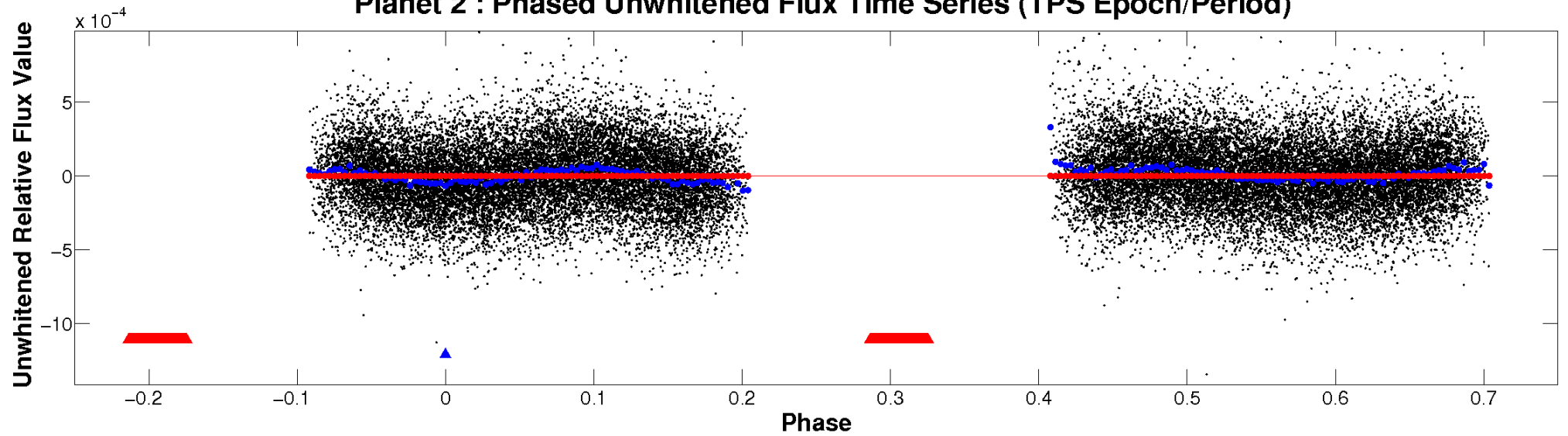
ALT Odd/Even

TCE 007283604-02



Non-Whitened Vs. Whitened Light Curve

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

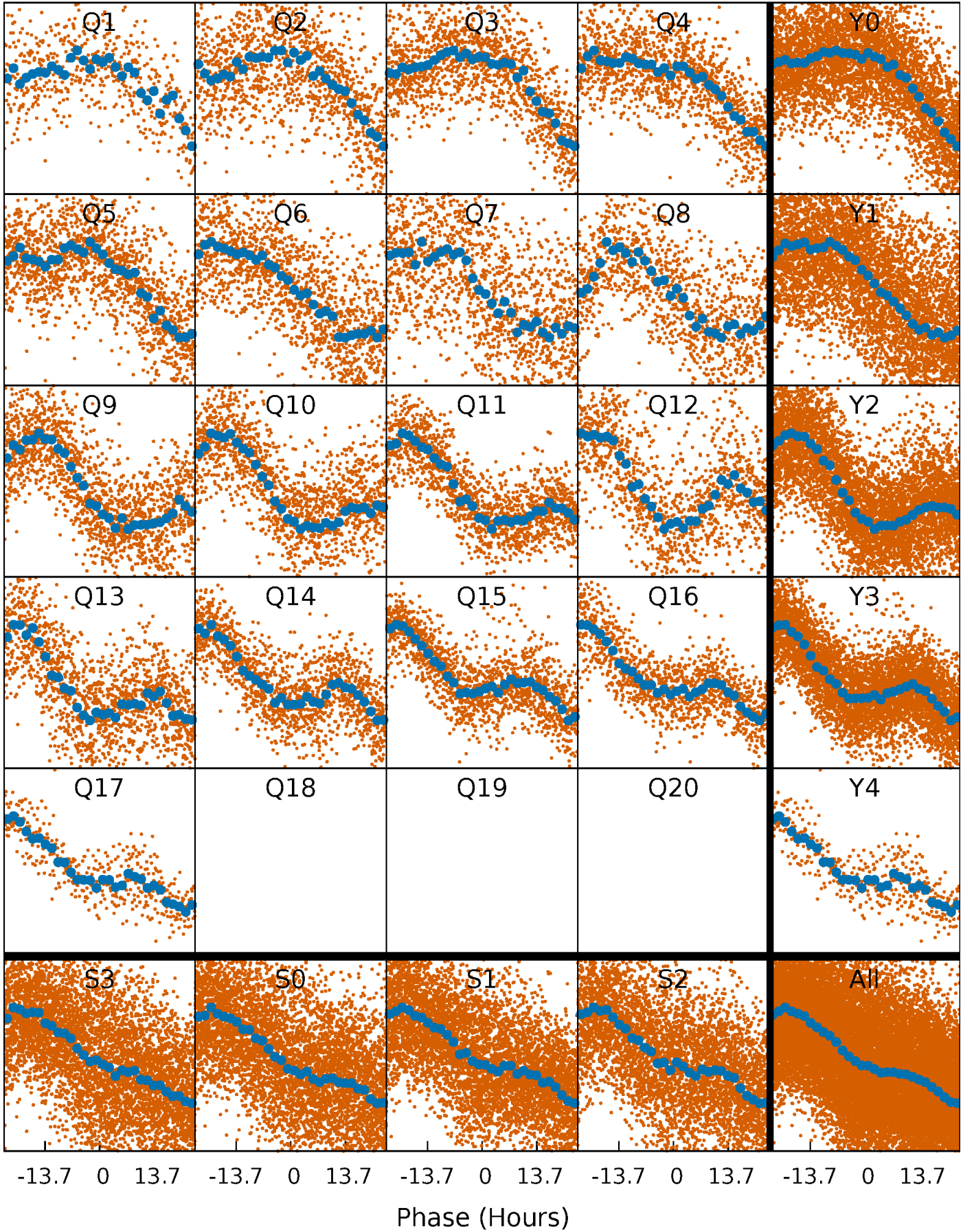


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



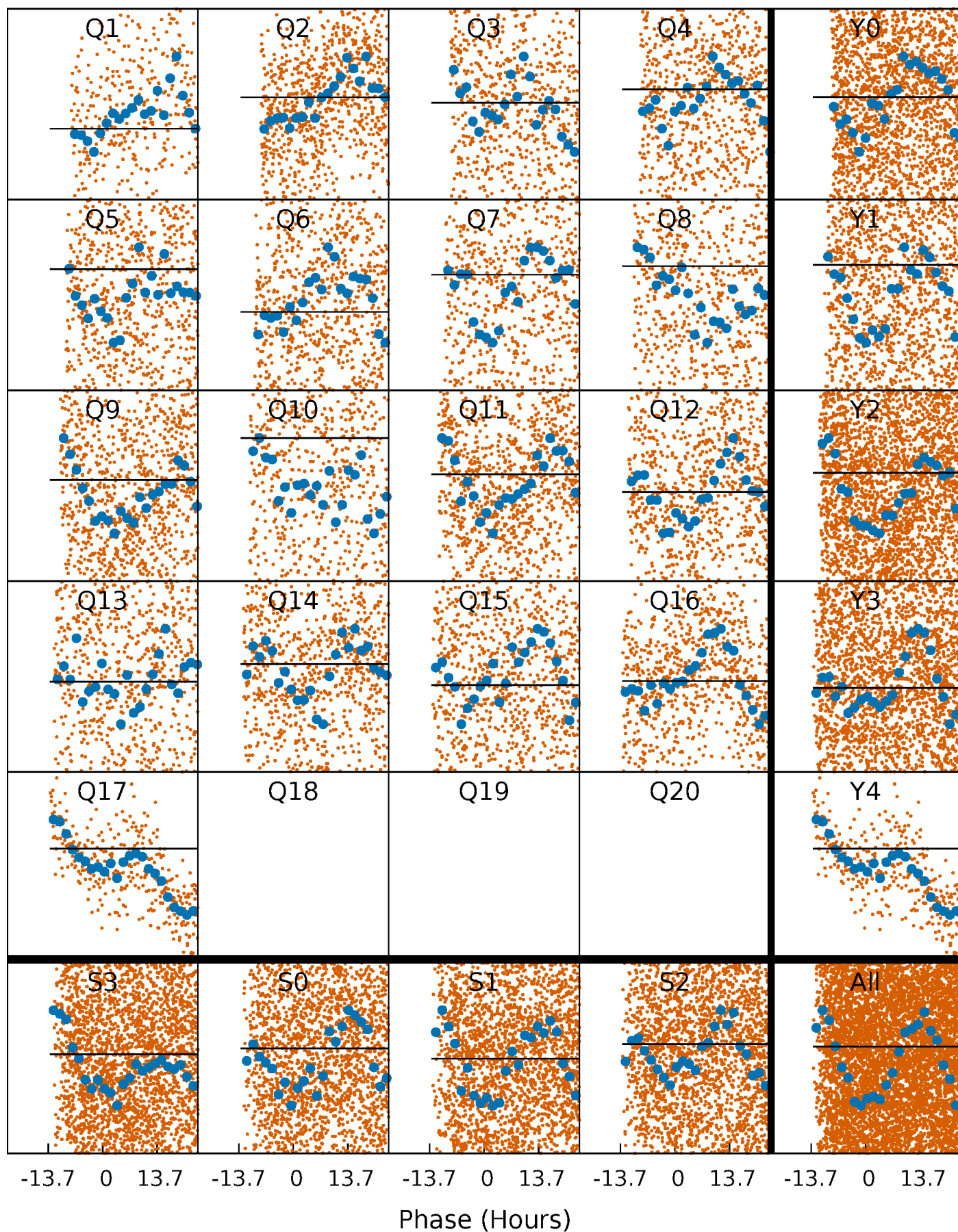
