

KIC 005281281

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})
005281281-01	OBS	No	1.294000	132.184447	17.1	4.463	8.2	7.4	2.34	7675	1.04	21861.83
005281281-02	OBS	No	149.897345	265.353149	118.4	13.209	9.2	4.4	2.34	7675	2.87	38.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005281281-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005281281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

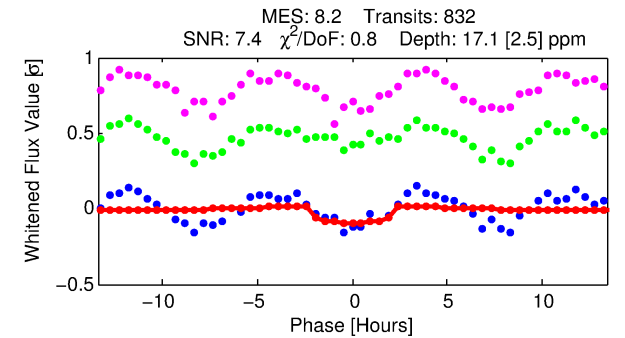
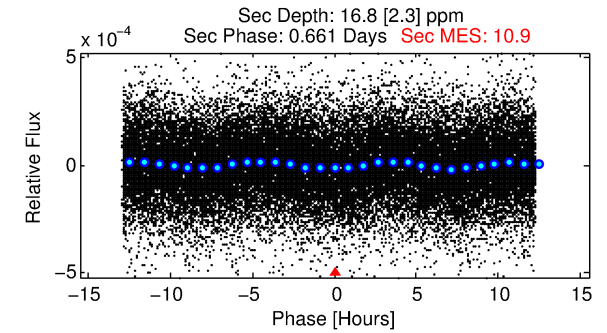
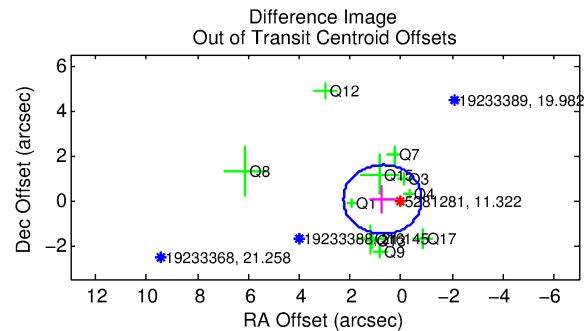
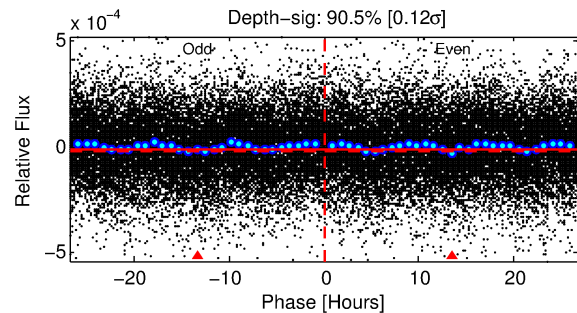
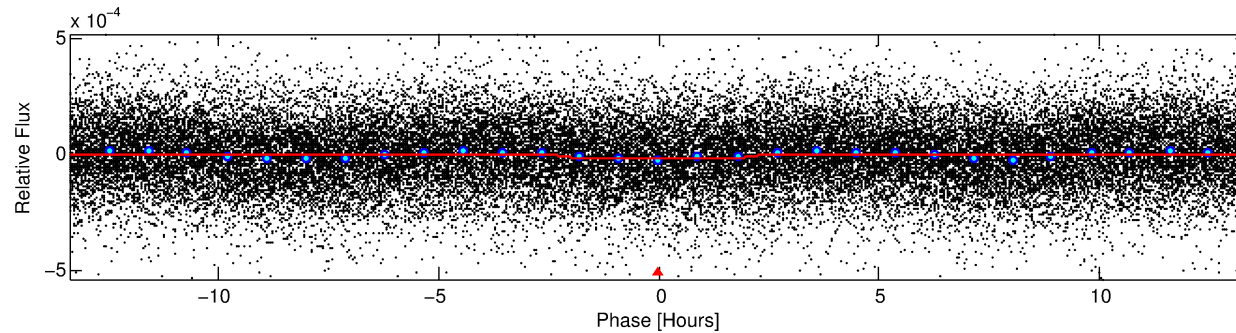
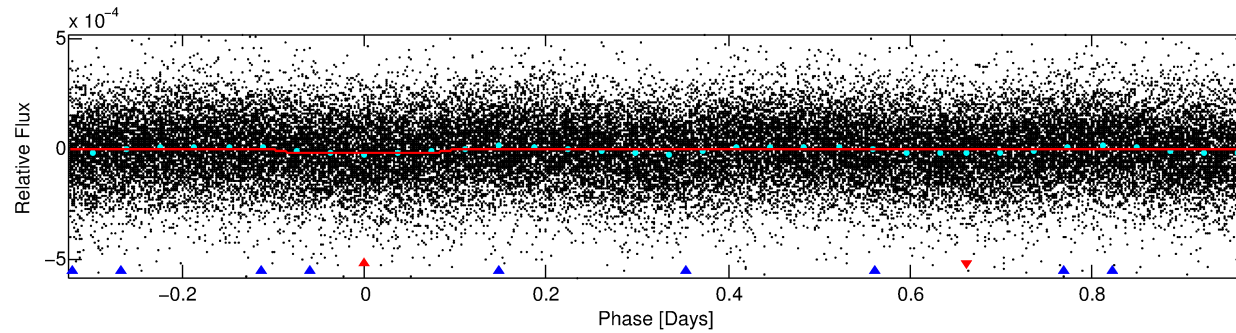
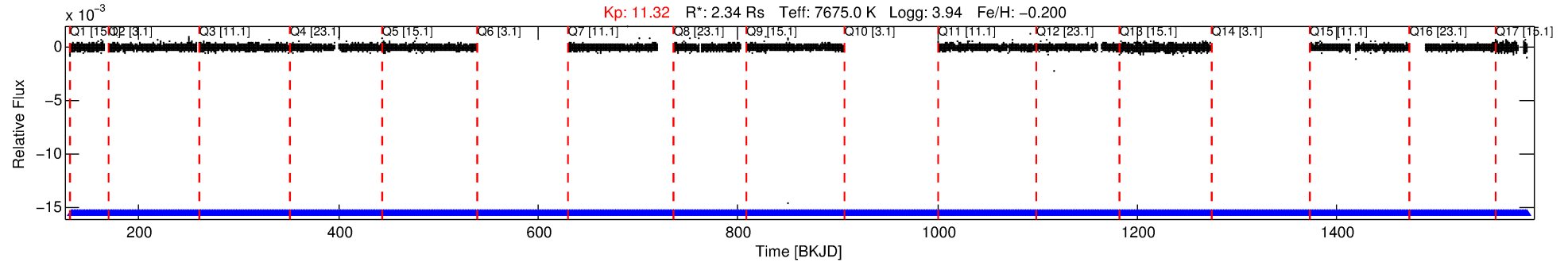
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005281281-01

No Significant Match Found

DV One-Page Summary

KIC: 5281281 Candidate: 1 of 2 Period: 1.294 d



DV Fit Results:

Period = 1.29400 [0.00002] d
Epoch = 132.1844 [0.0053] BKJD
Rp/R* = 0.0041 [0.0009]
a/R* = 1.77 [1.36]
b = 0.72 [0.78]
Seff = 21861.83 [6501.41]
Teq = 3101 [231] K
Rp = 1.04 [0.32] Re
a = 0.0279 [0.0053] AU
Ag = 6.65 [3.73] [1.52 σ]
Teffp = 7698 [922] K [4.84 σ]

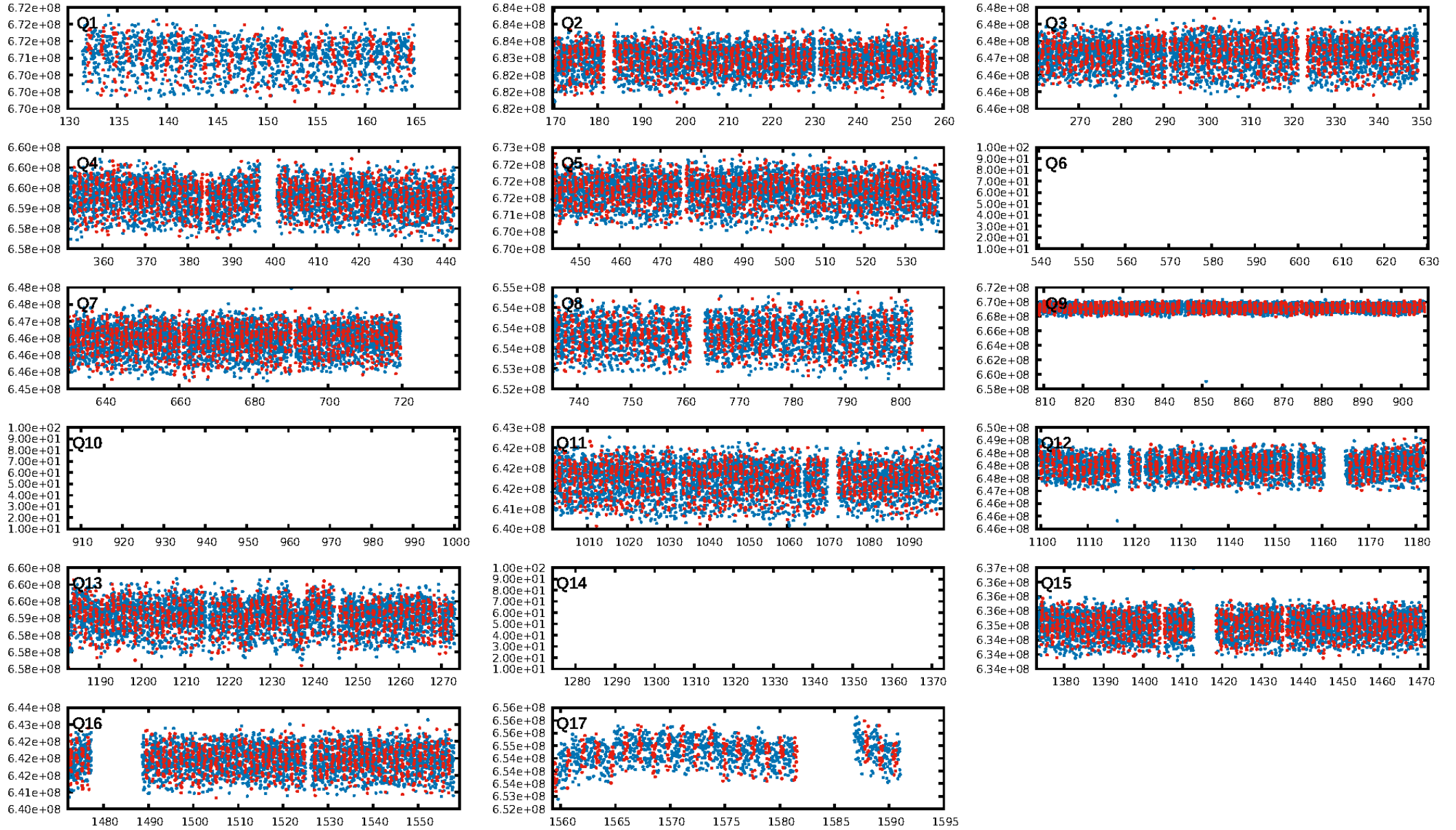
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [255.80 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.77e-14
RollingBand-fgt: 1.00 [785/785]
GhostDiagnostic-chr: 7.735
Centroid-sig: 1.3%
Centroid-so: 0.915 arcsec [1.27 σ]
OotOffset-rm: 0.725 arcsec [1.41 σ]
KicOffset-rm: 0.790 arcsec [1.15 σ]
OotOffset-st: 0/3/4/4 [11]
KicOffset-st: 0/3/4/4 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 1.00 [14/14]

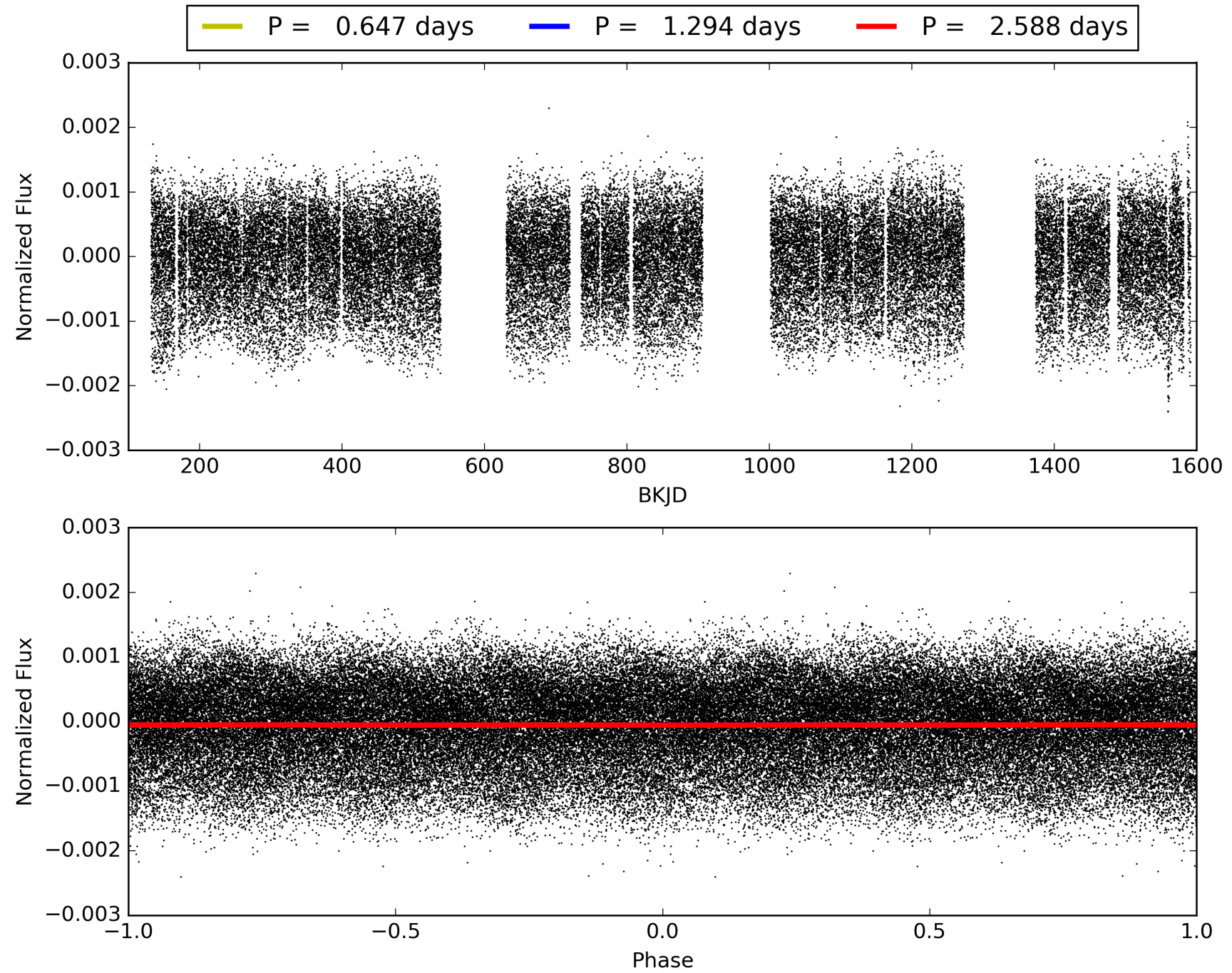
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:44:35 Z

