

KIC 005985441

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})
005985441-01	OBS	No	4.075974	133.810748	150.1	15.578	9.3	6.0	1.26	7004	1.76	1167.61
005985441-02	OBS	No	4.075838	132.364852	386.9	5.911	8.1	8.1	1.26	7004	3.94	1167.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005985441-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005985441-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

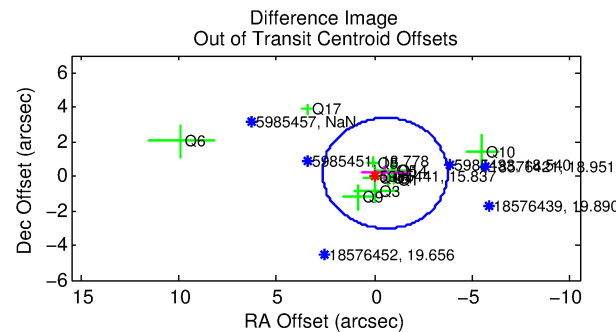
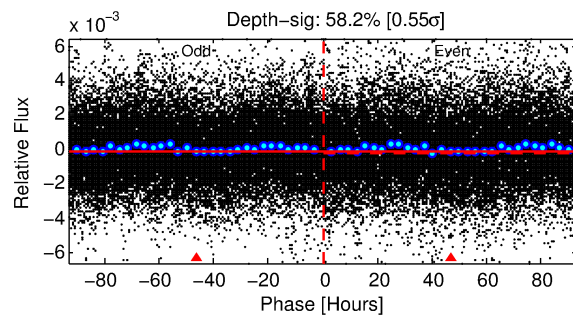
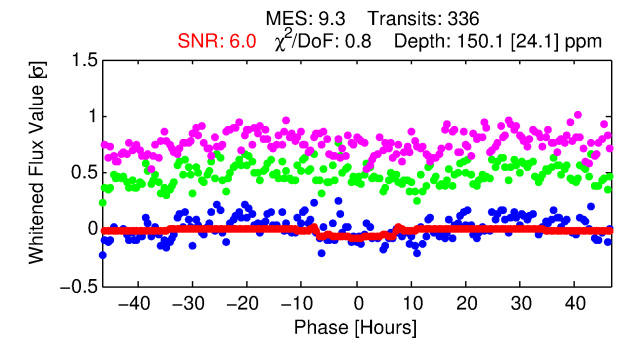
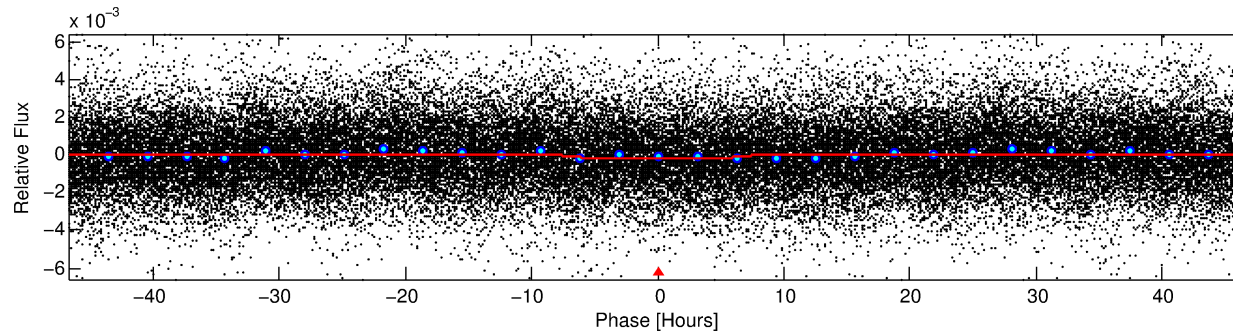
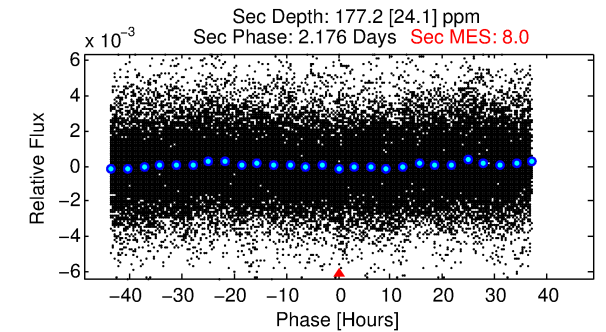
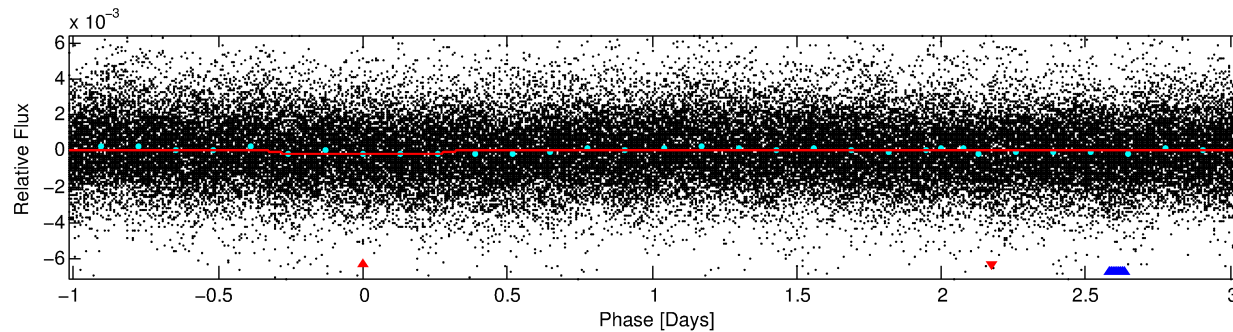
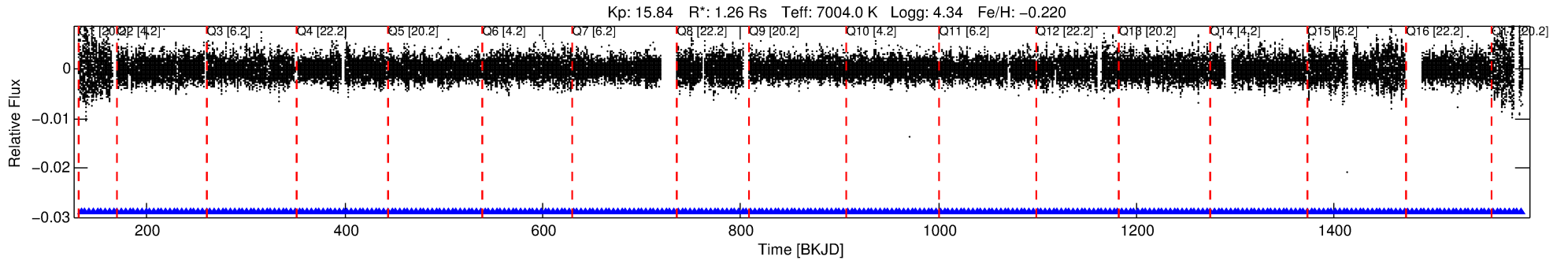
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005985441-01

No Significant Match Found

DV One-Page Summary

KIC: 5985441 Candidate: 1 of 2 Period: 4.076 d



DV Fit Results:

Period = 4.07597 [0.00010] d
Epoch = 133.8107 [0.0158] BKJD
Rp/R* = 0.0129 [0.0016]
a/R* = 1.36 [0.36]
b = 0.88 [0.15]
Seff = 1167.61 [442.09]
Teq = 1491 [141] K
Rp = 1.77 [0.56] Re
a = 0.0540 [0.0127] AU
Ag = 91.15 [39.74] [2.27σ]
Teffp = 7121 [610] K [9.00σ]

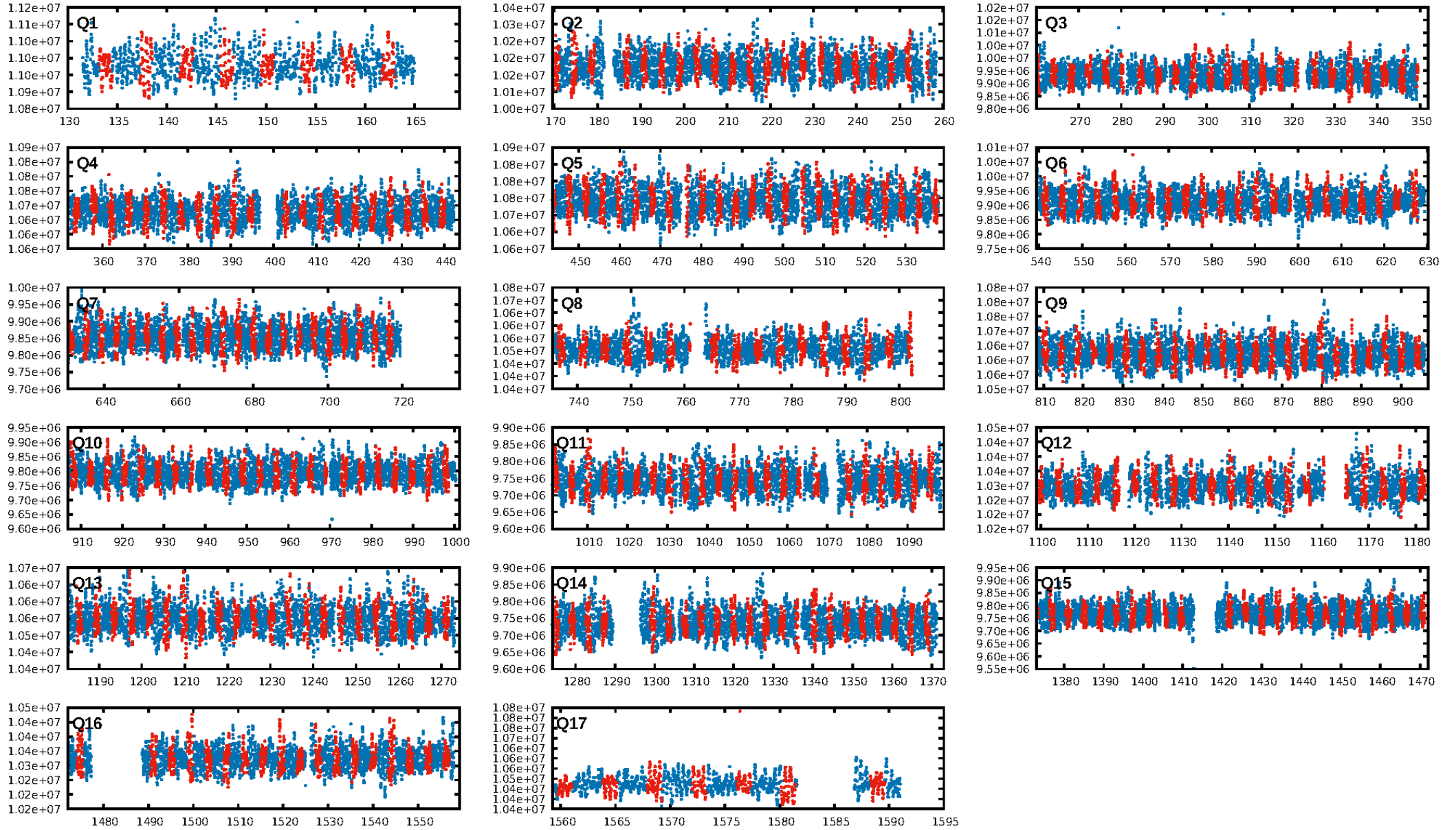
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.03e-20
RollingBand-fgt: 1.00 [321/321]
GhostDiagnostic-chr: 2.827
Centroid-sig: 2.2%
Centroid-so: 1.950 arcsec [1.98σ]
OotOffset-rm: 0.577 arcsec [0.54σ]
KicOffset-rm: 0.769 arcsec [0.72σ]
OotOffset-st: 3/1/3/4 [11]
KicOffset-st: 3/1/3/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 1.00 [17/17]

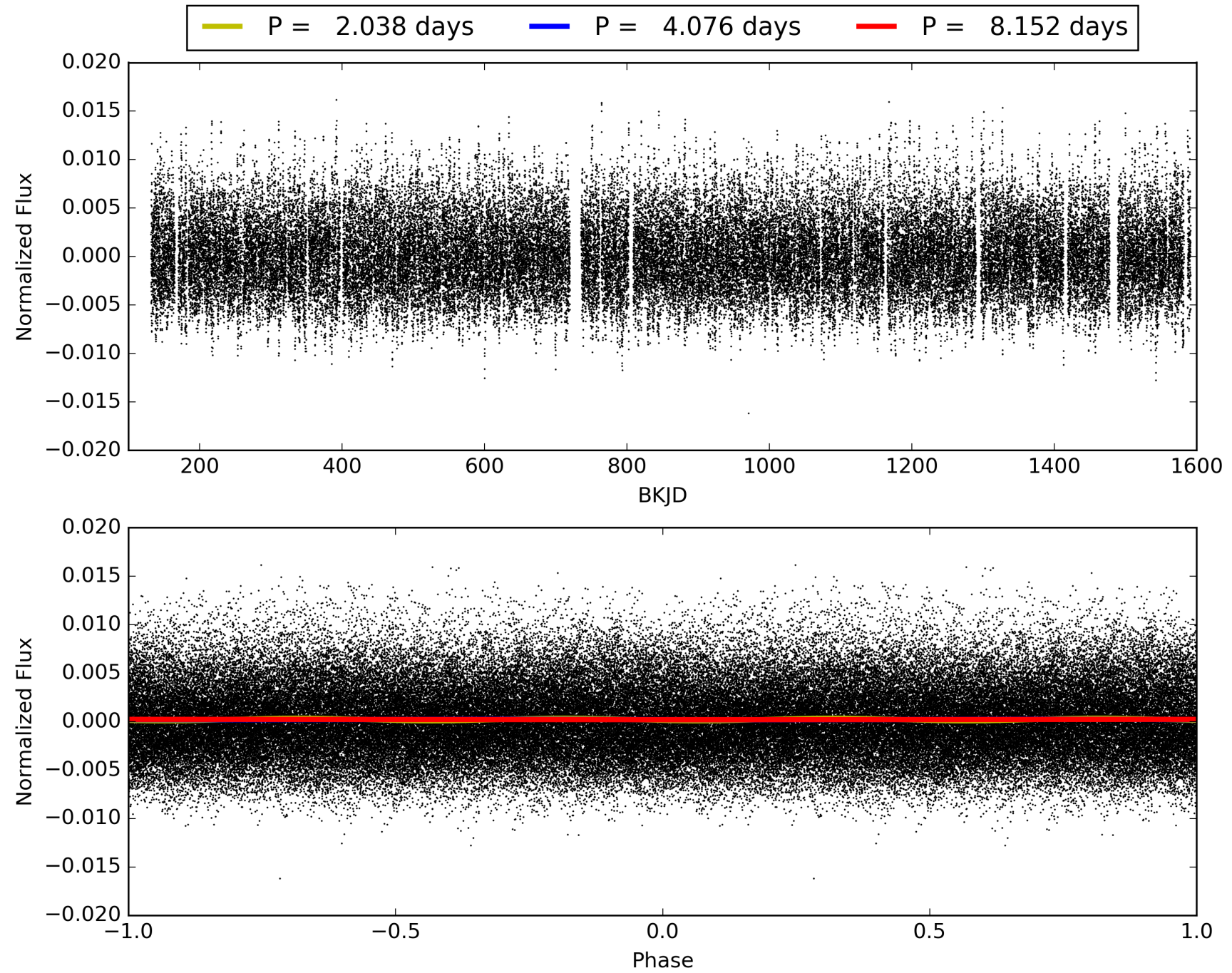
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:38:30 Z

