

KIC 006060580

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})
006060580-01	OBS	6658.01	2.313373	133.198801	13298.6	2.396	2563.3	1914.9	0.76	5508	12.06	459.84
006060580-02	OBS	No	2.313369	132.042943	5352.2	2.468	1088.0	1042.0	0.76	5508	8.39	459.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006060580-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006060580-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

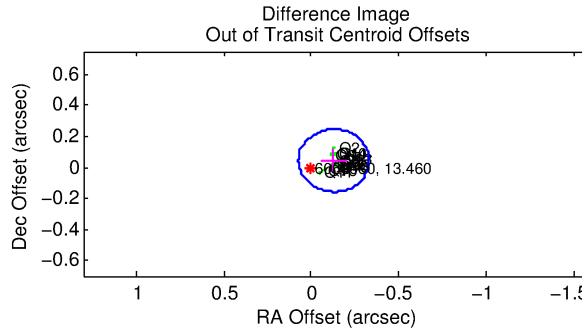
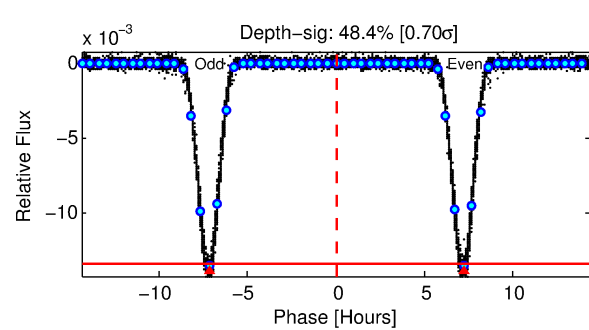
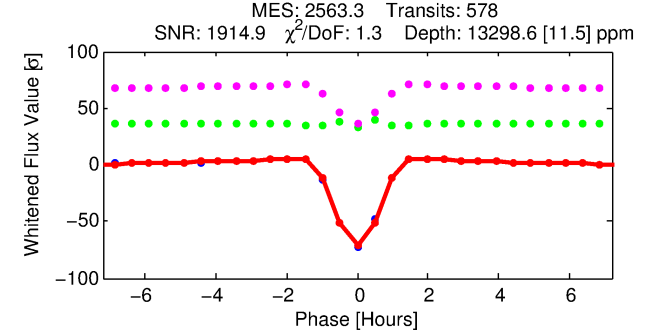
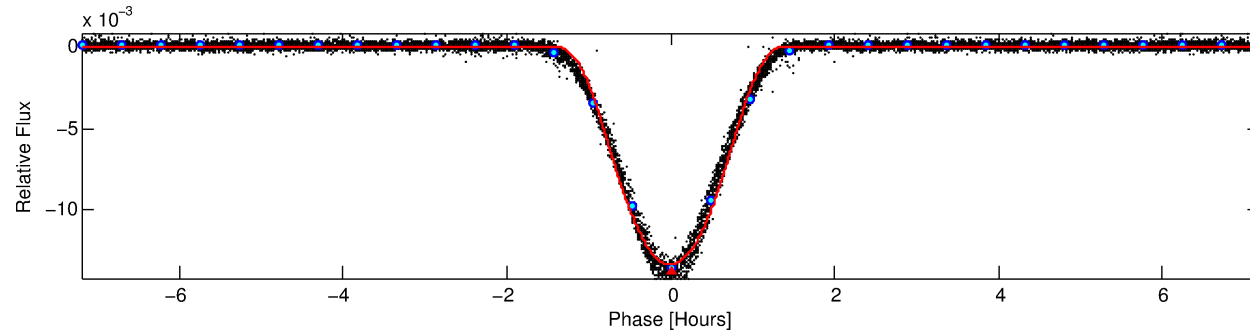
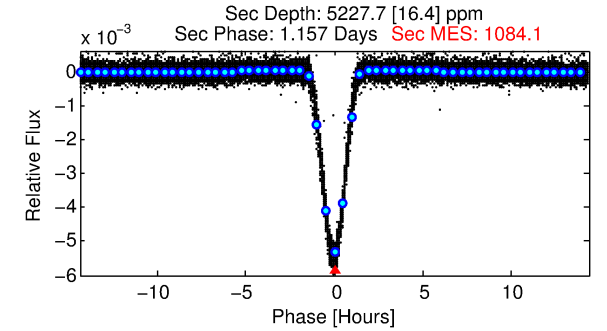
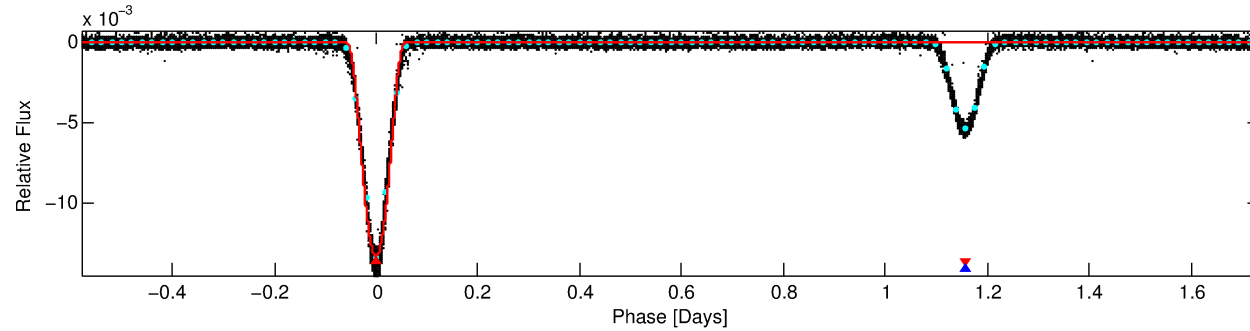
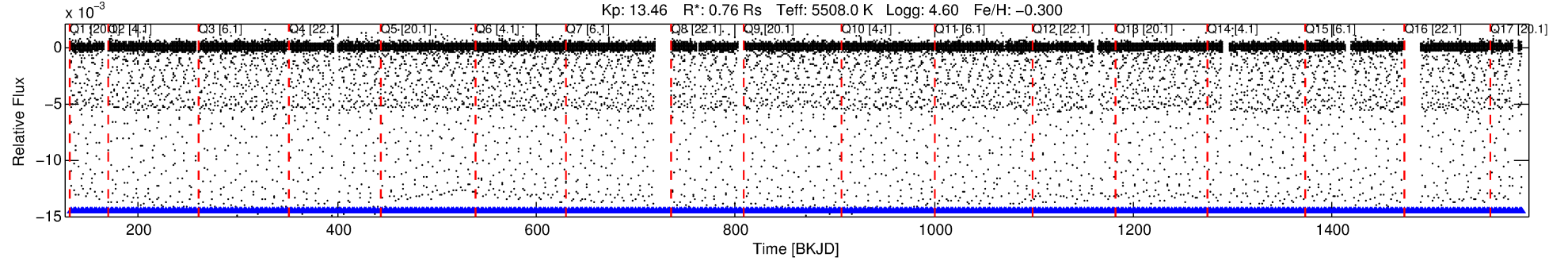
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006060580-01

No Significant Match Found

DV One-Page Summary

KIC: 6060580 Candidate: 1 of 2 Period: 2.313 d
KOI: K06658.01 Corr: 0.990



DV Fit Results:

Period = 2.31337 [0.00000] d
Epoch = 133.1988 [0.0000] BKJD
Rp/R* = 0.1447 [0.0015]
a/R* = 5.08 [0.02]
b = 0.92 [0.00]
Seff = 459.84 [119.03]
Teq = 1181 [76] K
Rp = 12.06 [2.37] Re
a = 0.0324 [0.0053] AU
Ag = 20.70 [4.88] [4.04σ]
Teffp = 3894 [108] K [20.50σ]