PDC Quarter-Phased Transit Curves

TCE 007283604-02 P= 6.010912 Days $T_0=134.436398$ (BKJD)



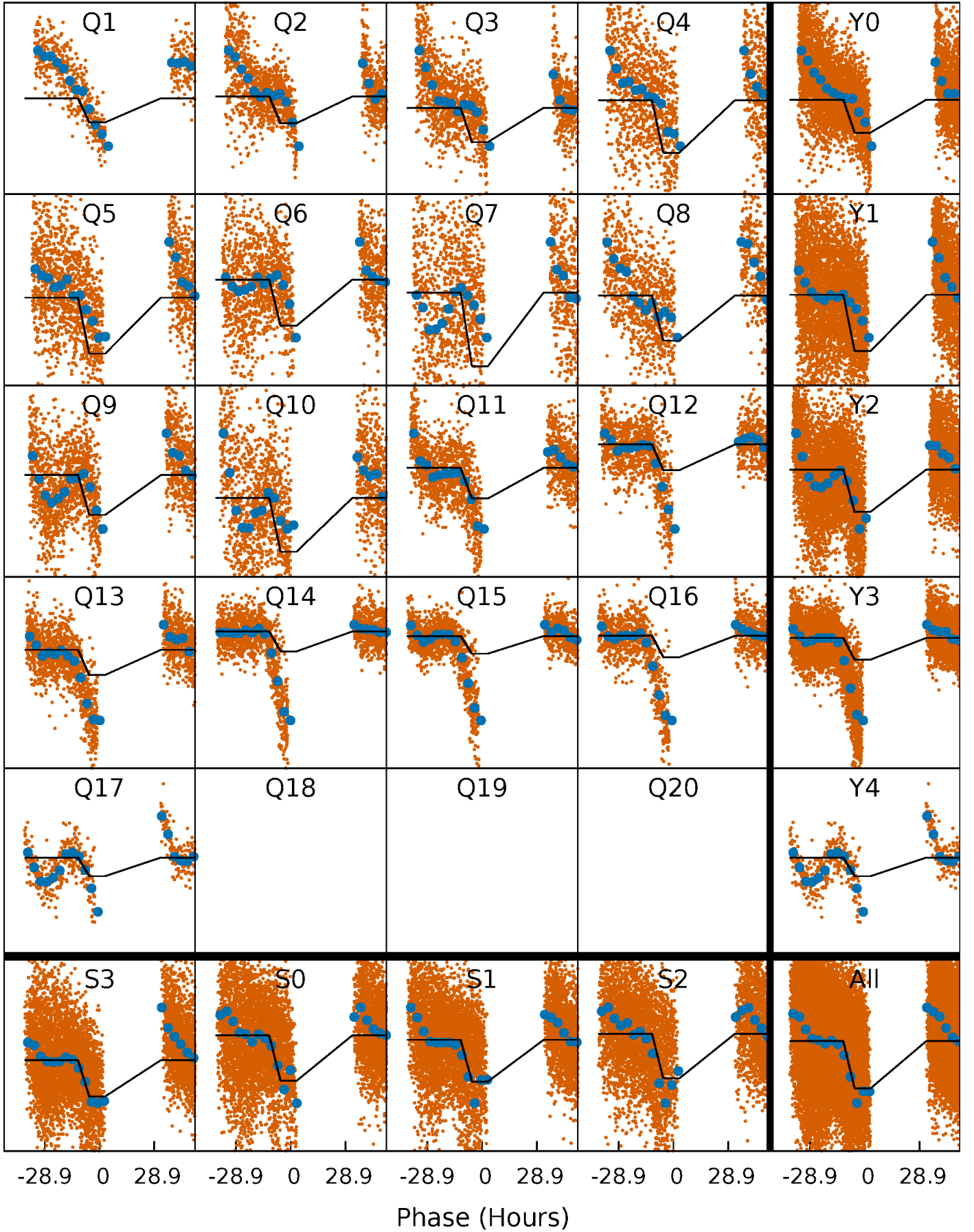
DV Quarter-Phased Transit Curves

TCE 007283604-02 P= 6.010912 Days $T_0=134.436398$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