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

TCE 005281281-01, PDC Light Curves

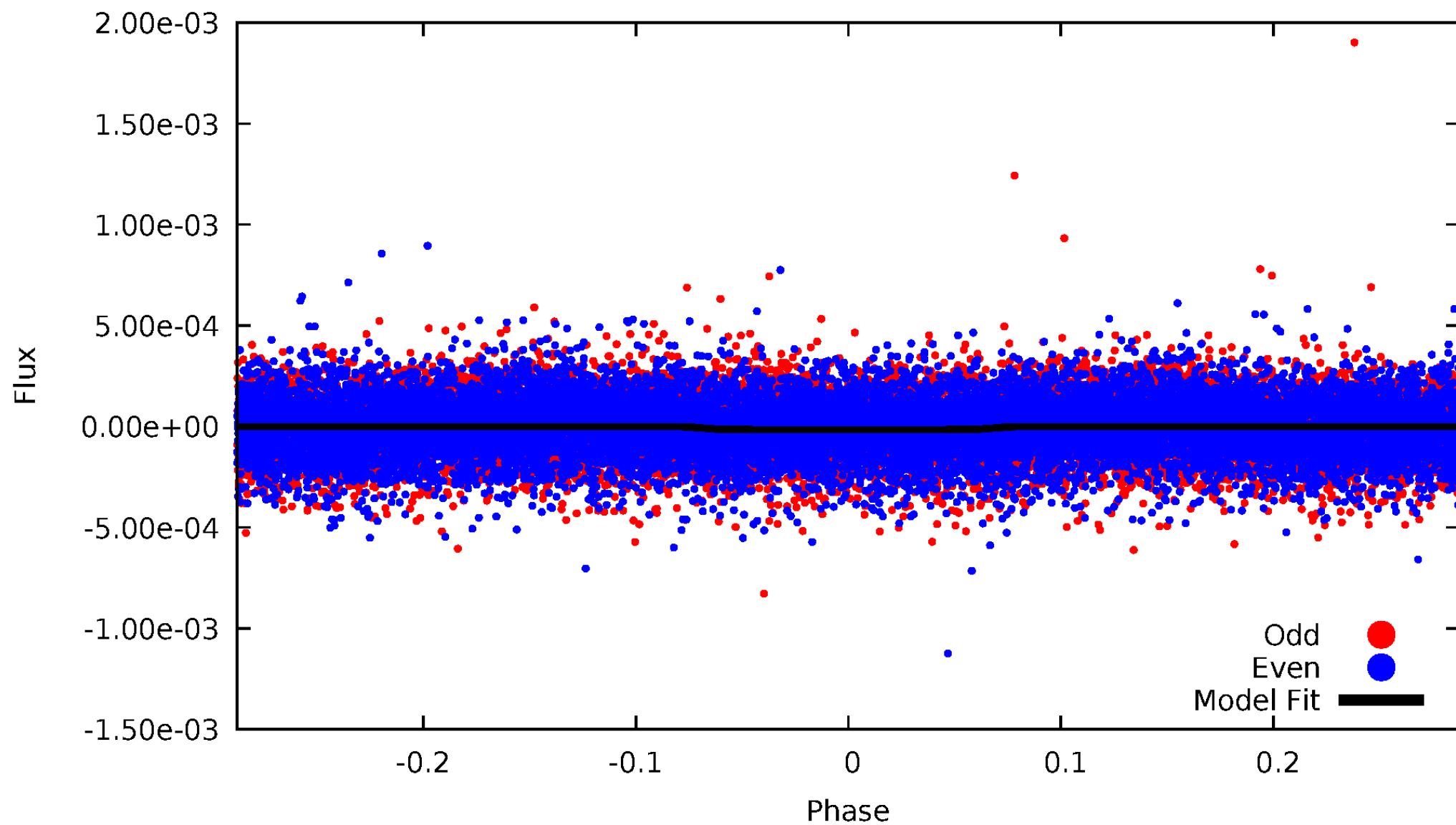


TCE 005281281-01



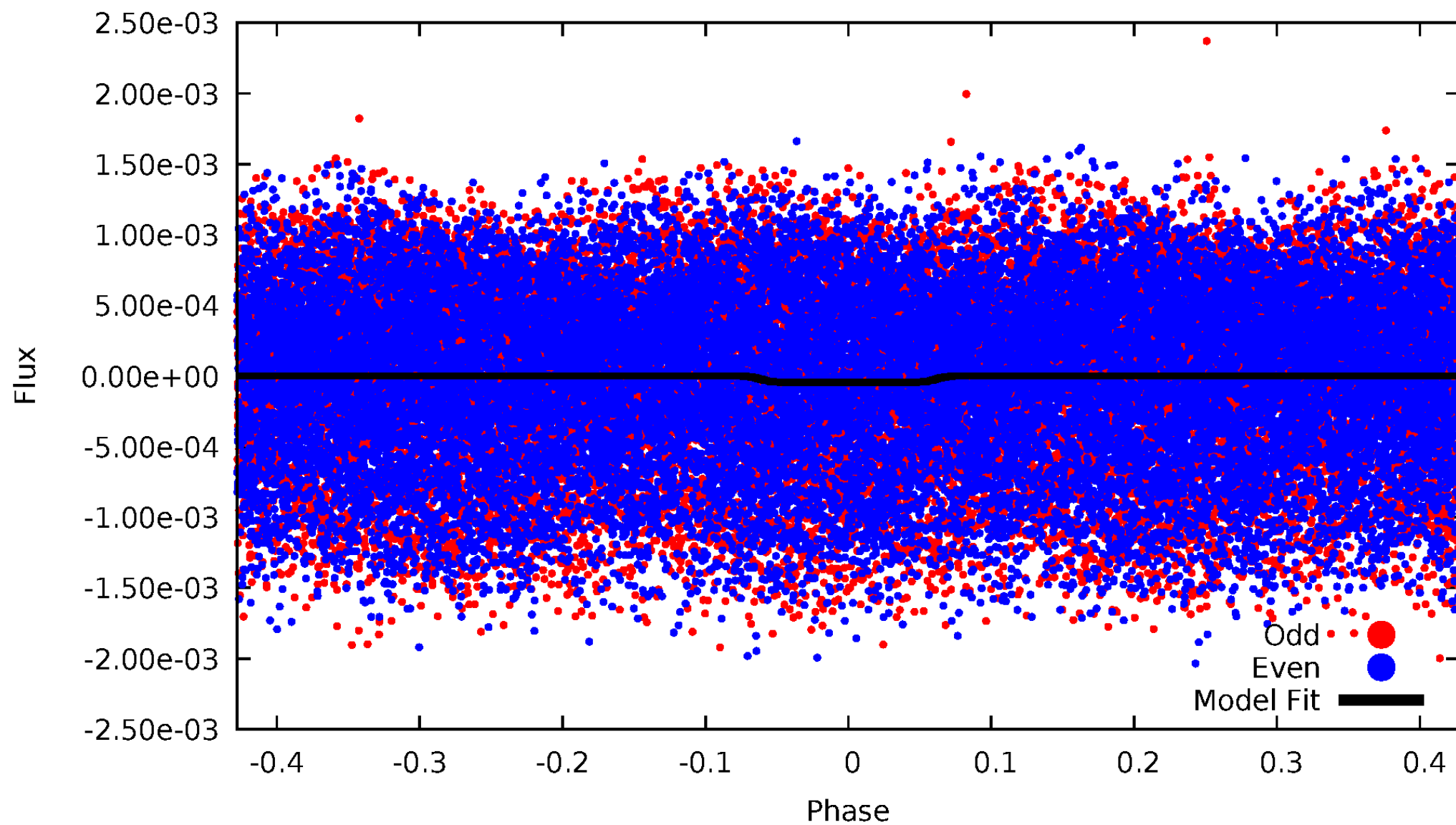
DV Odd/Even

TCE 005281281-01

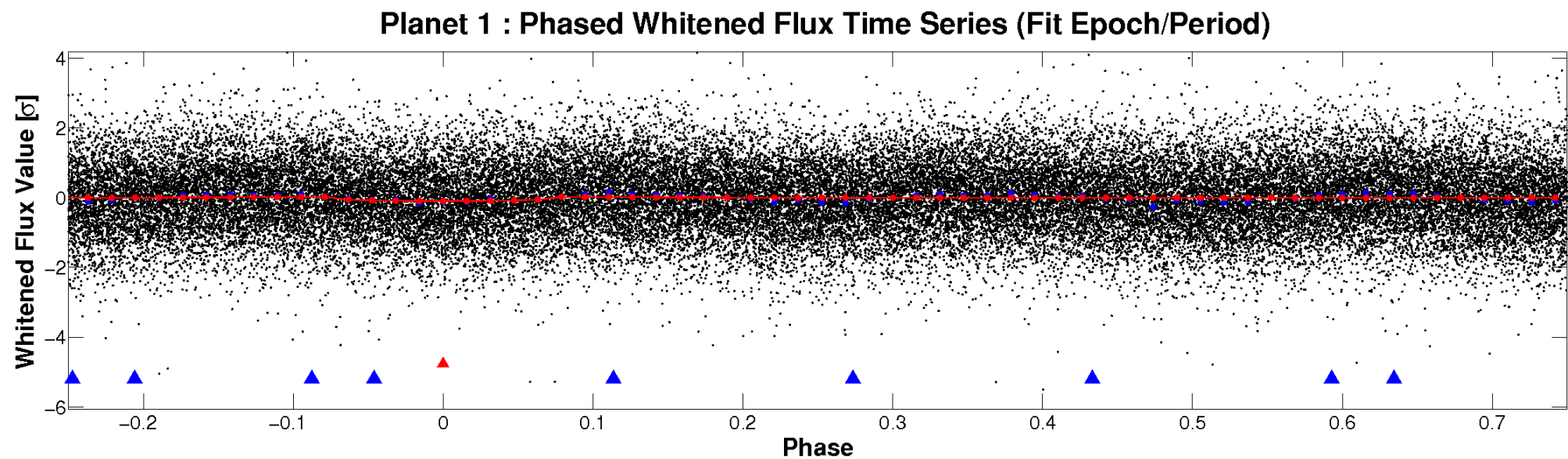
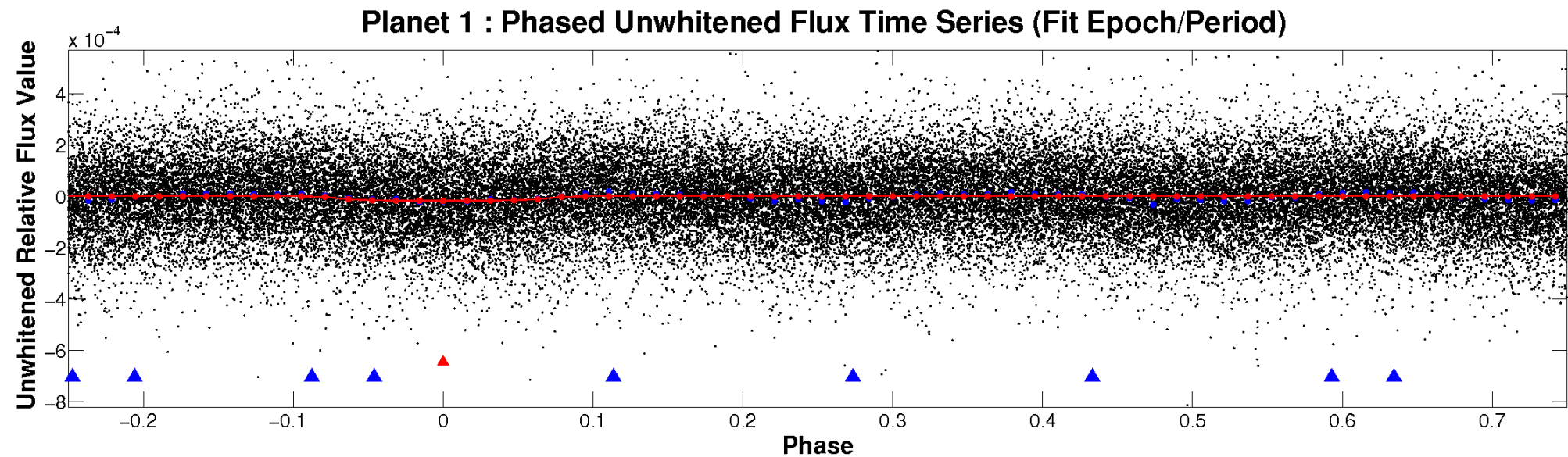


ALT Odd/Even

TCE 005281281-01

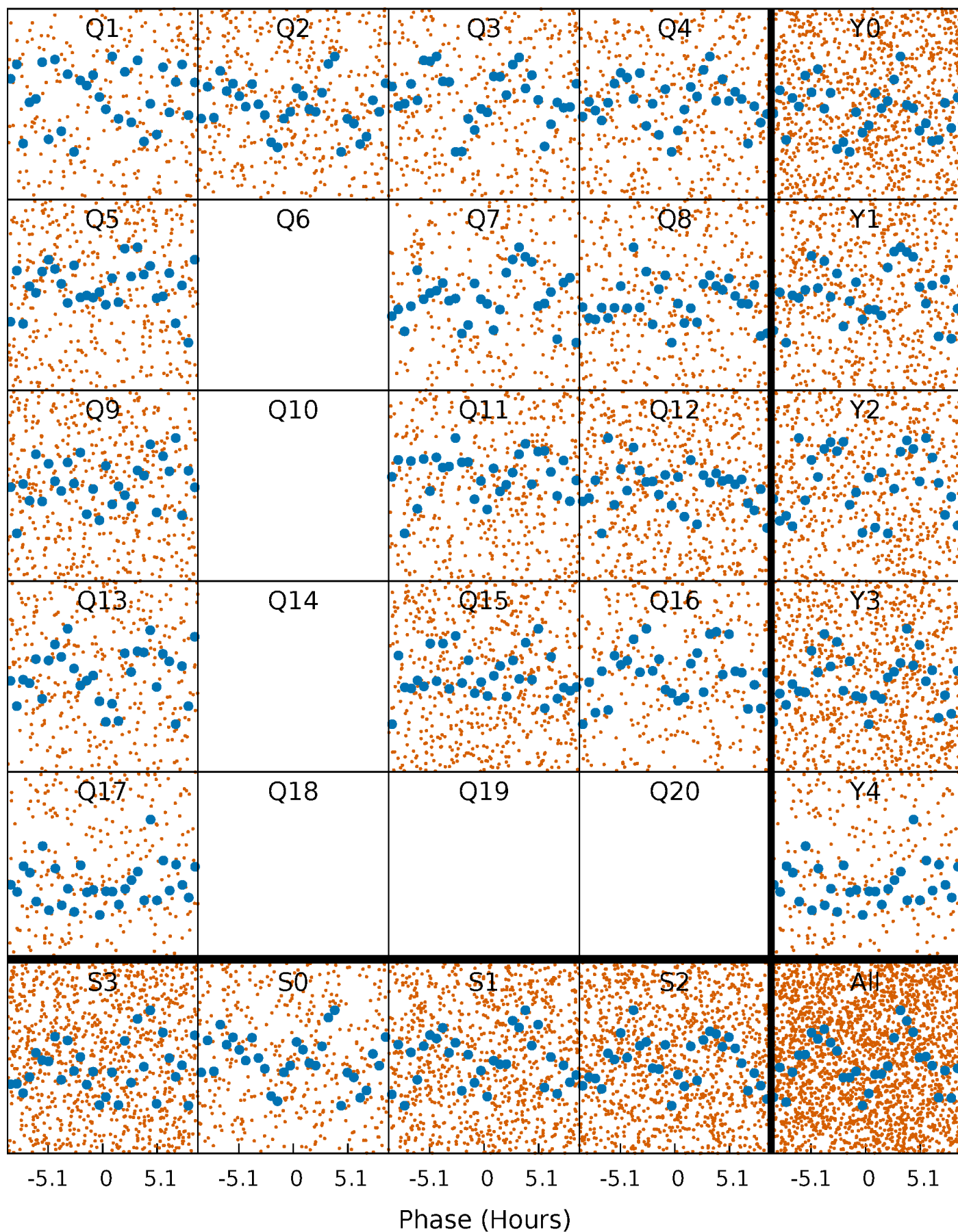


Non-Whitened Vs. Whitened Light Curve



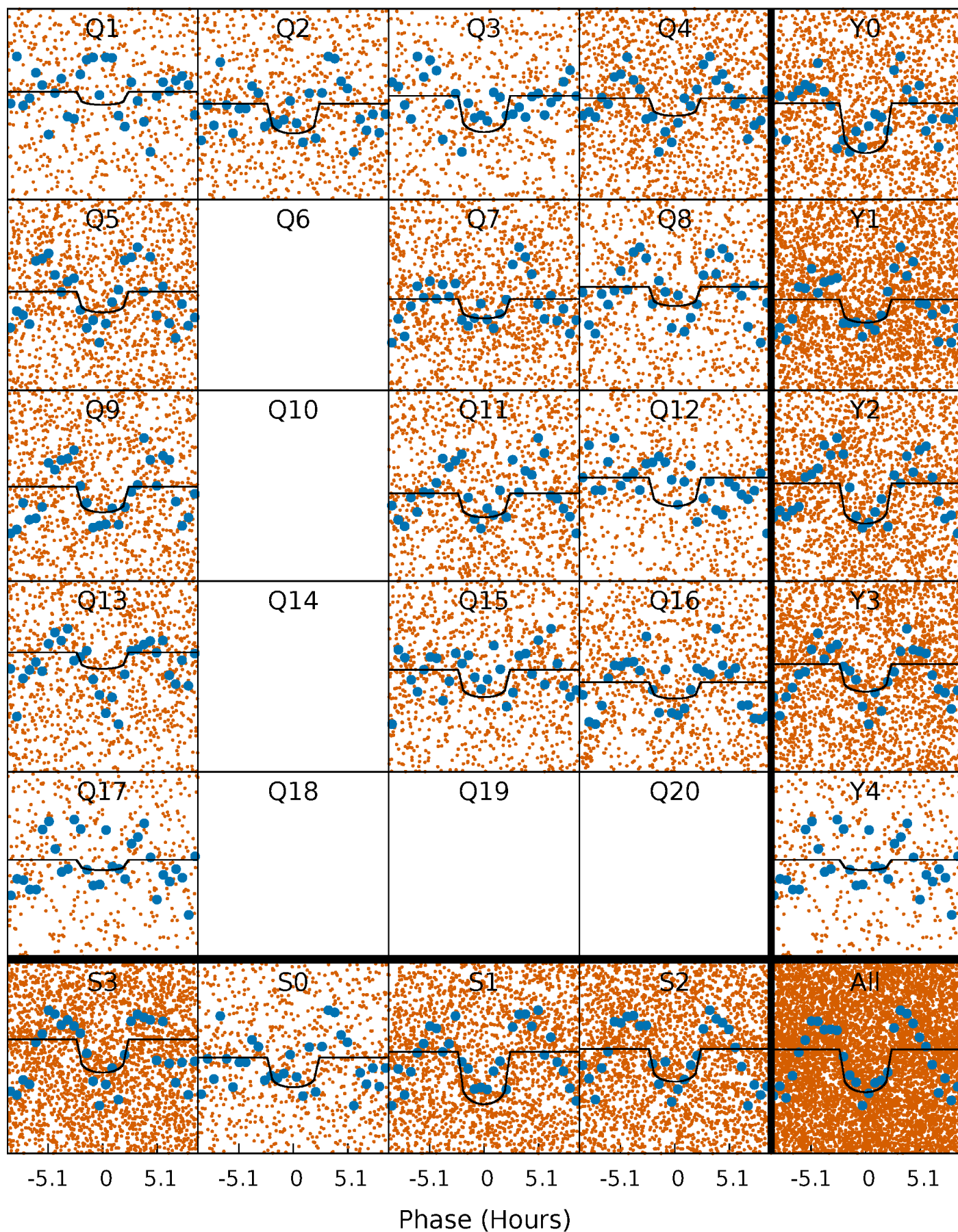
PDC Quarter-Phased Transit Curves

TCE 005281281-01 P= 1.294000 Days $T_0=132.184447$ (BKJD)



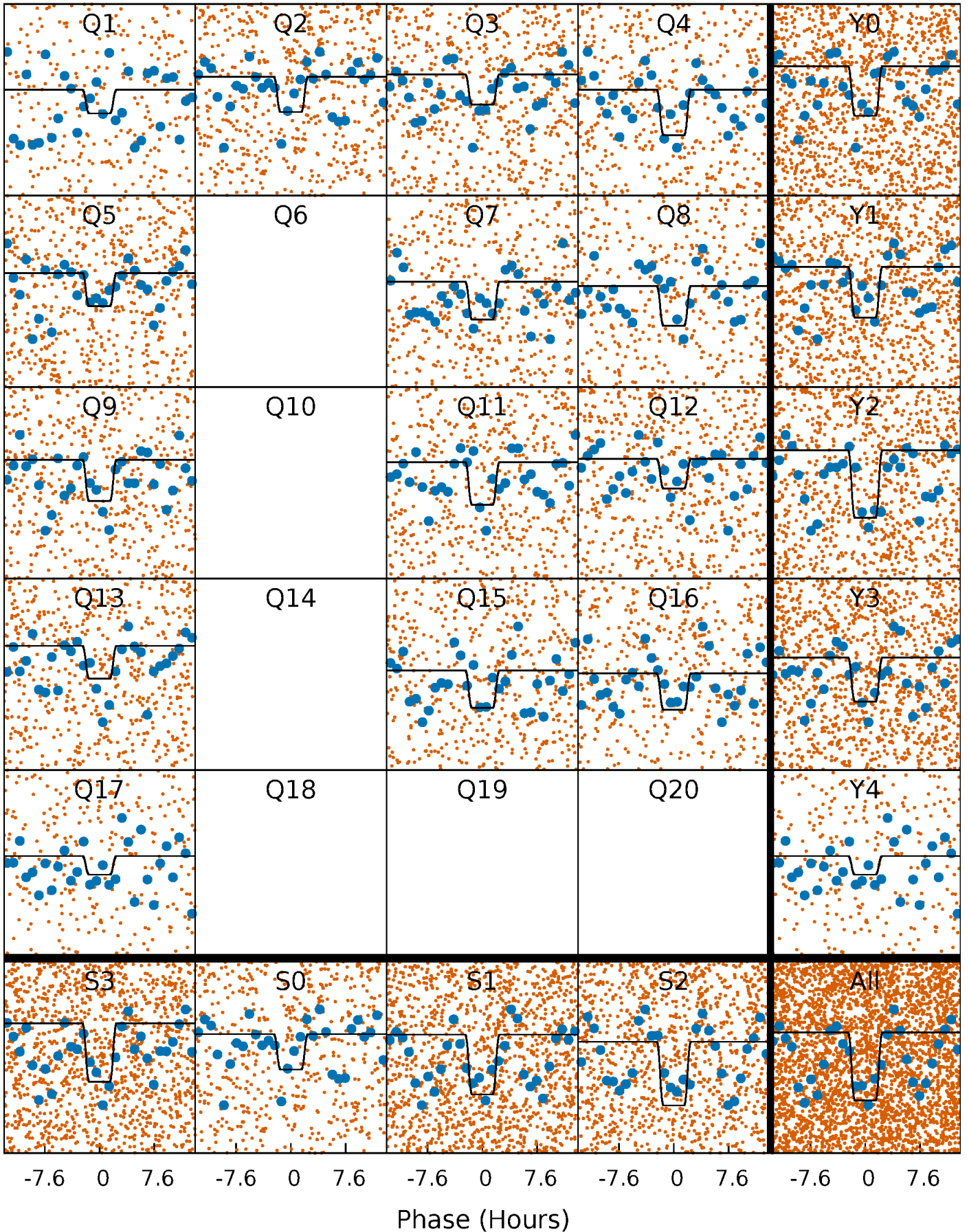
DV Quarter-Phased Transit Curves

TCE 005281281-01 P= 1.294000 Days $T_0=132.184447$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