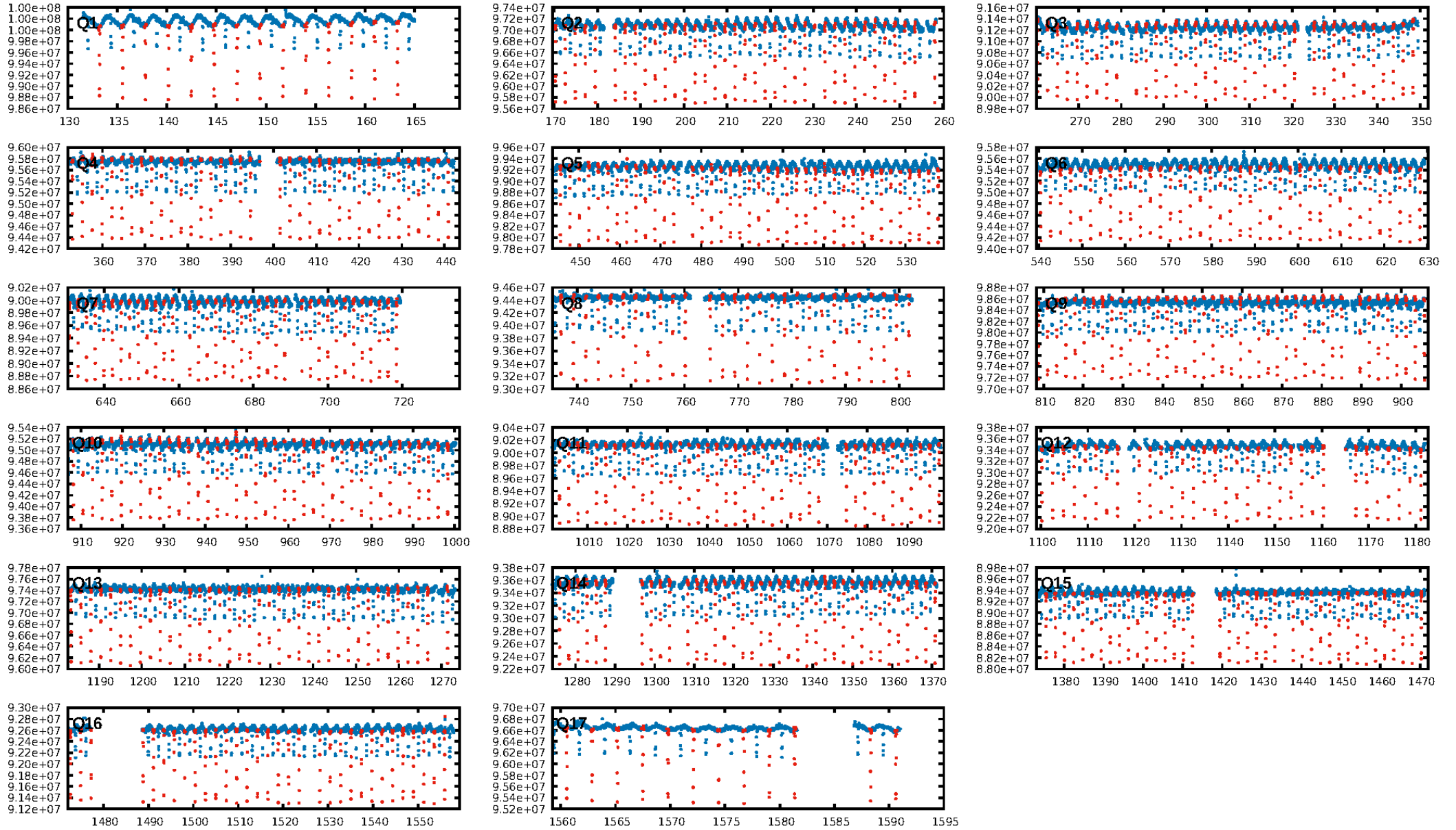
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [552/552]
GhostDiagnostic-chr: 4.459
Centroid-sig: 0.0%
Centroid-so: 0.124 arcsec [26.79σ]
OotOffset-rm: 0.136 arcsec [2.02σ]
KicOffset-rm: 0.030 arcsec [0.43σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

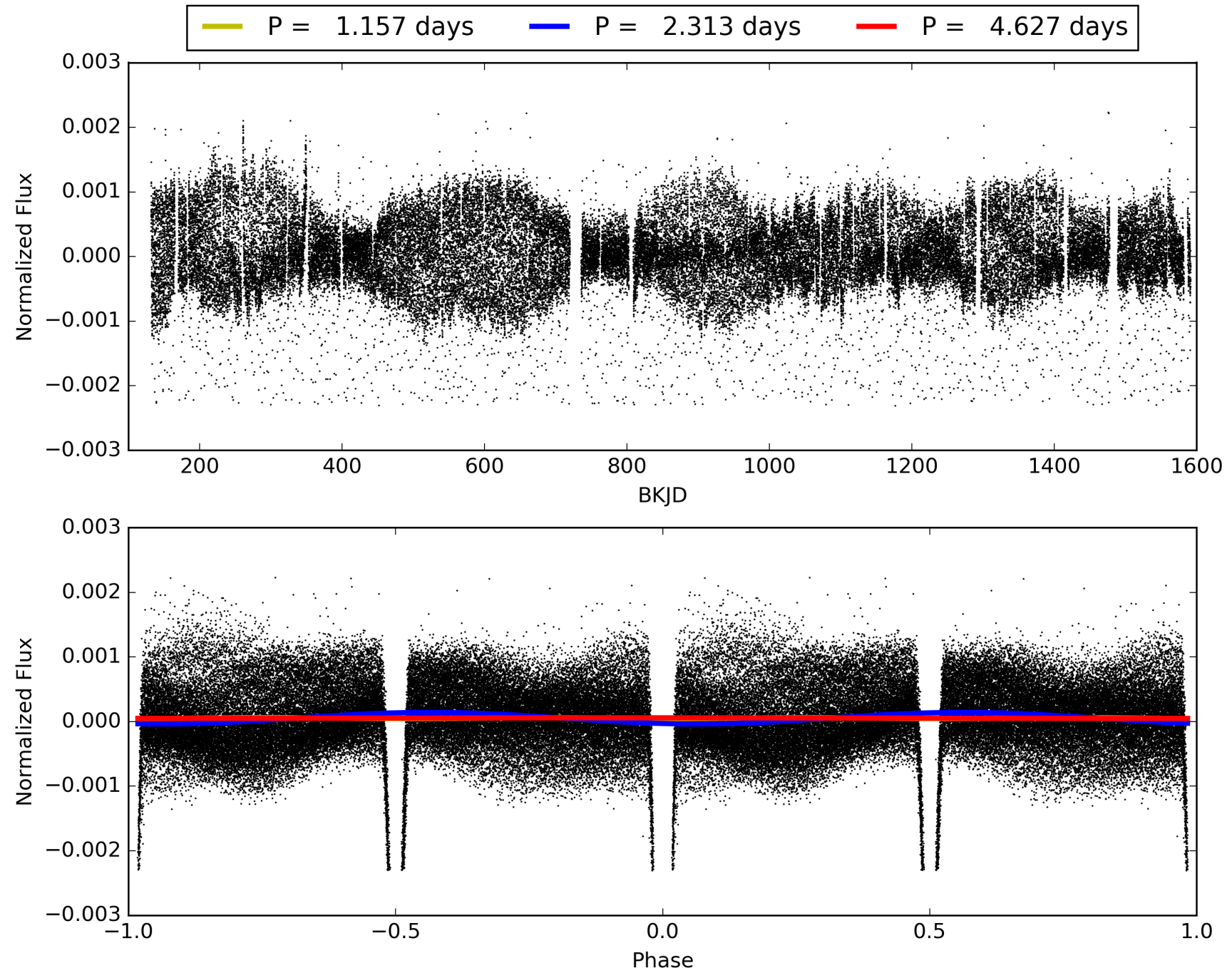
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:56:11 Z