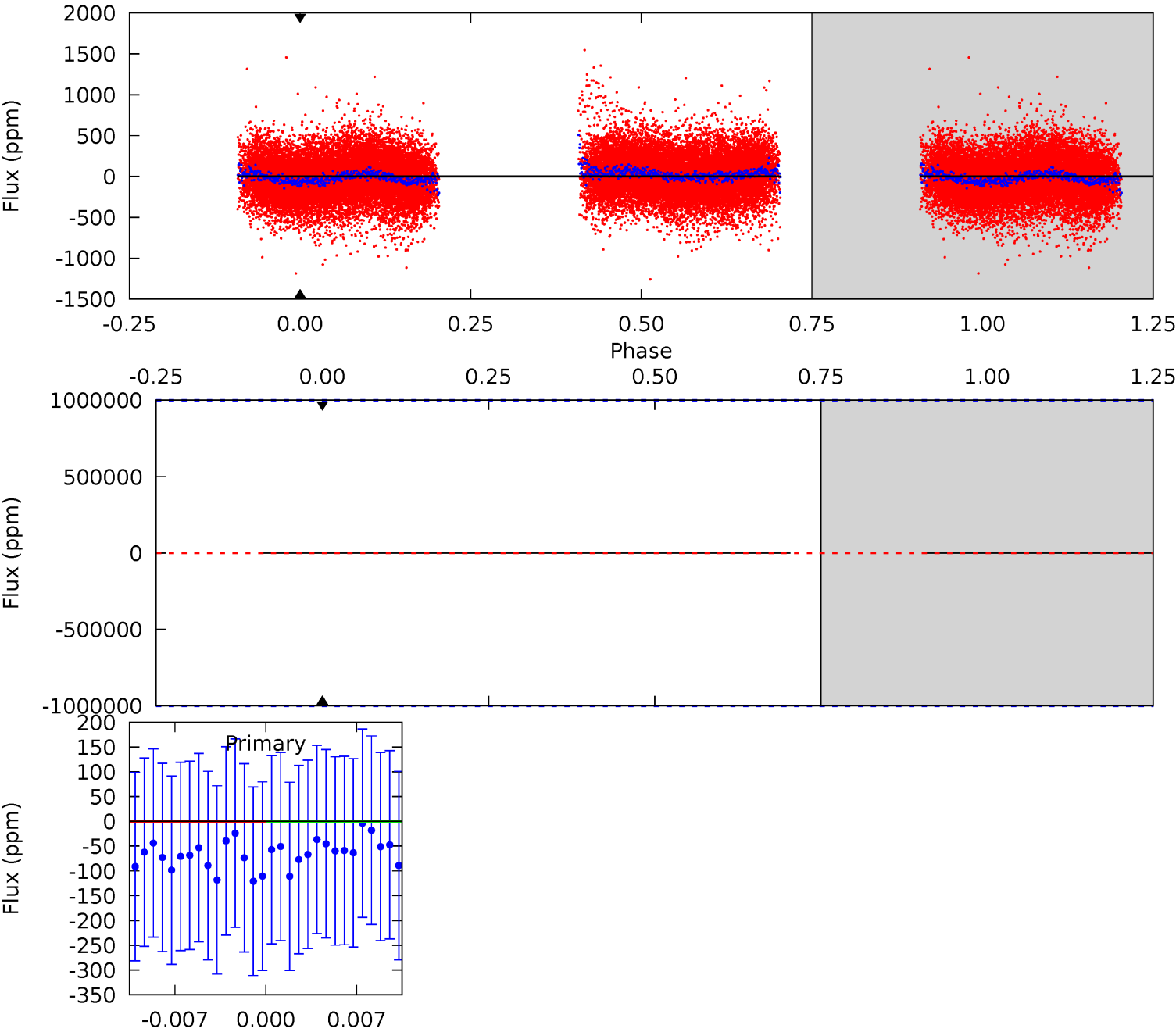
TCE 007283604-02 P= 6.010912 Days $T_0=135.535031$ (BKJD)



DV Model-Shift Uniqueness Test

007283604-02, P = 6.010912 Days, E = 128.425486 Days

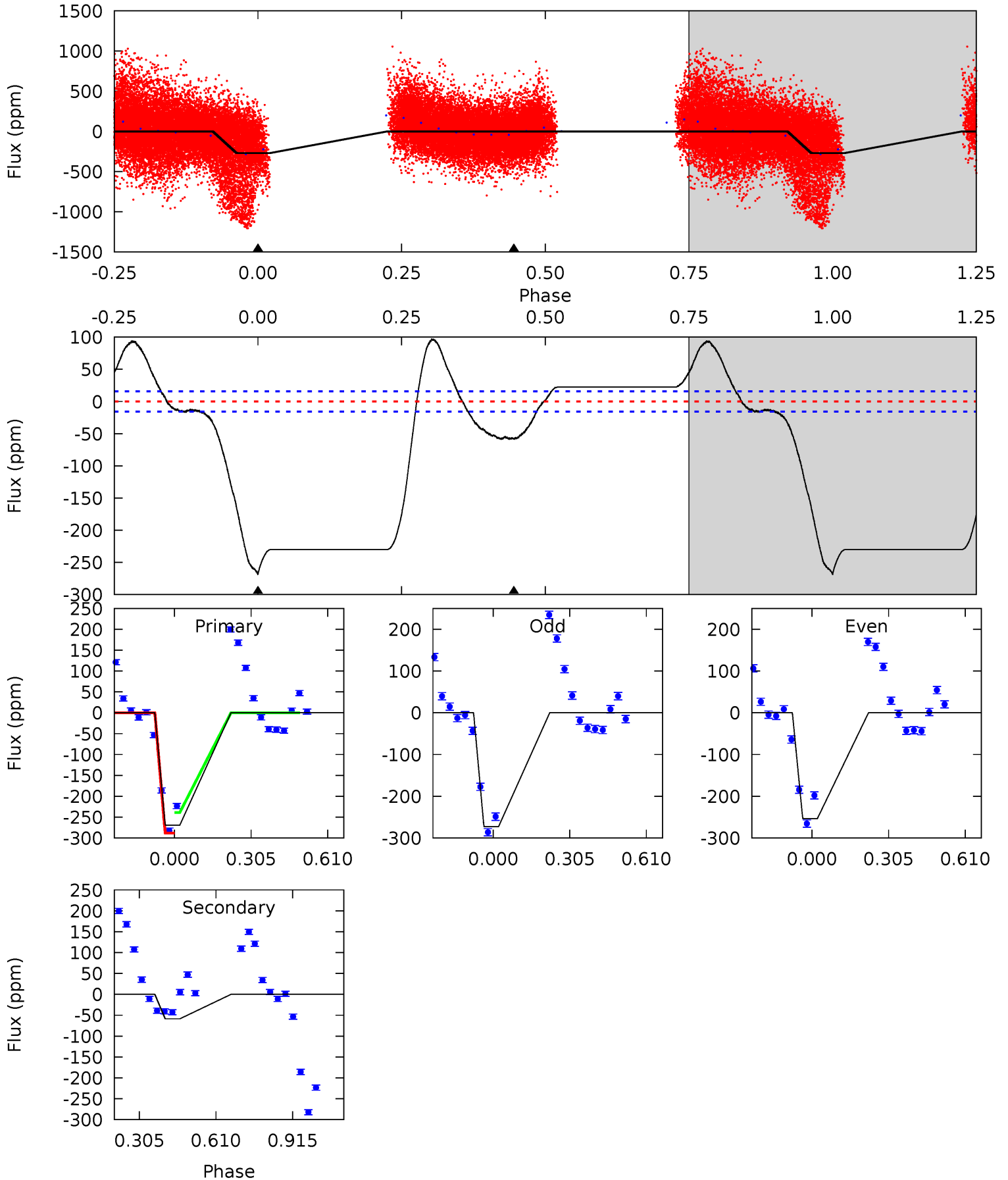
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007283604-02, P = 6.010912 Days, E = 129.524119 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.9	16.1	0	0	4.32	1.03	5.30	73.9	73.9	16.1	16.1	2.65	2.26	0.26	4.81



Stellar Parameters For KIC 007283604

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6481^{+163}_{-212}	$4.441^{+0.067}_{-0.189}$	$-0.680^{+0.300}_{-0.300}$	$0.979^{+0.272}_{-0.117}$	$0.966^{+0.112}_{-0.101}$	$1.448^{+0.463}_{-0.684}$
	+3%/-3%	+2%/-4%	+44%/-44%	+28%/-12%	+12%/-10%	+32%/-47%
Source	PHO1	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 007283604-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$7.54^{+9.08}_{-5.48}$	1586^{+111}_{-81}	3896^{+26840}_{-36901}	15^{+6660}_{-7227}
Alt.	-59 ± 4	$8.28^{+8.45}_{-5.76}$	1588^{+91}_{-82}	2751^{+1297}_{-631}	$1.938^{+18.157}_{-1.463}$