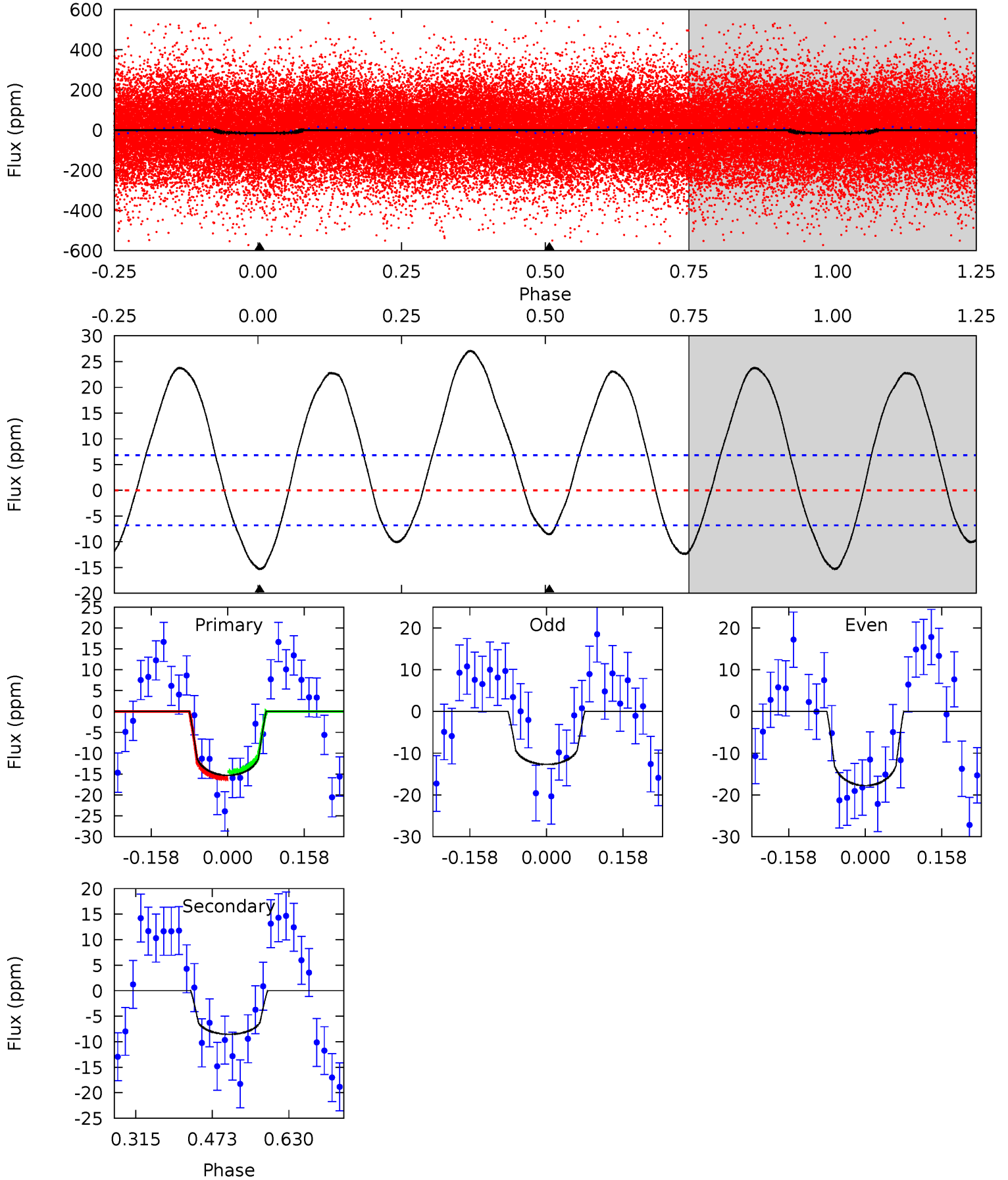
TCE 005281281-01 P= 1.294035 Days $T_0=132.153378$ (BKJD)



DV Model-Shift Uniqueness Test

005281281-01, P = 1.294000 Days, E = 130.890447 Days

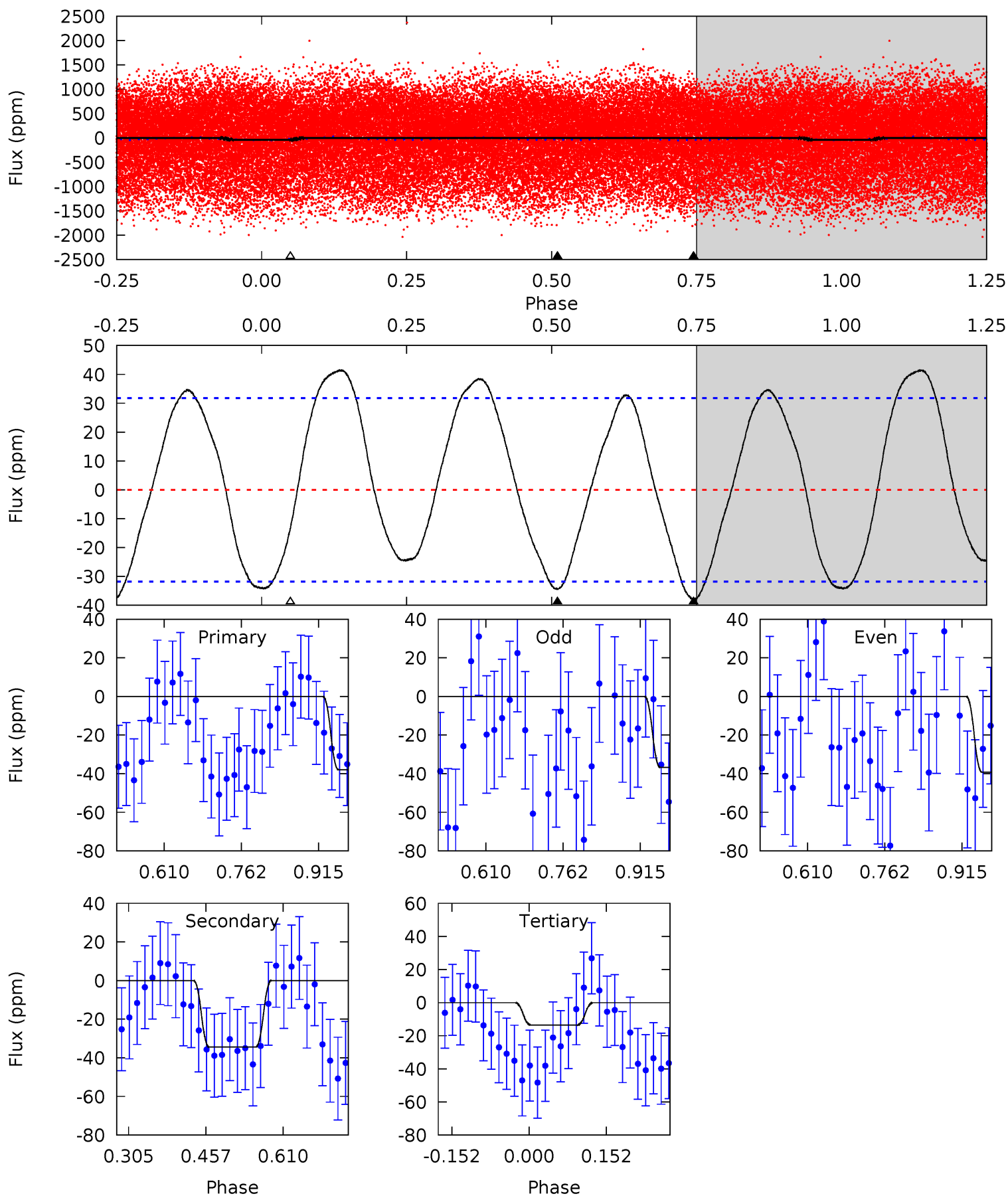
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	5.61	0	0	4.47	1.41	6.75	10.1	10.1	5.61	5.61	1.67	1.51	0.64	0.50



Alt Model-Shift Uniqueness Test

005281281-01, P = 1.294035 Days, E = 130.859343 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.35	4.85	1.90	0	4.48	1.43	3.51	3.45	5.35	2.95	4.85	0.17	0.95	0.52	0.31



Stellar Parameters For KIC 005281281

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7675^{+84}_{-76}	$3.938^{+0.168}_{-0.112}$	$-0.200^{+0.150}_{-0.150}$	$2.342^{+0.407}_{-0.497}$	$1.735^{+0.190}_{-0.171}$	$0.190^{+0.164}_{-0.064}$
	+1%/-1%	+4%/-3%	+75%/-75%	+17%/-21%	+11%/-10%	+86%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005281281-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 2	$1.04^{+0.28}_{-0.26}$	4333^{+213}_{-230}	6196^{+1073}_{-740}	$3.357^{+2.755}_{-1.279}$
Alt.	-34 ± 7	$1.70^{+0.32}_{-0.27}$	4319^{+208}_{-223}	6949^{+766}_{-651}	$4.997^{+2.556}_{-1.602}$

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

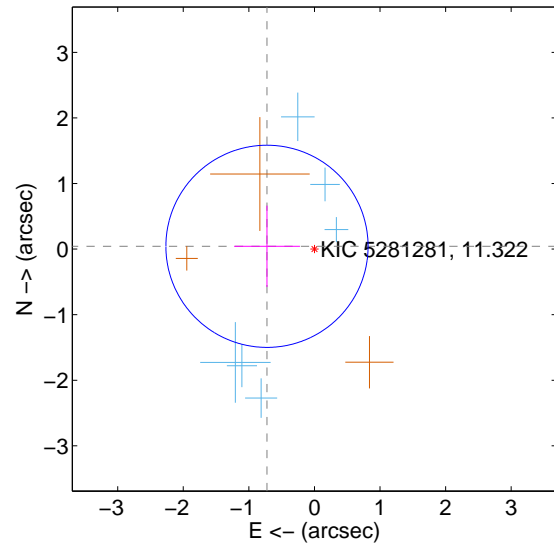
Supplemental centroid analysis for 005281281-01. **Kepler magnitude: 11.32.** Transit SNR 7.37

There are 6 quarters with good PRF difference image offsets

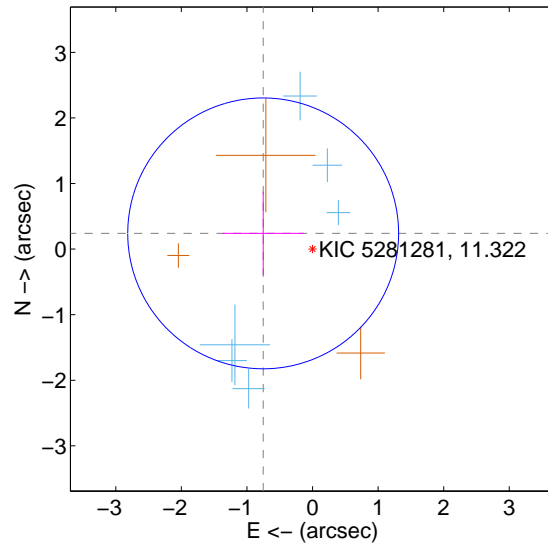
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.725 ± 0.514	1.41	0.724 ± 0.502	0.043 ± 0.620
PRF-fit source offset from KIC position	0.790 ± 0.688	1.15	0.752 ± 0.620	0.240 ± 0.637
photometric centroid source offset	0.91 ± 0.72	1.27	0.06 ± 0.63	-0.91 ± 0.72

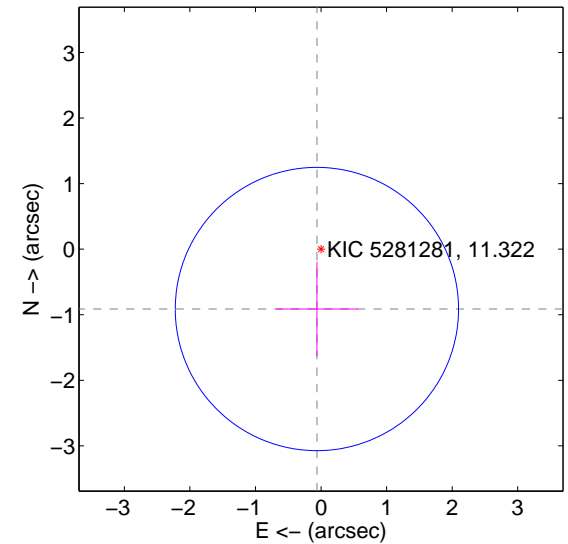
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