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

TCE 006060580-01, PDC Light Curves

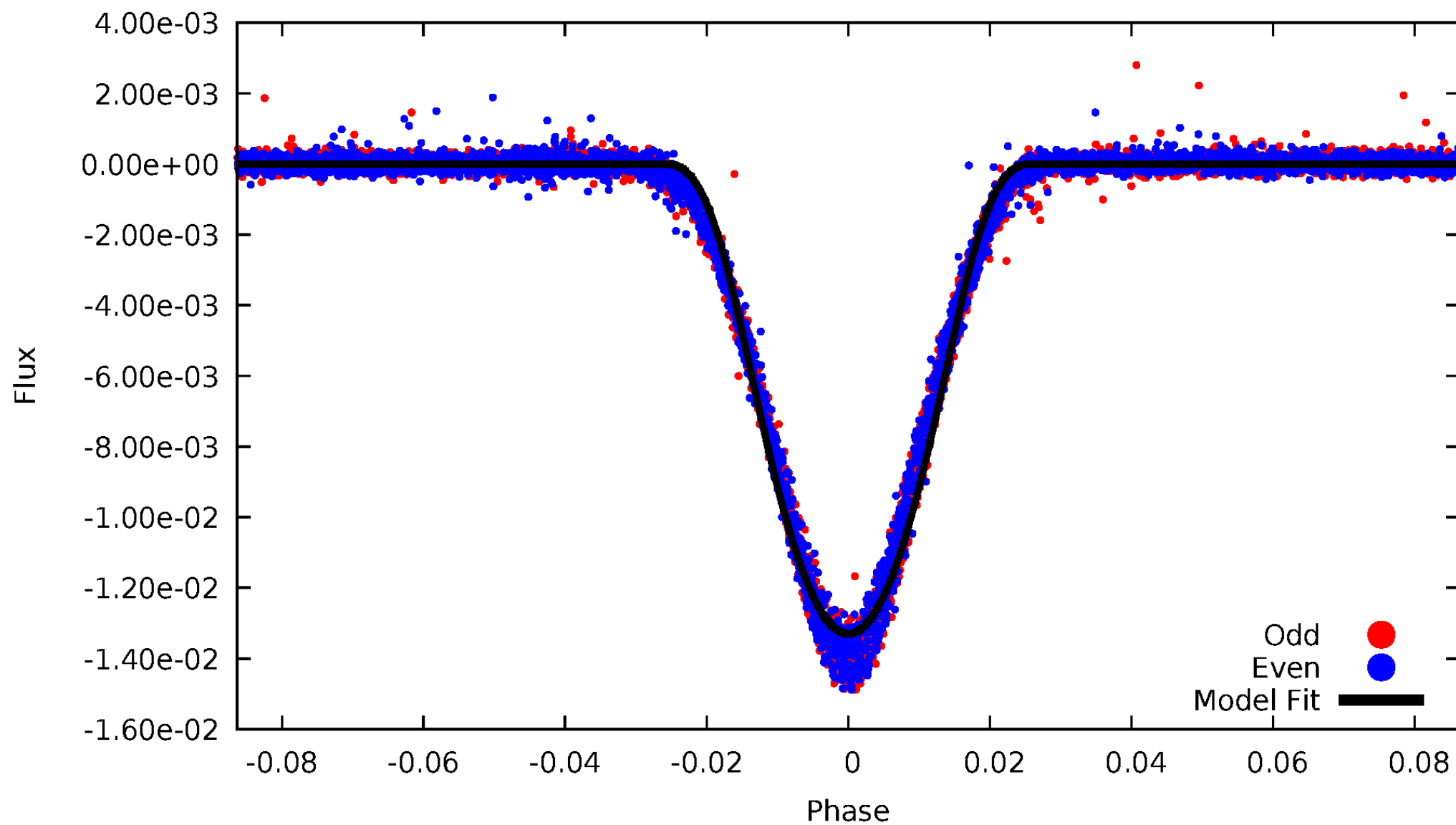


TCE 006060580-01



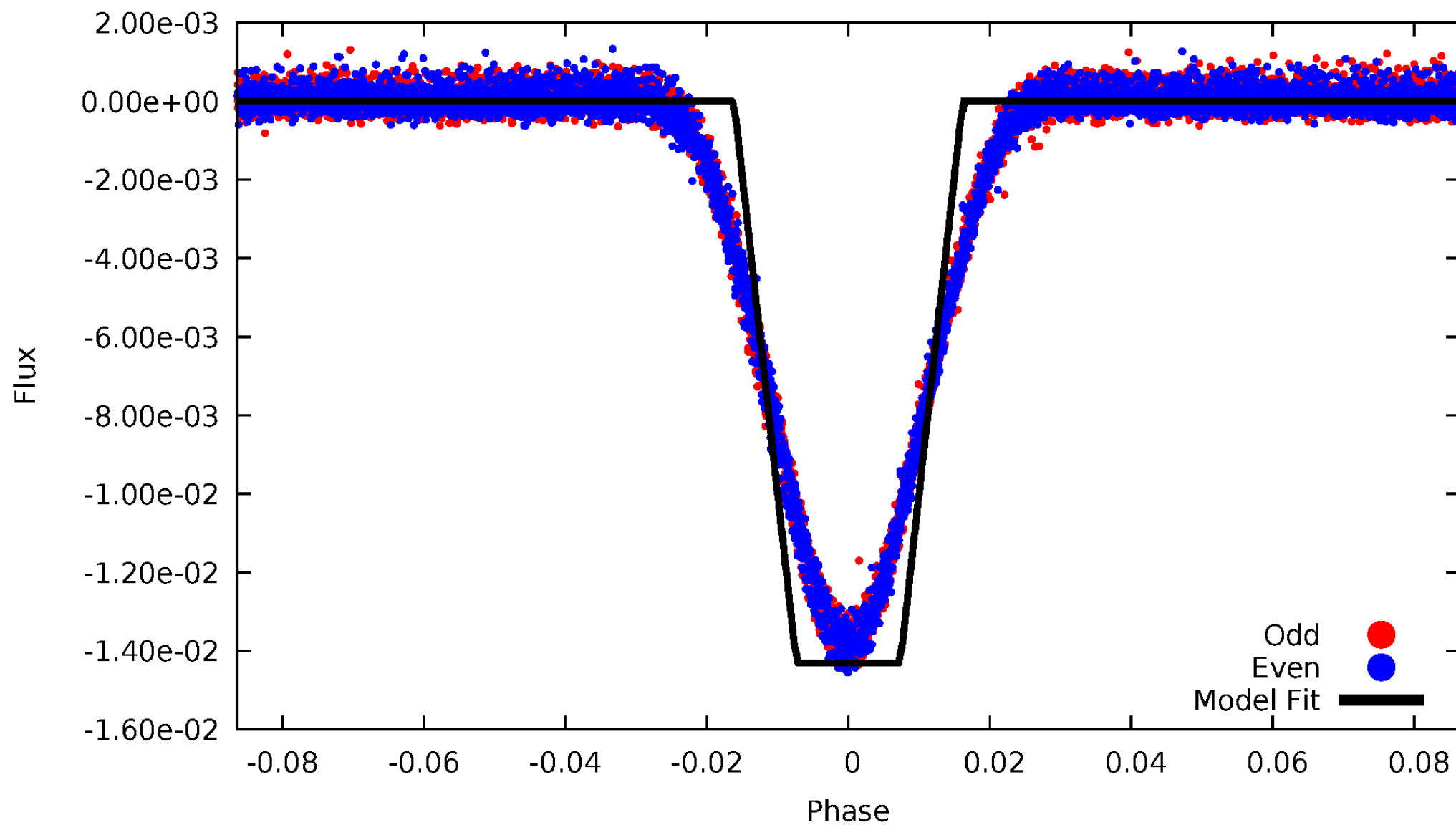
DV Odd/Even

TCE 006060580-01



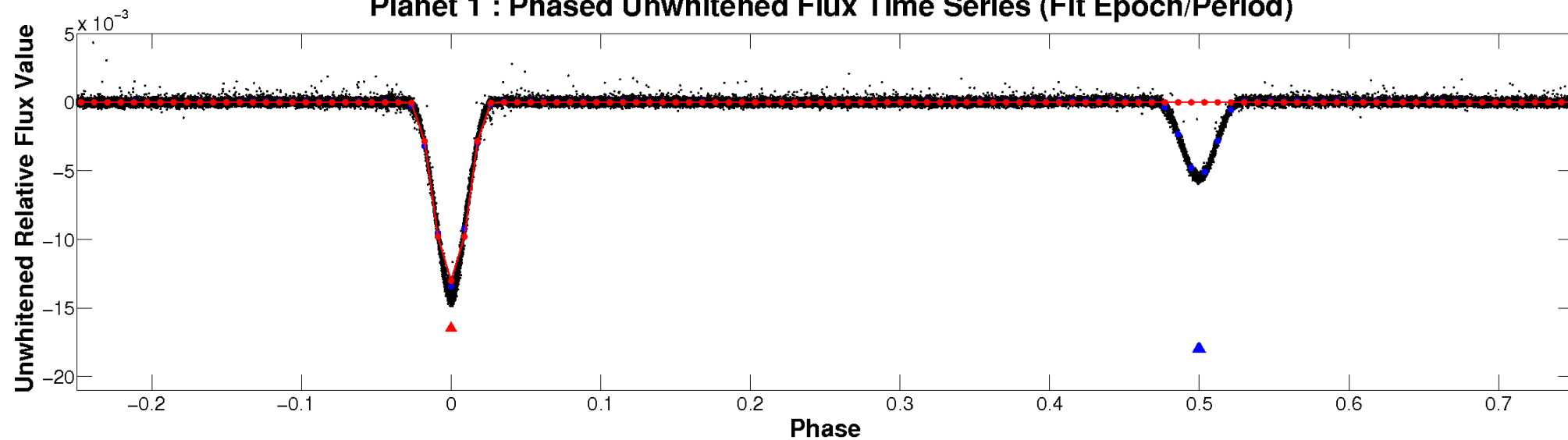
ALT Odd/Even

TCE 006060580-01

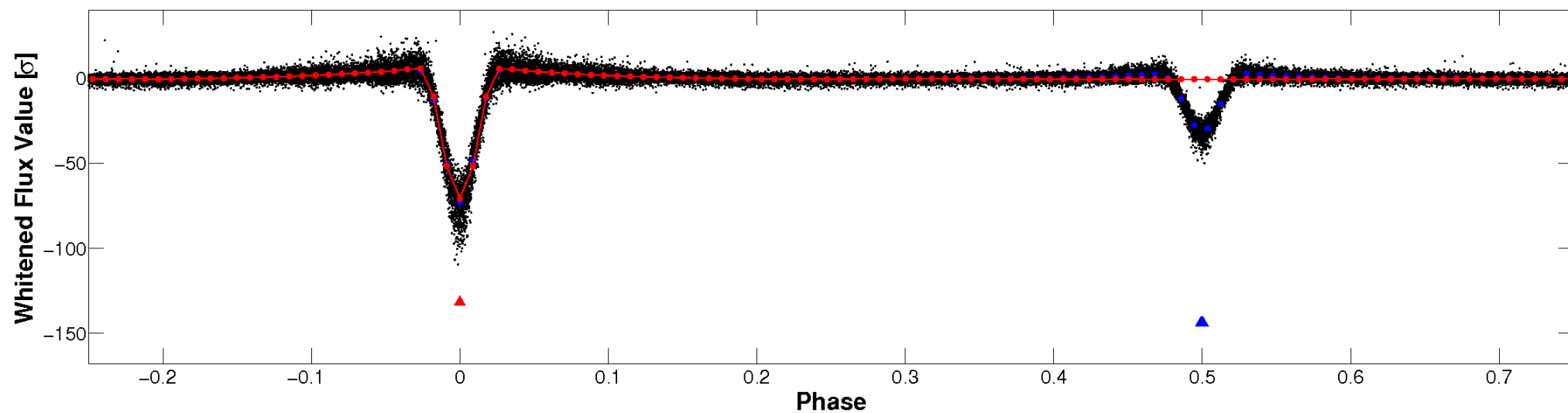