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

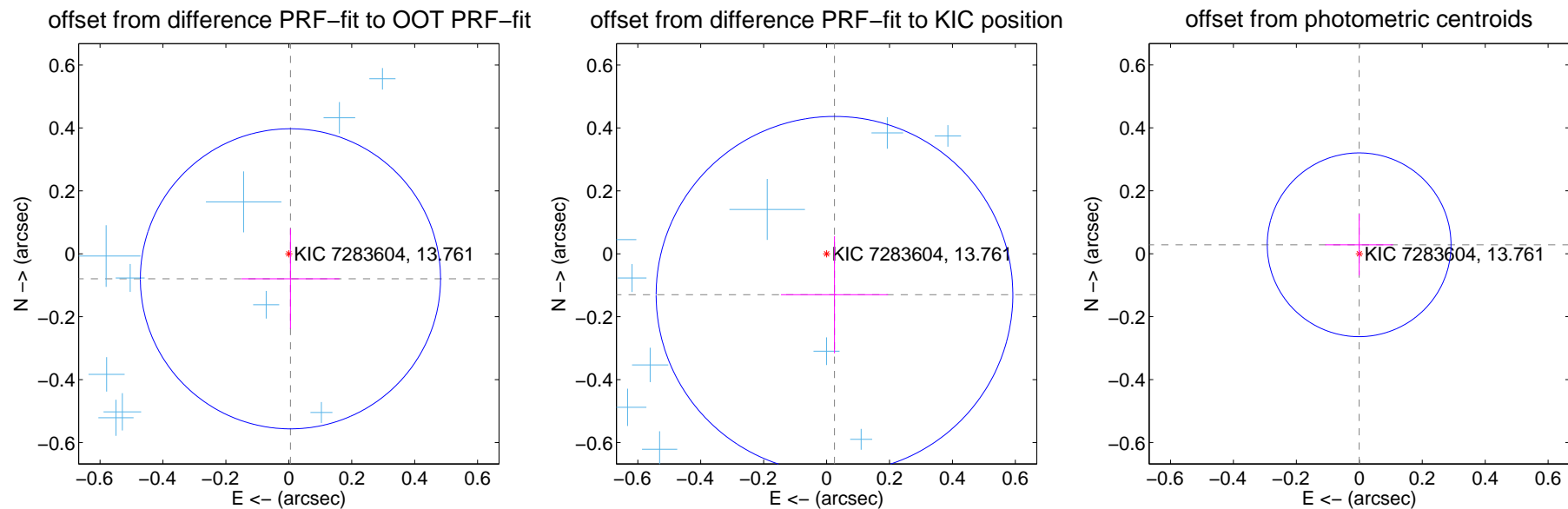
DV Centroid Data

Supplemental centroid analysis for 007283604-02. Kepler magnitude: 13.76. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

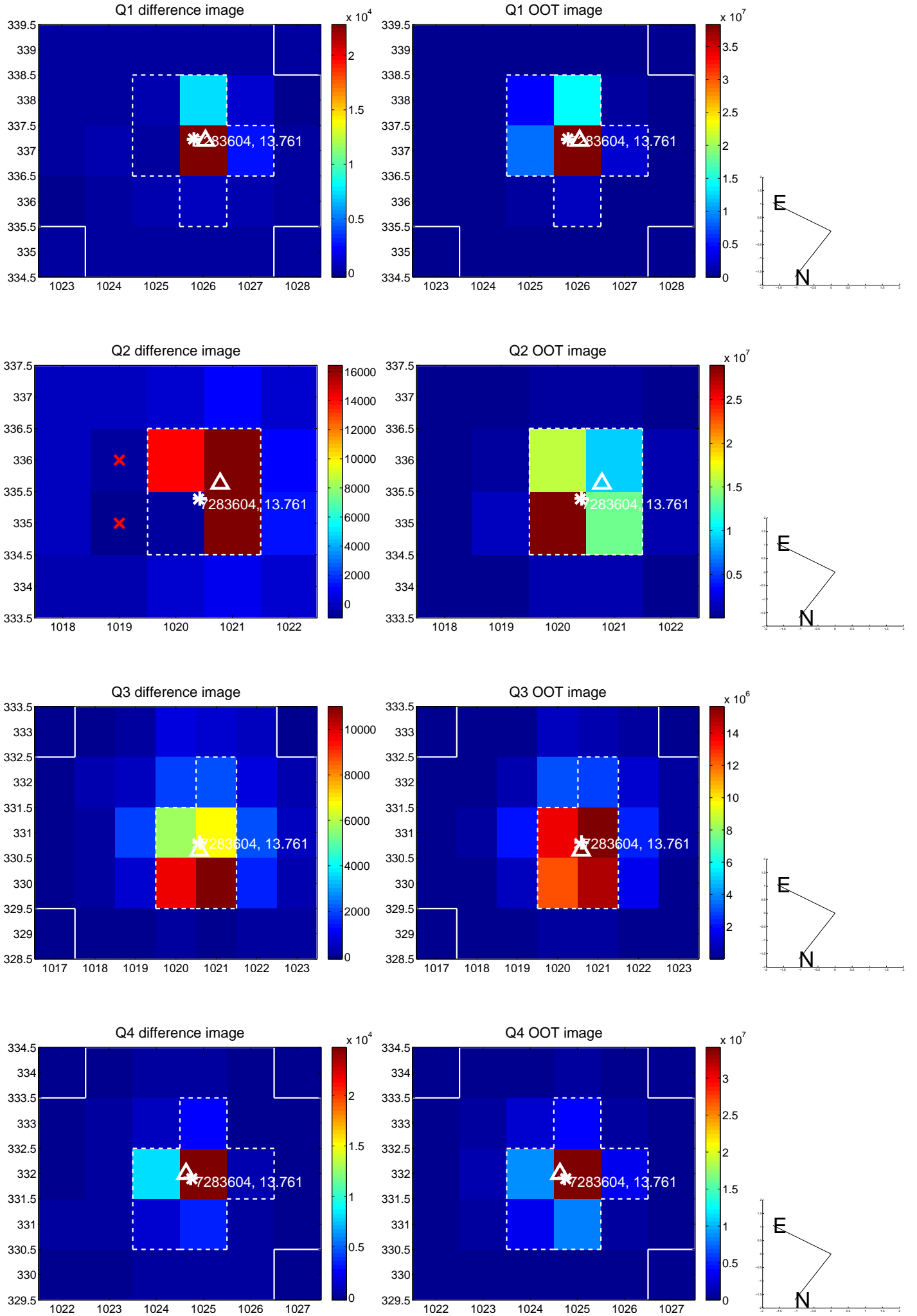
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.159	0.50	-0.005 ± 0.156	-0.080 ± 0.159
PRF-fit source offset from KIC position	0.133 ± 0.189	0.70	-0.025 ± 0.170	-0.130 ± 0.186
photometric centroid source offset	0.03 ± 0.10	0.29	0.00 ± 0.11	0.03 ± 0.10