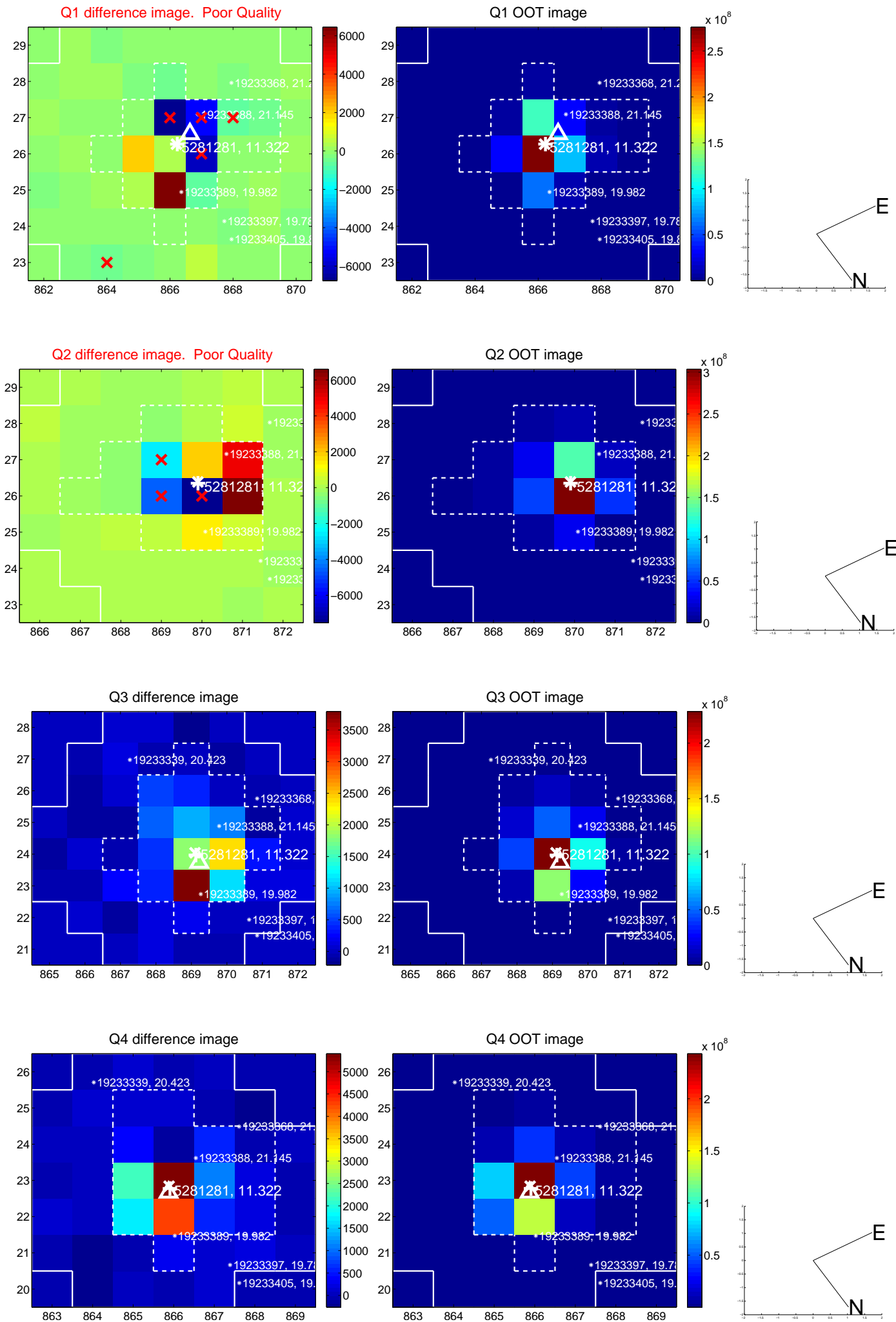


offset from photometric centroids

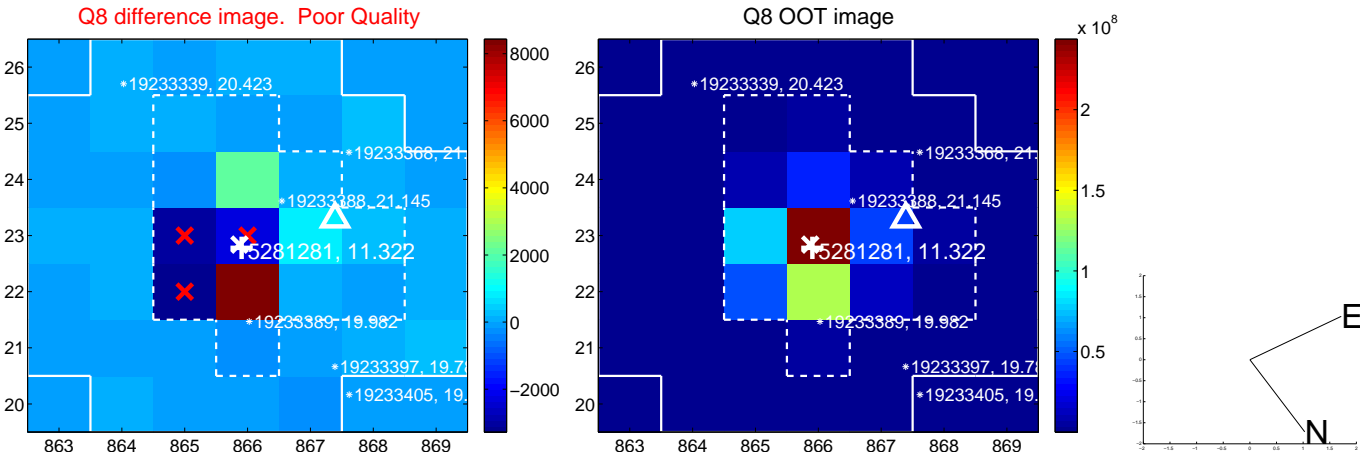
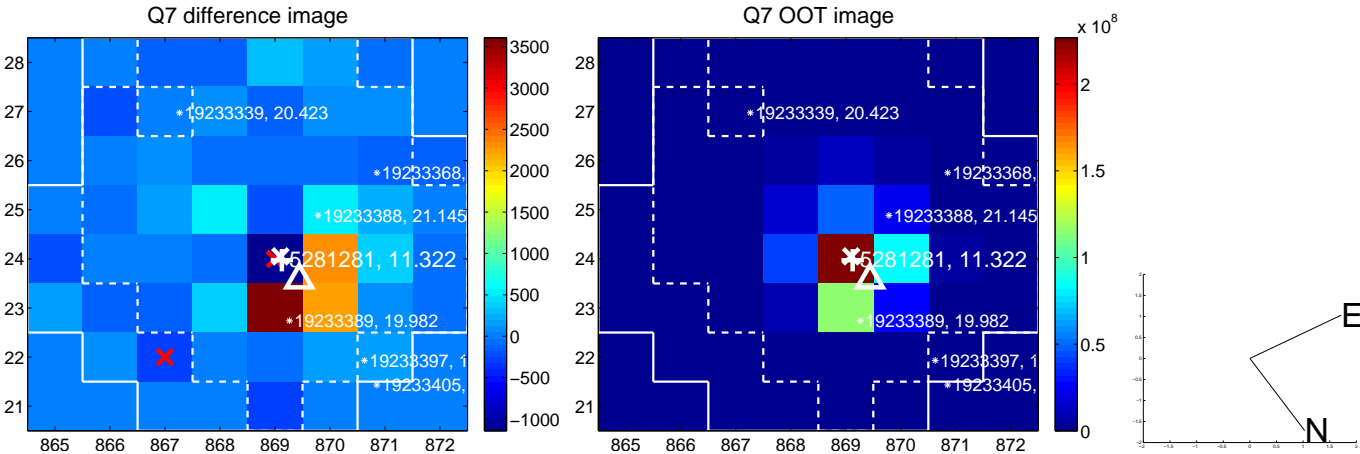
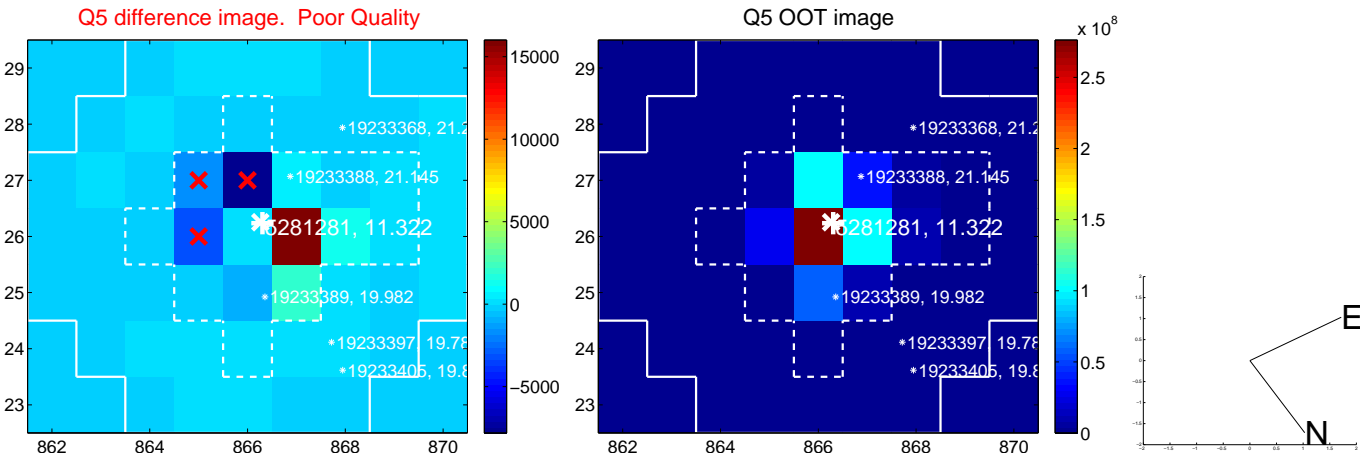


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

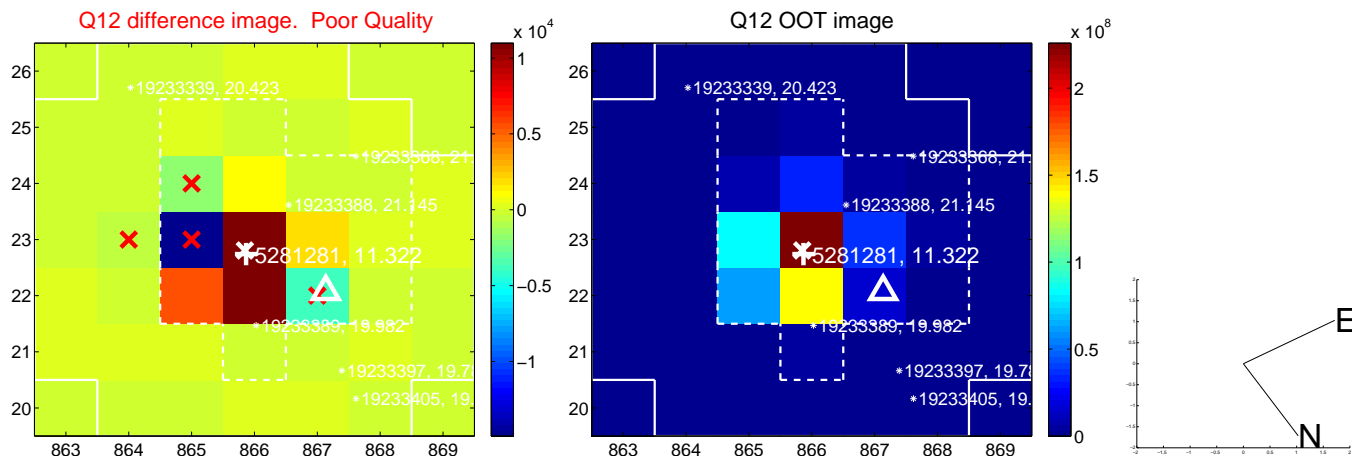
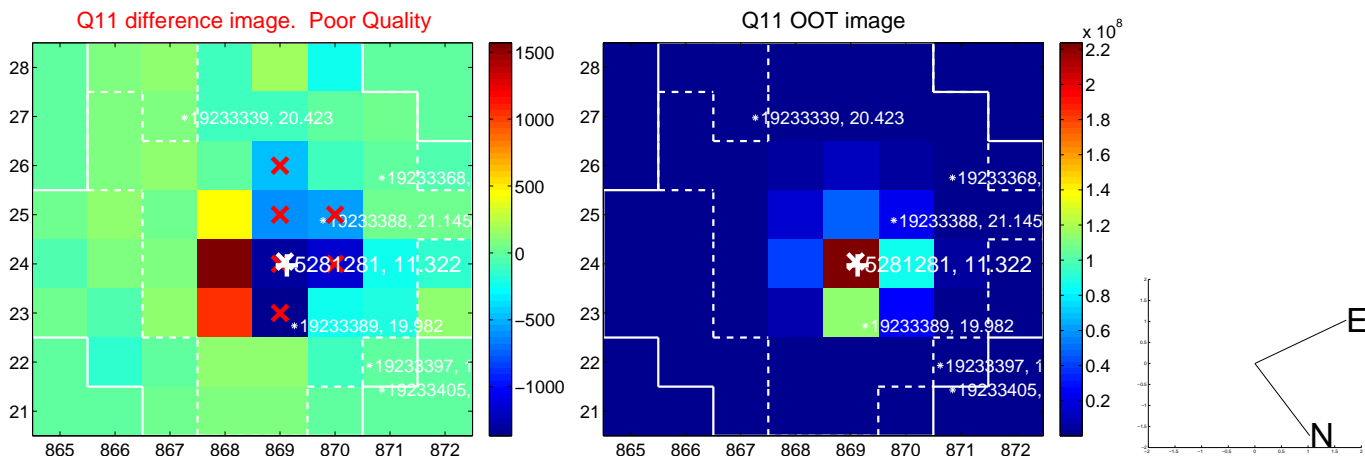
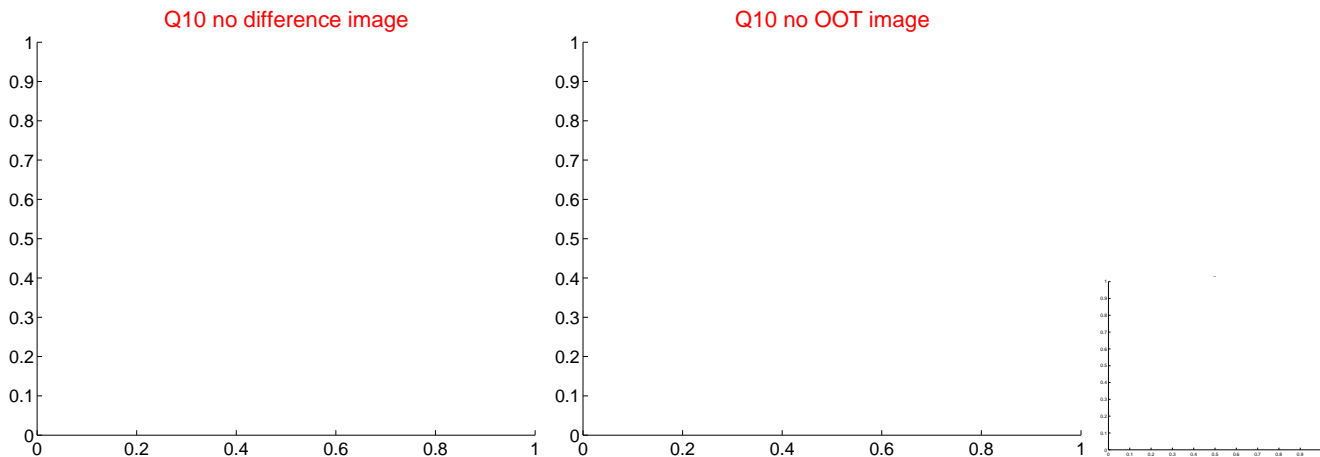
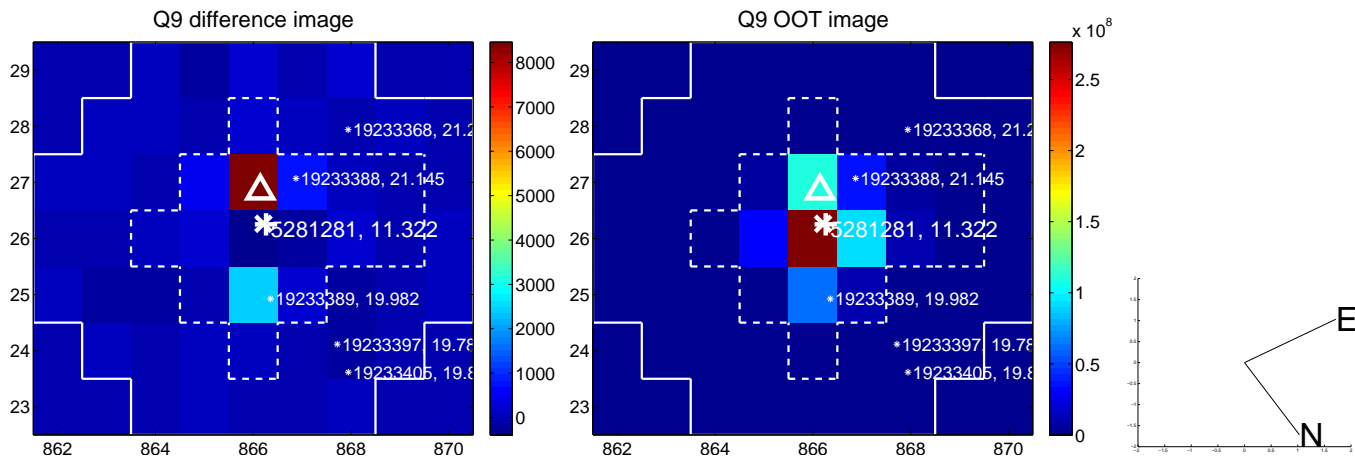
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



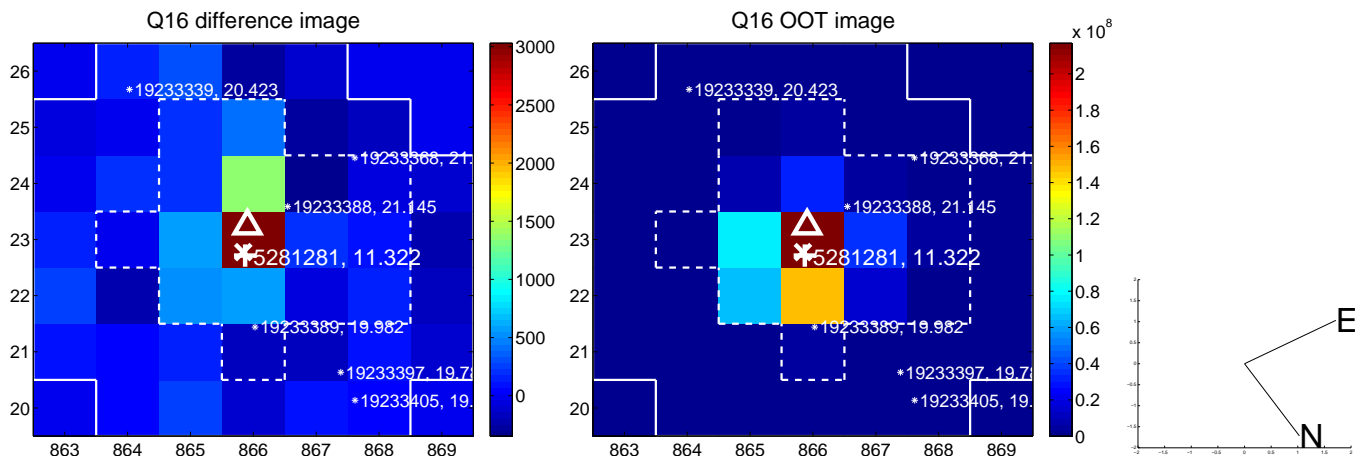
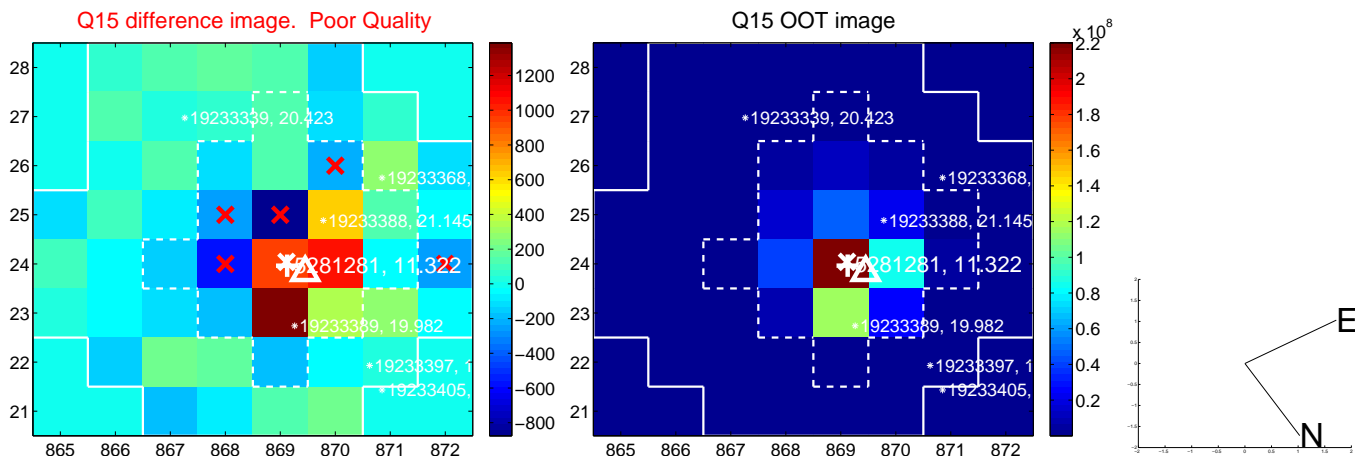
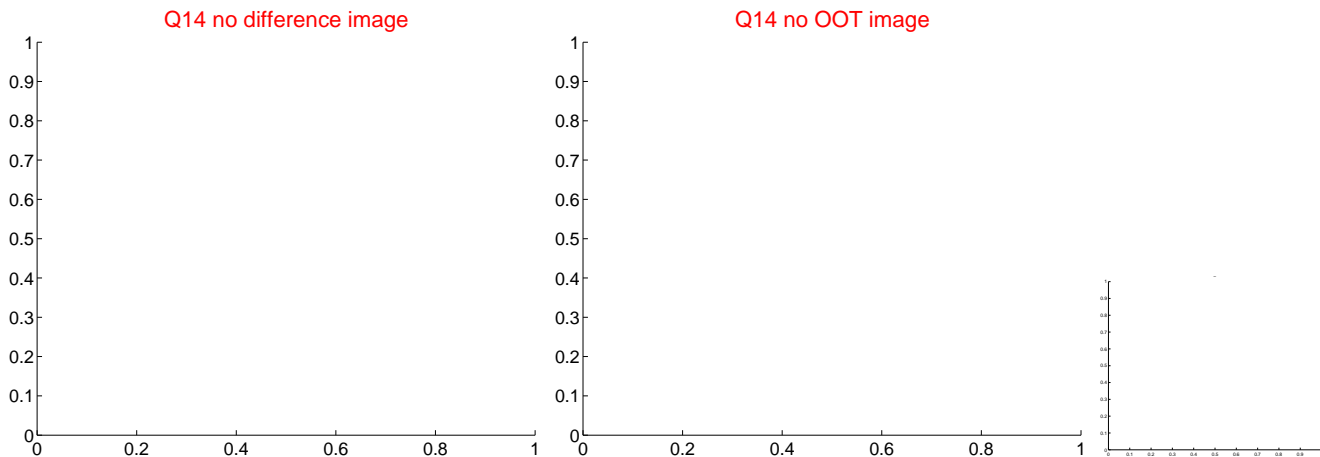
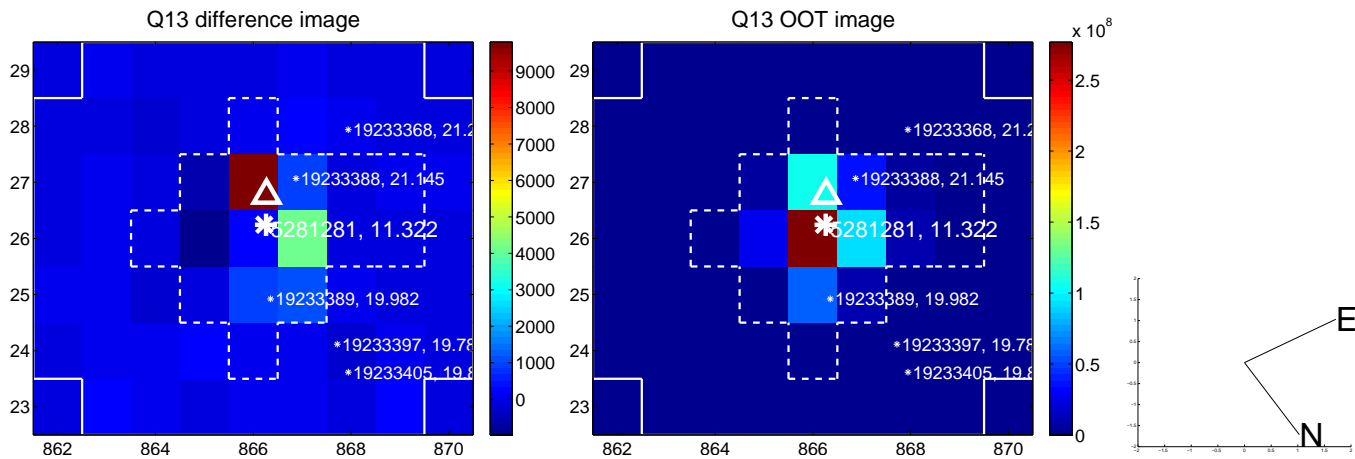
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