Non-Whitened Vs. Whitened Light Curve

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

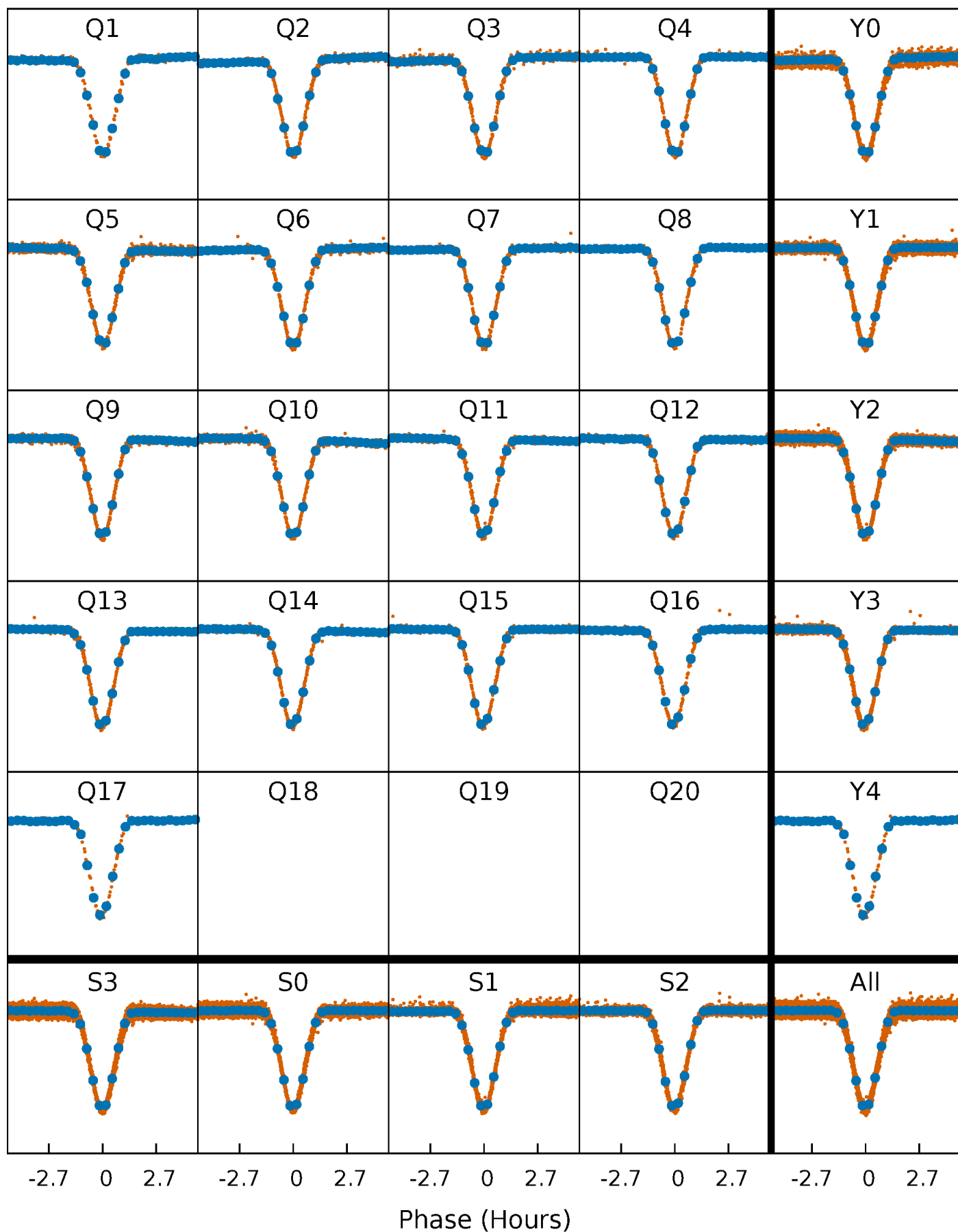


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



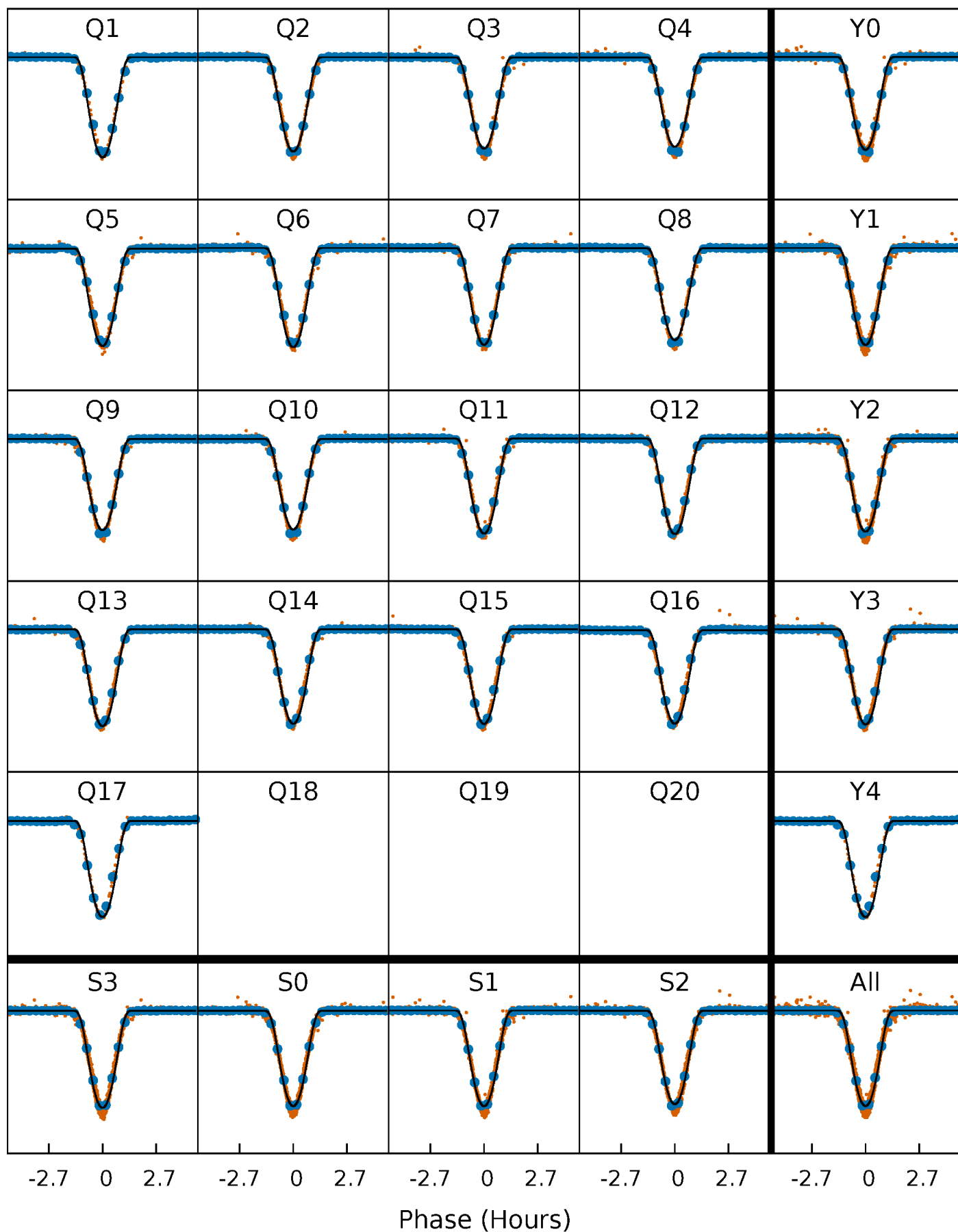
PDC Quarter-Phased Transit Curves

TCE 006060580-01 P= 2.313373 Days $T_0=133.198801$ (BKJD)