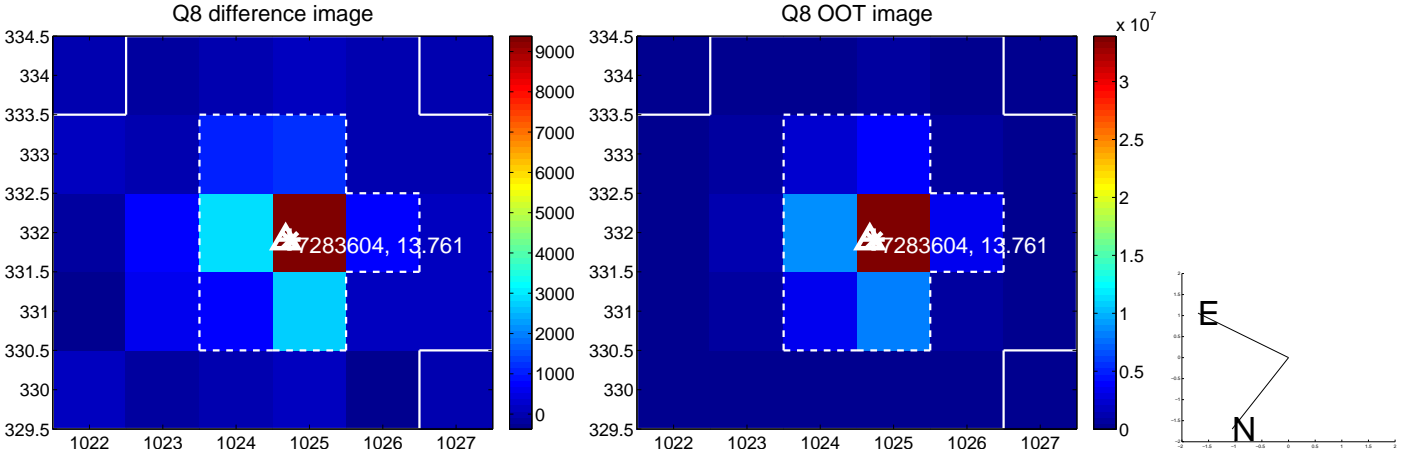
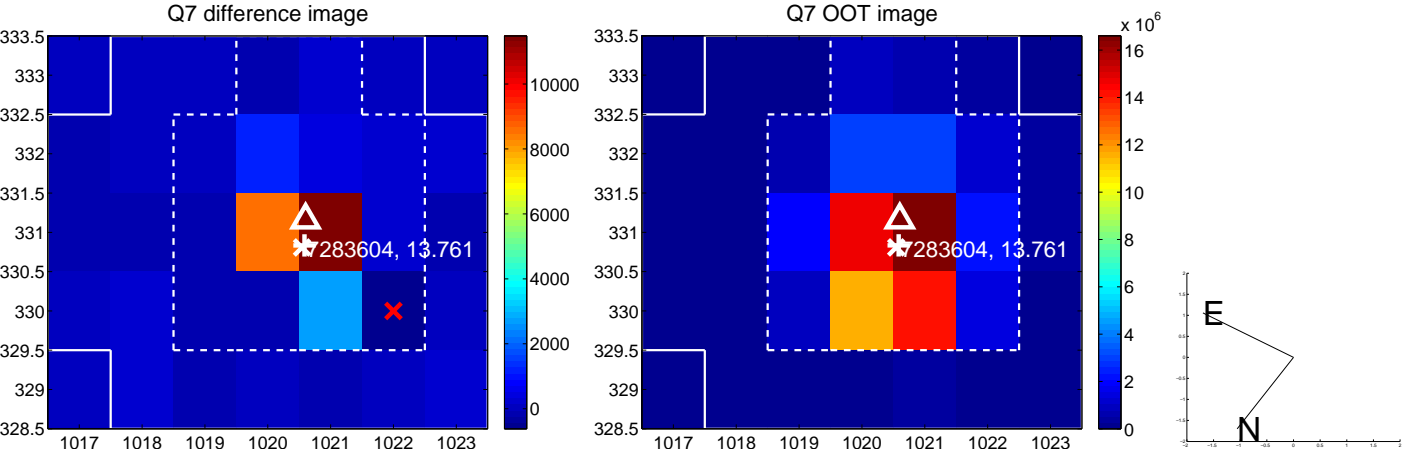
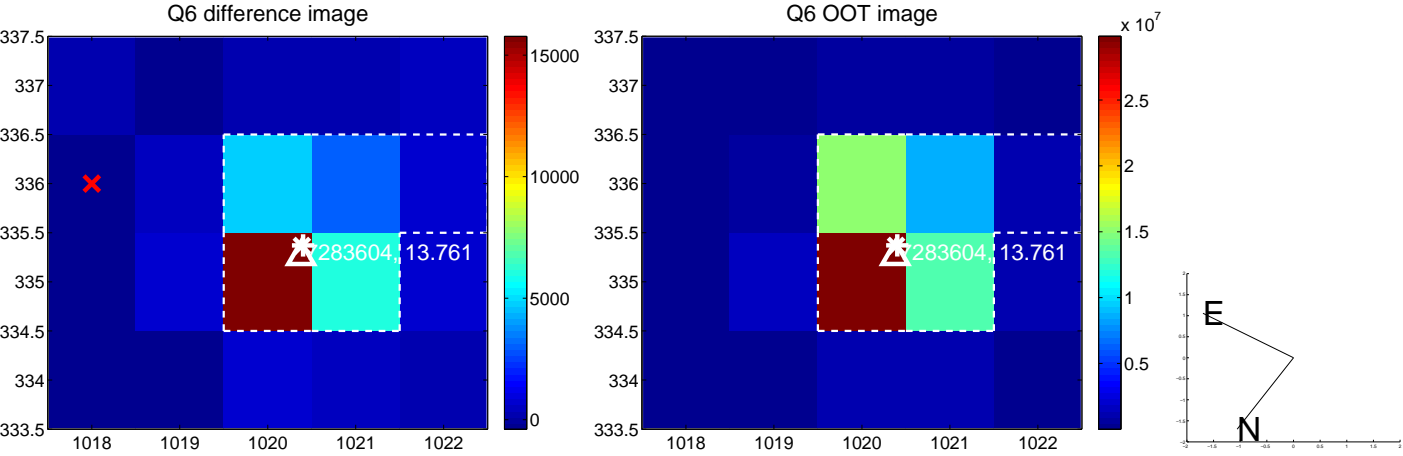
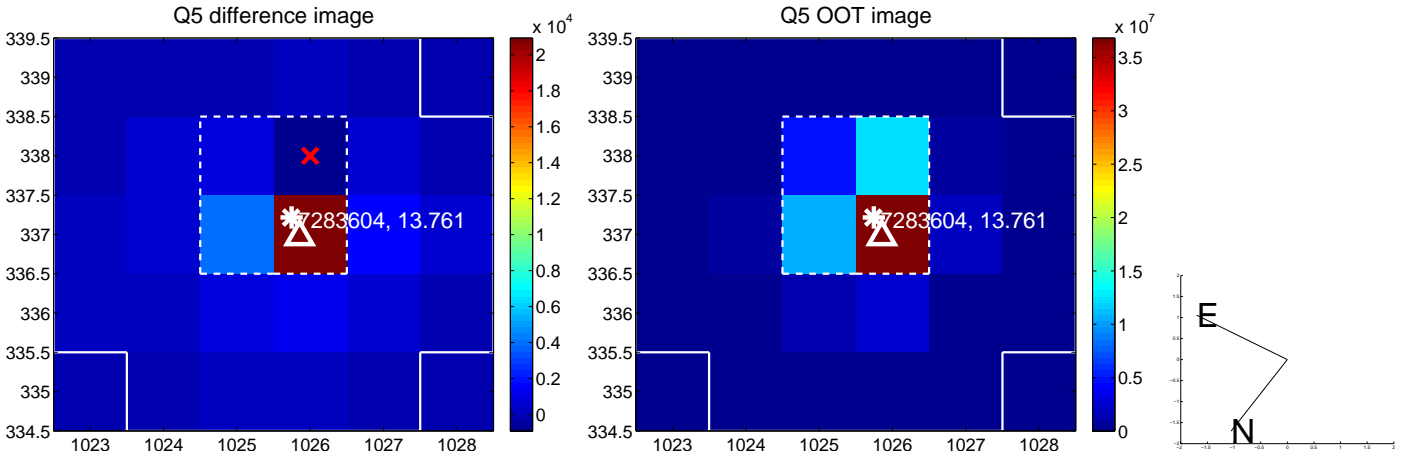