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

TCE 005985441-01, PDC Light Curves

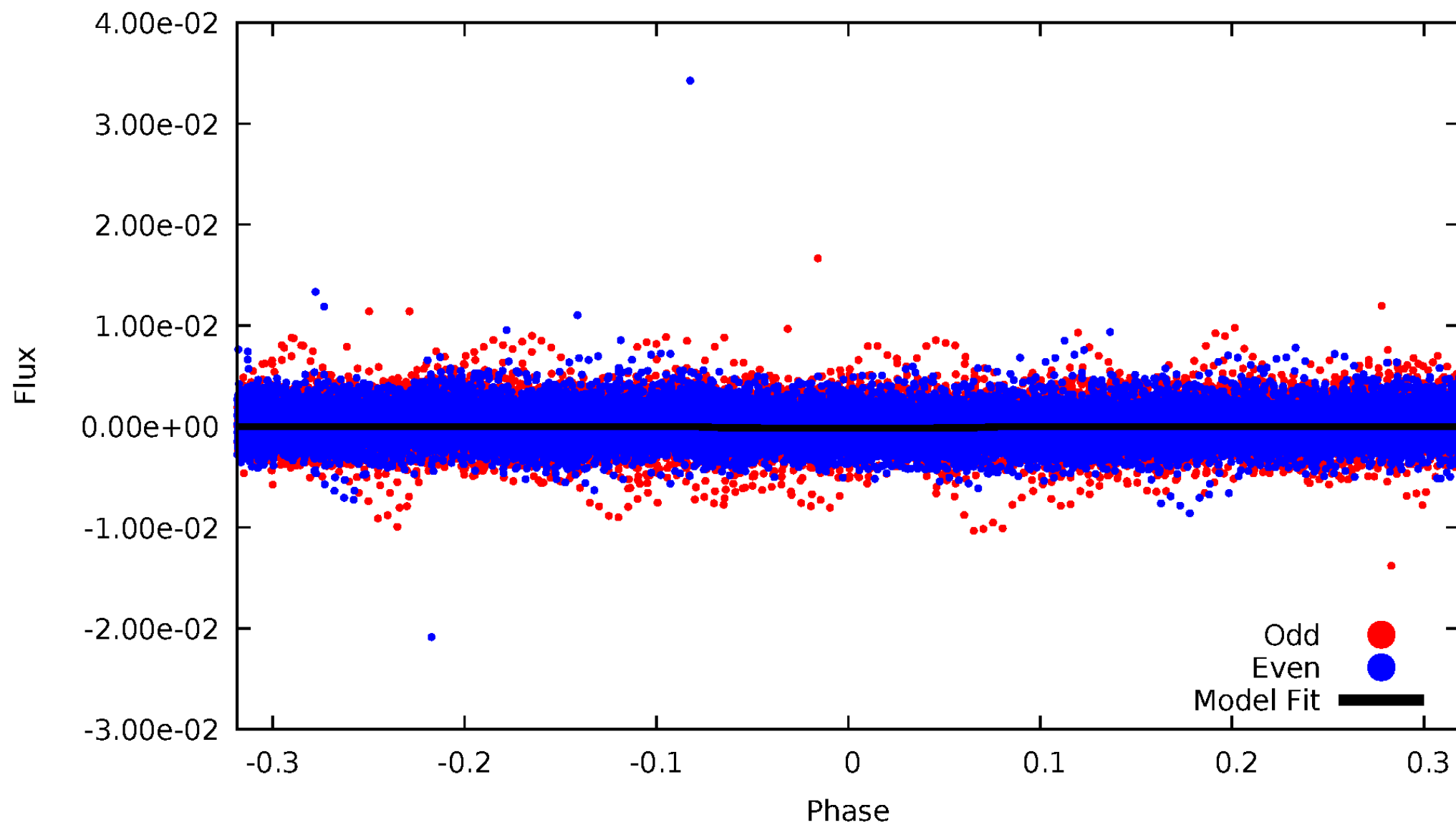


TCE 005985441-01



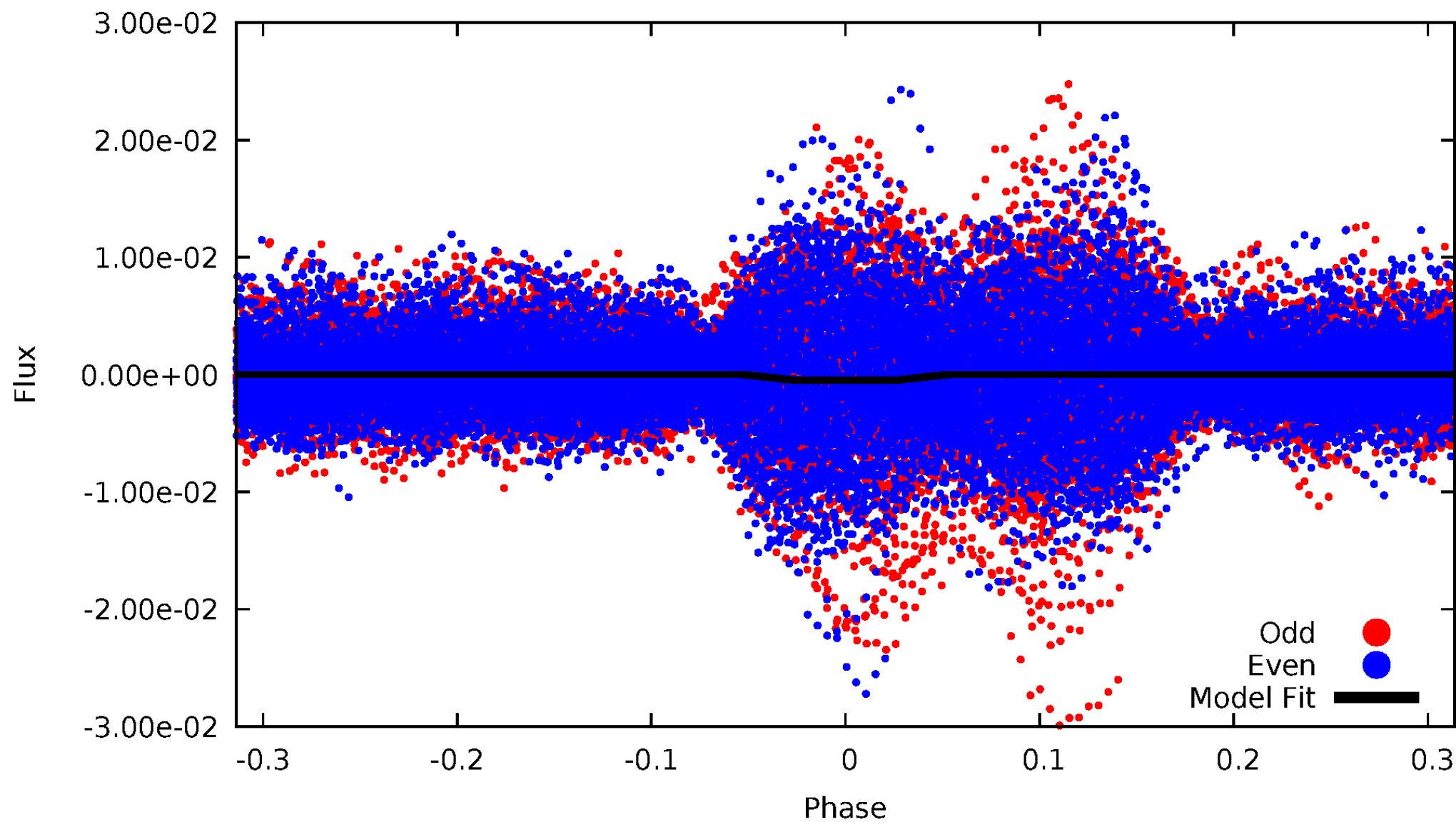
DV Odd/Even

TCE 005985441-01



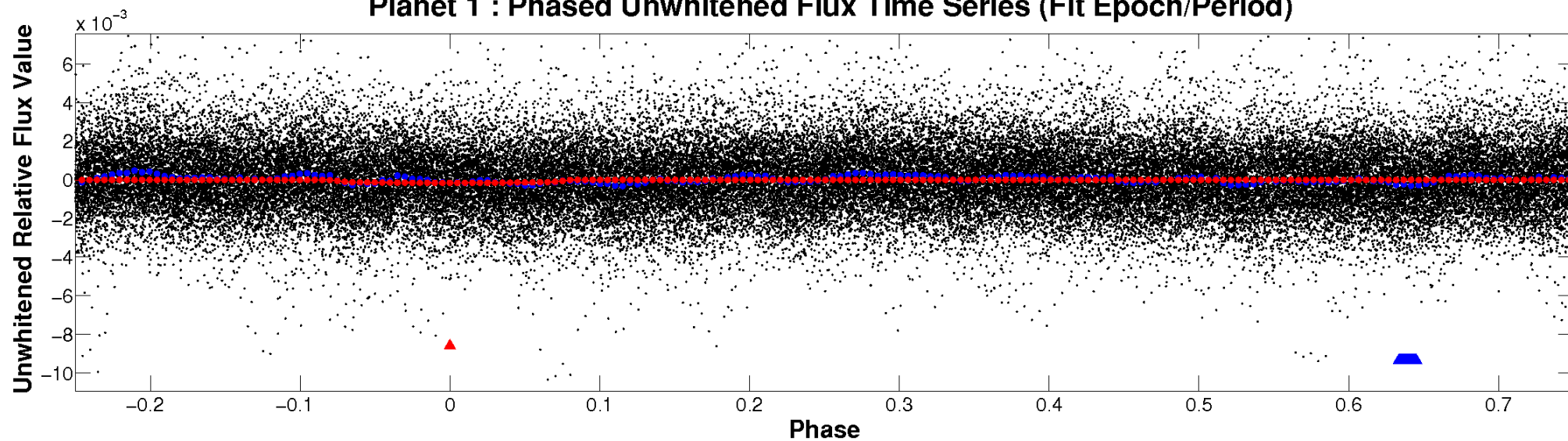
ALT Odd/Even

TCE 005985441-01

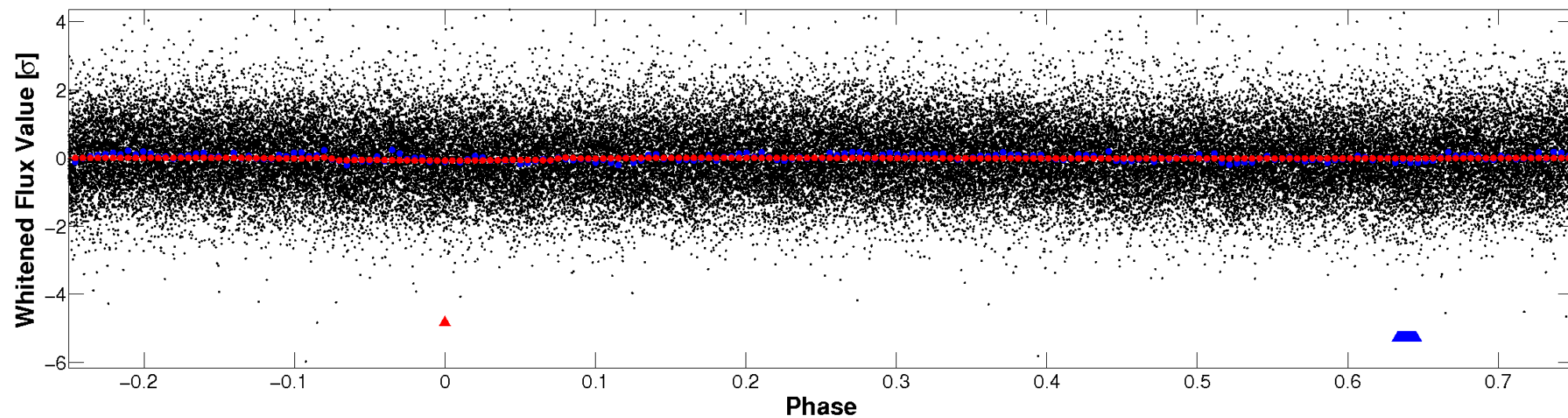


Non-Whitened Vs. Whitened Light Curve

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

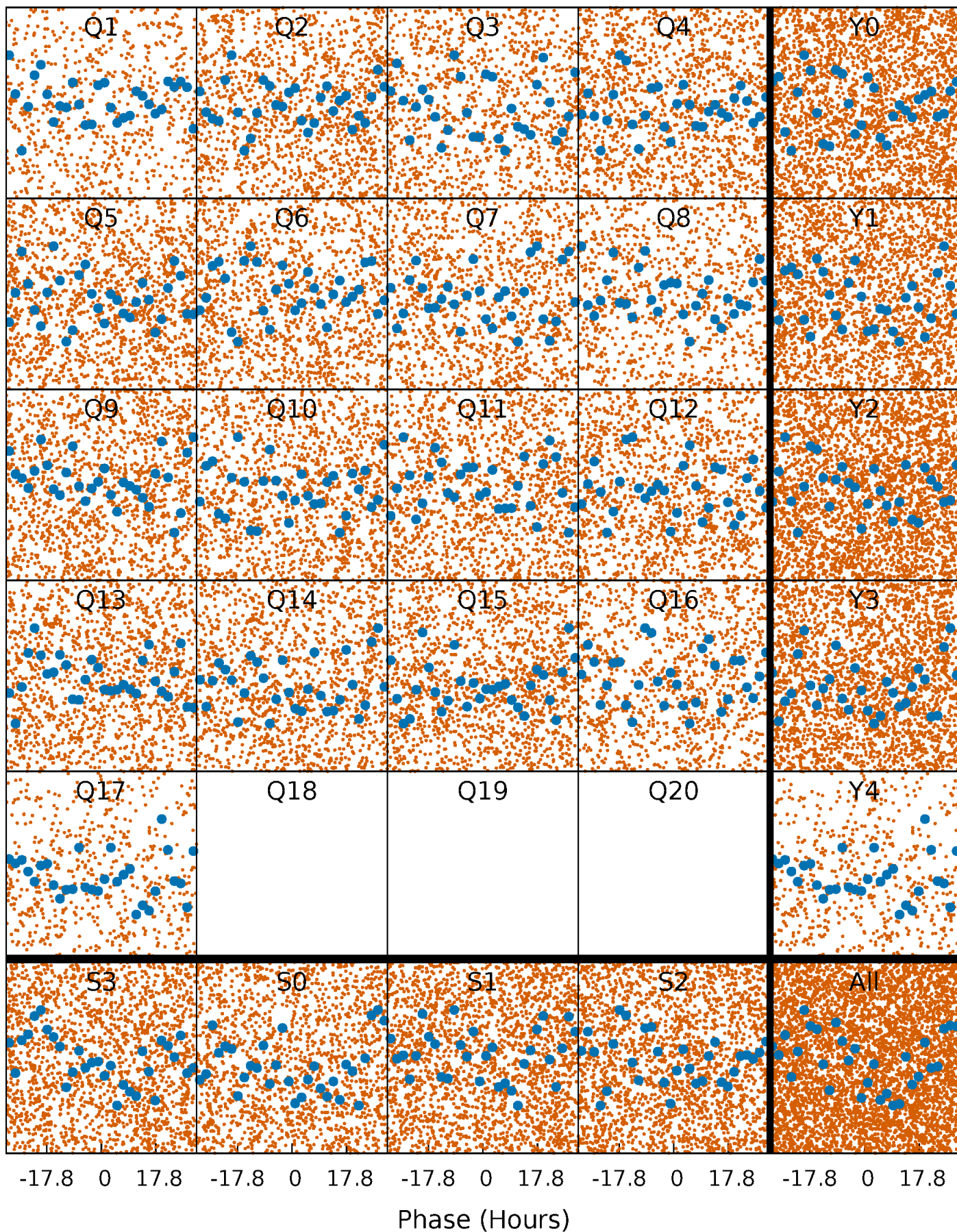


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



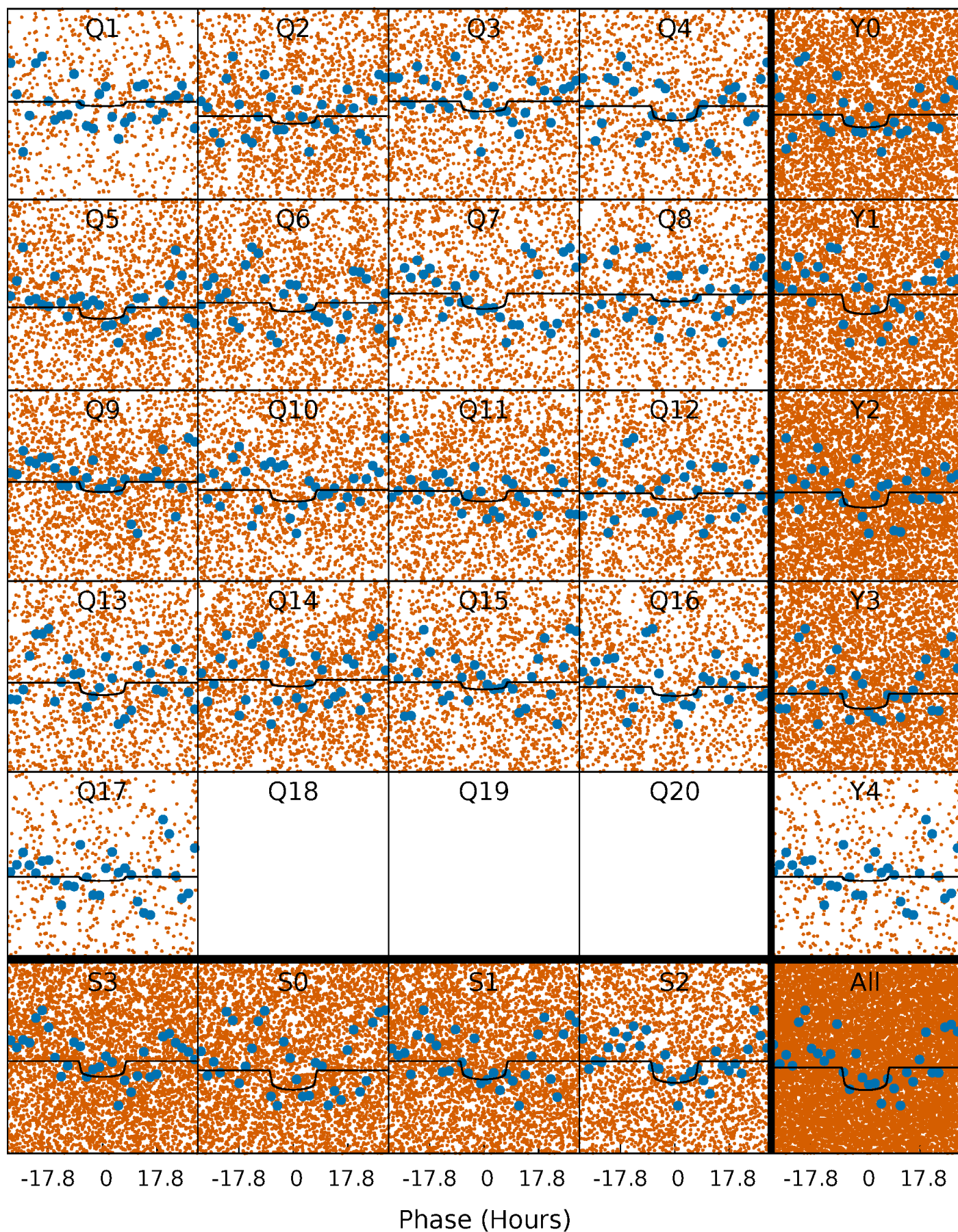
PDC Quarter-Phased Transit Curves

TCE 005985441-01 P= 4.075974 Days $T_0=133.810748$ (BKJD)



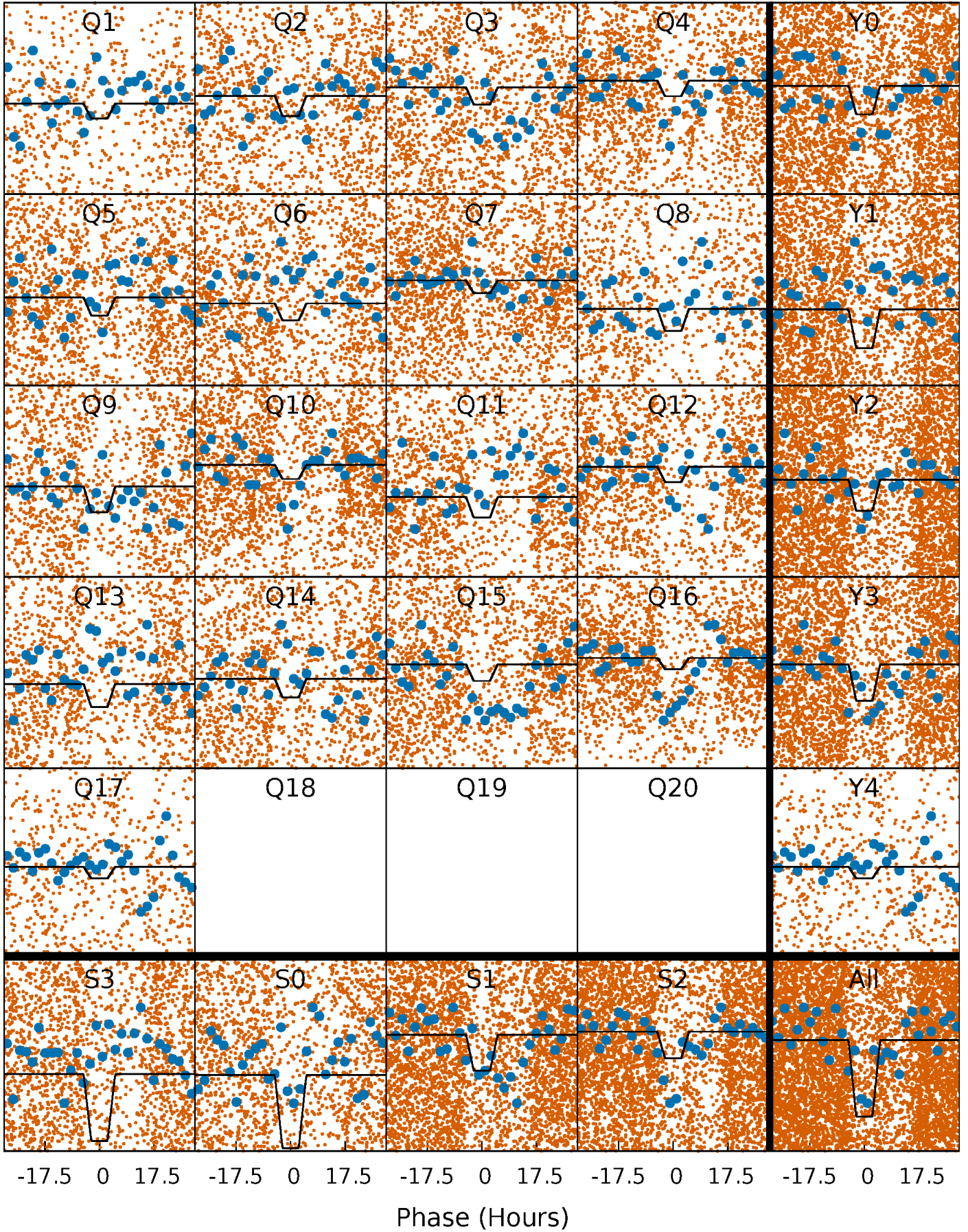
DV Quarter-Phased Transit Curves

TCE 005985441-01 P= 4.075974 Days $T_0=133.810748$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

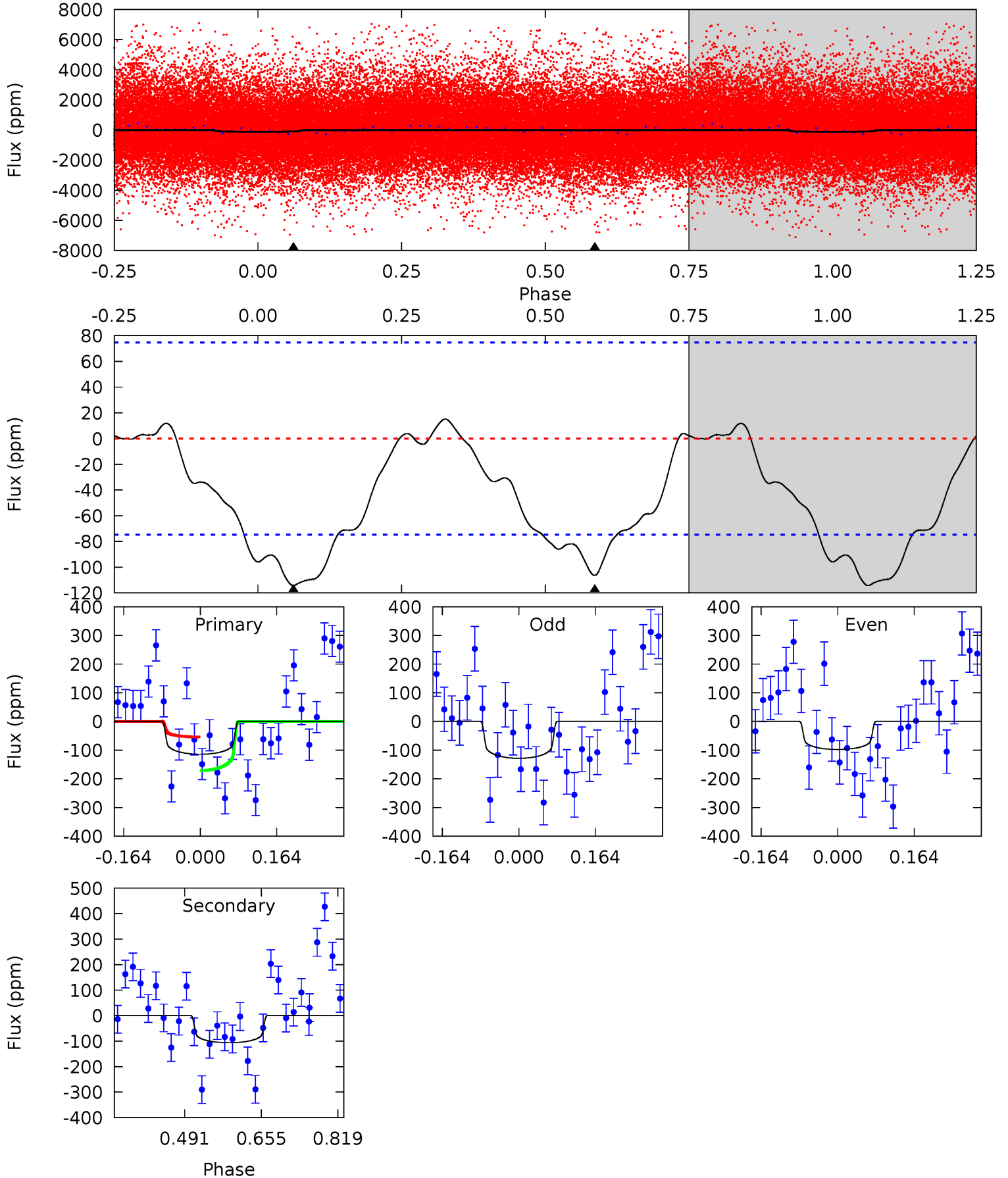
TCE 005985441-01 P= 4.075866 Days $T_0=133.818366$ (BKJD)