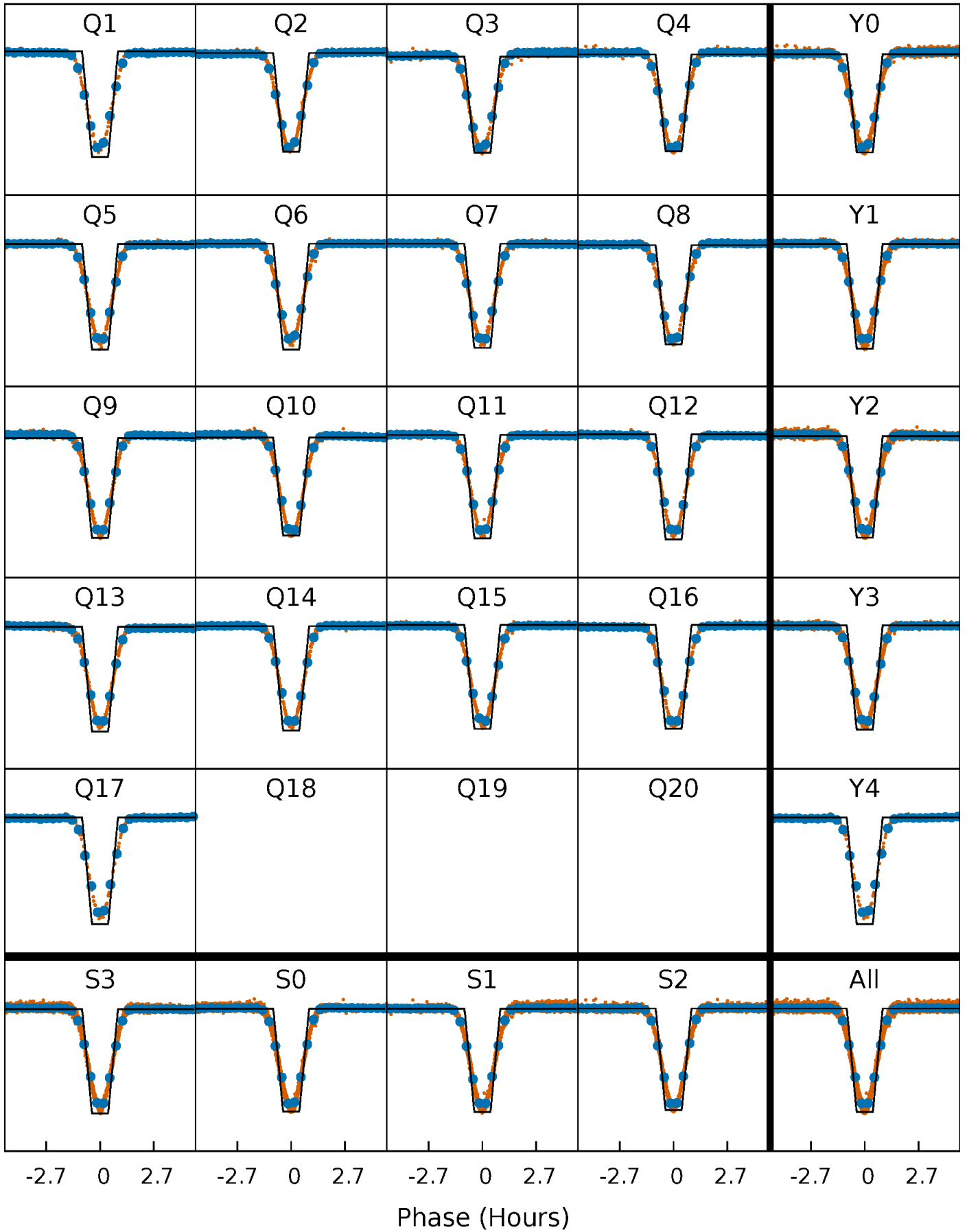
DV Quarter-Phased Transit Curves

TCE 006060580-01 P= 2.313373 Days $T_0=133.198801$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

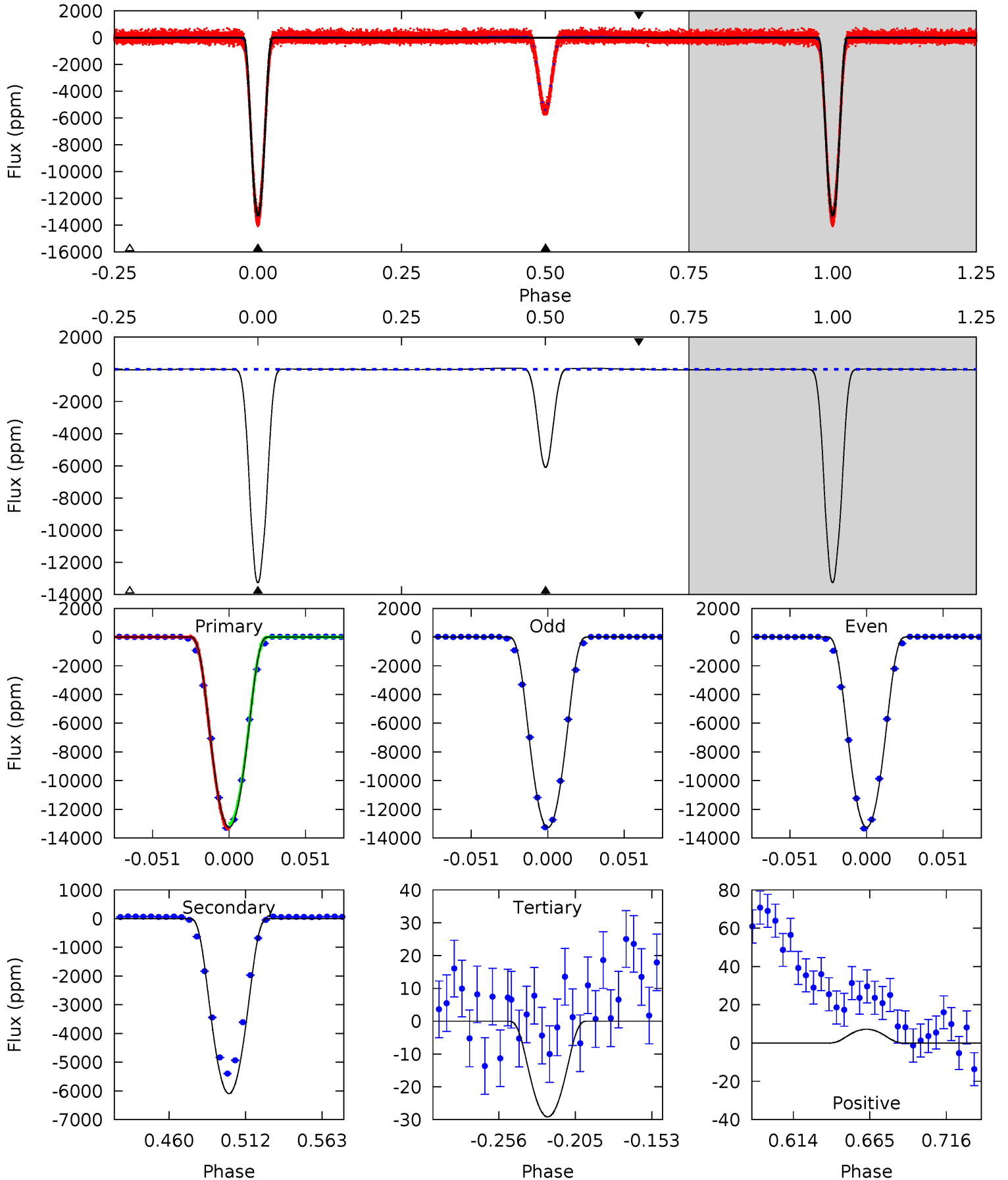
TCE 006060580-01 P= 2.313363 Days $T_0=133.201349$ (BKJD)