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

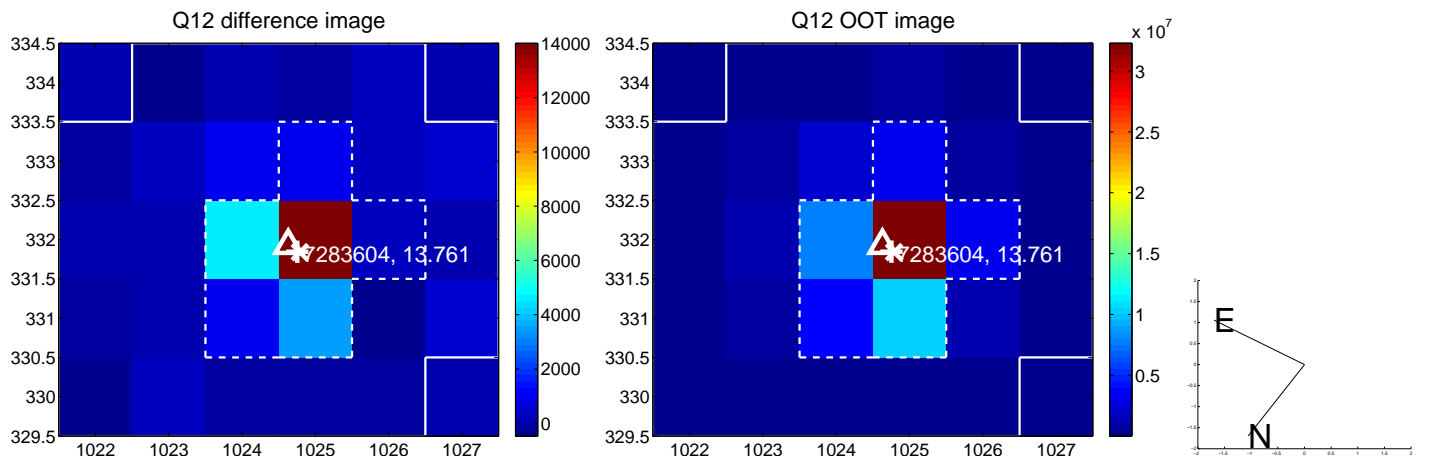
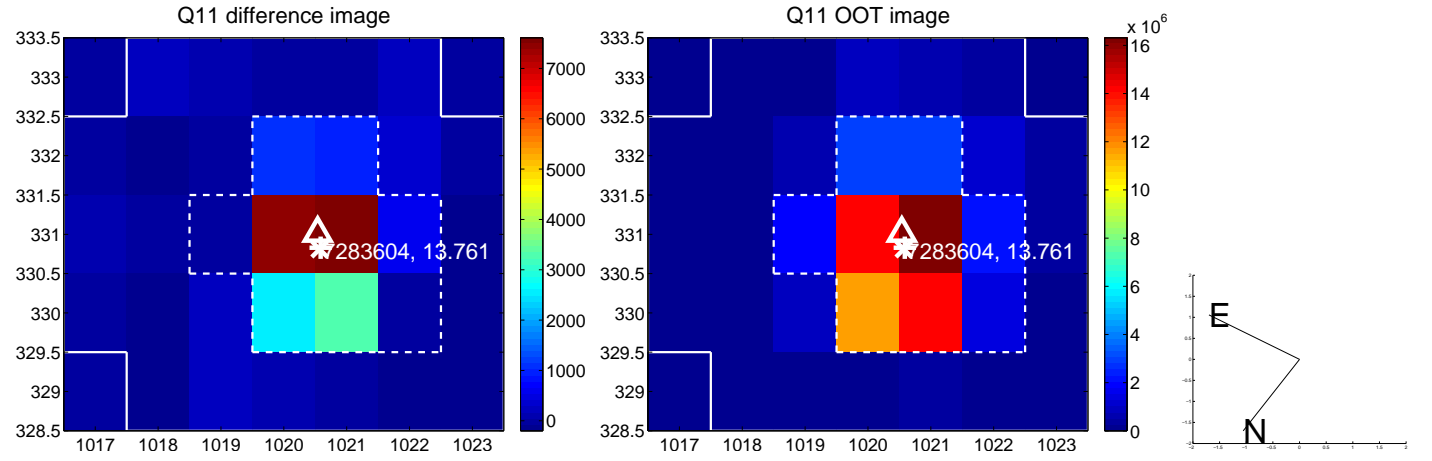
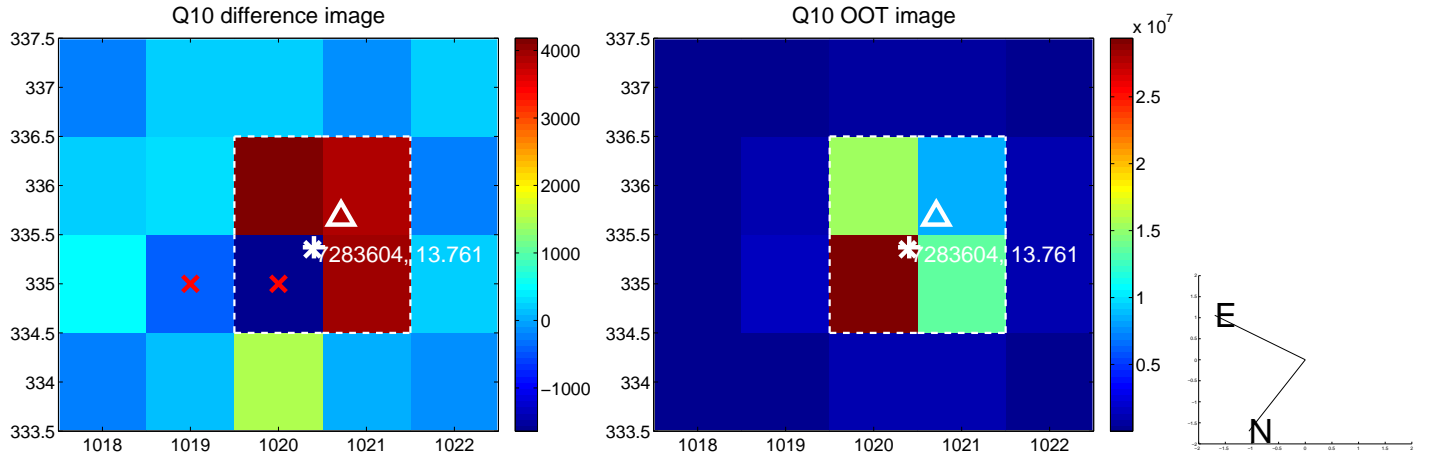
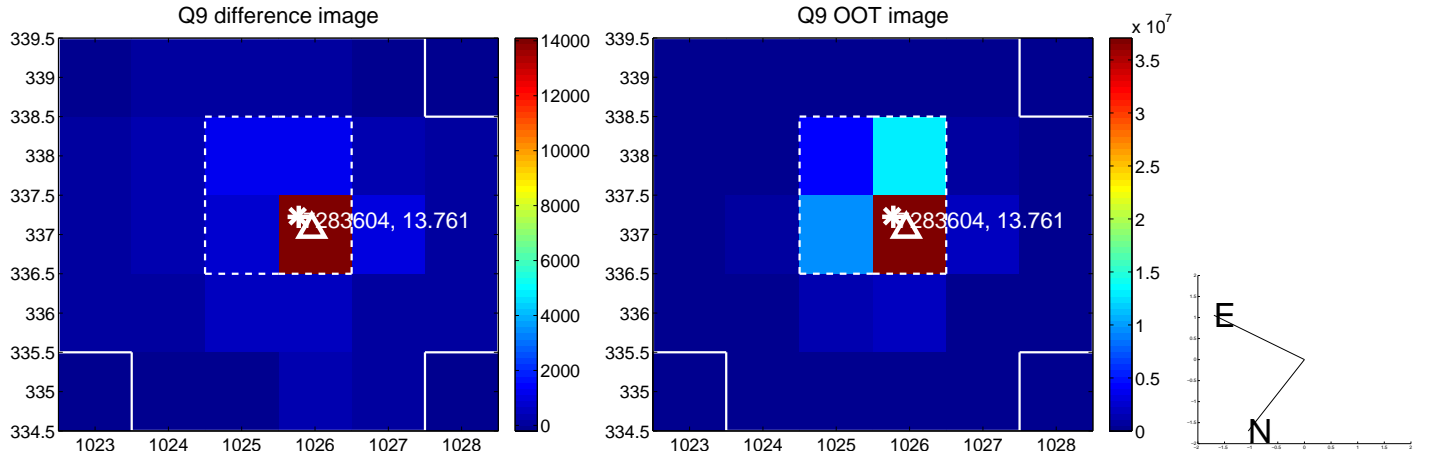
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