DV Model-Shift Uniqueness Test

005985441-01, P = 4.075974 Days, E = 129.734774 Days

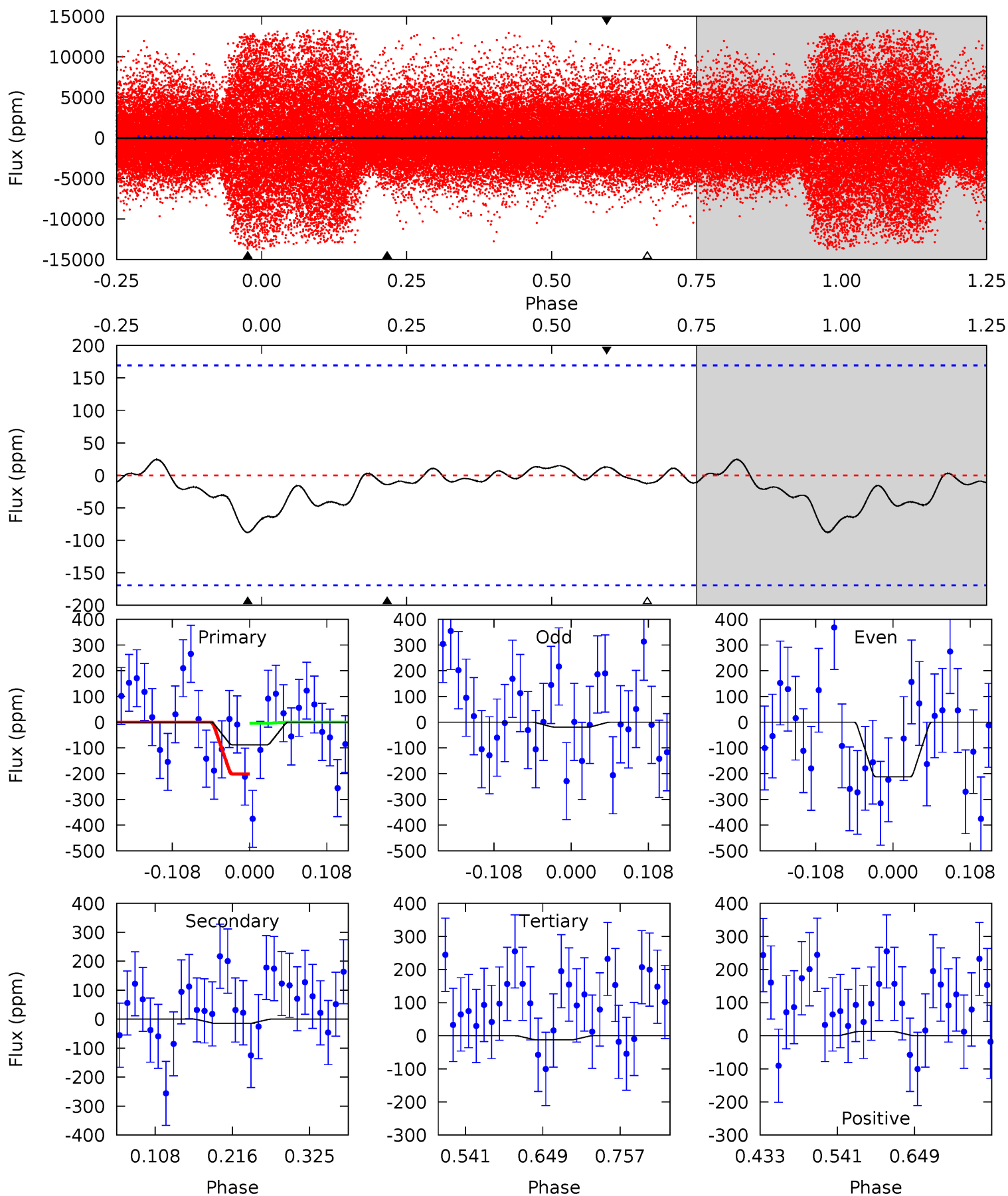
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.82	6.35	0	0	4.46	1.39	0.84	6.82	6.82	6.35	6.35	0.92	0.80	0.12	3.49



Alt Model-Shift Uniqueness Test

005985441-01, P = 4.075866 Days, E = 129.742500 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.36	0.38	0.33	0.34	4.55	1.61	0.35	2.03	2.02	0.05	0.04	2.17	-3.15	0.22	2.77



Stellar Parameters For KIC 005985441

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7004^{+219}_{-329}	$4.341^{+0.058}_{-0.173}$	$-0.220^{+0.300}_{-0.300}$	$1.256^{+0.365}_{-0.156}$	$1.281^{+0.187}_{-0.187}$	$0.910^{+0.281}_{-0.445}$
	+3%/-5%	+1%/-4%	+136%/-136%	+29%/-12%	+15%/-15%	+31%/-49%
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 005985441-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-106 ± 17	$1.84^{+0.34}_{-0.27}$	2119^{+138}_{-116}	6179^{+559}_{-447}	49^{+21}_{-14}
Alt.	-14 ± 37	$3.10^{+0.47}_{-0.35}$	2124^{+140}_{-118}	3362^{+858}_{-7069}	$2.382^{+6.035}_{-6.131}$

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 $A_{obs} \gg 1.0$

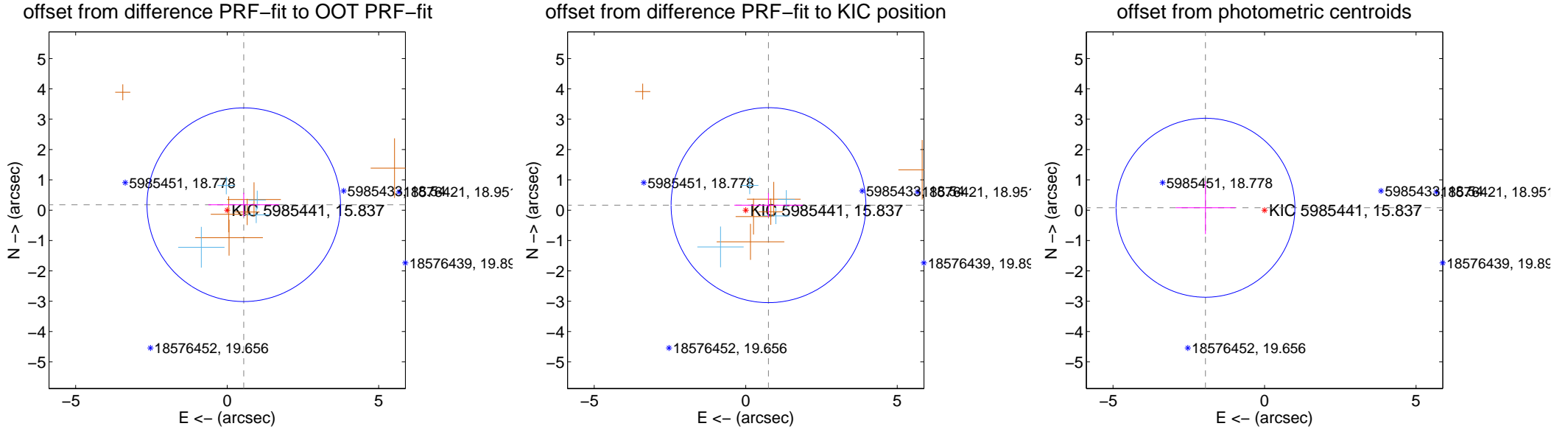
DV Centroid Data

Supplemental centroid analysis for 005985441-01. Kepler magnitude: 15.84. Transit SNR 6.04

There are 4 quarters with good PRF difference image offsets

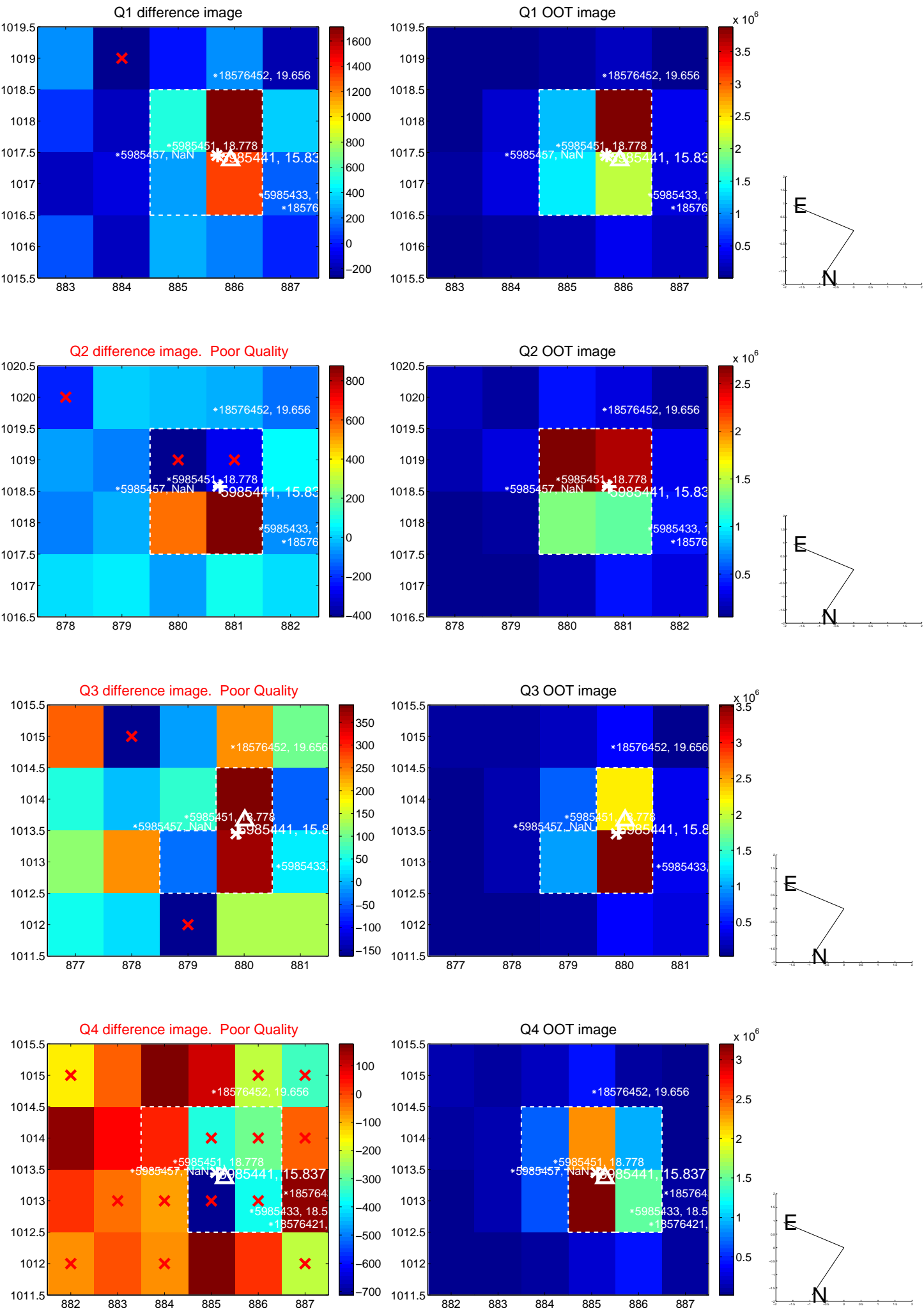
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.577 ± 1.064	0.54	-0.548 ± 1.166	0.181 ± 0.394
PRF-fit source offset from KIC position	0.769 ± 1.071	0.72	-0.751 ± 1.125	0.167 ± 0.400
photometric centroid source offset	1.95 ± 0.98	1.98	1.95 ± 0.98	0.08 ± 0.87

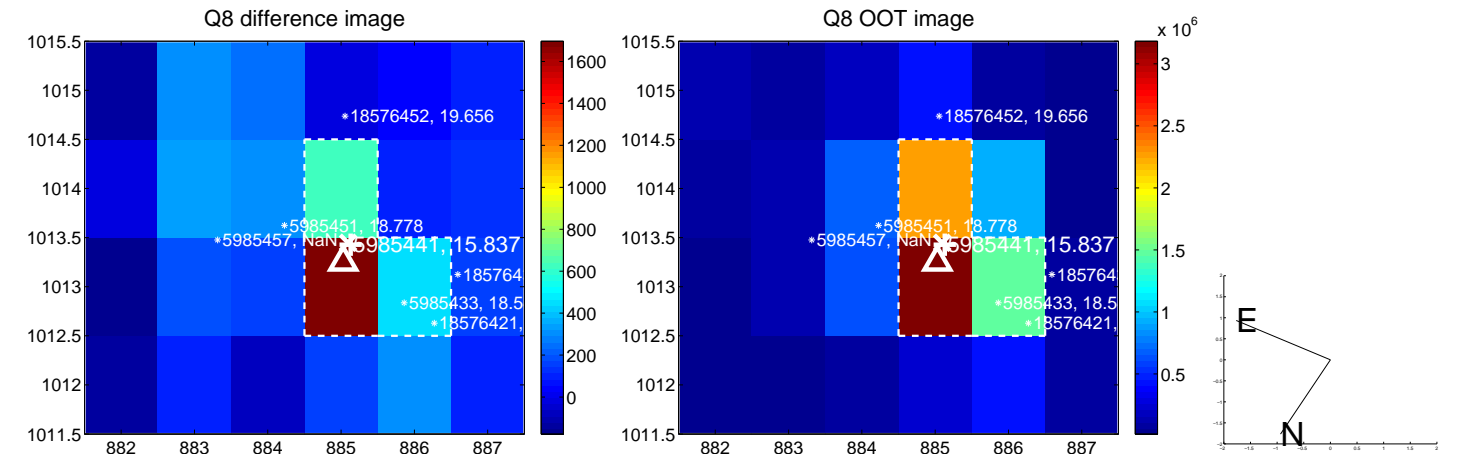
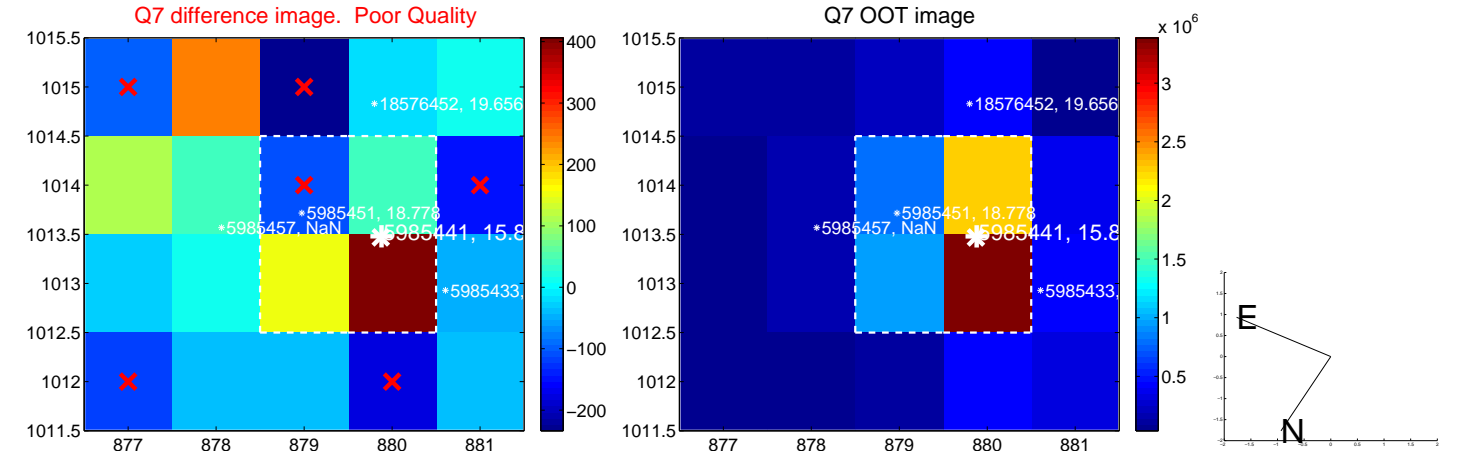
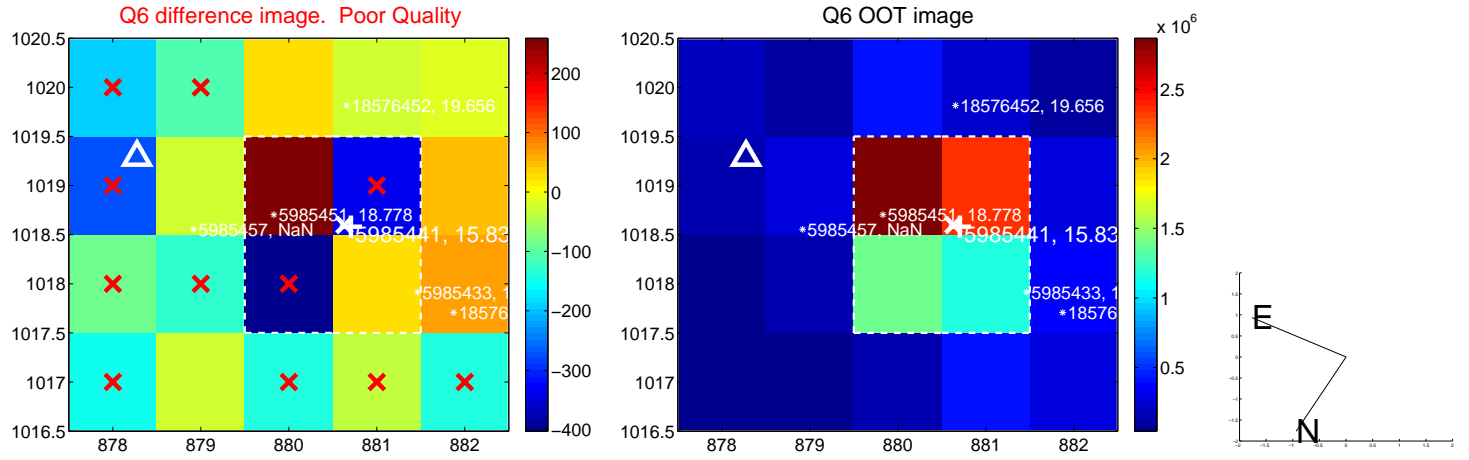
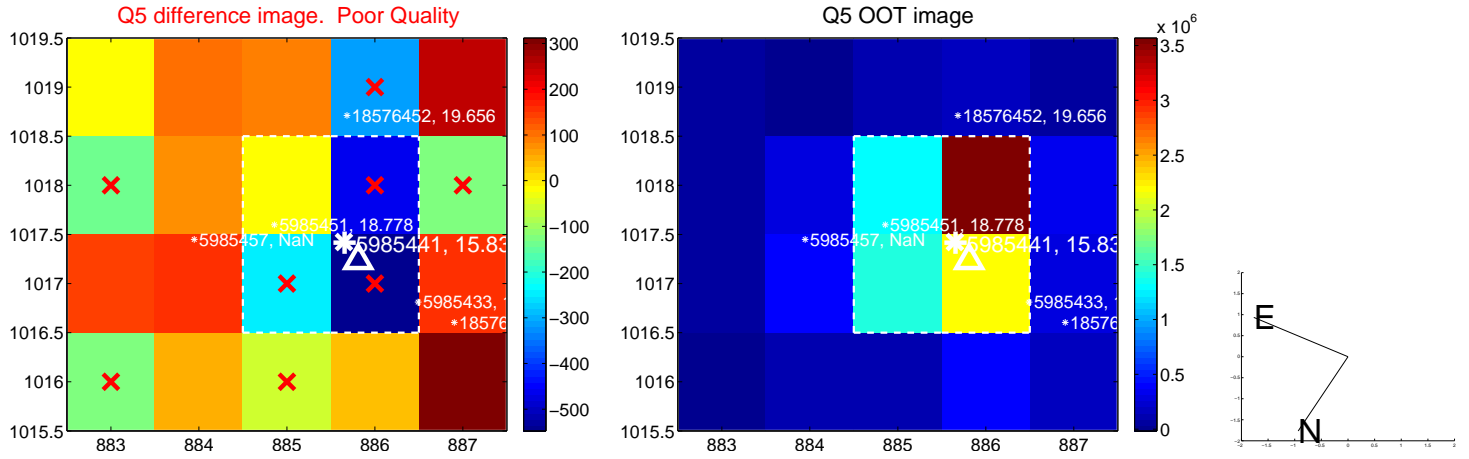