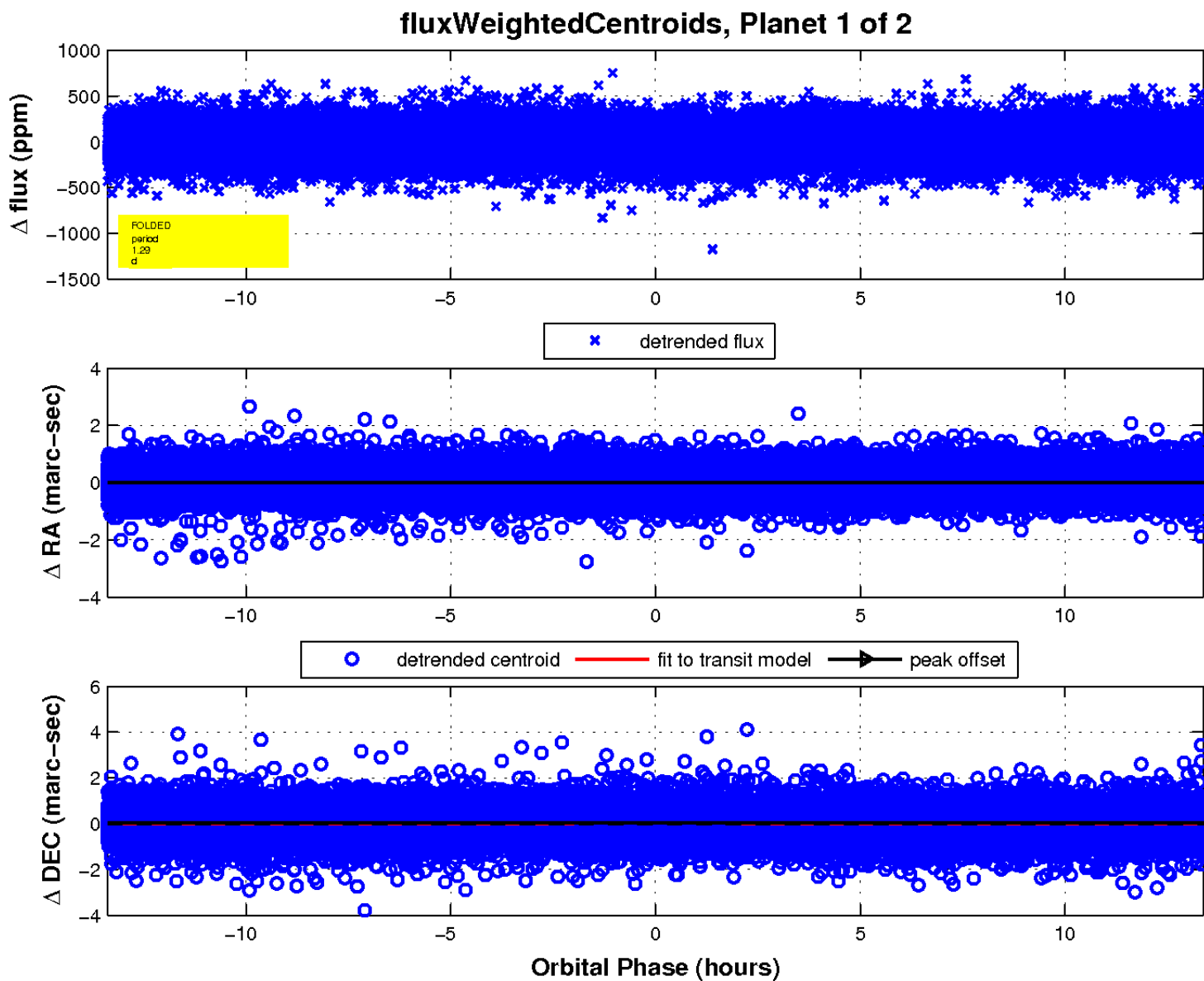
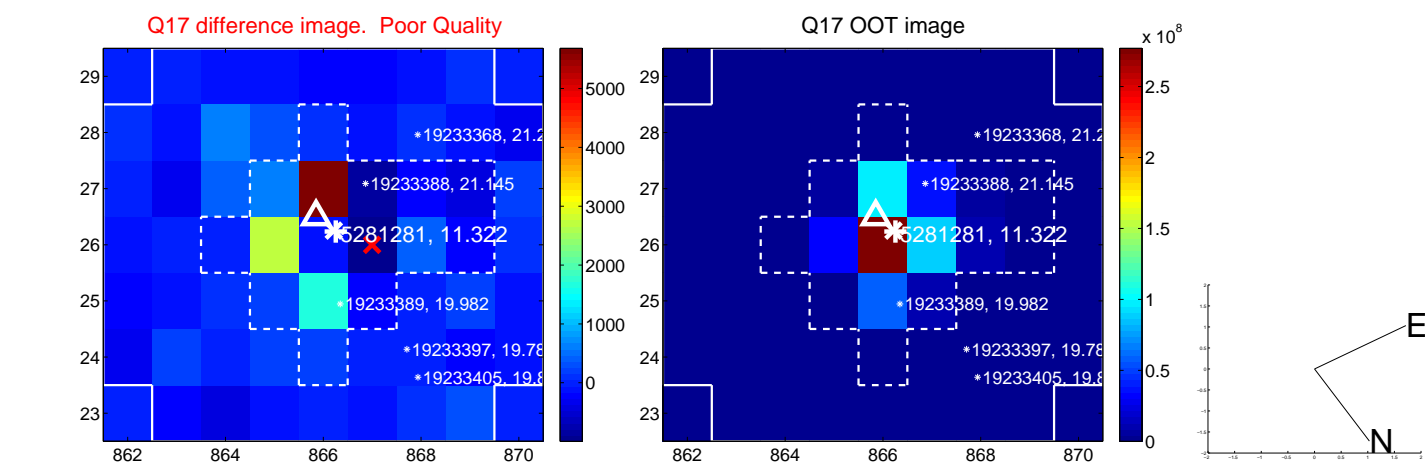
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

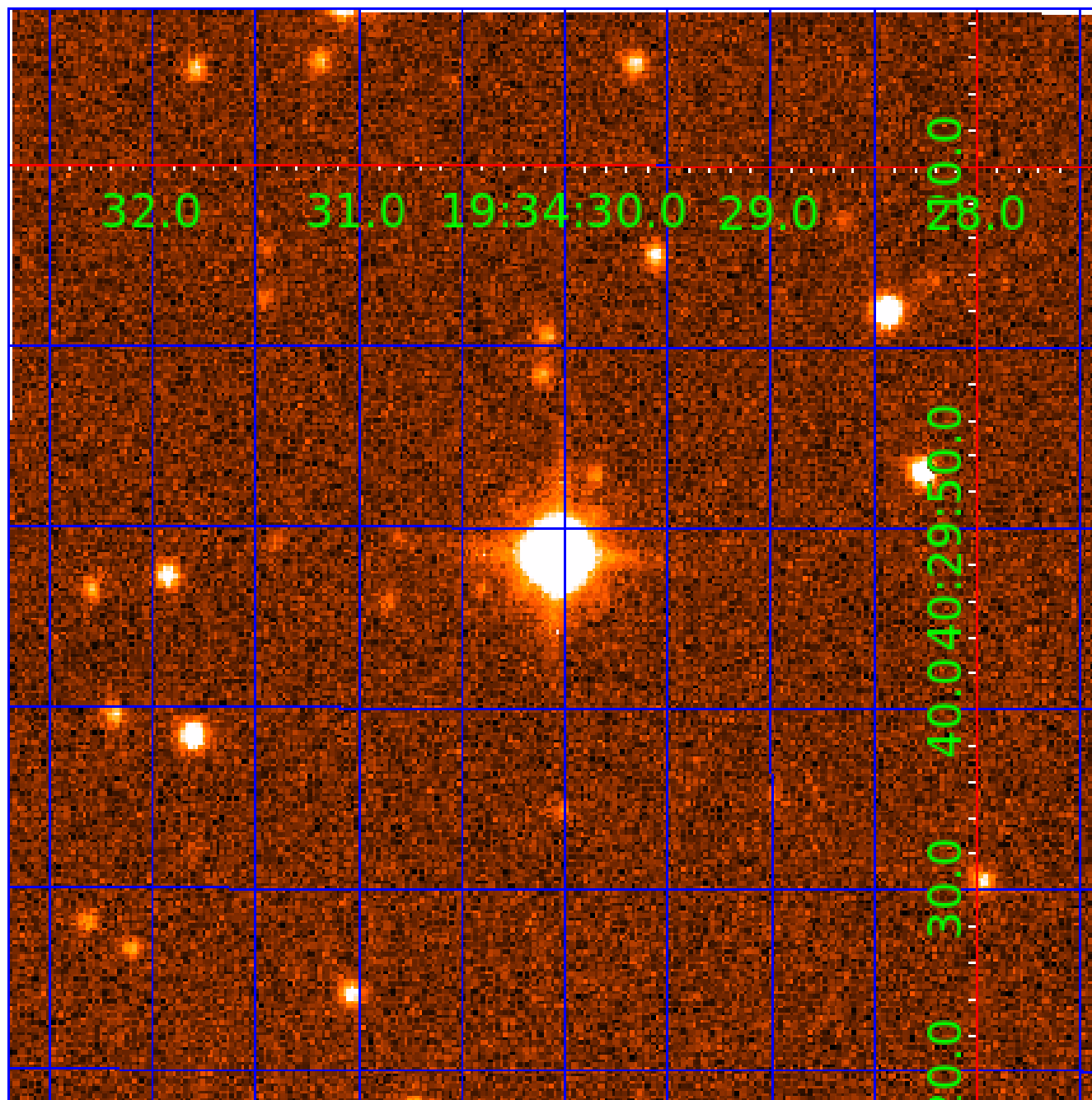


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005281281

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})
005281281-01	OBS	No	1.294000	132.184447	17.1	4.463	8.2	7.4	2.34	7675	1.04	21861.83
005281281-02	OBS	No	149.897345	265.353149	118.4	13.209	9.2	4.4	2.34	7675	2.87	38.72

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005281281-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005281281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

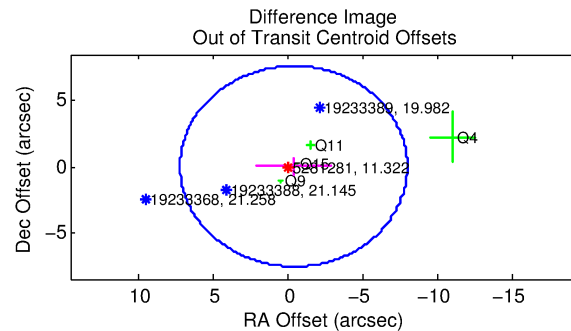
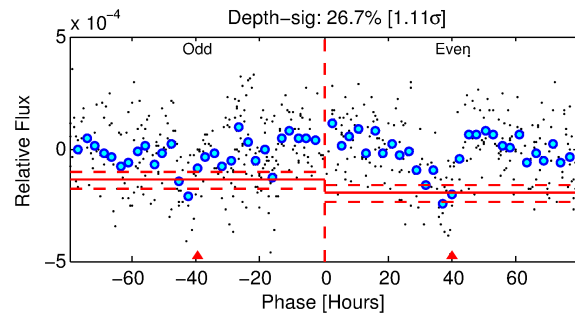
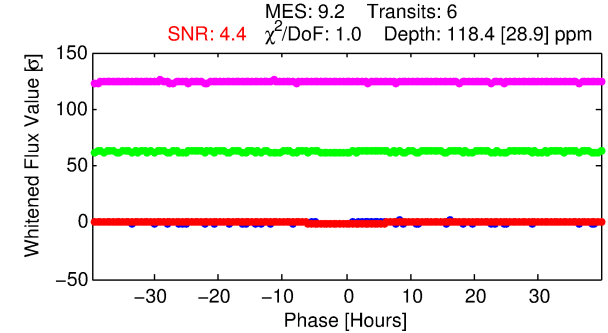
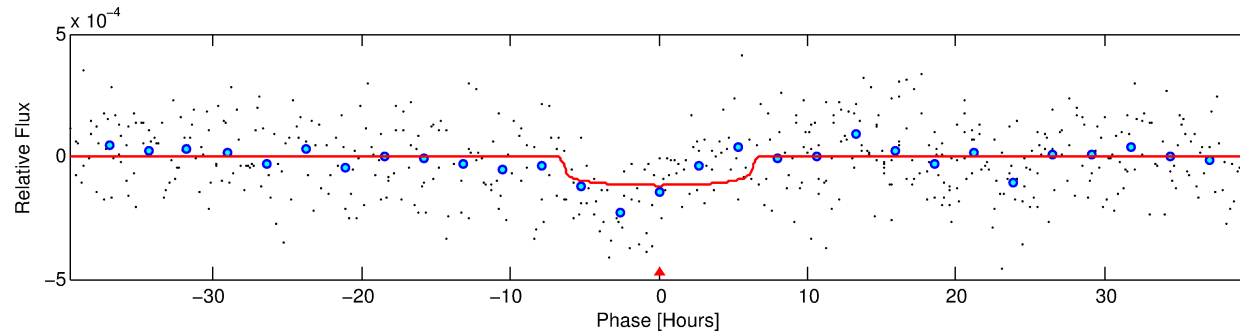
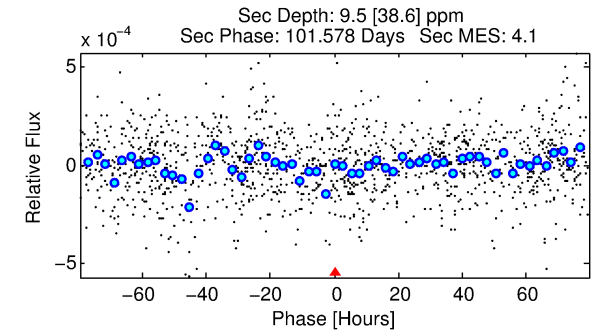
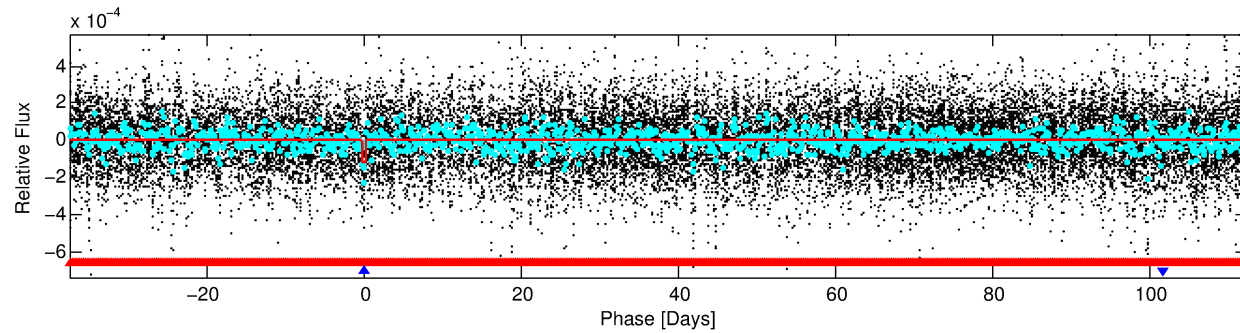
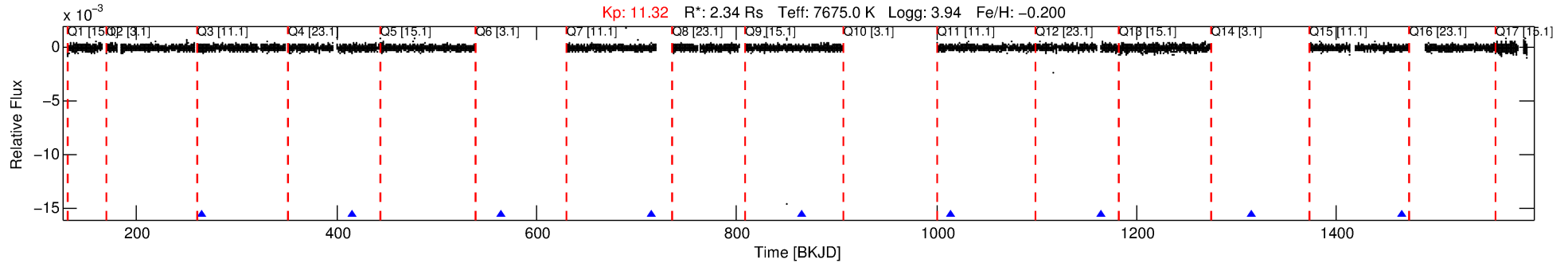
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005281281-02

No Significant Match Found

DV One-Page Summary

KIC: 5281281 Candidate: 2 of 2 Period: 149.897 d



DV Fit Results:

Period = 149.89734 [0.00622] d
Epoch = 265.3531 [0.0281] BKJD
Rp/R* = 0.0112 [0.0040]
a/R* = 48.75 [88.63]
b = 0.84 [0.64]
Seff = 38.71 [11.51]
Teq = 636 [47] K
Rp = 2.87 [1.19] Re
a = 0.6637 [0.1270] AU
Ag = 279.51 [1154.59] [0.24 σ]
Teffp = 4021 [4142] K [0.82 σ]

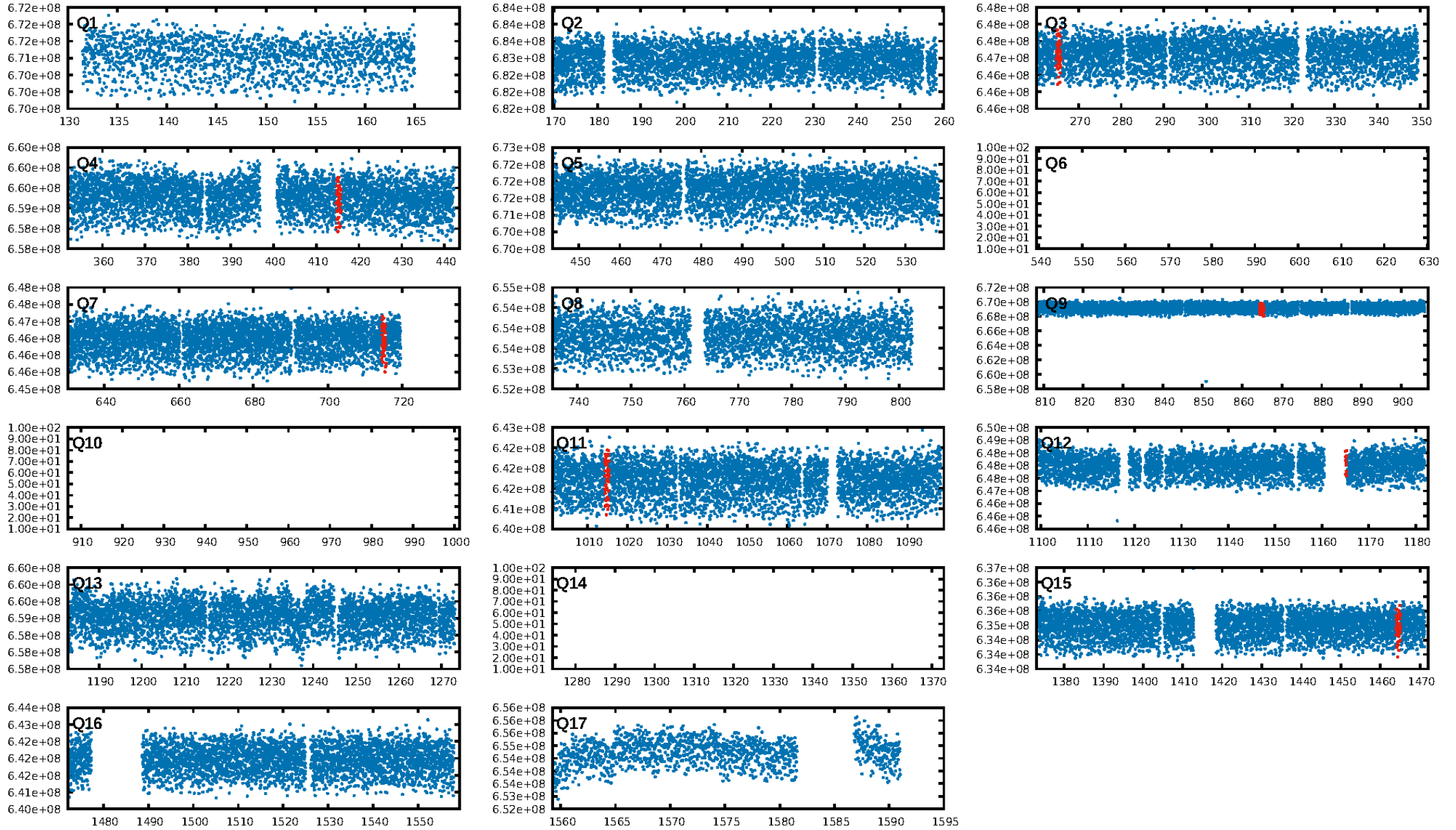
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [255.80 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 36.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.26e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.8907
Centroid-sig: 5.0%
Centroid-so: 1.112 arcsec [1.25 σ]
OotOffset-rm: 0.435 arcsec [0.17 σ]
KicOffset-rm: 0.548 arcsec [0.27 σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/5]