DV Model-Shift Uniqueness Test

006060580-01, P = 2.313373 Days, E = 130.885428 Days

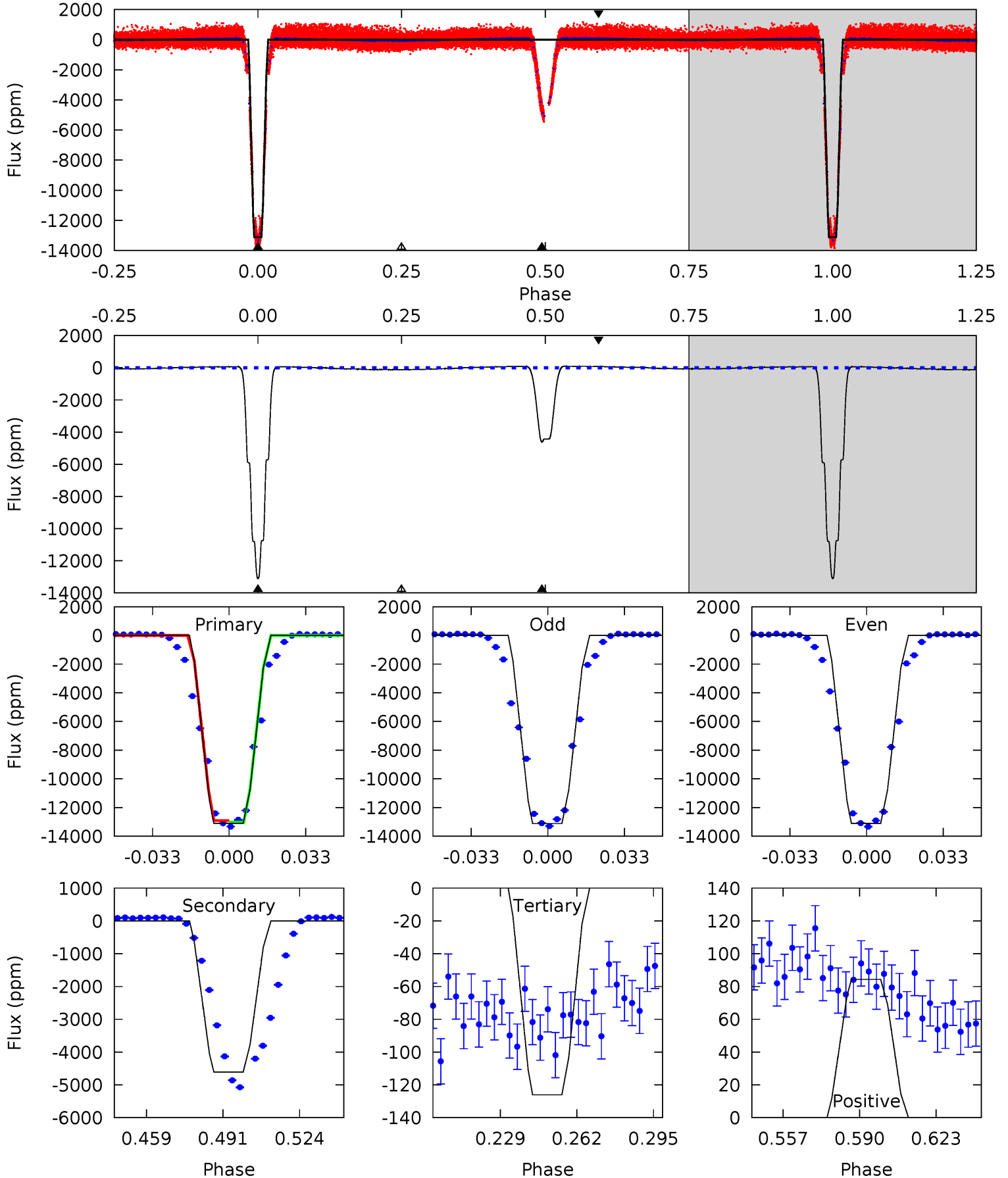
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4323	1987	9.51	2.35	4.70	1.95	8.63	4314	4321	1977	1985	3.97	1.01	0.01	60.1



Alt Model-Shift Uniqueness Test

006060580-01, P = 2.313363 Days, E = 130.887986 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1673	588.4	16.1	10.8	4.79	2.13	8.28	1657	1663	572.3	577.6	0.36	1.00	0.01	0



Stellar Parameters For KIC 006060580

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5508^{+150}_{-150}	$4.598^{+0.034}_{-0.127}$	$-0.300^{+0.300}_{-0.300}$	$0.764^{+0.150}_{-0.064}$	$0.855^{+0.082}_{-0.100}$	$2.700^{+0.478}_{-1.048}$
	+3%/-3%	+1%/-3%	+100%/-100%	+20%/-8%	+10%/-12%	+18%/-39%
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 006060580-01 / KOI 6658.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-6094 ± 3	$12.37^{+1.28}_{-0.80}$	1681^{+75}_{-67}	4265^{+95}_{-94}	23^{+2}_{-3}
Alt.	-4610 ± 8	$10.21^{+1.05}_{-0.65}$	1675^{+80}_{-63}	4348^{+99}_{-102}	26^{+3}_{-4}

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

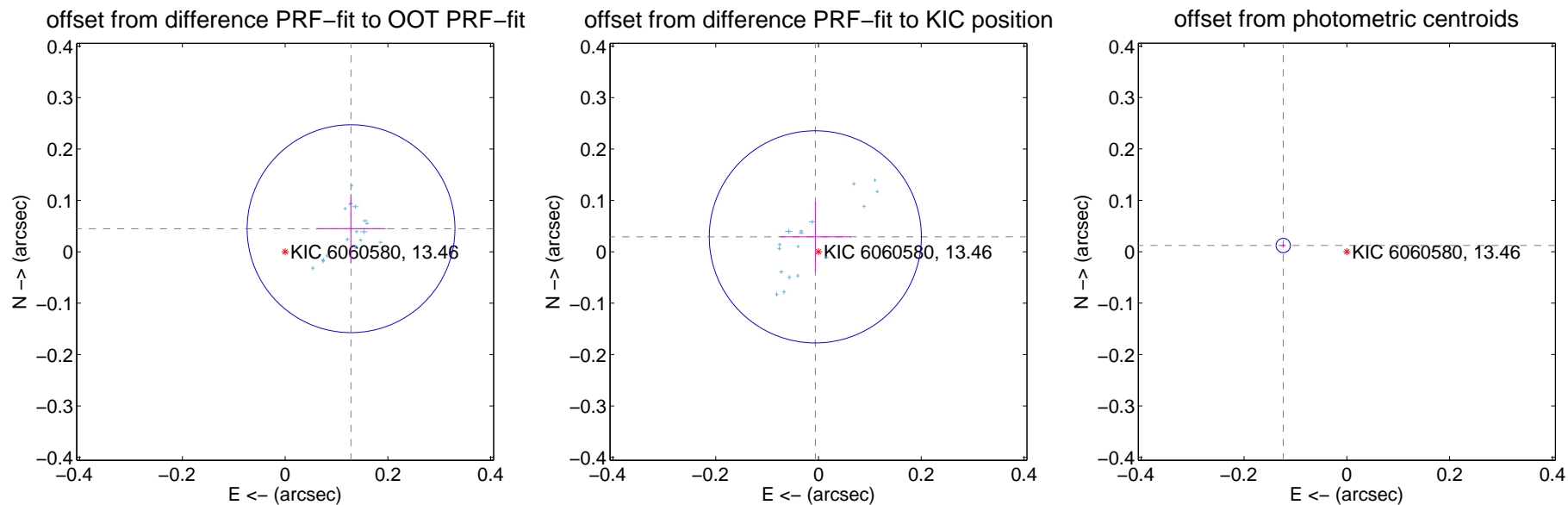
DV Centroid Data

Supplemental centroid analysis for 006060580-01. Kepler magnitude: 13.46. Transit SNR 1914.86