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

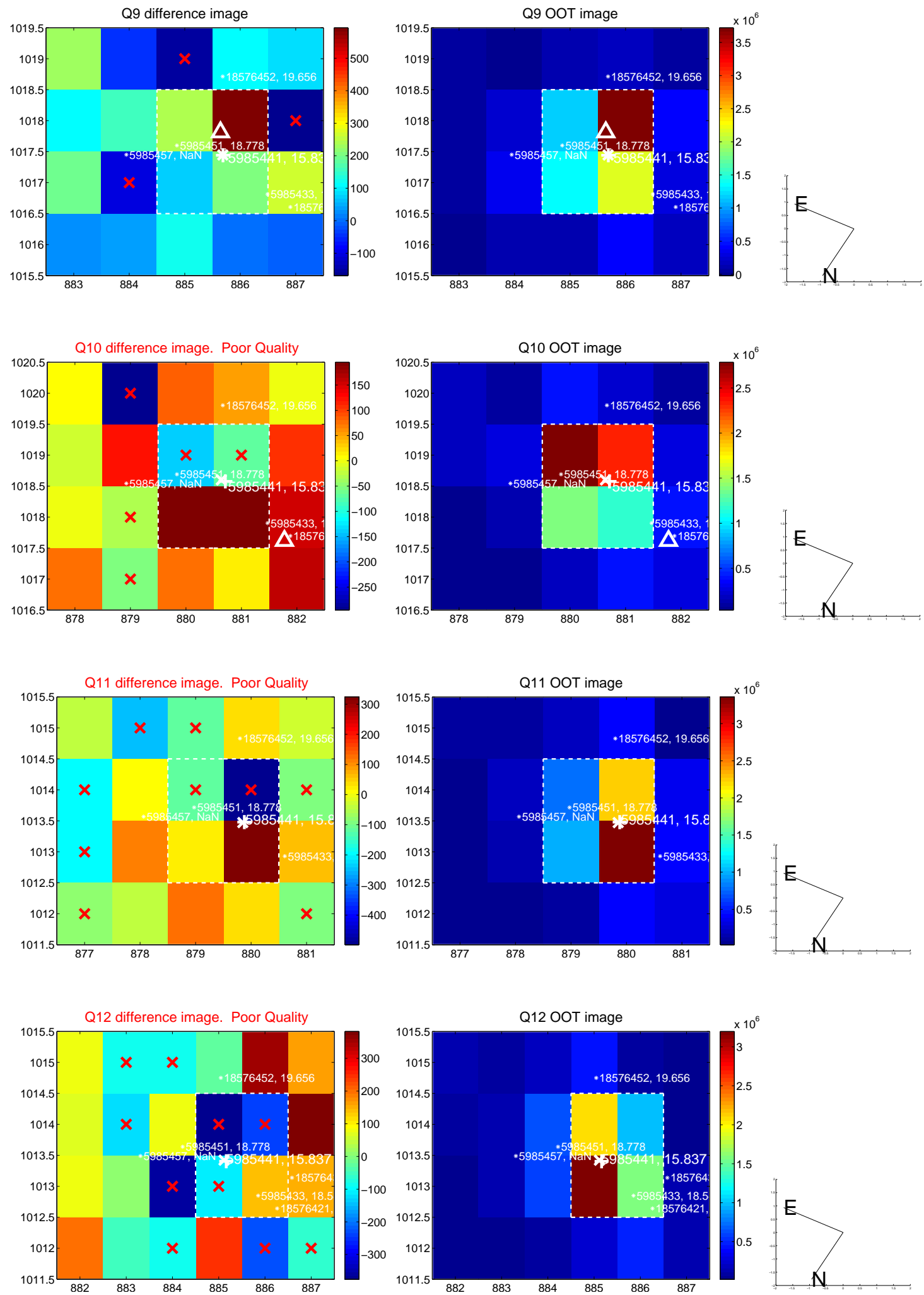
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



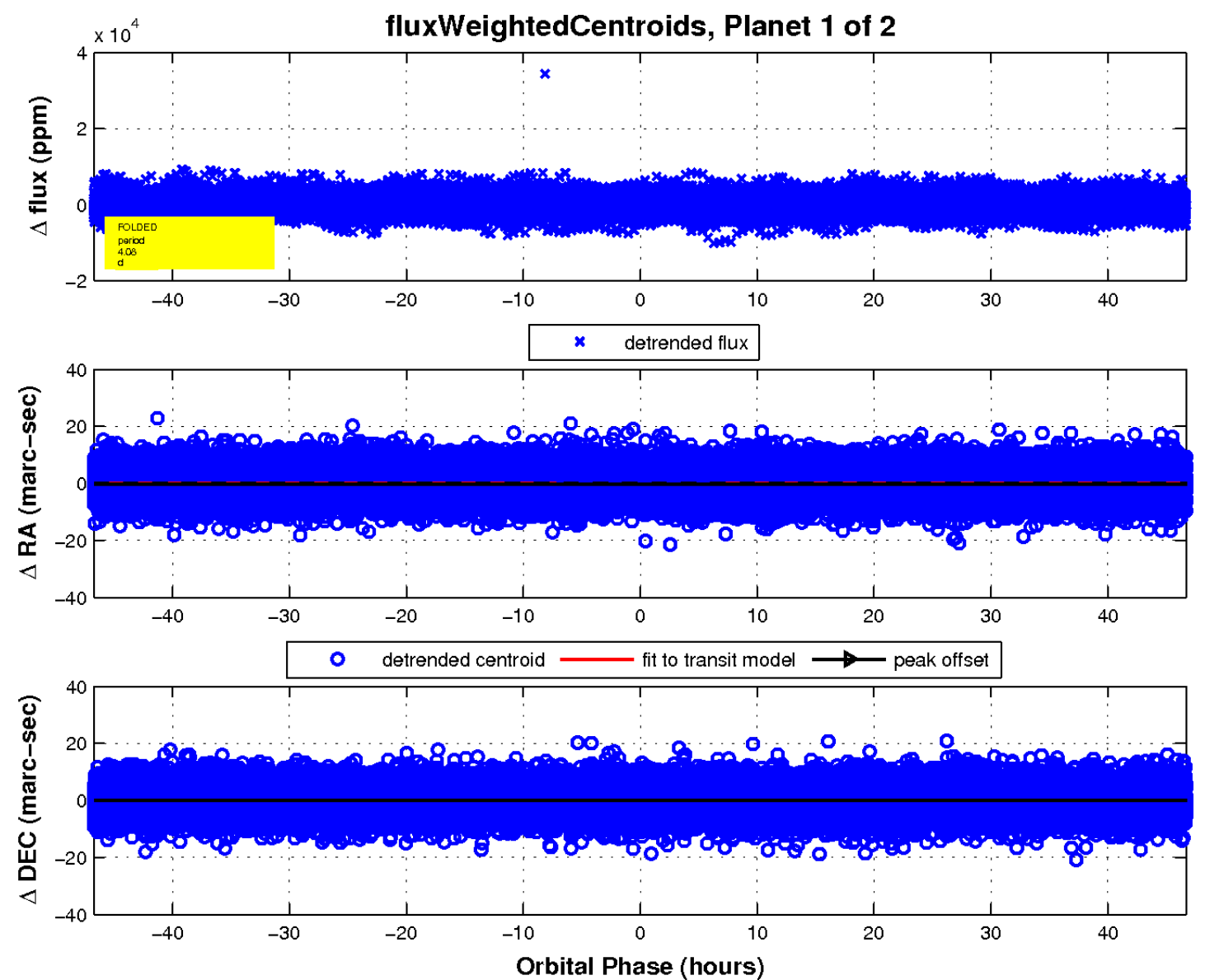
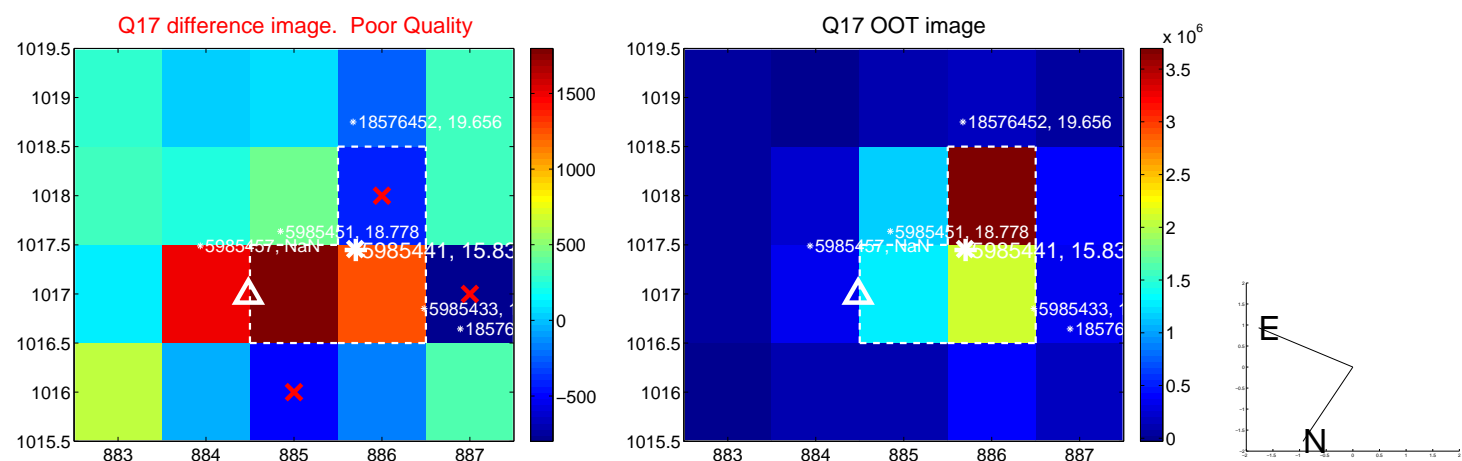
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

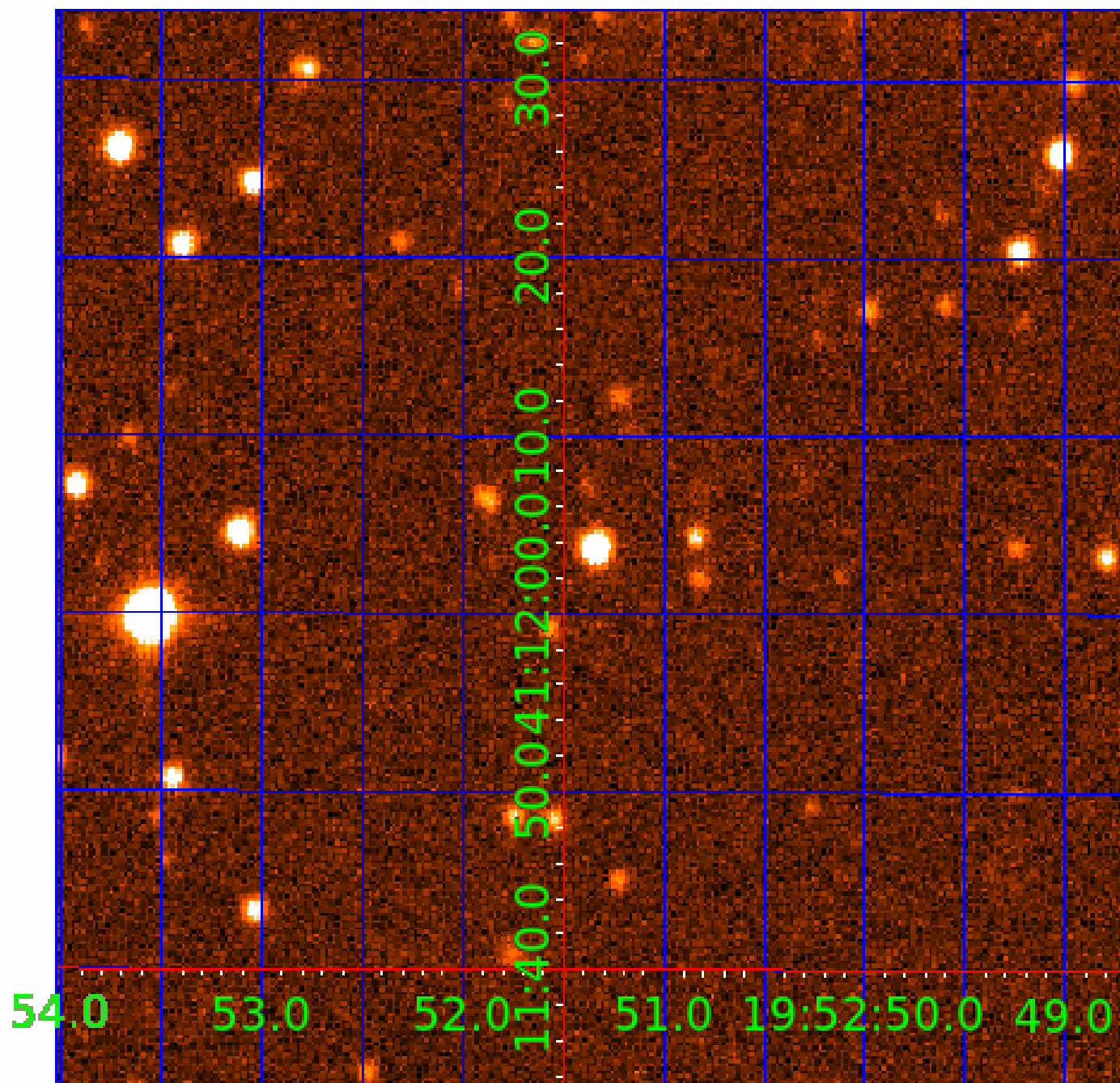


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005985441

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})
005985441-01	OBS	No	4.075974	133.810748	150.1	15.578	9.3	6.0	1.26	7004	1.76	1167.61
005985441-02	OBS	No	4.075838	132.364852	386.9	5.911	8.1	8.1	1.26	7004	3.94	1167.66

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005985441-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005985441-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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

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

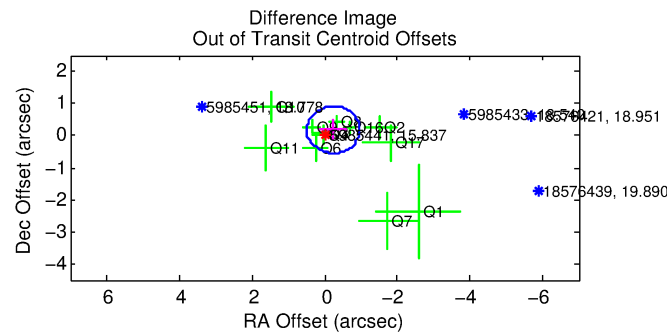
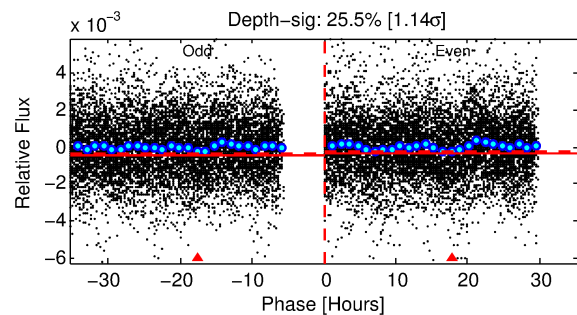
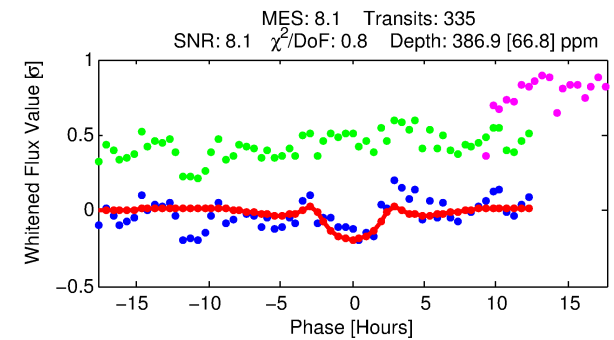
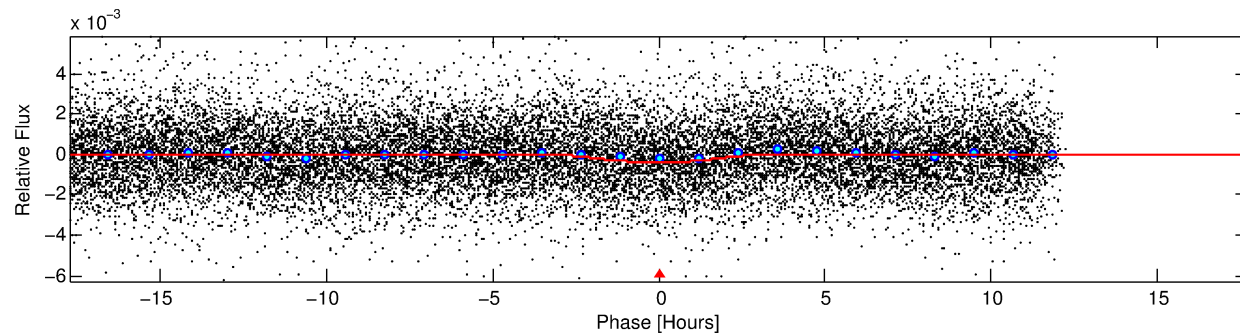
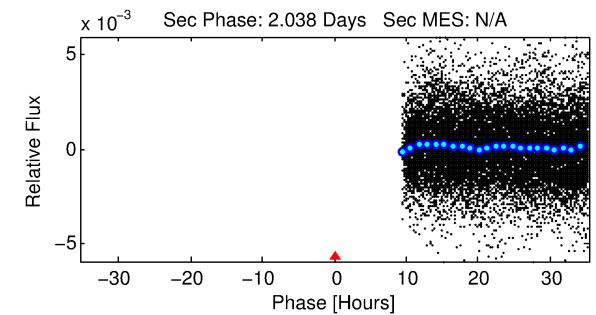
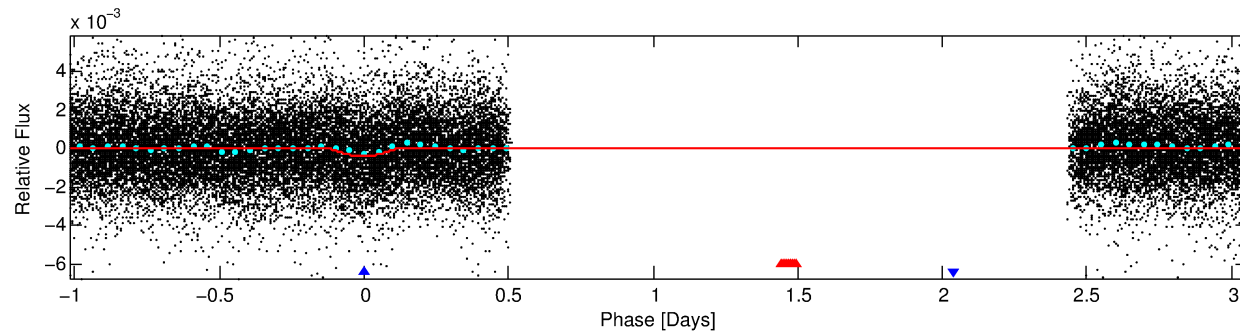
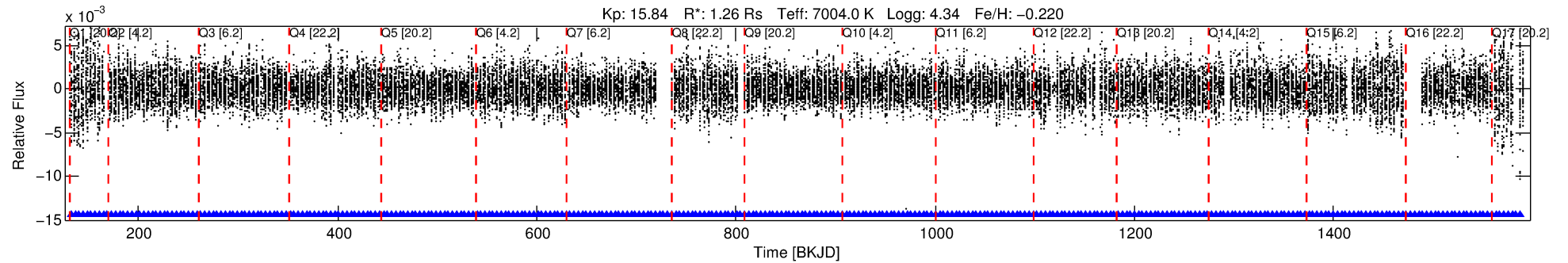
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005985441-02

No Significant Match Found

DV One-Page Summary

KIC: 5985441 Candidate: 2 of 2 Period: 4.076 d



DV Fit Results:

Period = 4.07584 [0.00007] d
Epoch = 132.3649 [0.0129] BKJD
Rp/R* = 0.0287 [0.0287]
a/R* = 1.77 [0.42]
b = 0.99 [0.05]
Seff = 1167.66 [442.11]
Teq = 1491 [141] K
Rp = 3.94 [4.10] Re
a = 0.0540 [0.0127] AU

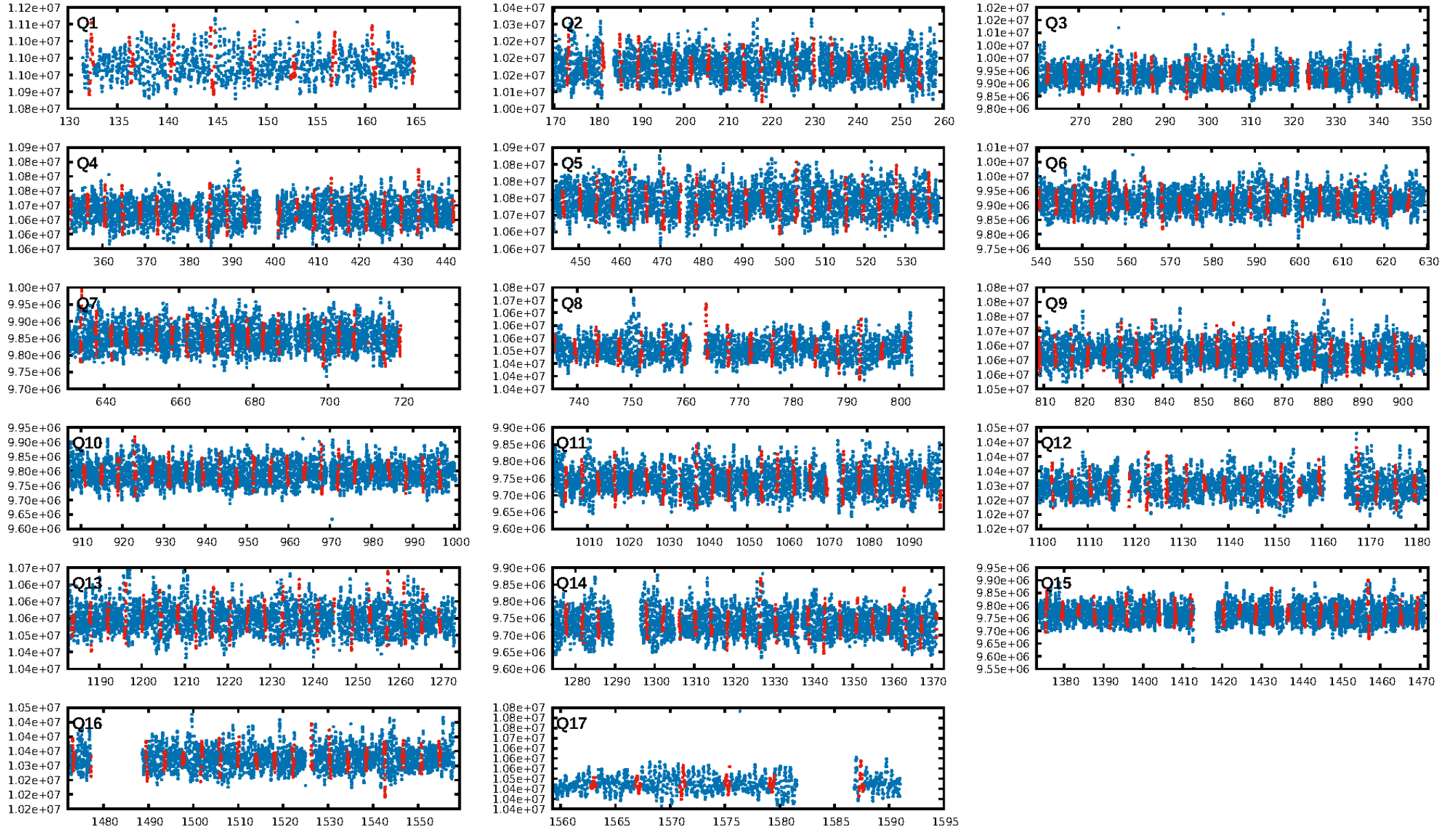
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.54e-16
RollingBand-fgt: 1.00 [320/320]
GhostDiagnostic-chr: 2.188
Centroid-sig: 4.6%
Centroid-so: 1.251 arcsec [1.65σ]
OotOffset-rm: 0.296 arcsec [1.22σ]
KicOffset-rm: 0.407 arcsec [1.40σ]
OotOffset-st: 3/3/3 [12]
KicOffset-st: 3/3/3 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [17/17]

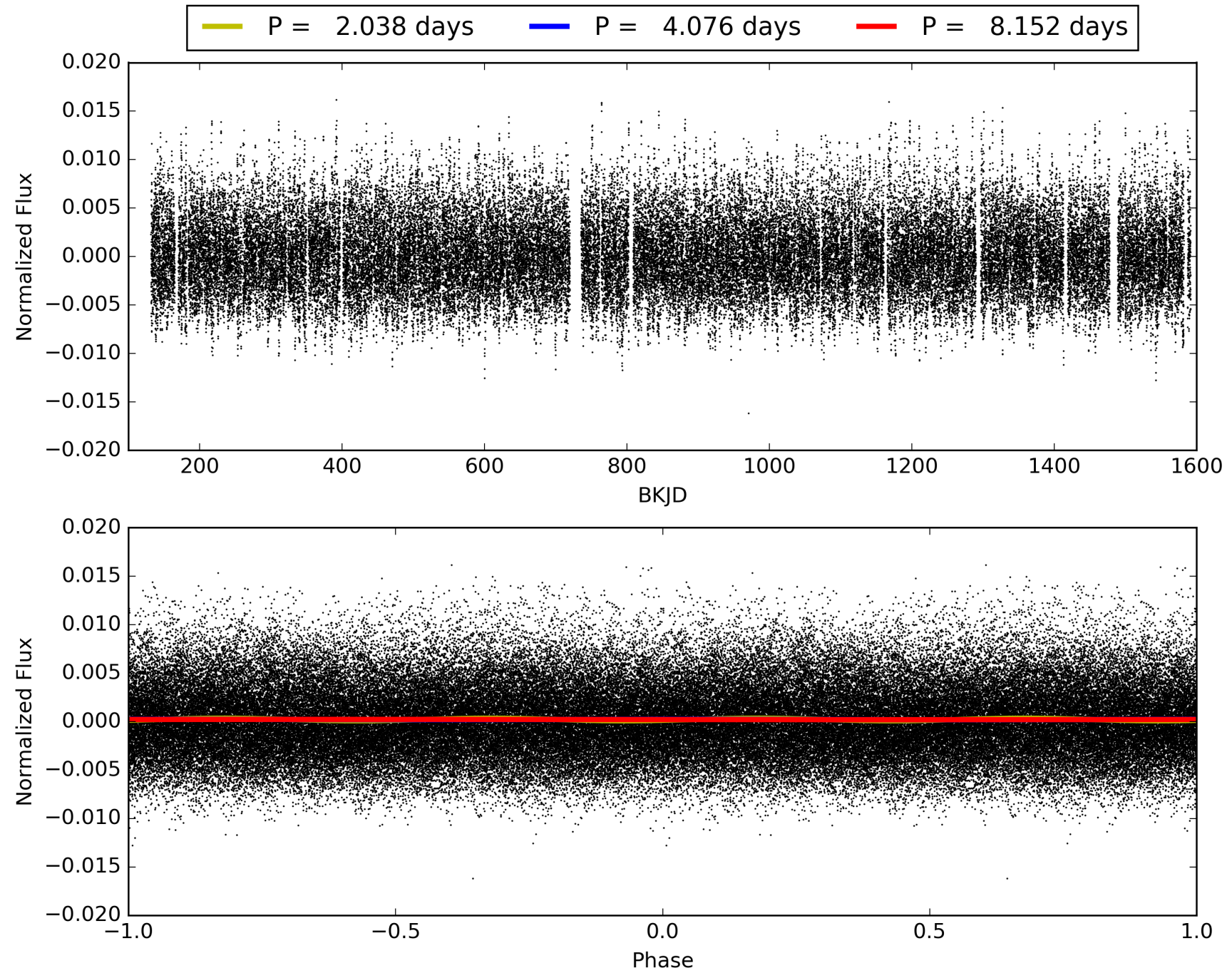
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:38:40 Z