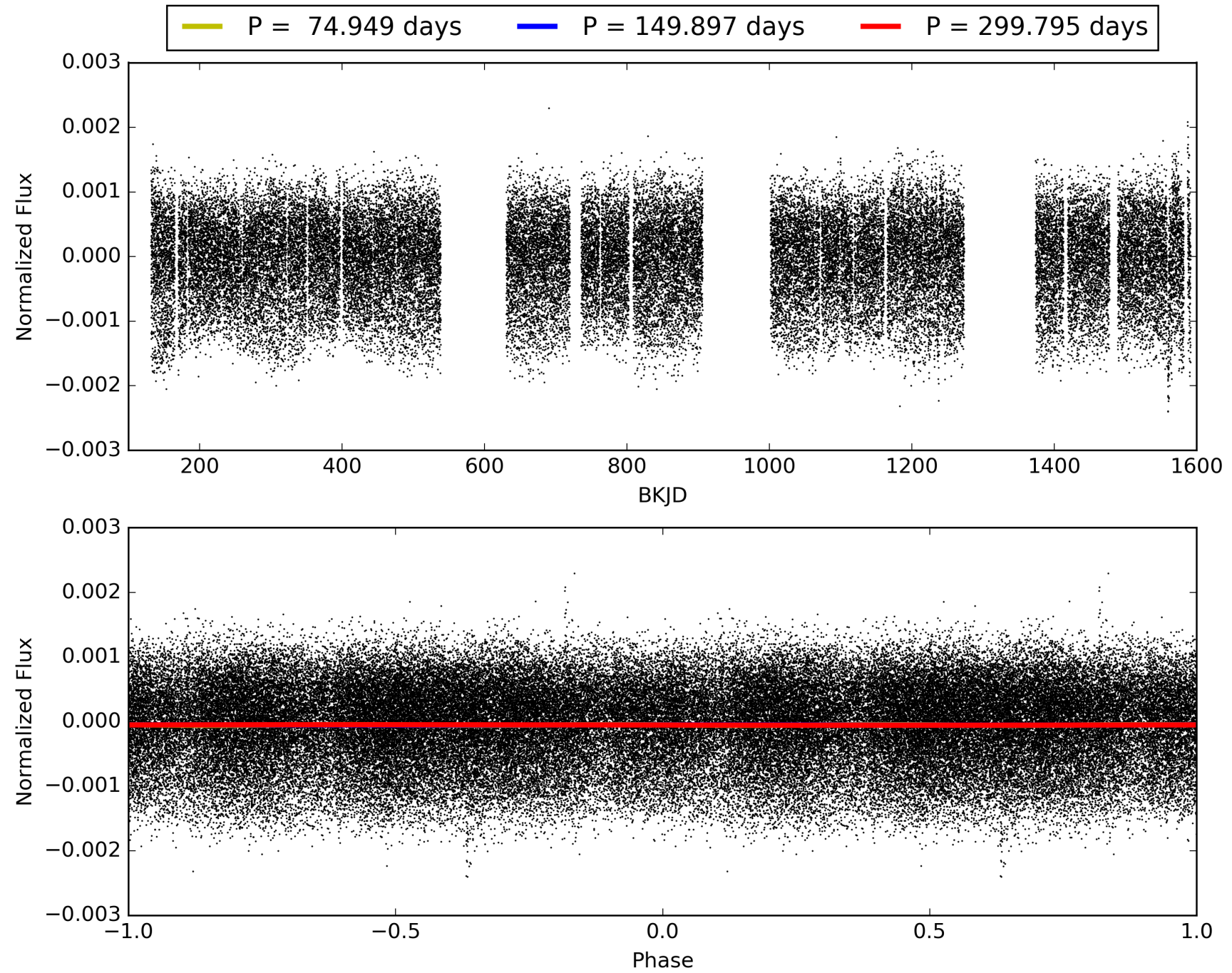
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:44:44 Z