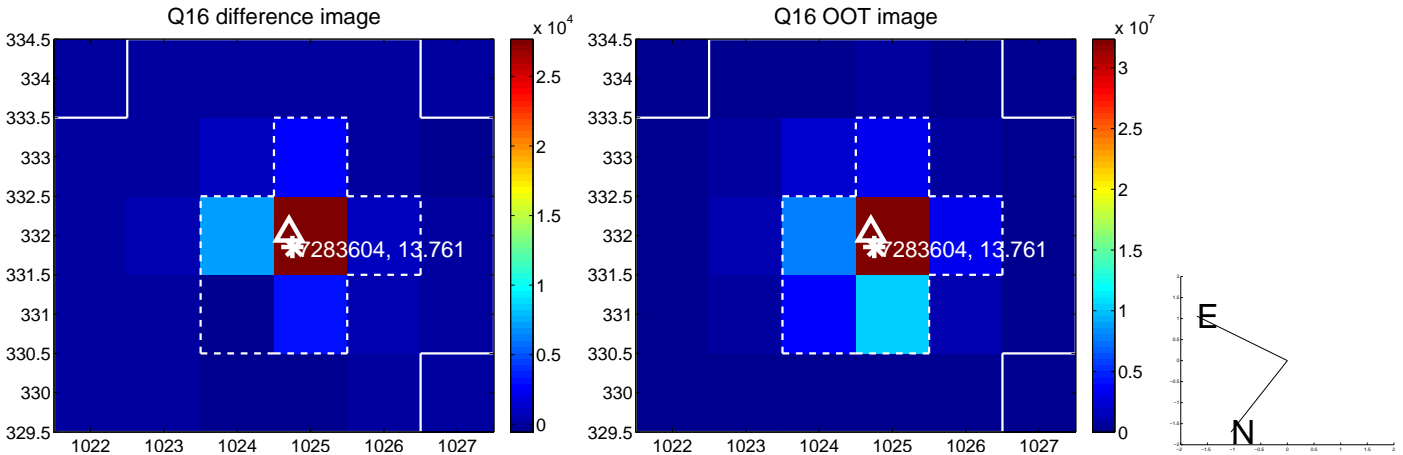
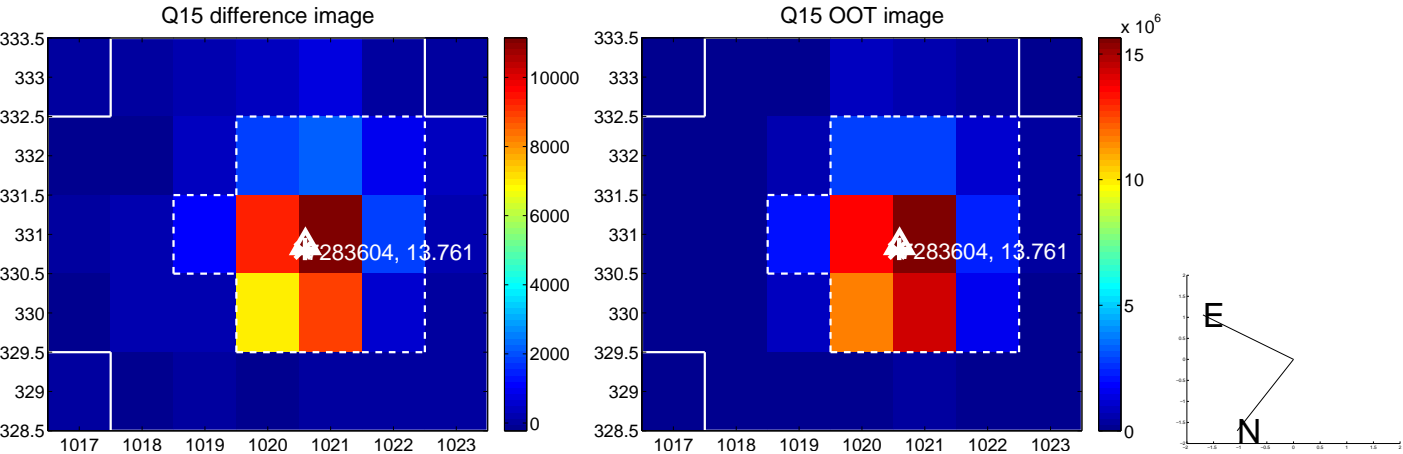
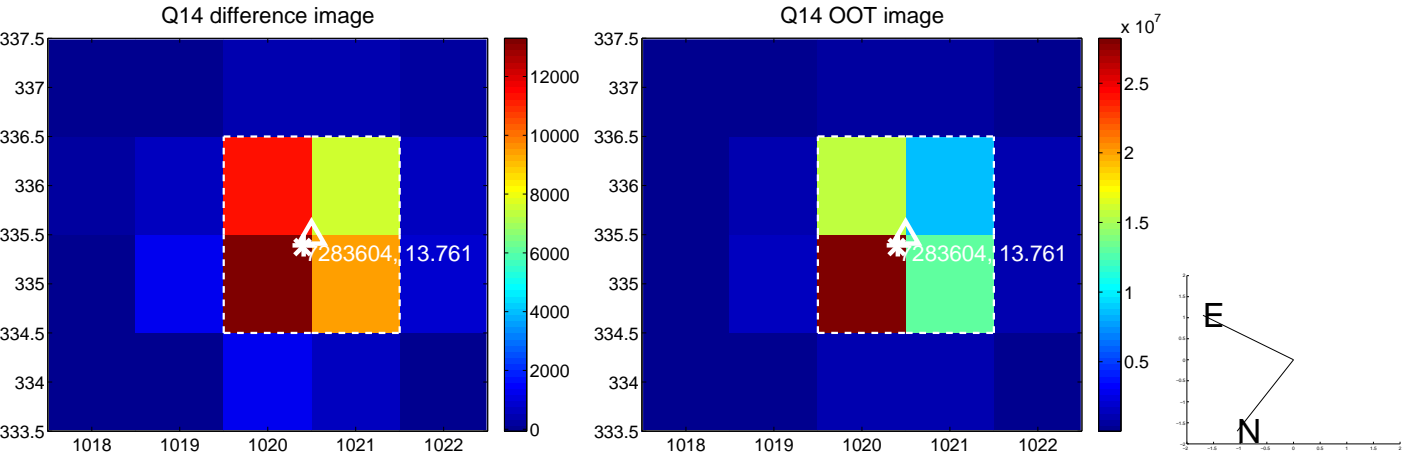
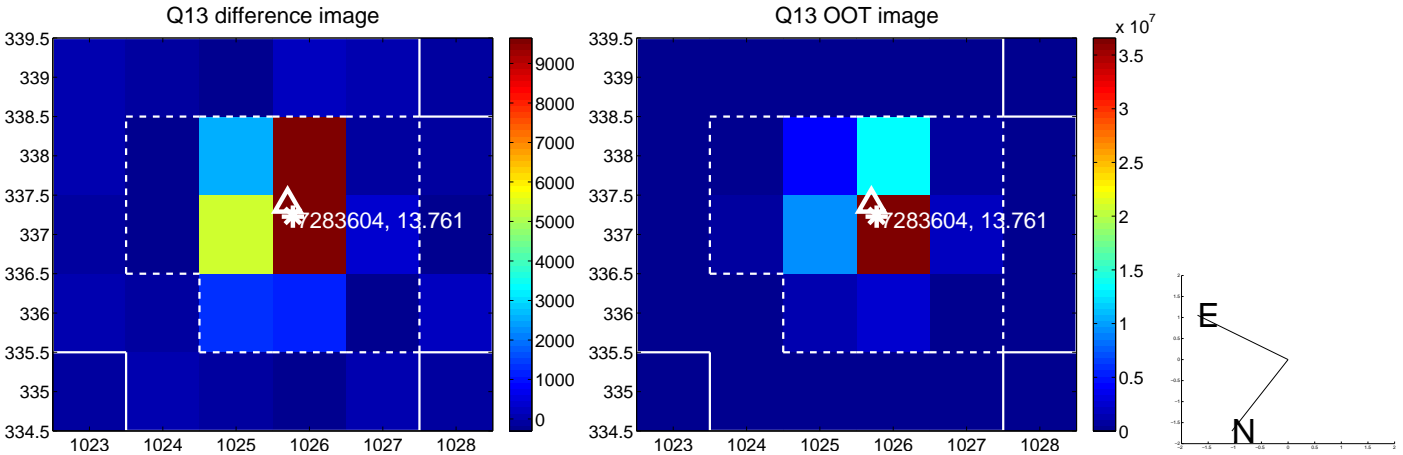
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