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

TCE 005985441-02, PDC Light Curves

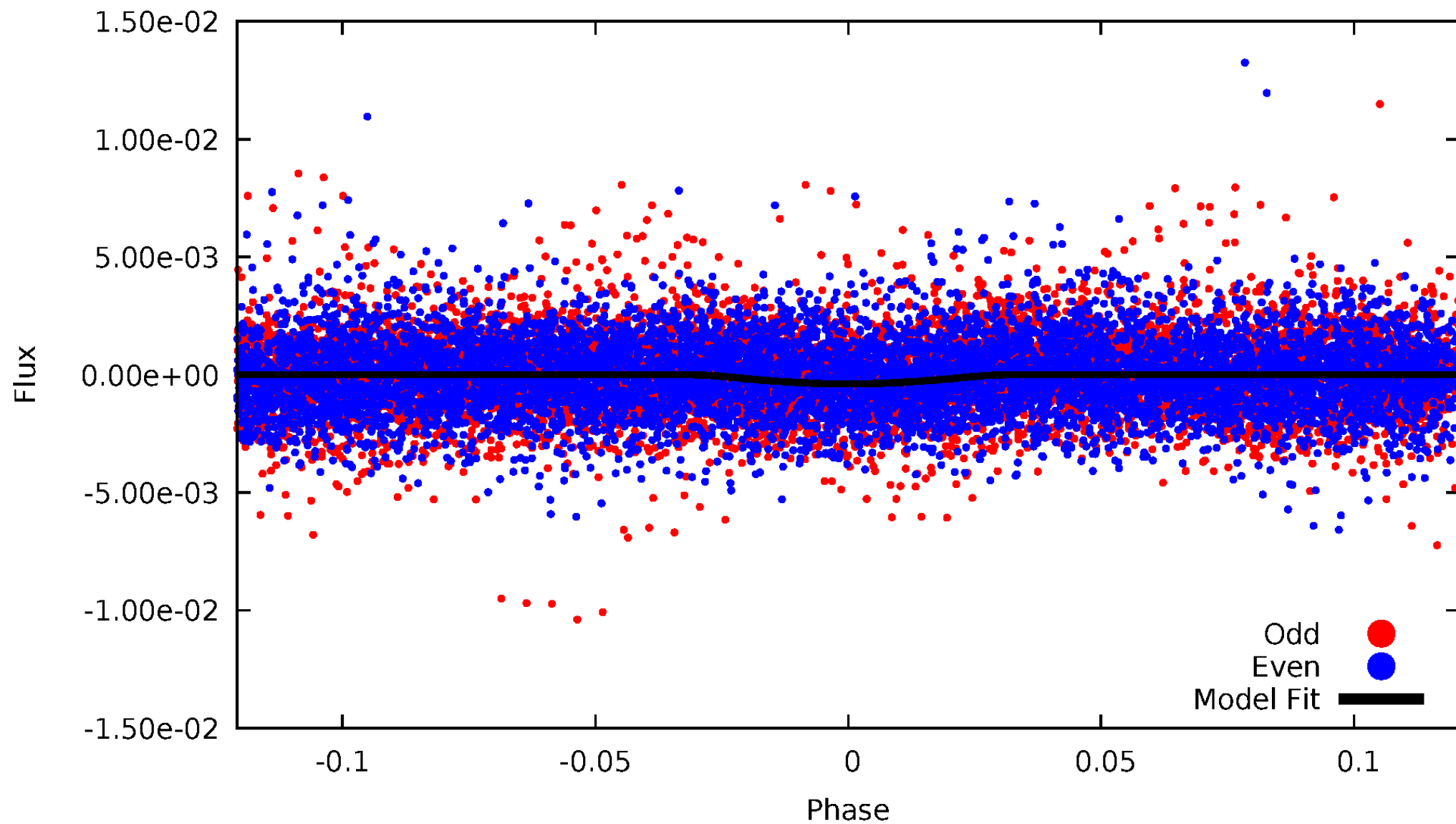


TCE 005985441-02



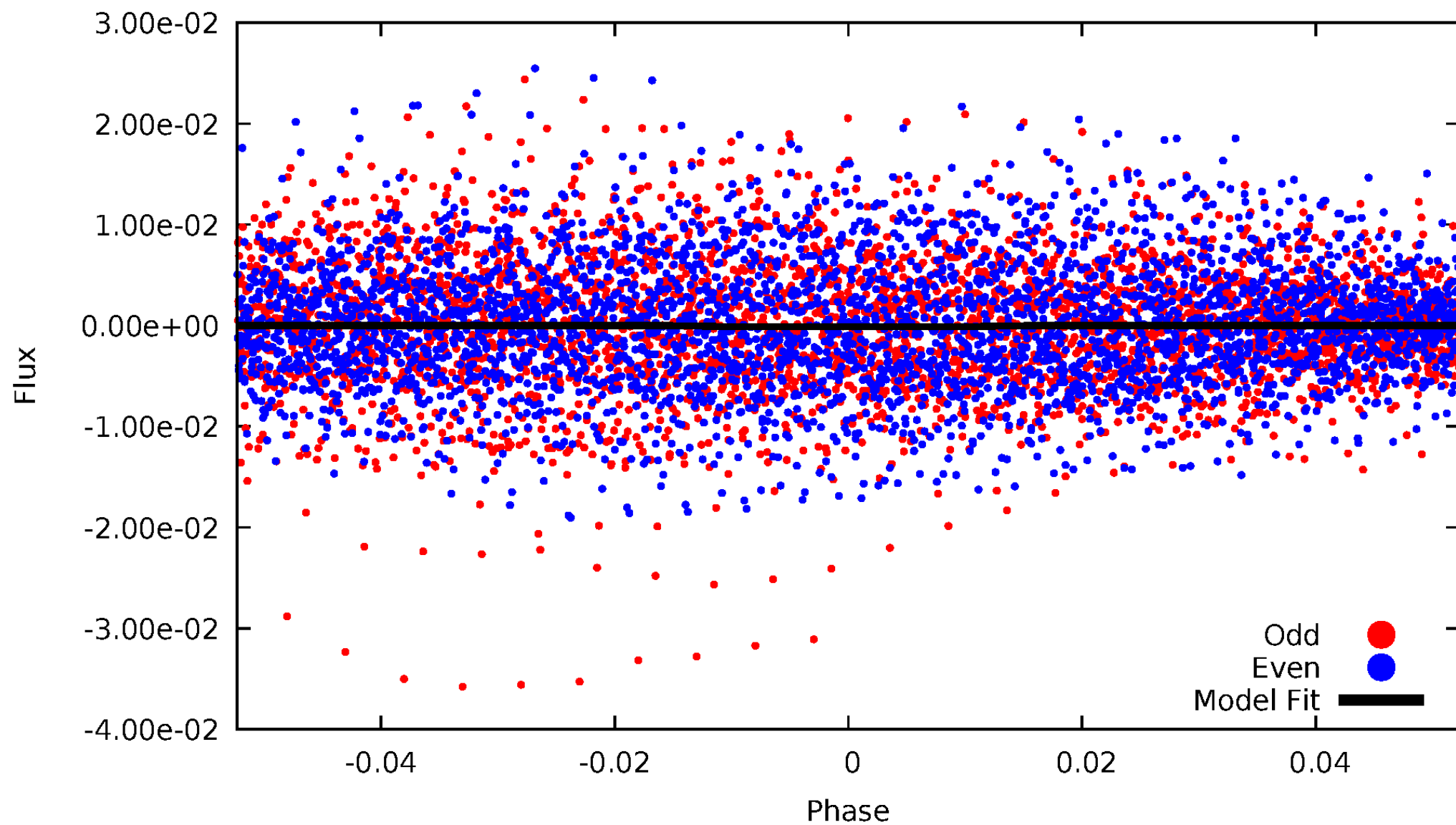
DV Odd/Even

TCE 005985441-02



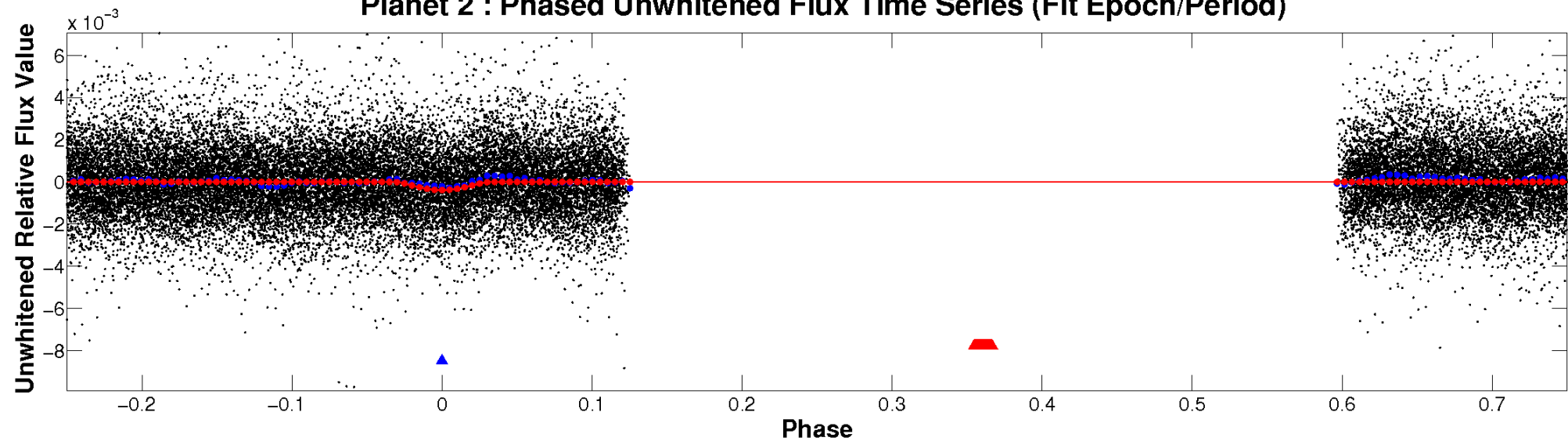
ALT Odd/Even

TCE 005985441-02

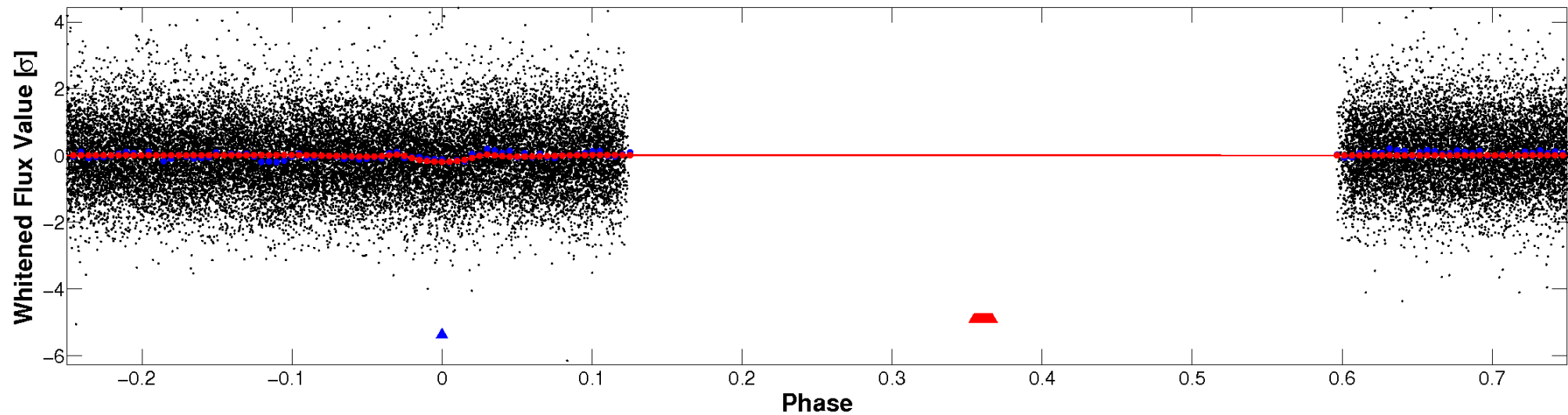


Non-Whitened Vs. Whitened Light Curve

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

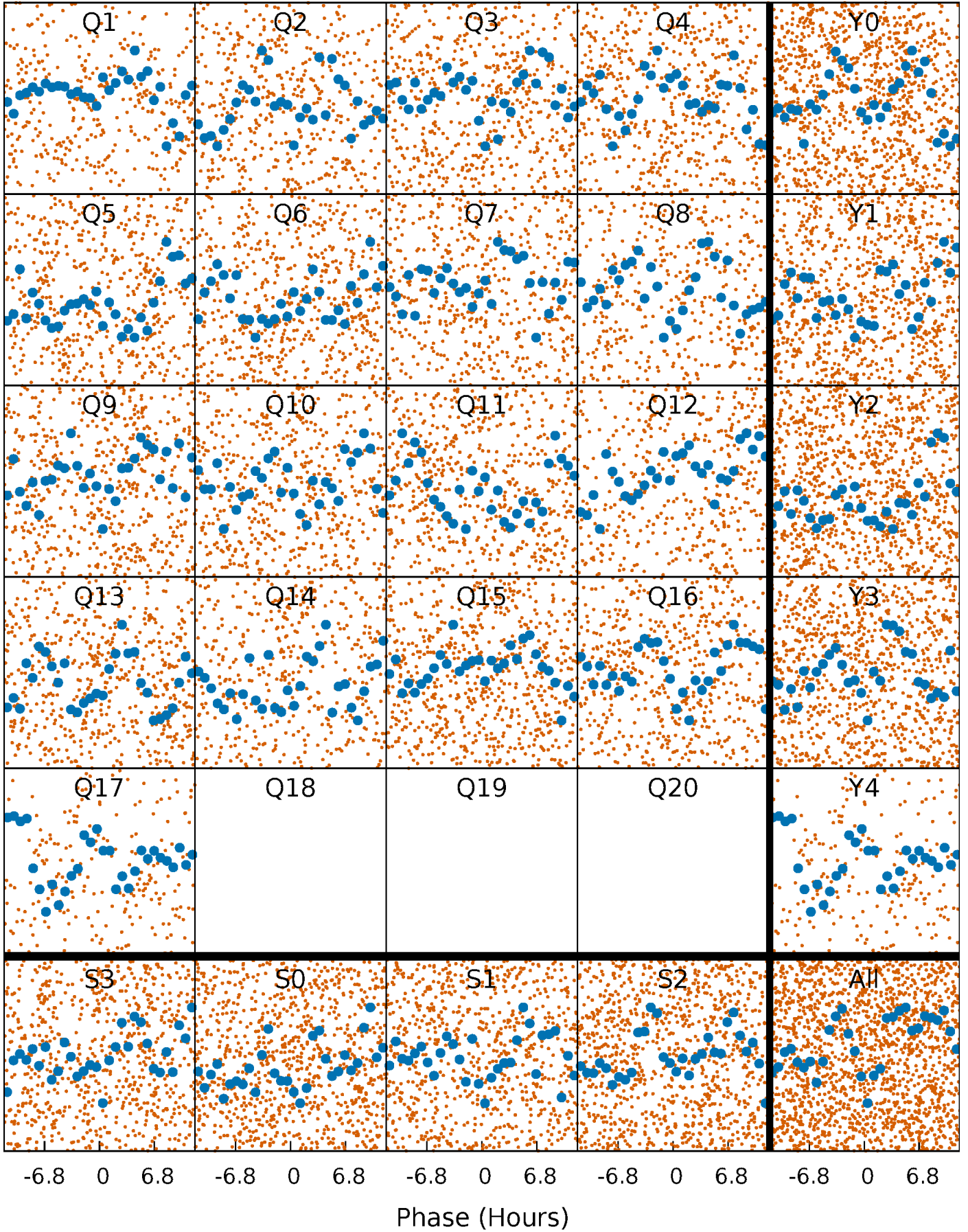


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



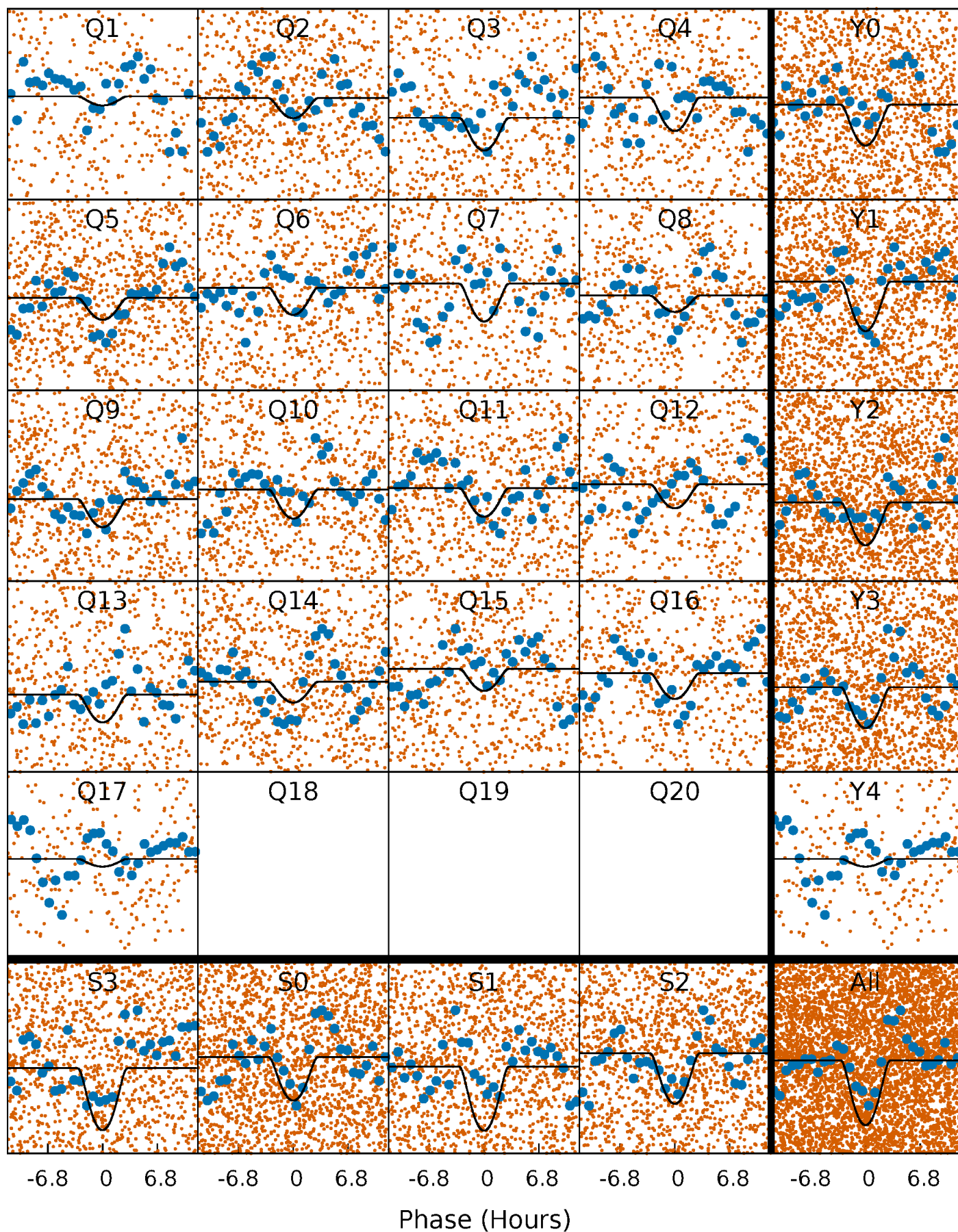
PDC Quarter-Phased Transit Curves

TCE 005985441-02 P= 4.075838 Days $T_0=132.364852$ (BKJD)



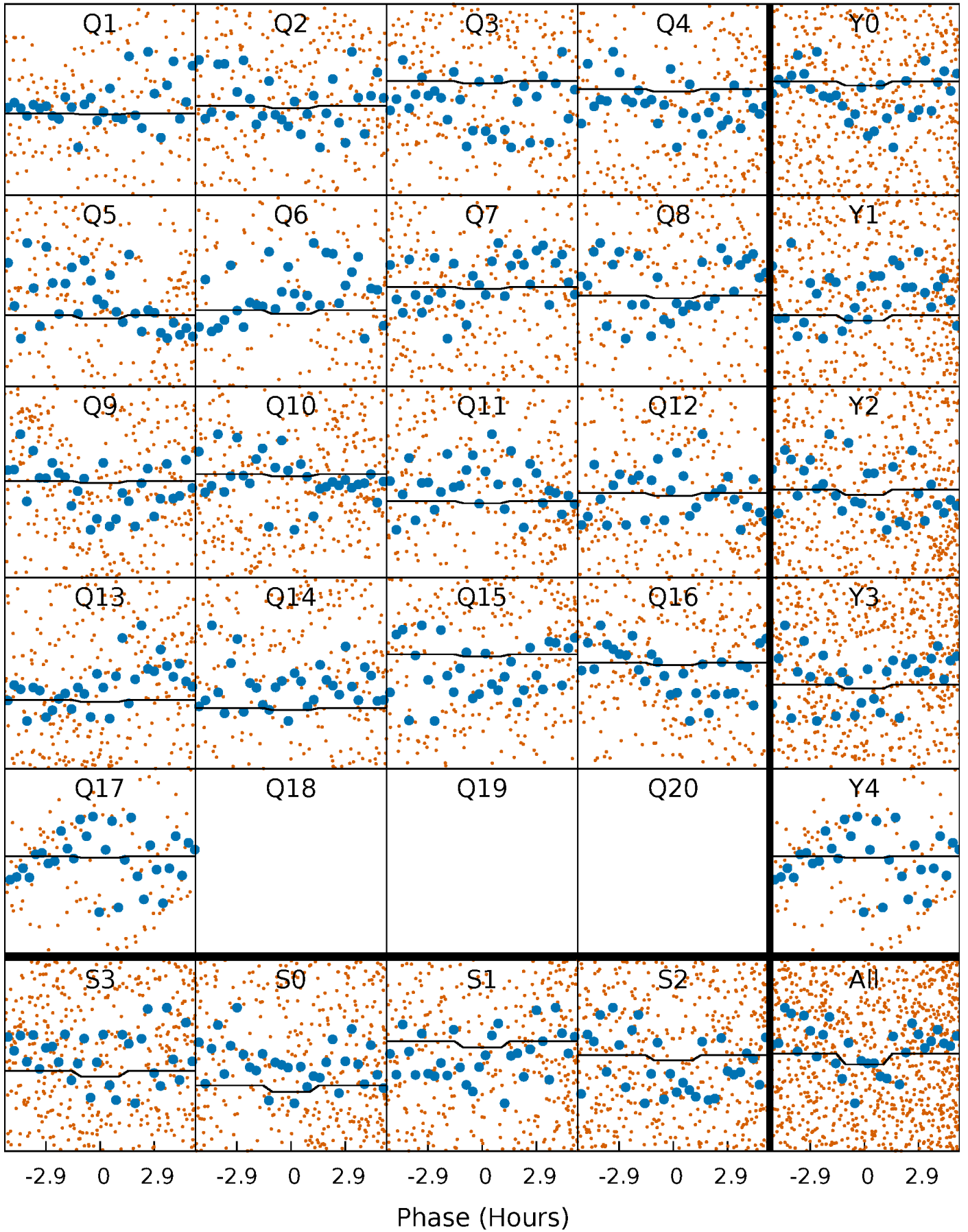
DV Quarter-Phased Transit Curves

TCE 005985441-02 P= 4.075838 Days $T_0=132.364852$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

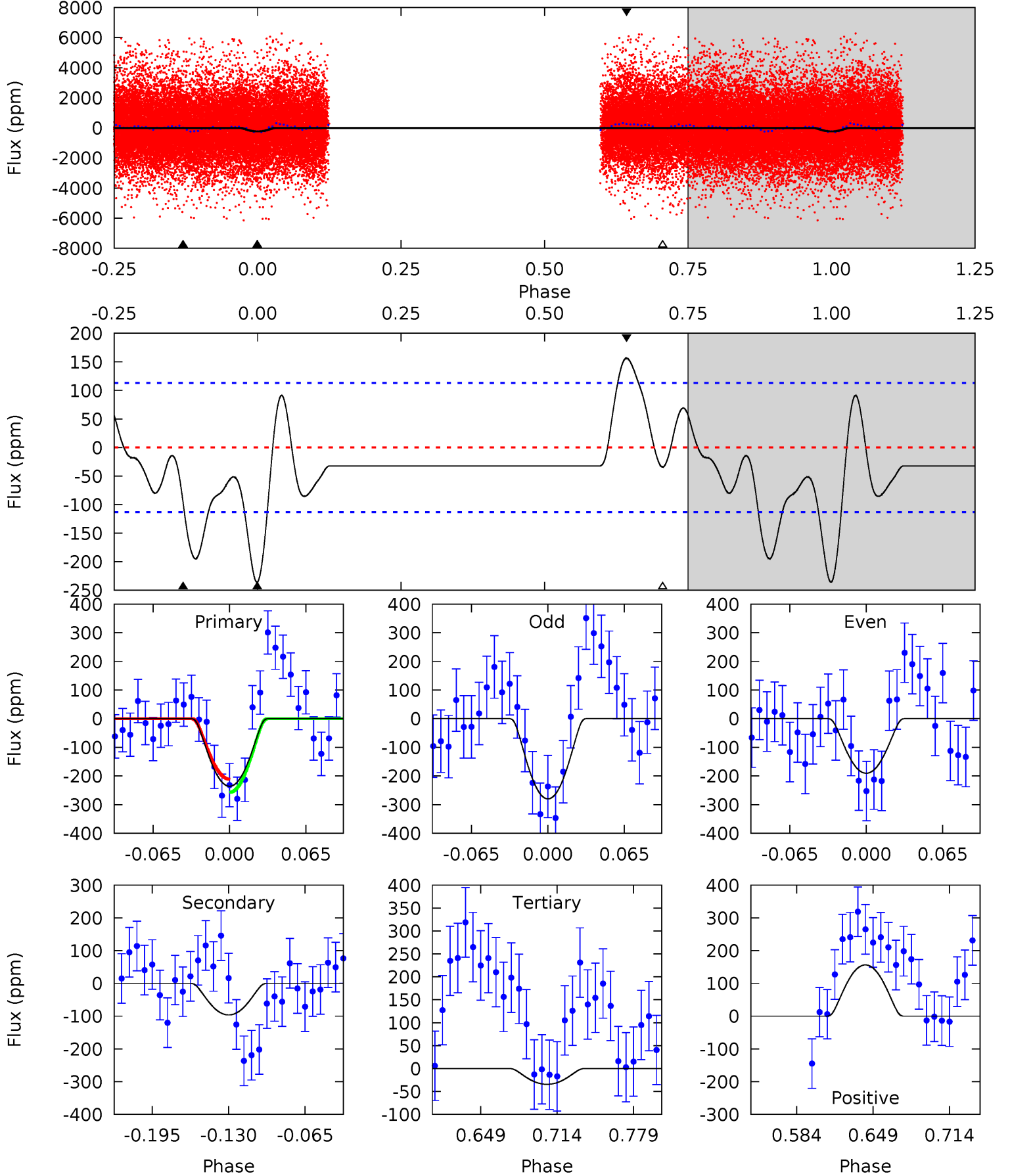
TCE 005985441-02 P= 4.075866 Days $T_0=132.370665$ (BKJD)



DV Model-Shift Uniqueness Test

005985441-02, P = 4.075838 Days, E = 128.289014 Days

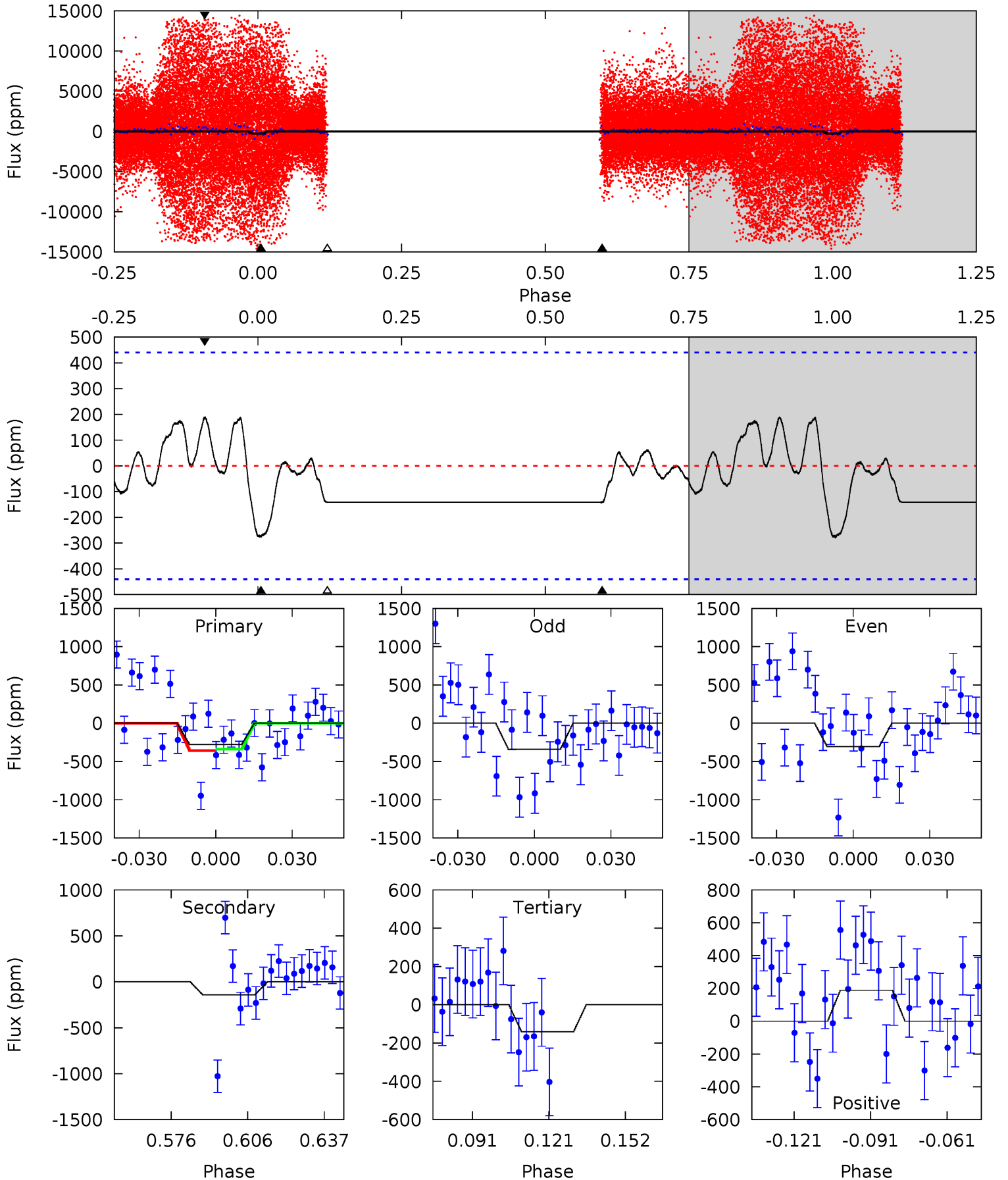
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.71	3.97	1.42	6.44	4.65	1.85	2.86	8.29	3.27	2.55	-2.47	1.85	0.82	0.40	0.95



Alt Model-Shift Uniqueness Test

005985441-02, P = 4.075866 Days, E = 128.294799 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.04	1.55	1.54	2.06	4.81	2.17	0.82	1.49	0.98	0.01	-0.51	0.19	0.45	0.41	0.10



Stellar Parameters For KIC 005985441

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7004^{+219}_{-329}	$4.341^{+0.058}_{-0.173}$	$-0.220^{+0.300}_{-0.300}$	$1.256^{+0.365}_{-0.156}$	$1.281^{+0.187}_{-0.187}$	$0.910^{+0.281}_{-0.445}$
	+3%/-5%	+1%/-4%	+136%/-136%	+29%/-12%	+15%/-15%	+31%/-49%
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 005985441-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-96 ± 24	$4.96^{+3.78}_{-2.98}$	2118^{+128}_{-117}	3961^{+1847}_{-752}	$6.110^{+31.514}_{-4.219}$
Alt.	-142 ± 92	$3.33^{+3.23}_{-2.24}$	2123^{+139}_{-134}	4888^{+4472}_{-1323}	19^{+181}_{-15}

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 $A_{obs} \gg 1.0$

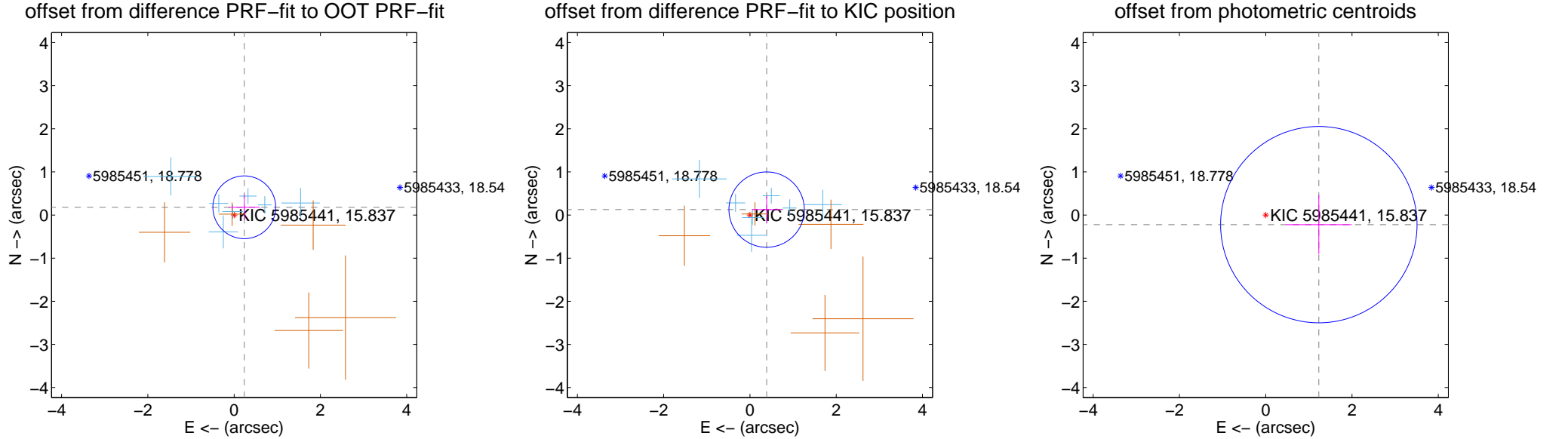
DV Centroid Data

Supplemental centroid analysis for 005985441-02. Kepler magnitude: 15.84. Transit SNR 8.09