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

TCE 005281281-02, PDC Light Curves

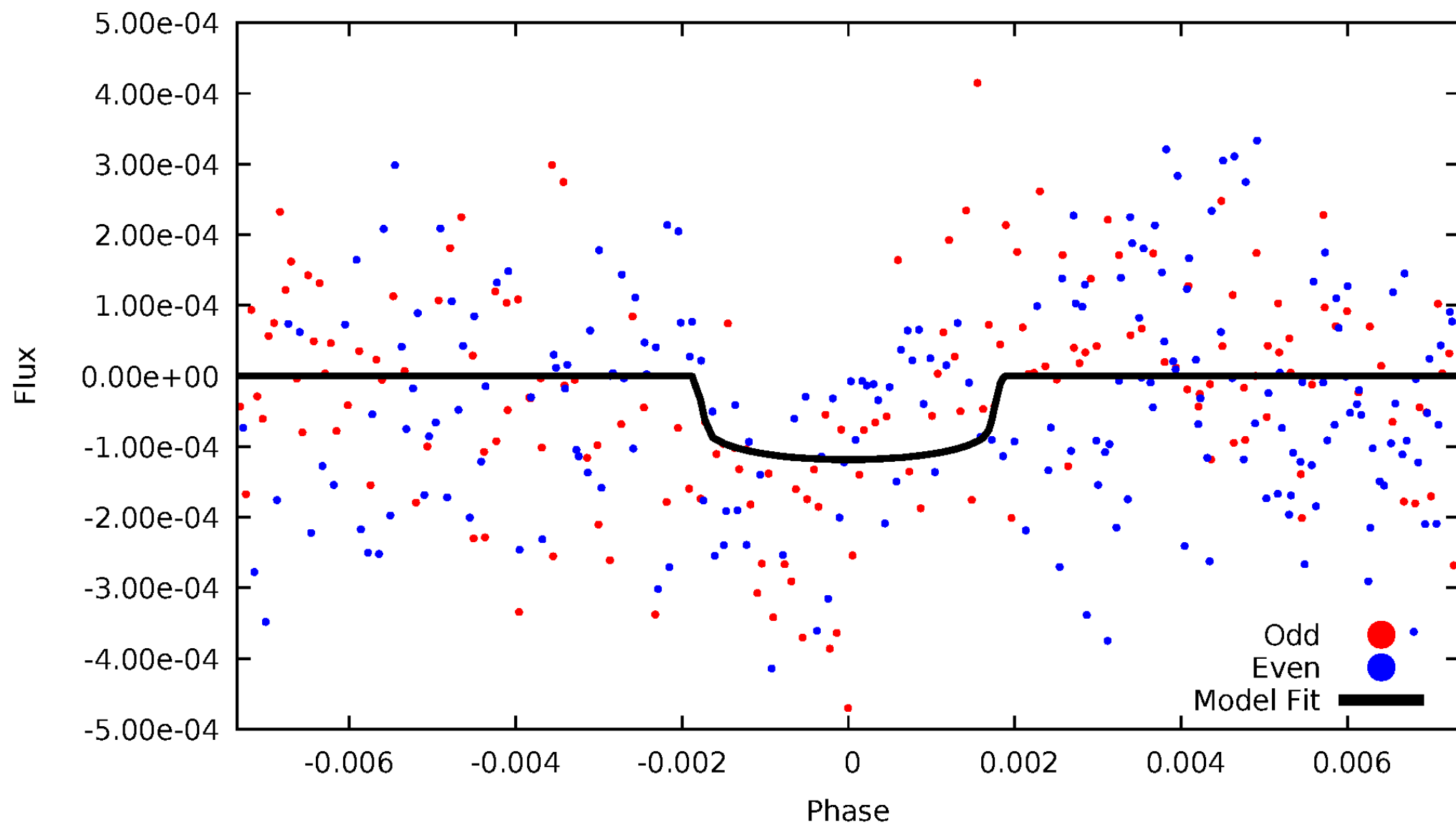


TCE 005281281-02



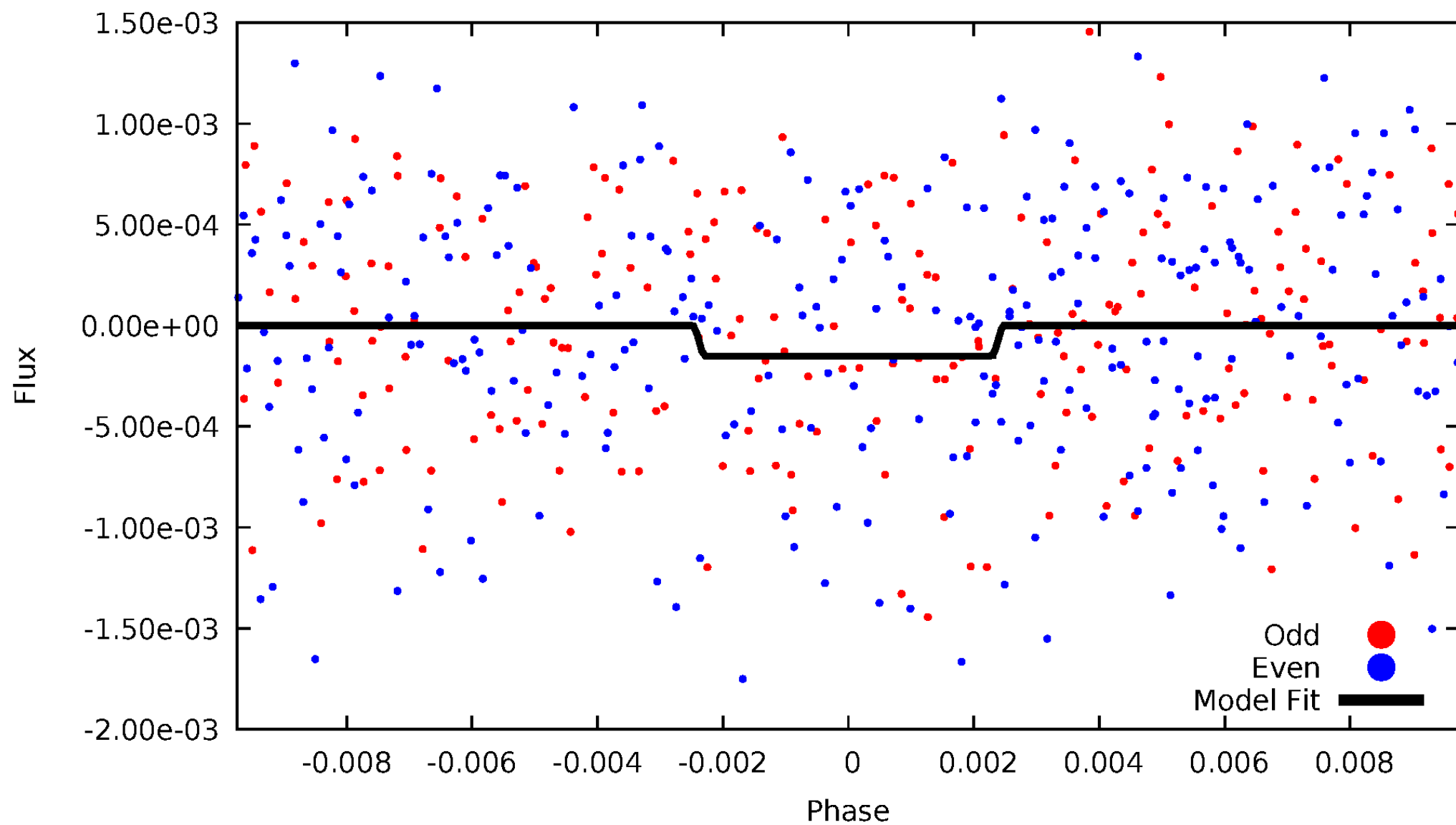
DV Odd/Even

TCE 005281281-02



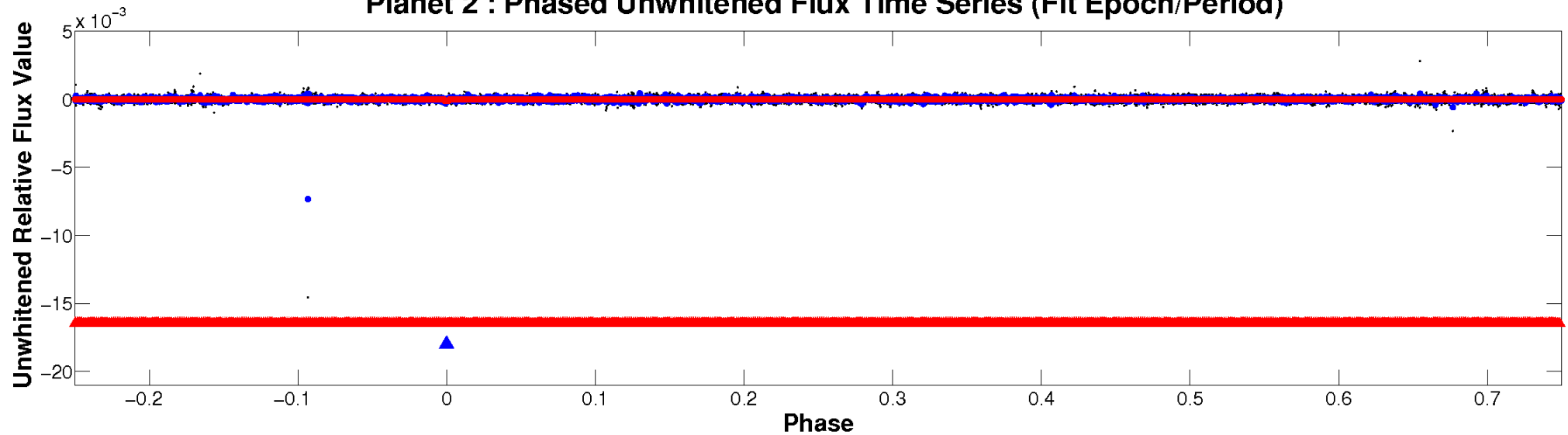
ALT Odd/Even

TCE 005281281-02

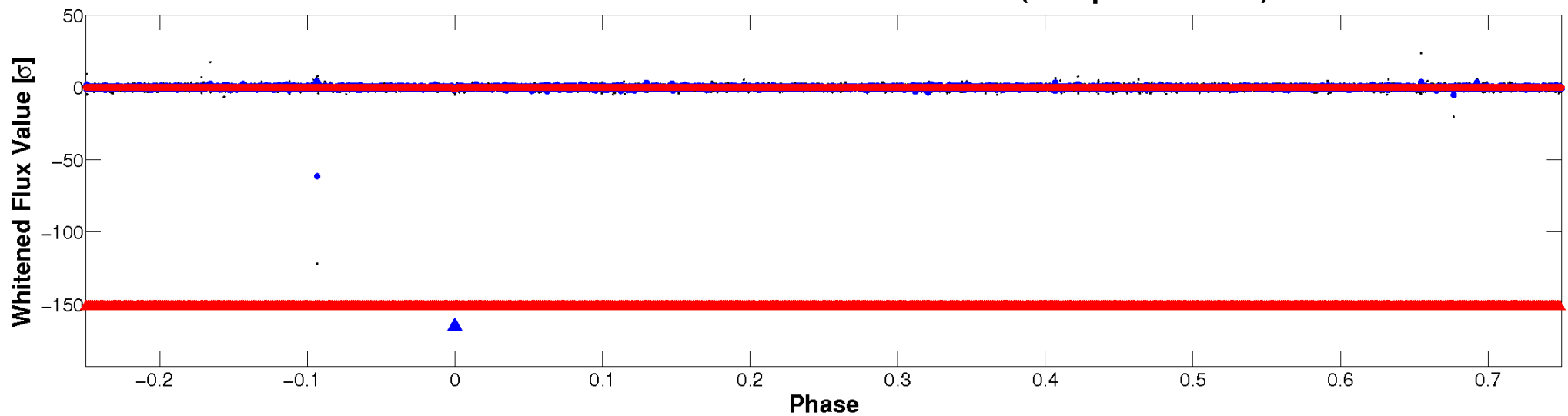


Non-Whitened Vs. Whitened Light Curve

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

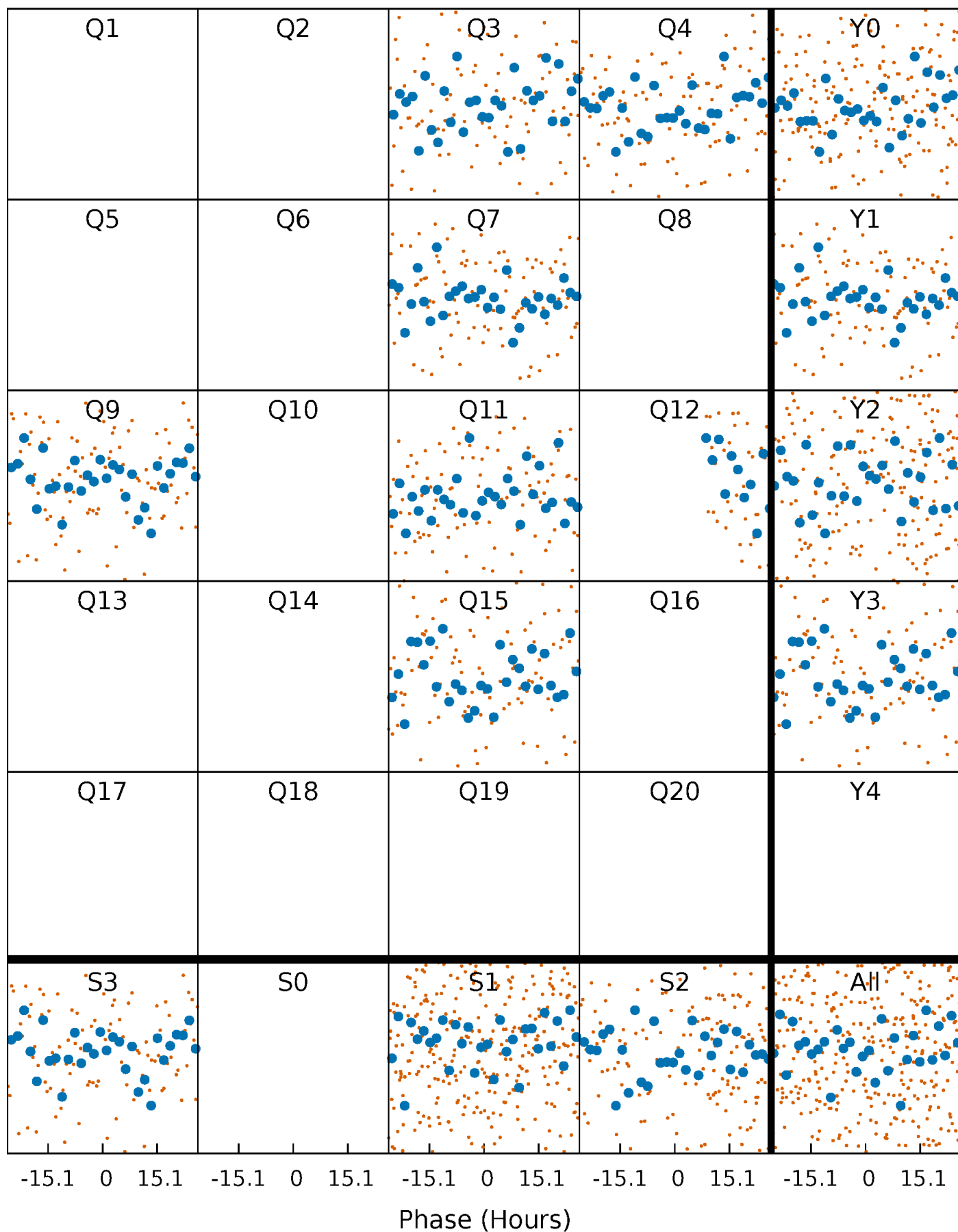


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



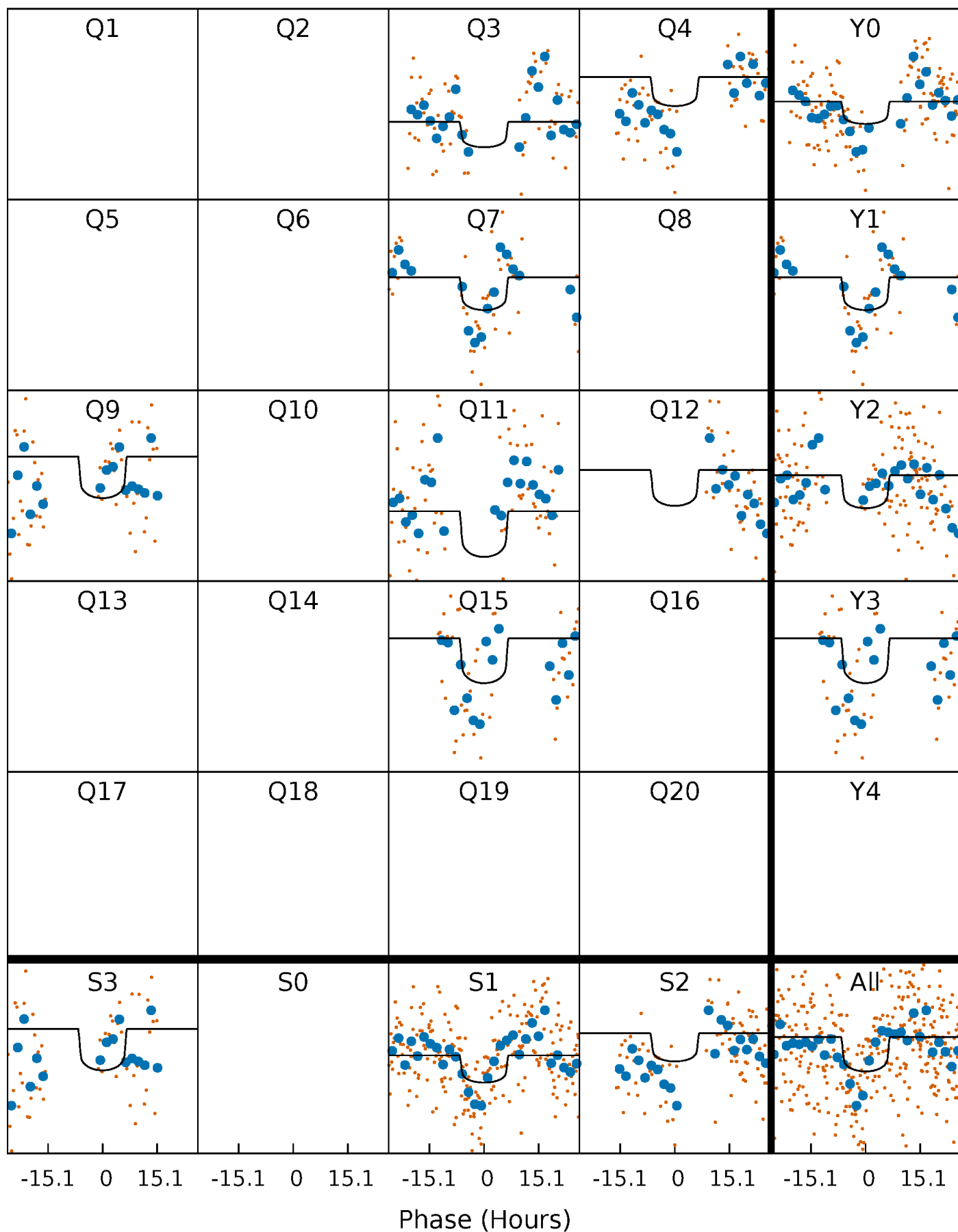
PDC Quarter-Phased Transit Curves

TCE 005281281-02 P=149.897345 Days $T_0=265.353149$ (BKJD)



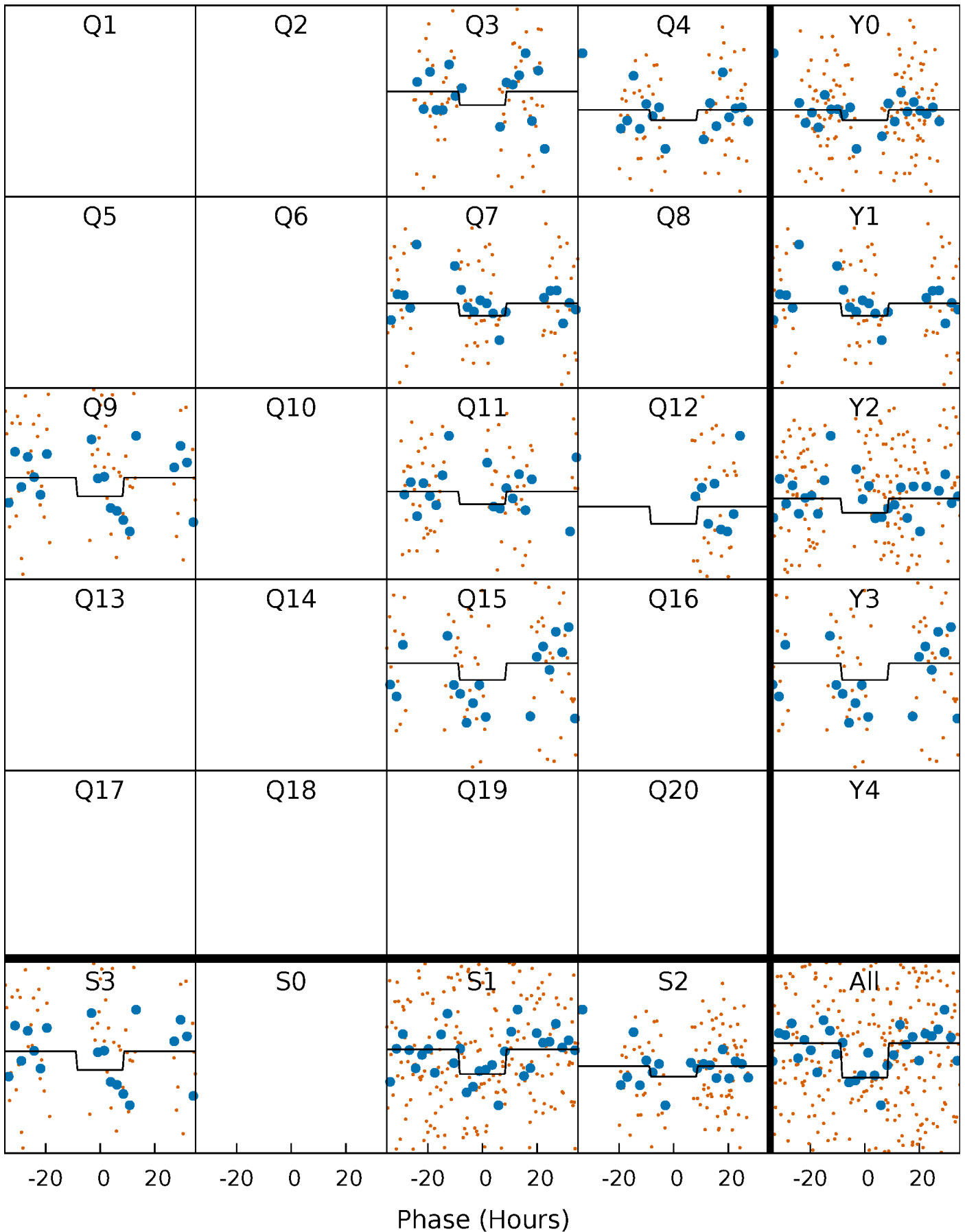
DV Quarter-Phased Transit Curves

TCE 005281281-02 $P=149.897345$ Days $T_0=265.353149$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

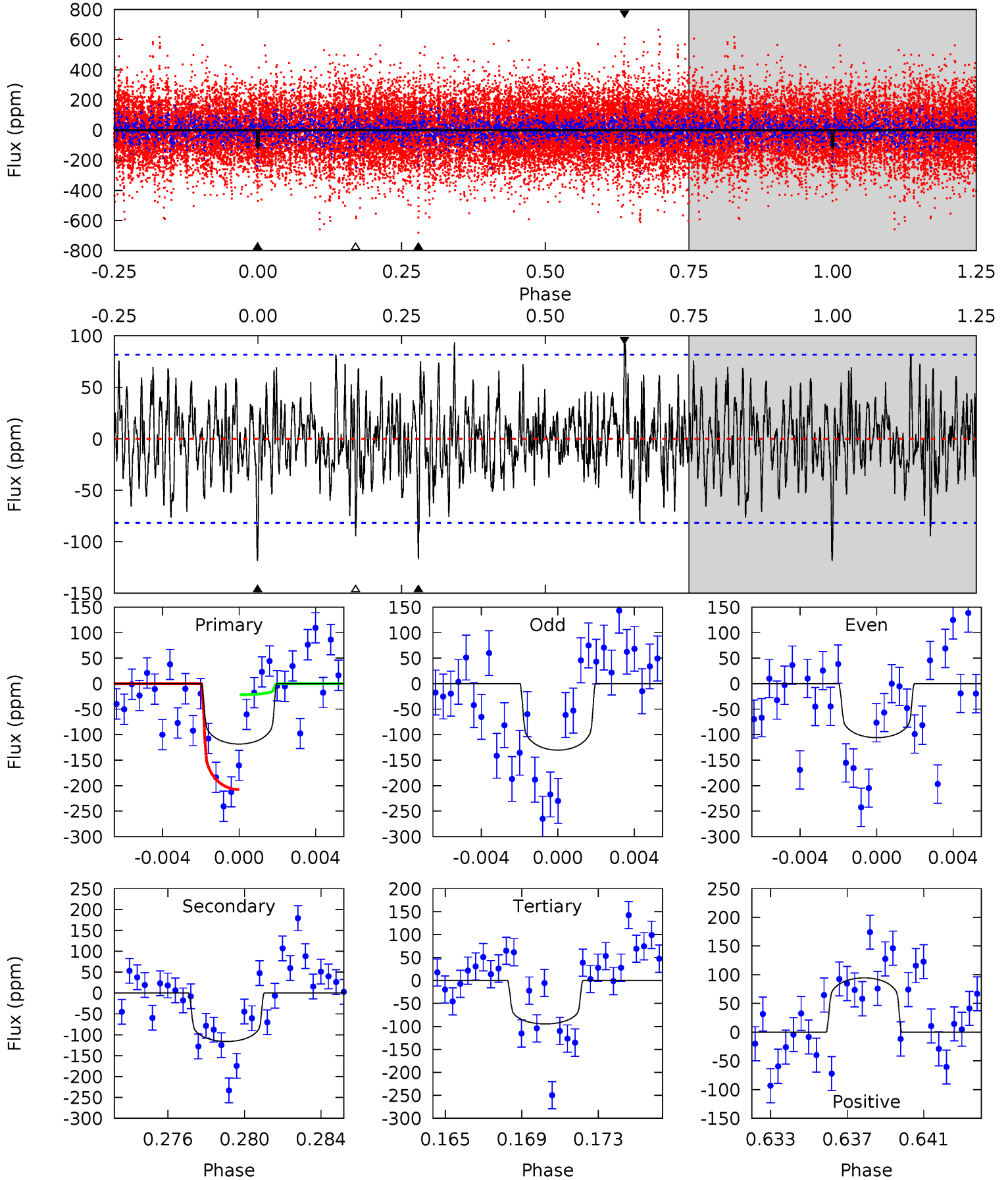
TCE 005281281-02 P=149.883087 Days $T_0=265.519932$ (BKJD)



DV Model-Shift Uniqueness Test

005281281-02, P = 149.897345 Days, E = 115.455804 Days

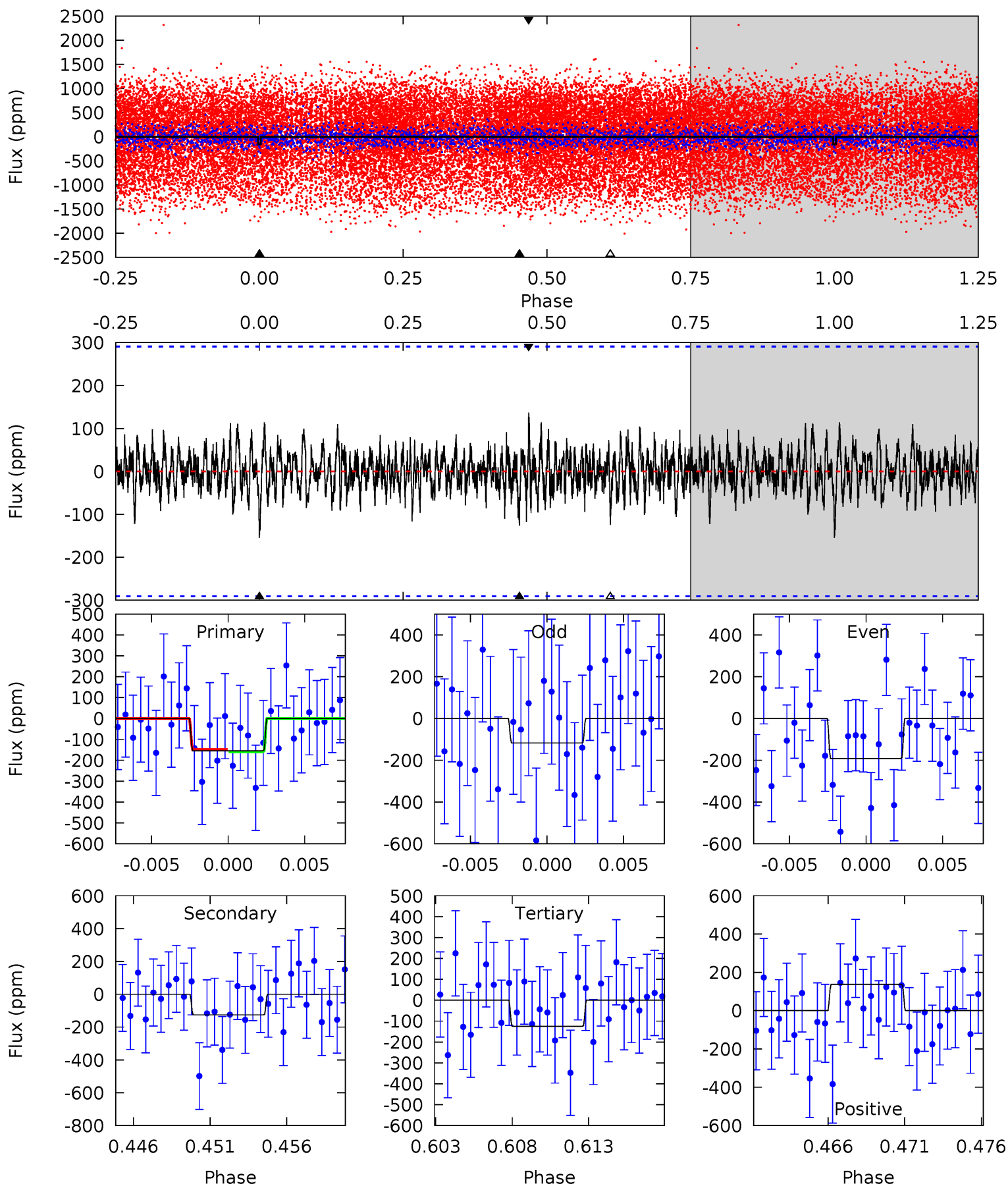
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.56	7.41	6.04	6.04	5.21	2.89	1.82	1.52	1.52	1.37	1.37	0.78	0.96	0.44	5.94



Alt Model-Shift Uniqueness Test

005281281-02, P = 149.883087 Days, E = 115.636845 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.74	2.23	2.22	2.43	5.16	2.81	0.67	0.53	0.32	0.02	-0.19	0.66	0.87	0.47	0.09



Stellar Parameters For KIC 005281281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7675^{+84}_{-76}	$3.938^{+0.168}_{-0.112}$	$-0.200^{+0.150}_{-0.150}$	$2.342^{+0.407}_{-0.497}$	$1.735^{+0.190}_{-0.171}$	$0.190^{+0.164}_{-0.064}$
	+1%/-1%	+4%/-3%	+75%/-75%	+17%/-21%	+11%/-10%	+86%/-34%
Source	SPE68	SPE68	SPE68	DSEP		

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

Secondary Eclipse Parameters for KIC 005281281-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-116 ± 16	$2.90^{+1.02}_{-1.11}$	886^{+41}_{-46}	7372^{+2771}_{-1072}	3368^{+5399}_{-1560}
Alt.	-126 ± 56	$3.12^{+1.12}_{-1.01}$	890^{+39}_{-53}	7194^{+1944}_{-1286}	3105^{+3680}_{-1783}

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 $A_{obs} \gg 1.0$

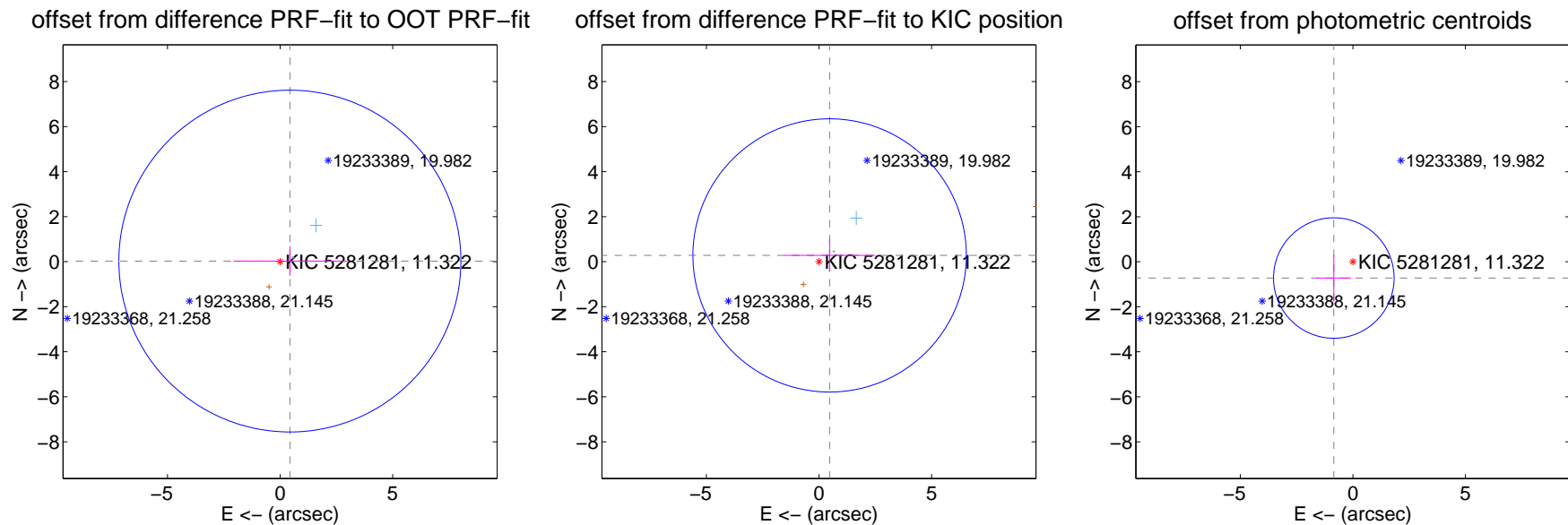
DV Centroid Data

Supplemental centroid analysis for 005281281-02. **Kepler magnitude: 11.32.** Transit SNR 4.41

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.435 ± 2.530	0.17	-0.434 ± 2.505	0.027 ± 0.653
PRF-fit source offset from KIC position	0.548 ± 2.023	0.27	-0.472 ± 2.019	0.278 ± 0.734
photometric centroid source offset	1.11 ± 0.89	1.25	0.85 ± 0.78	-0.72 ± 1.03



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.