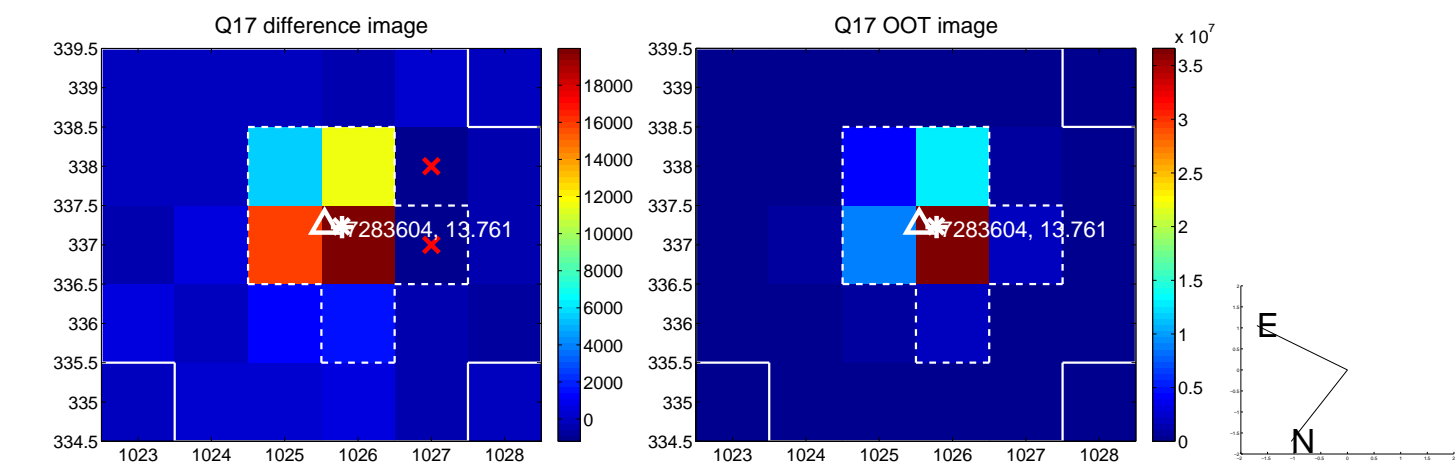
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



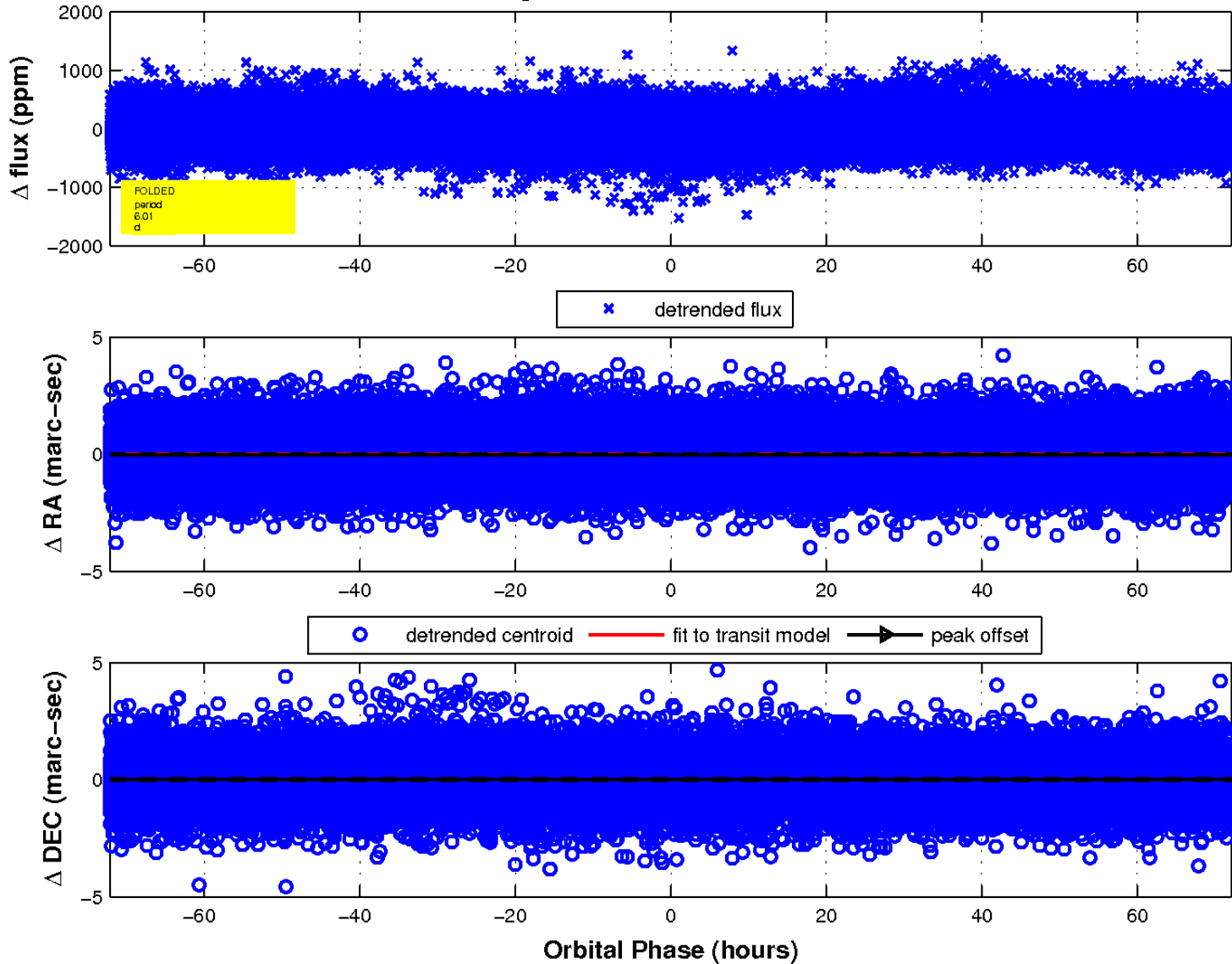
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