There are 7 quarters with good PRF difference image offsets

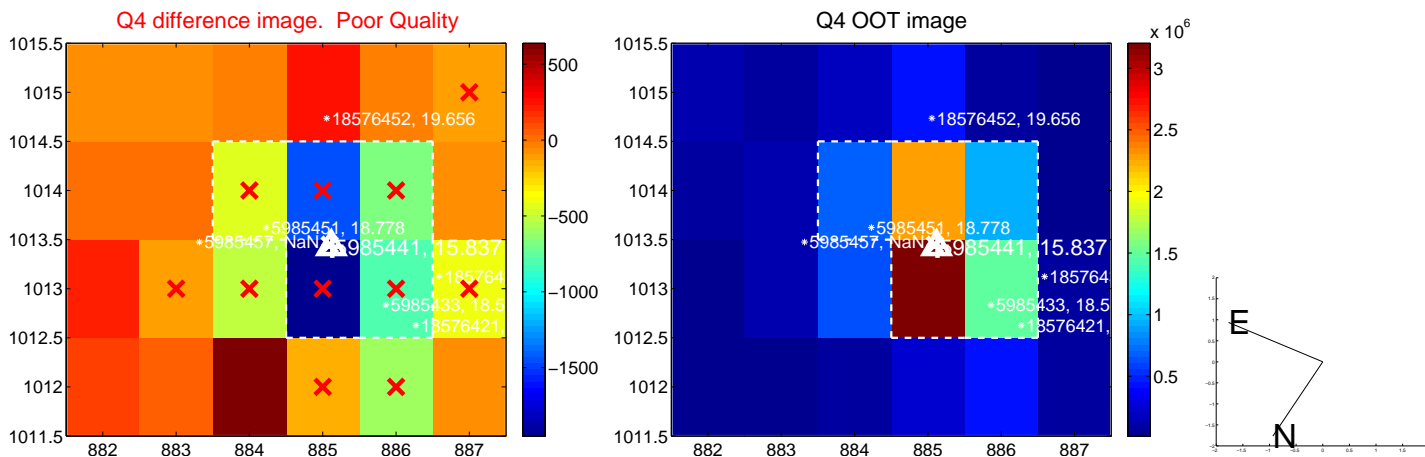
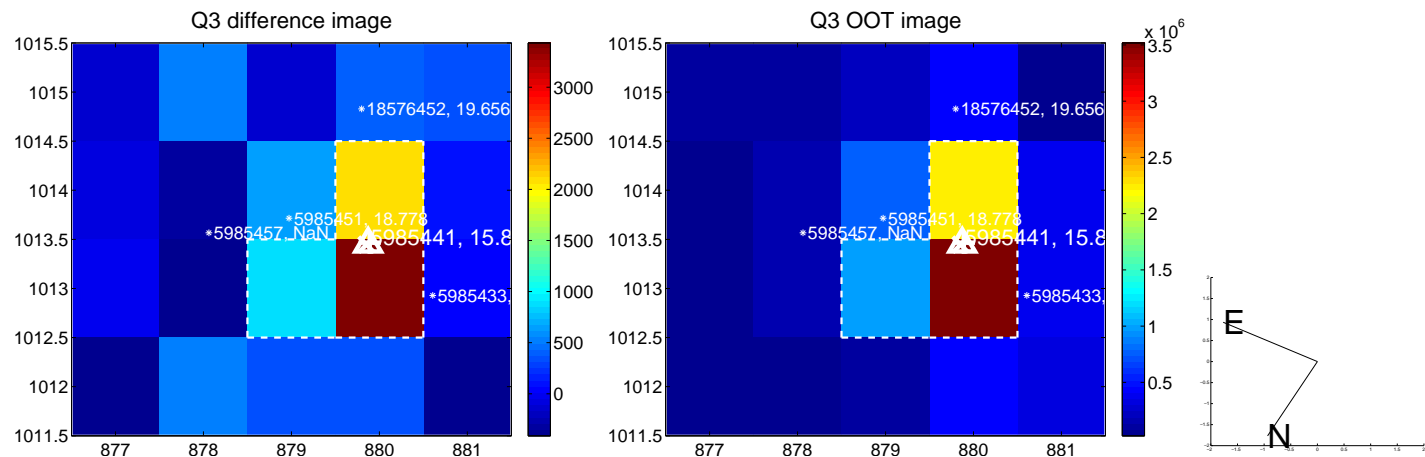
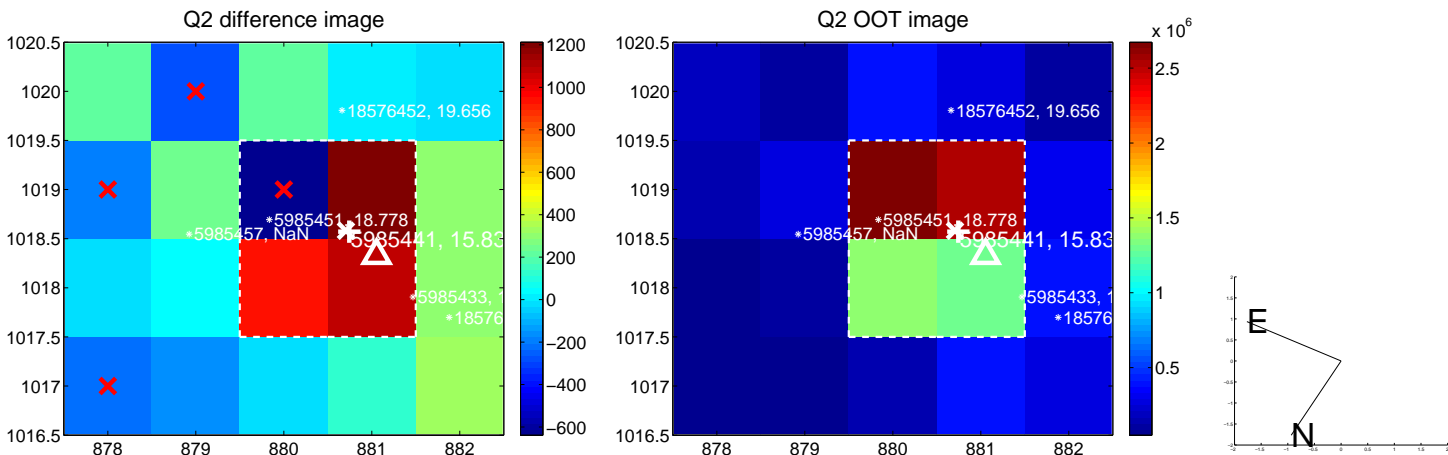
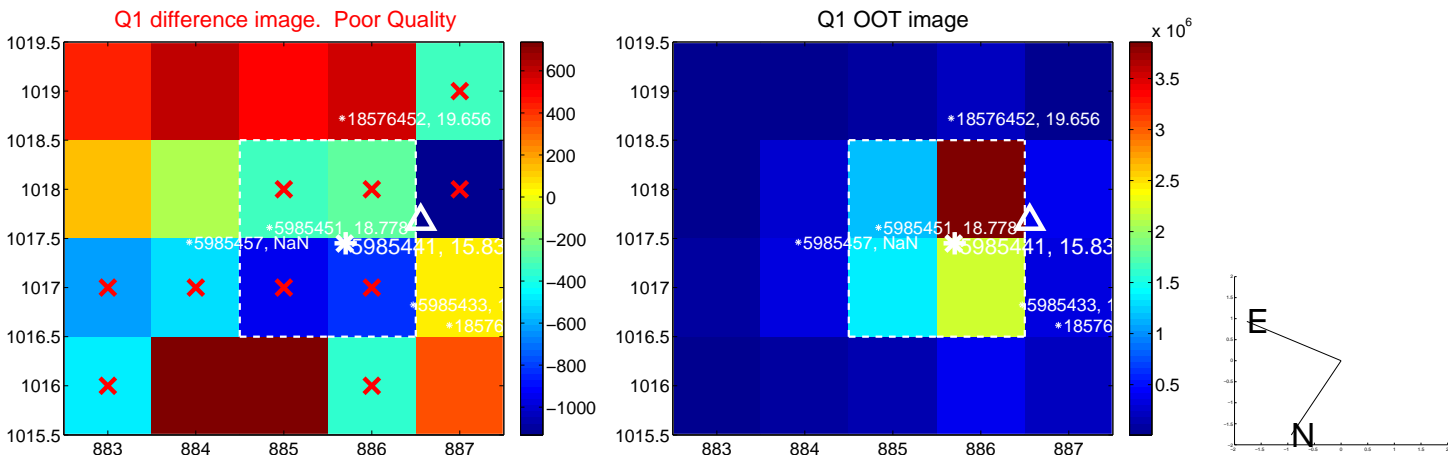
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.296 ± 0.243	1.22	-0.235 ± 0.362	0.180 ± 0.295
PRF-fit source offset from KIC position	0.407 ± 0.291	1.40	-0.387 ± 0.346	0.126 ± 0.313
photometric centroid source offset	1.25 ± 0.76	1.65	-1.23 ± 0.76	-0.22 ± 0.68

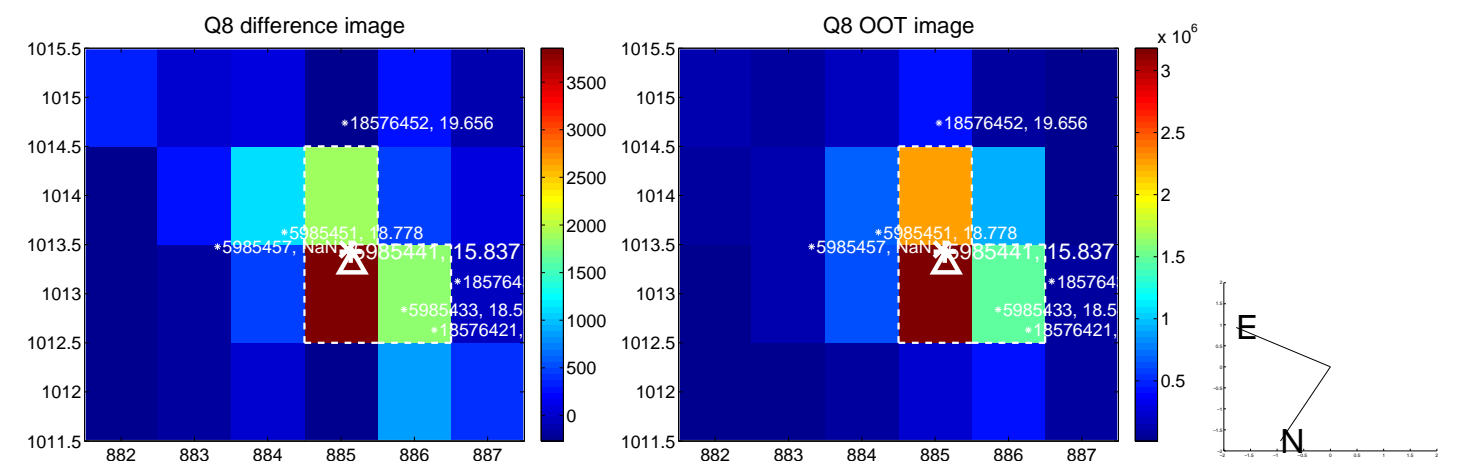
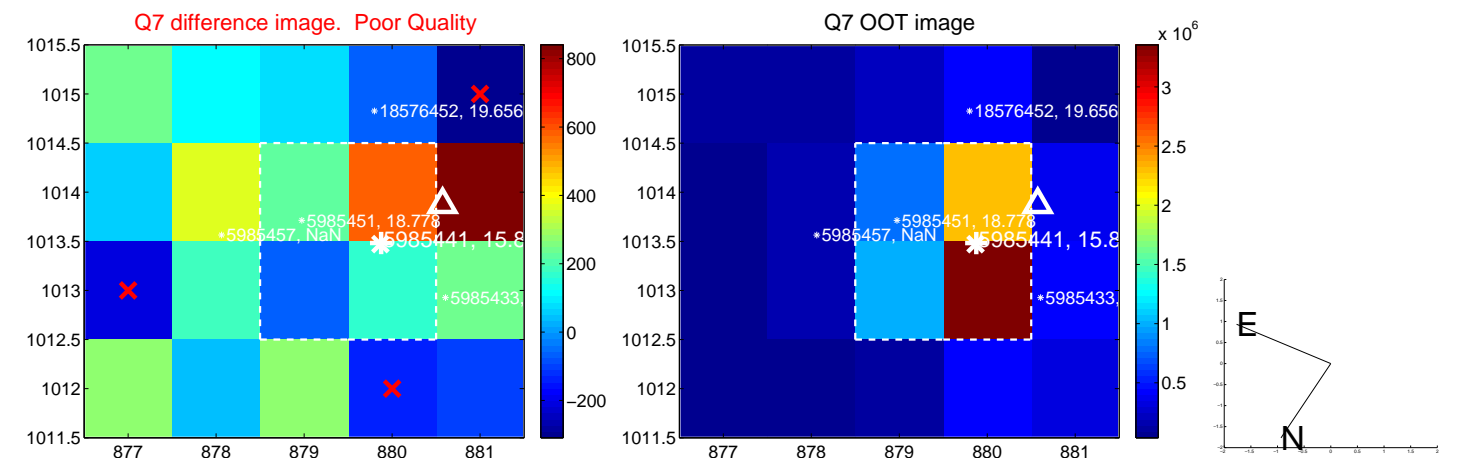
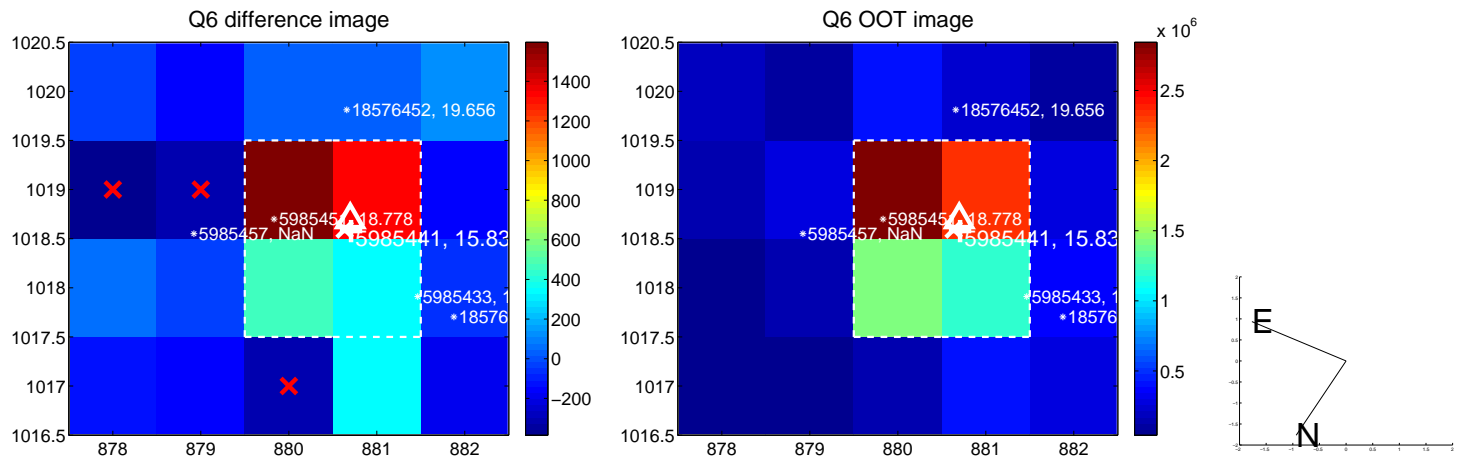
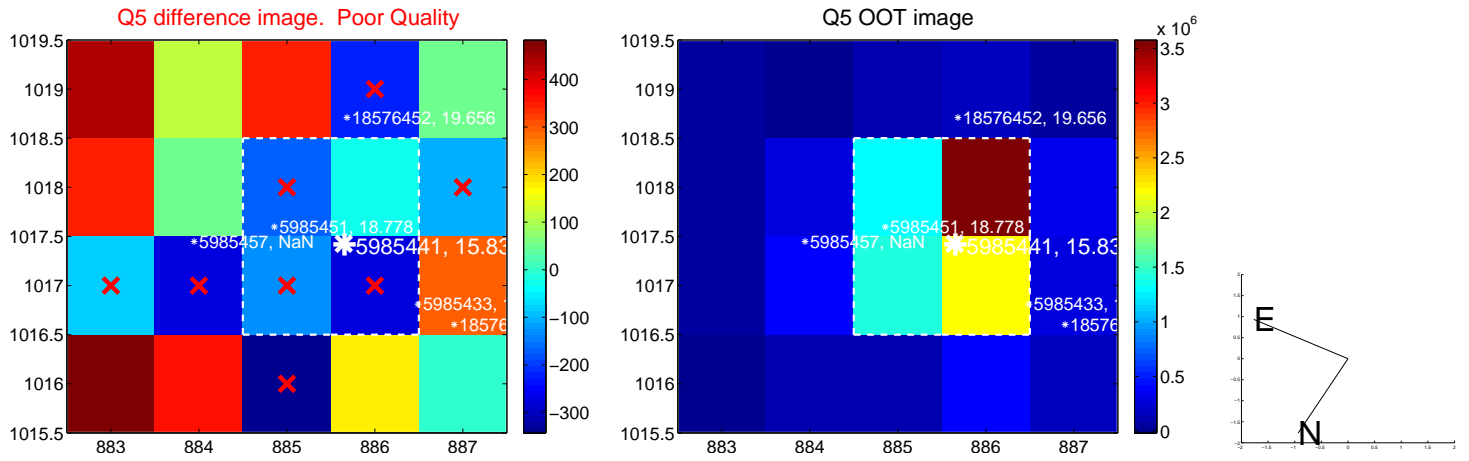