Q1 no difference image



Q1 no OOT image



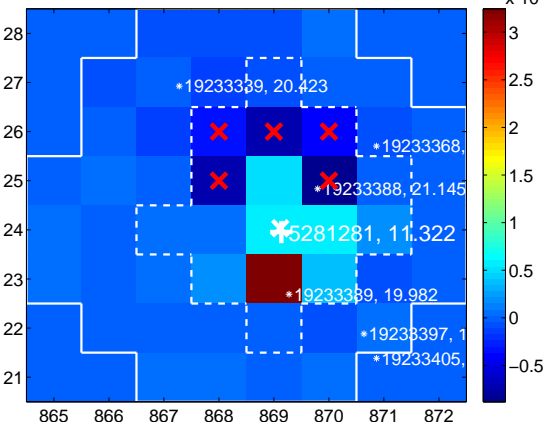
Q2 no difference image



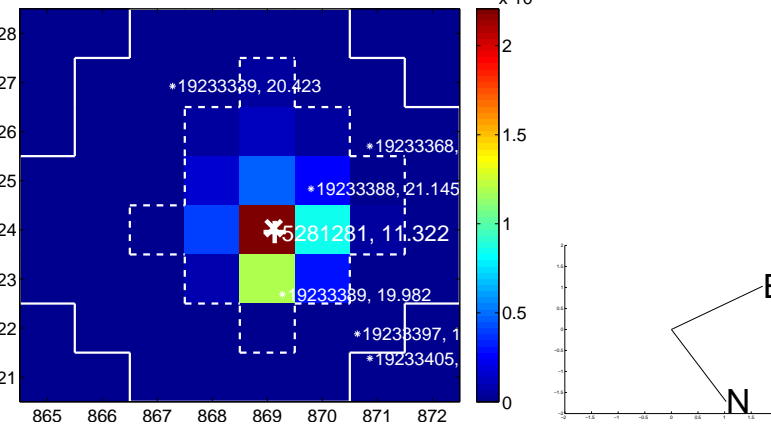
Q2 no OOT image



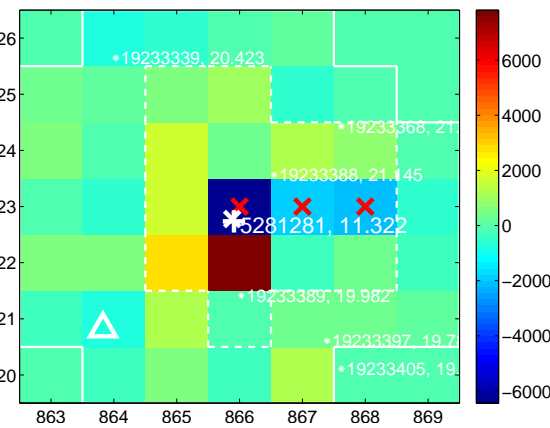
Q3 difference image. Poor Quality



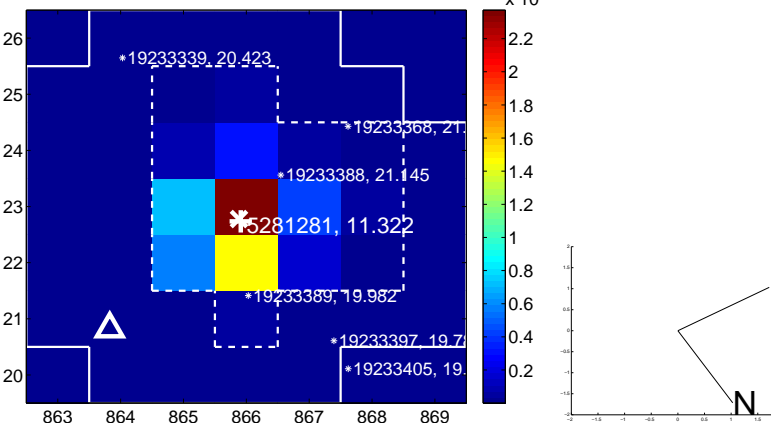
Q3 OOT image



Q4 difference image. Poor Quality



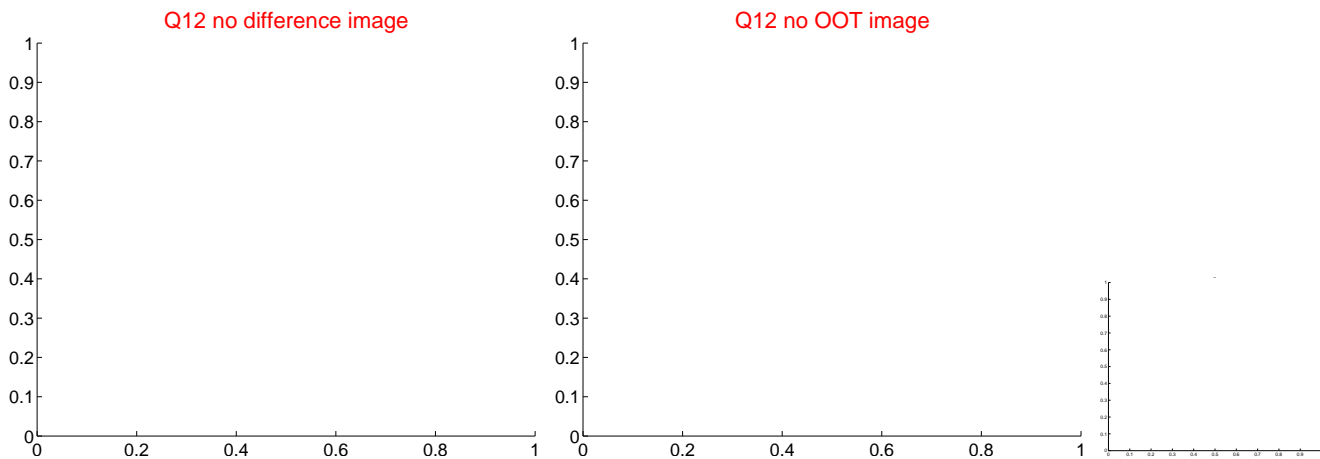
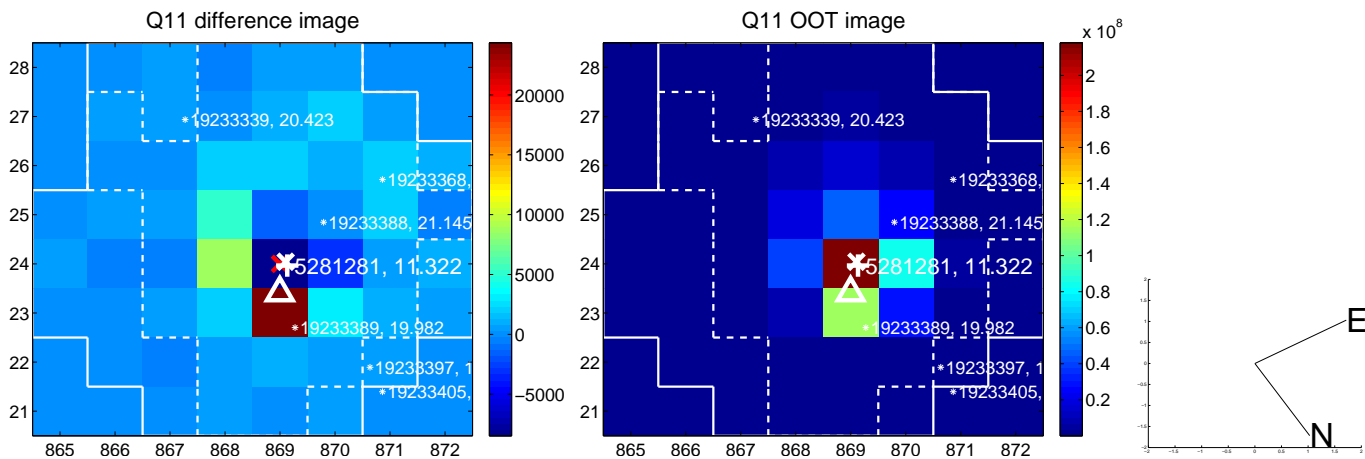
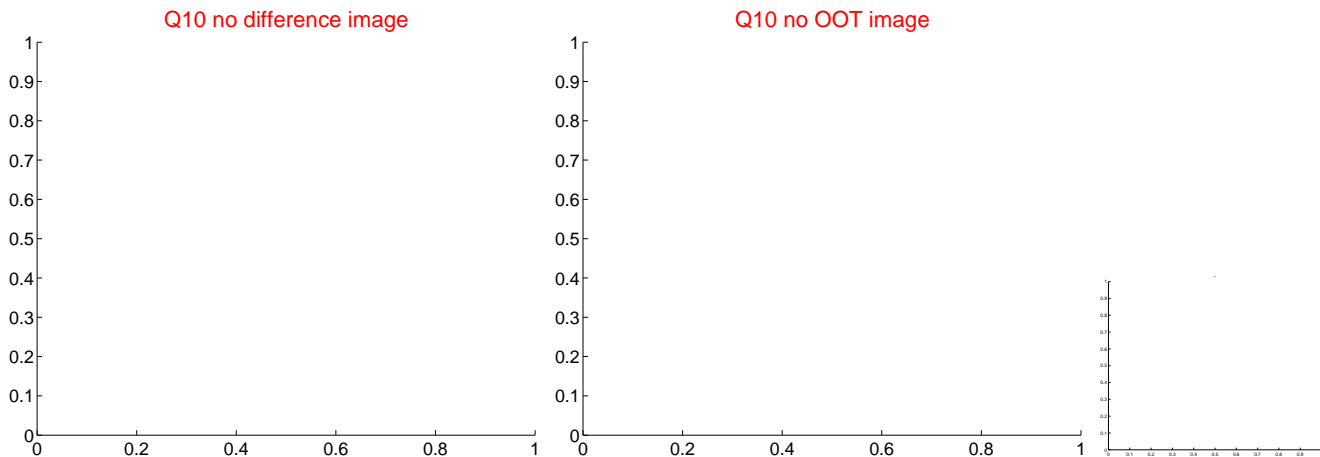
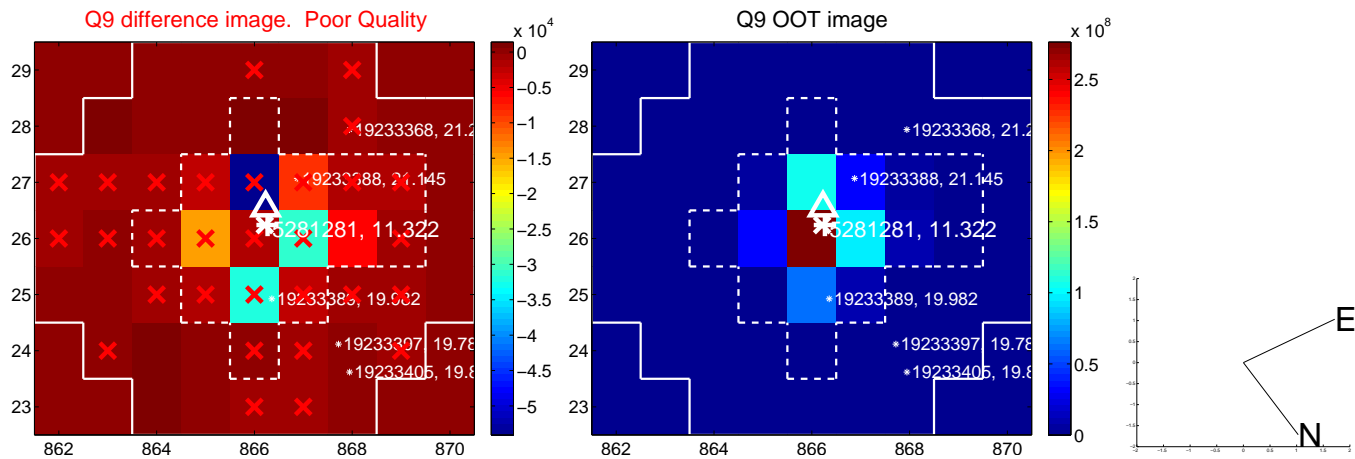
Q4 OOT image



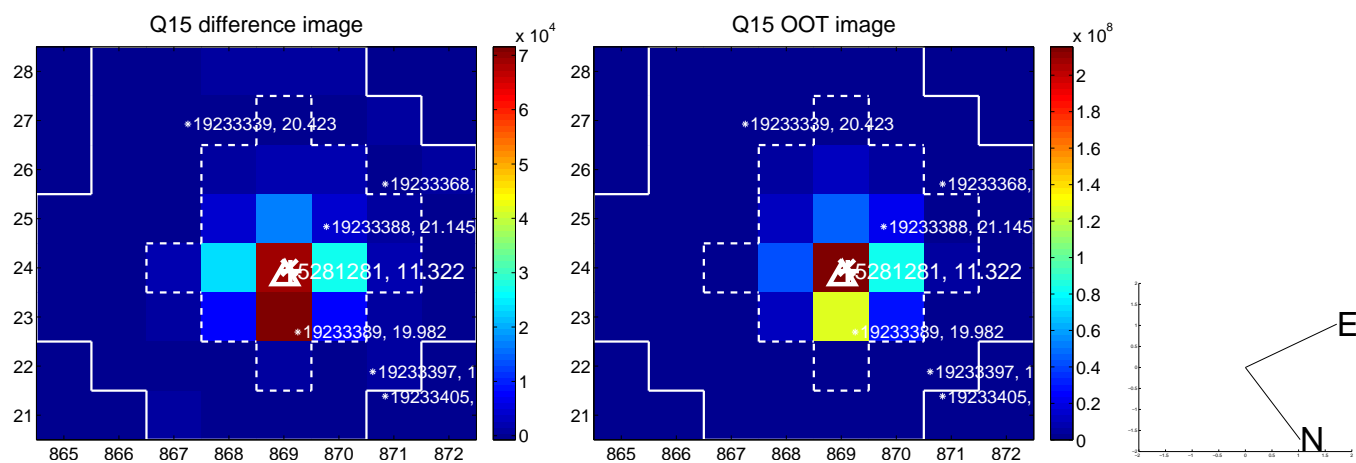
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



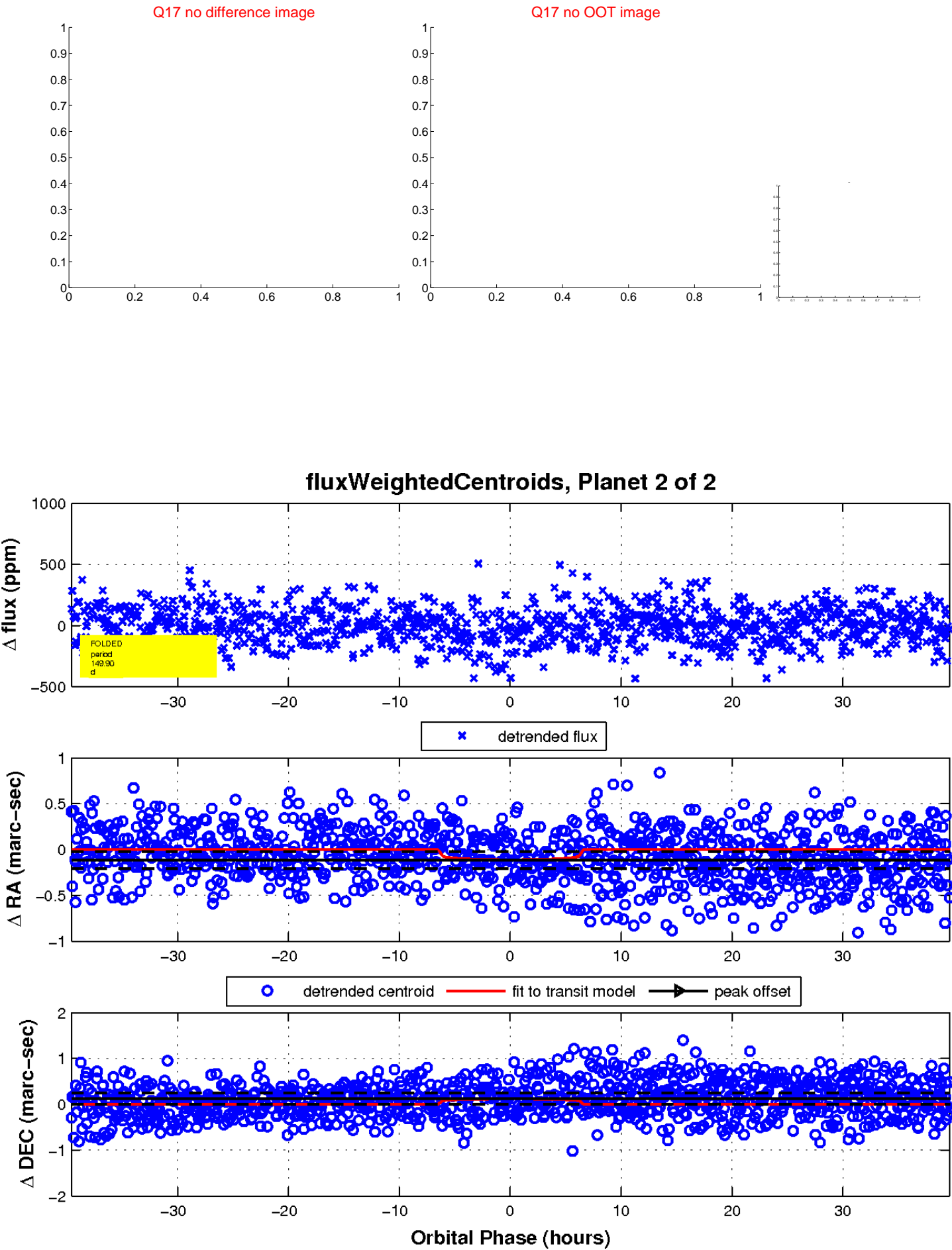
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