There are 17 quarters with good PRF difference image offsets

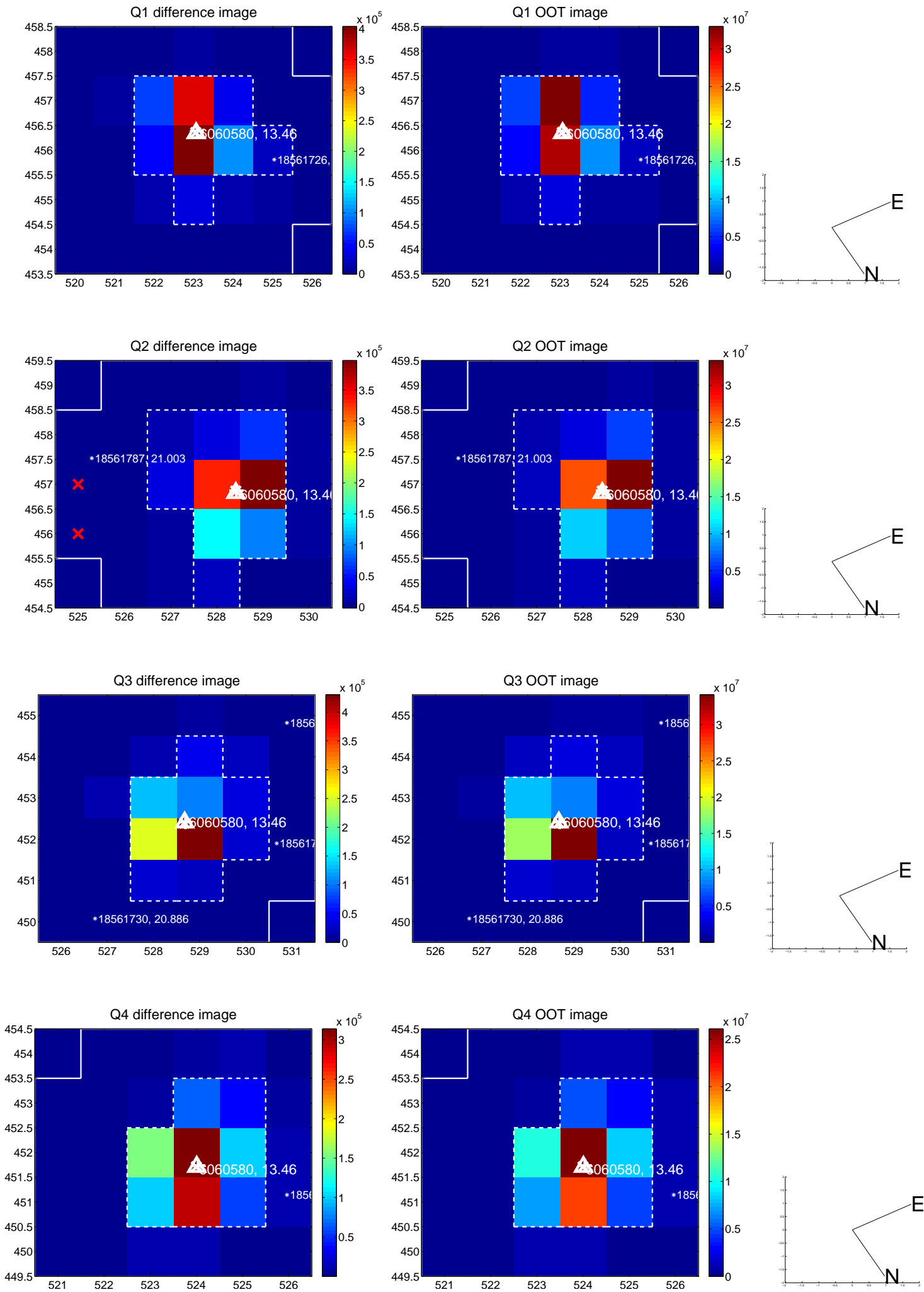
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.136 ± 0.067	2.02	-0.128 ± 0.067	0.045 ± 0.068
PRF-fit source offset from KIC position	0.030 ± 0.069	0.43	0.006 ± 0.070	0.029 ± 0.069
photometric centroid source offset	0.12 ± 0.00	26.79	0.12 ± 0.00	0.01 ± 0.00