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

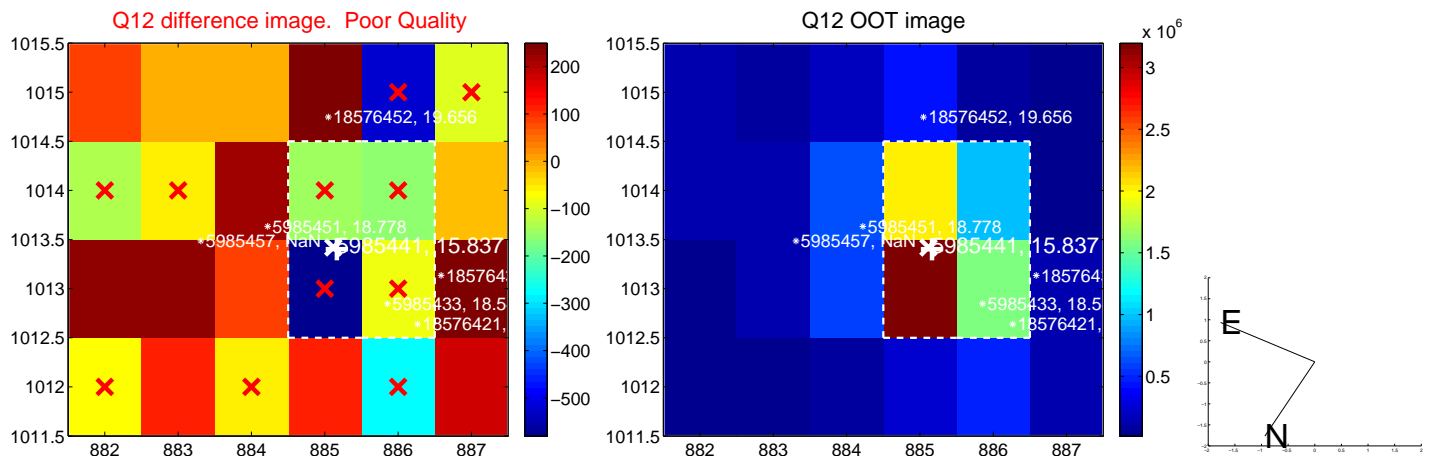
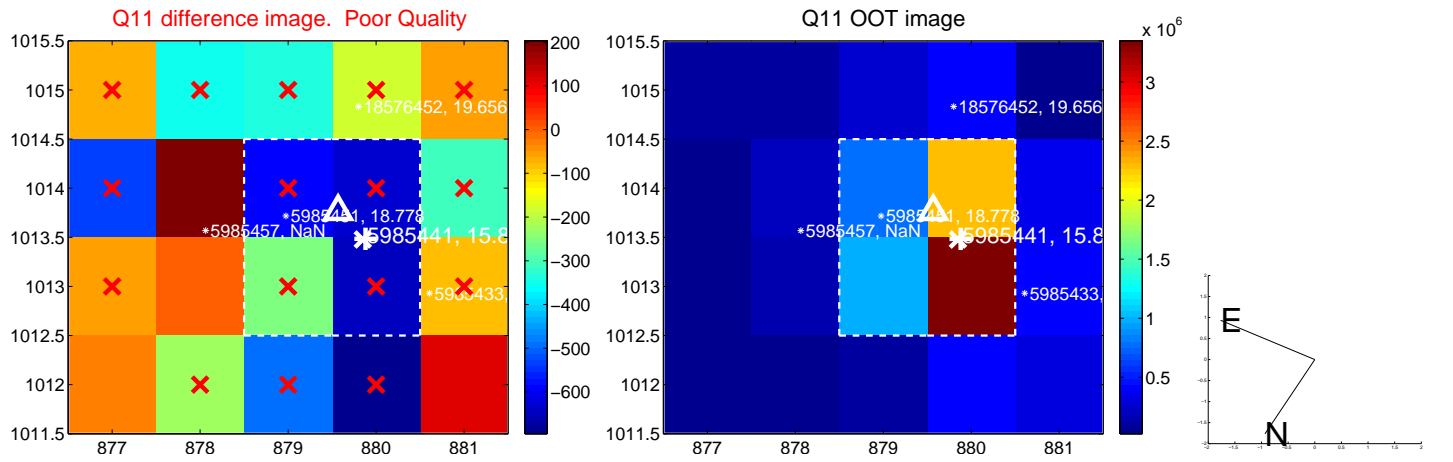
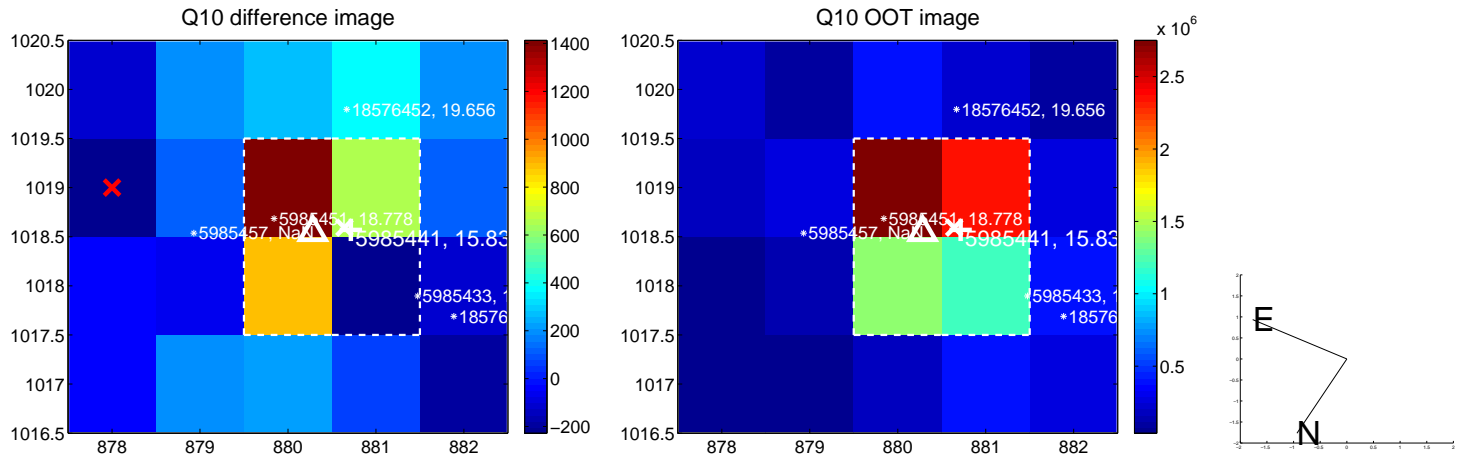
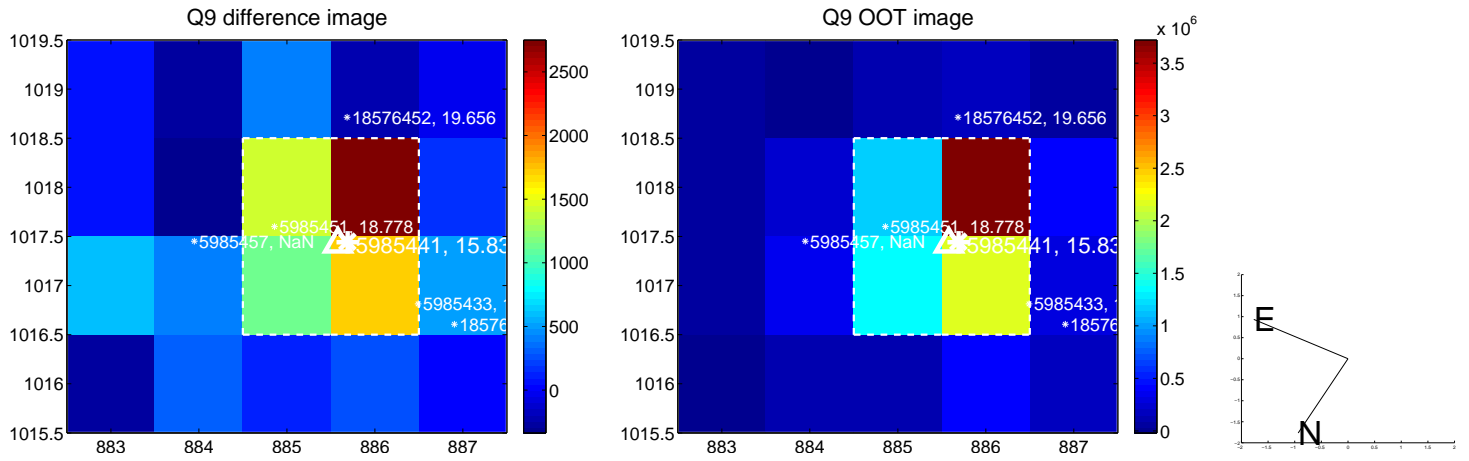
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



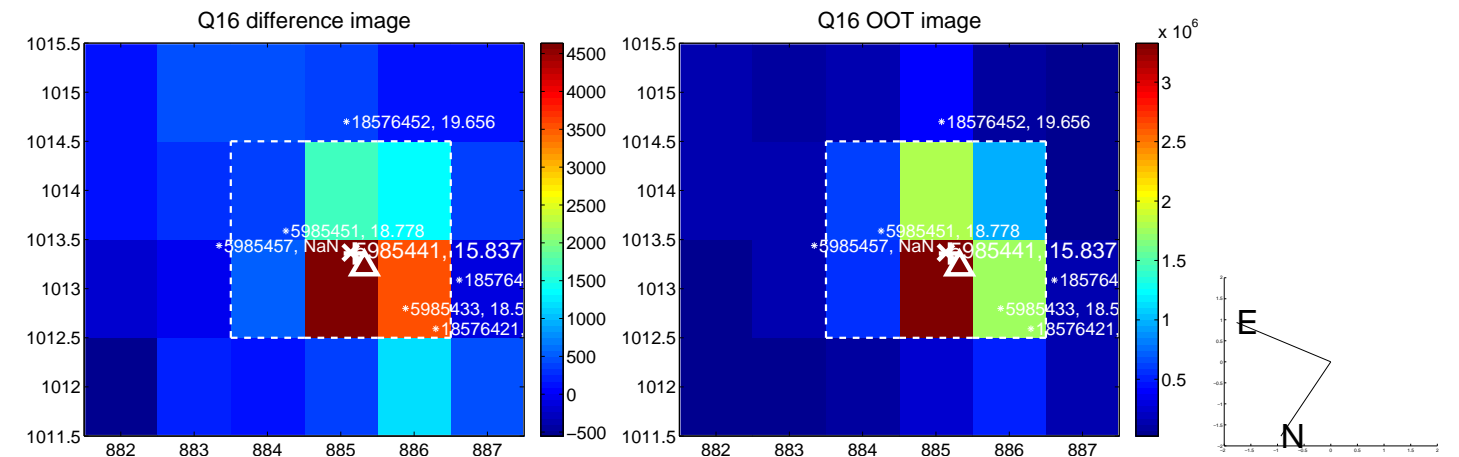
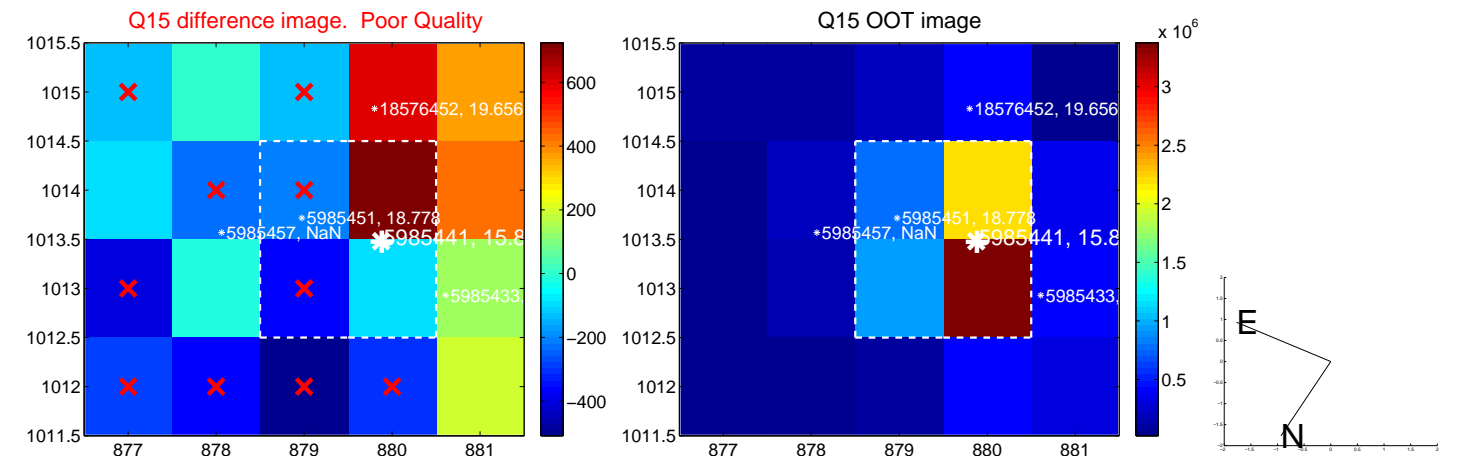
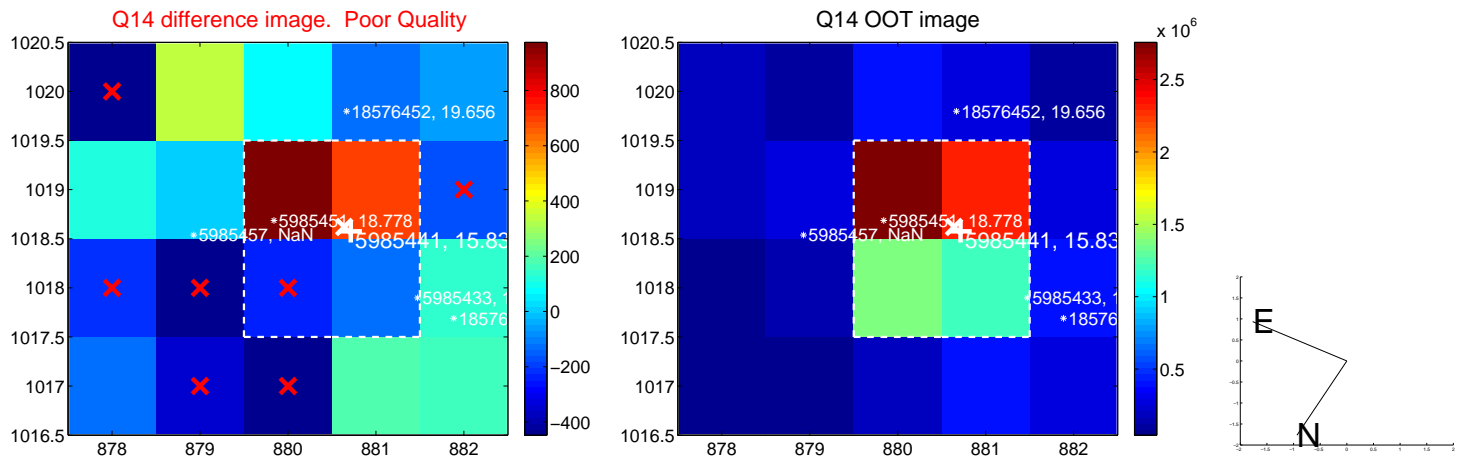
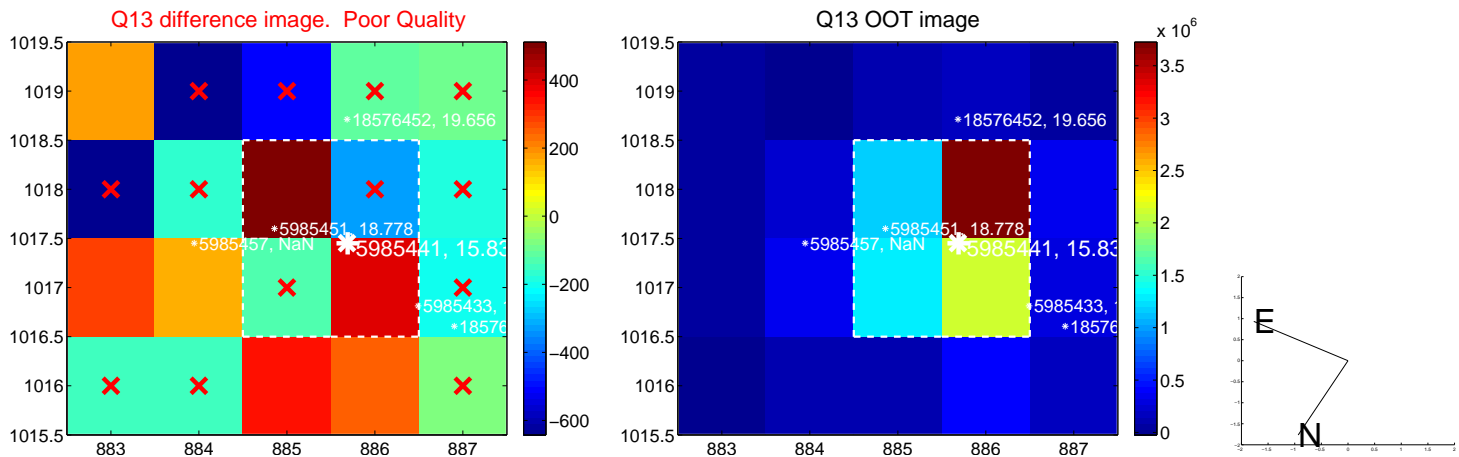
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



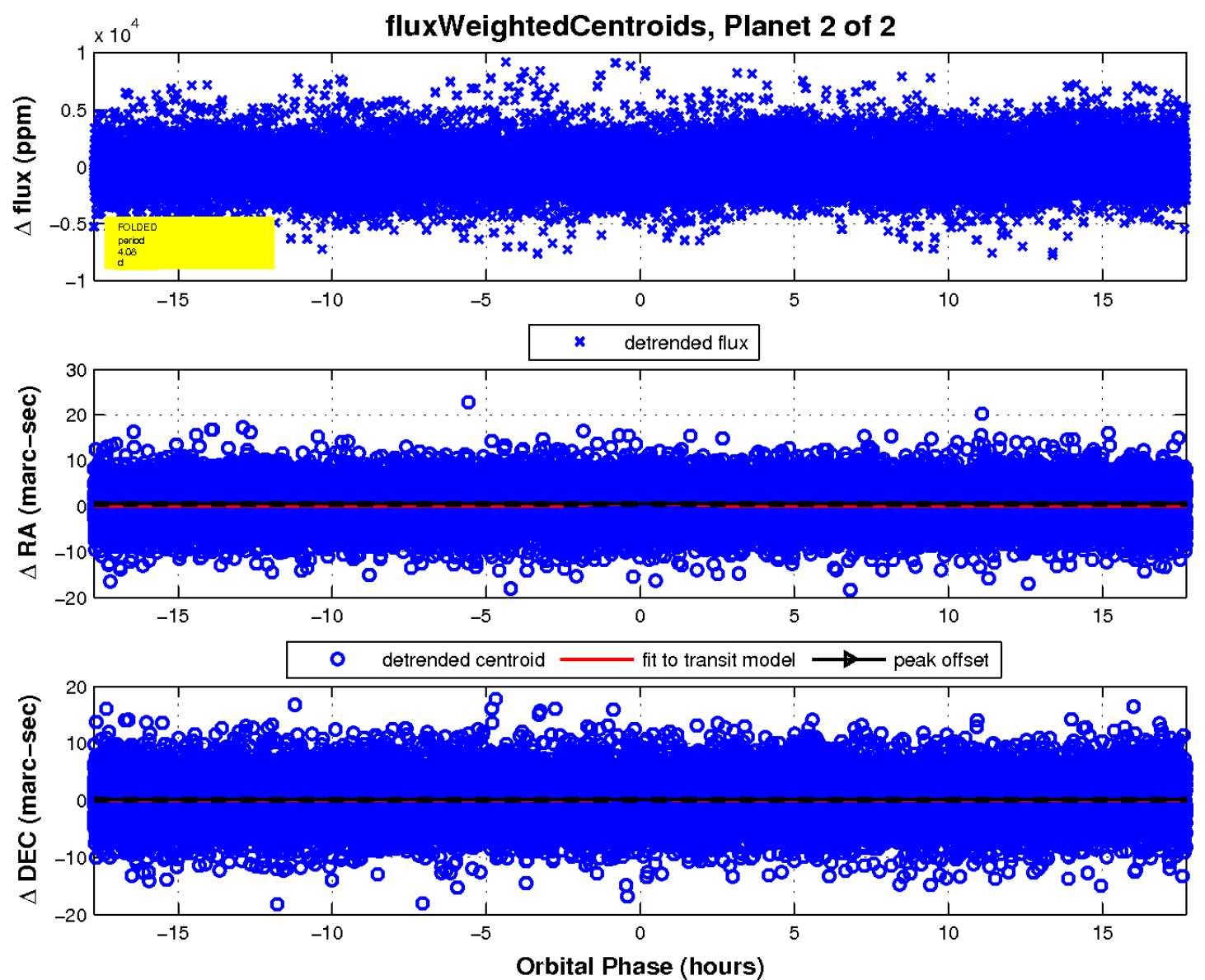
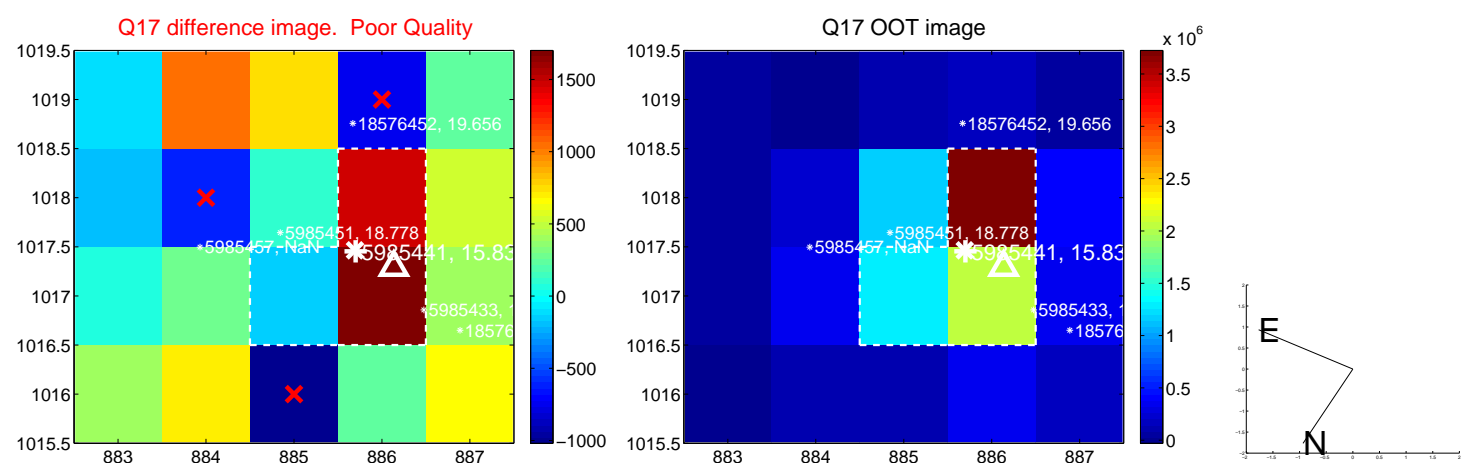
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