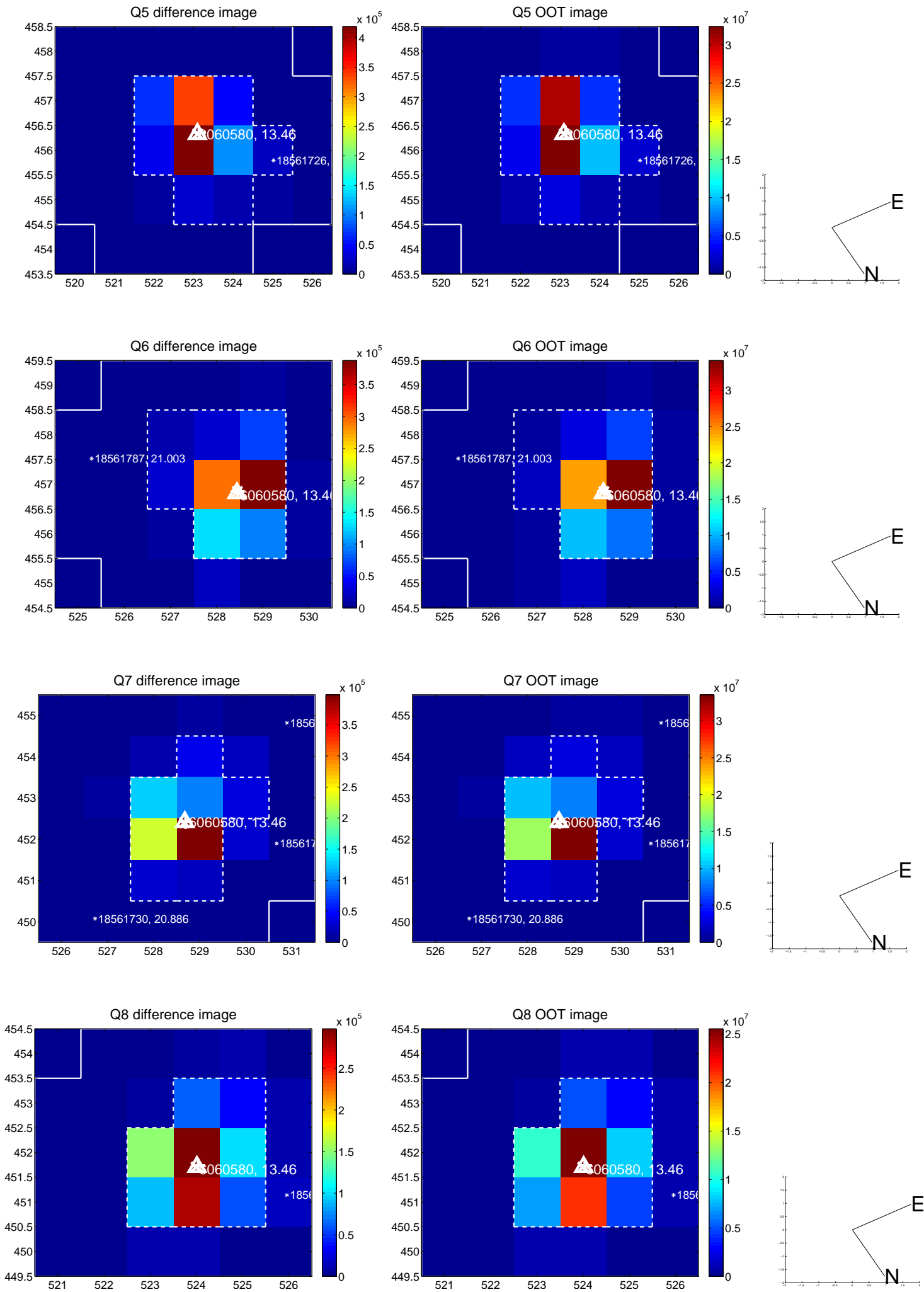


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

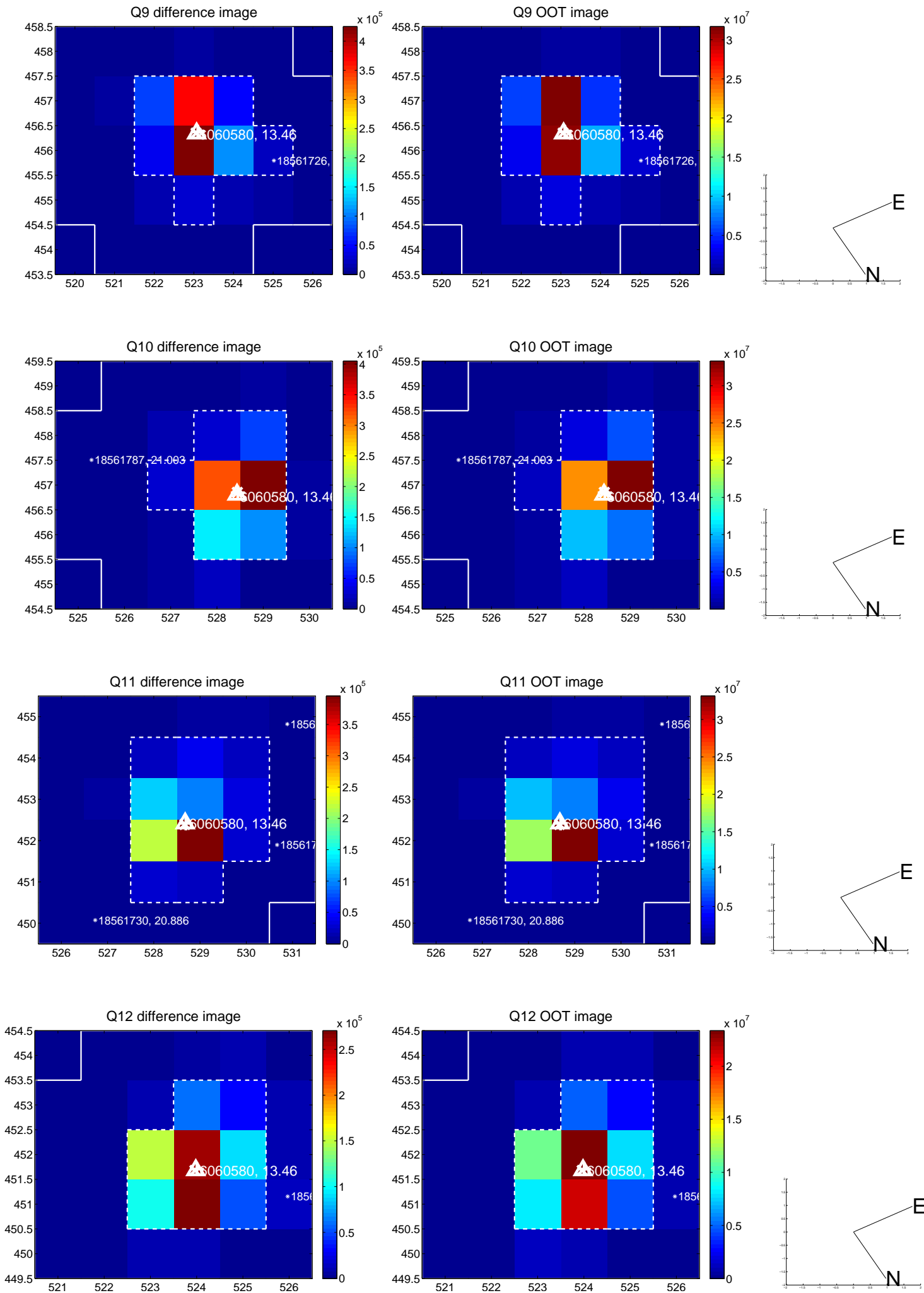
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



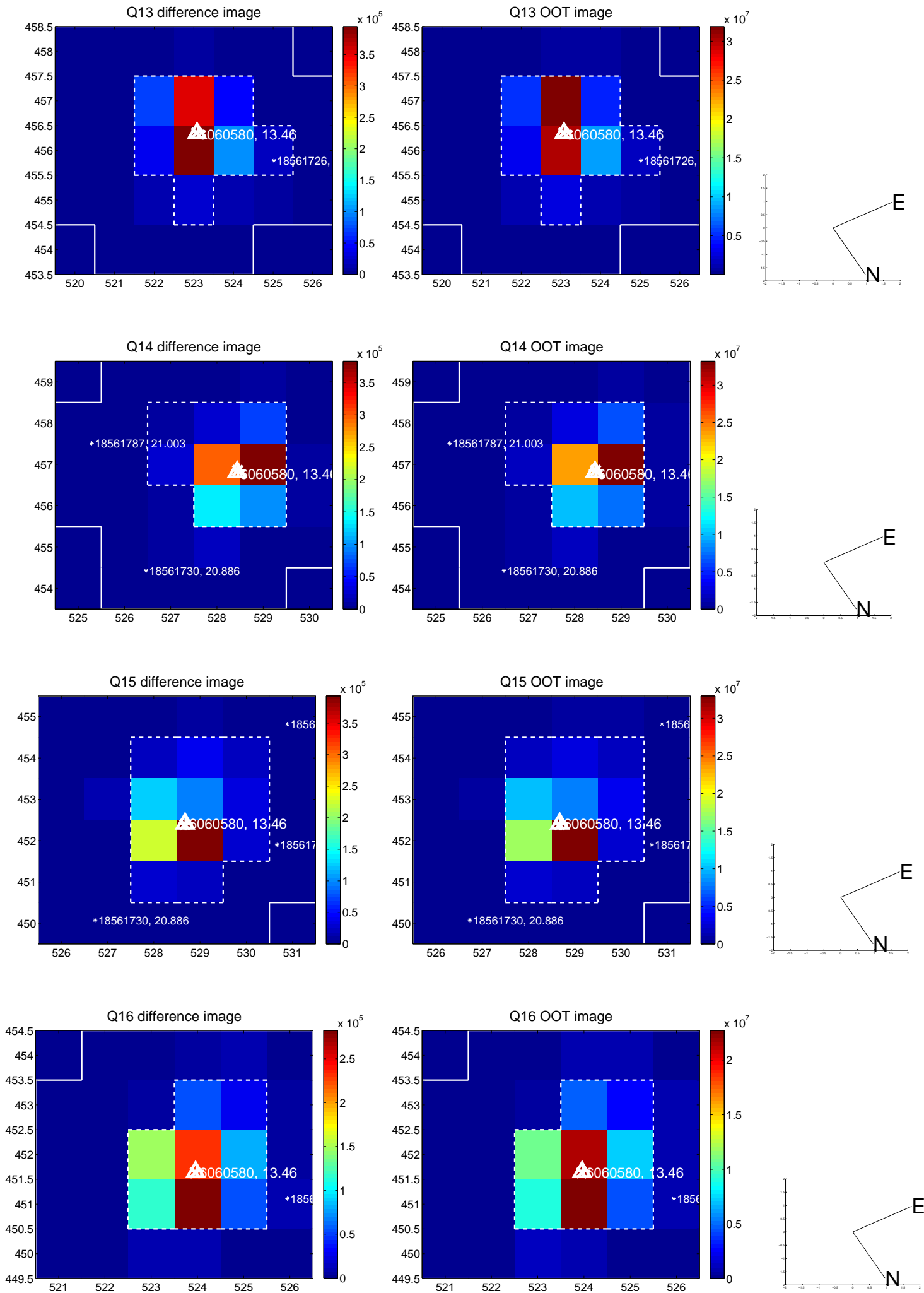
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



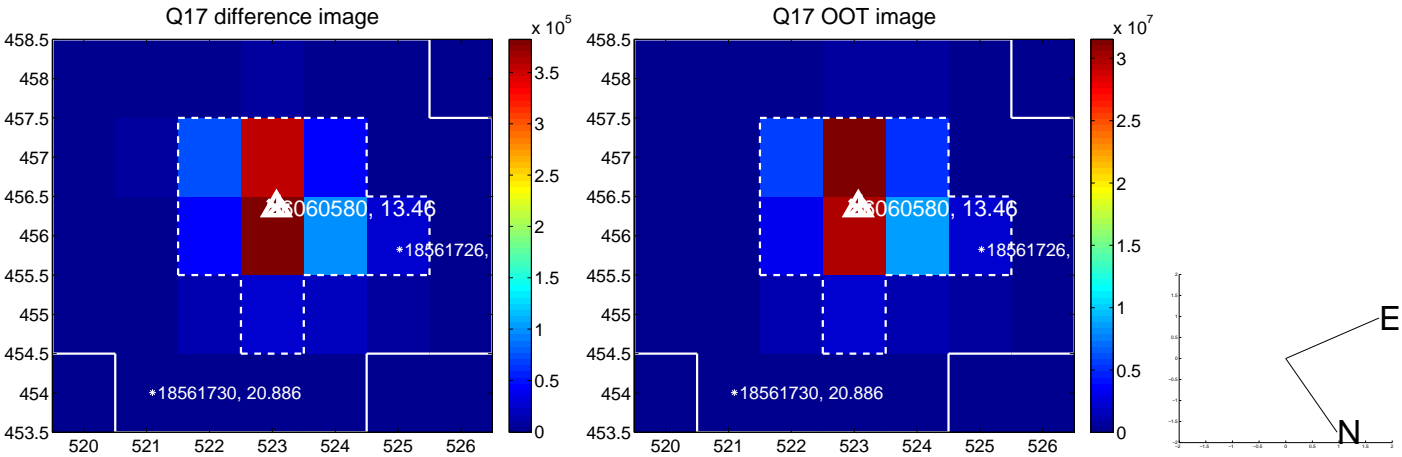
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



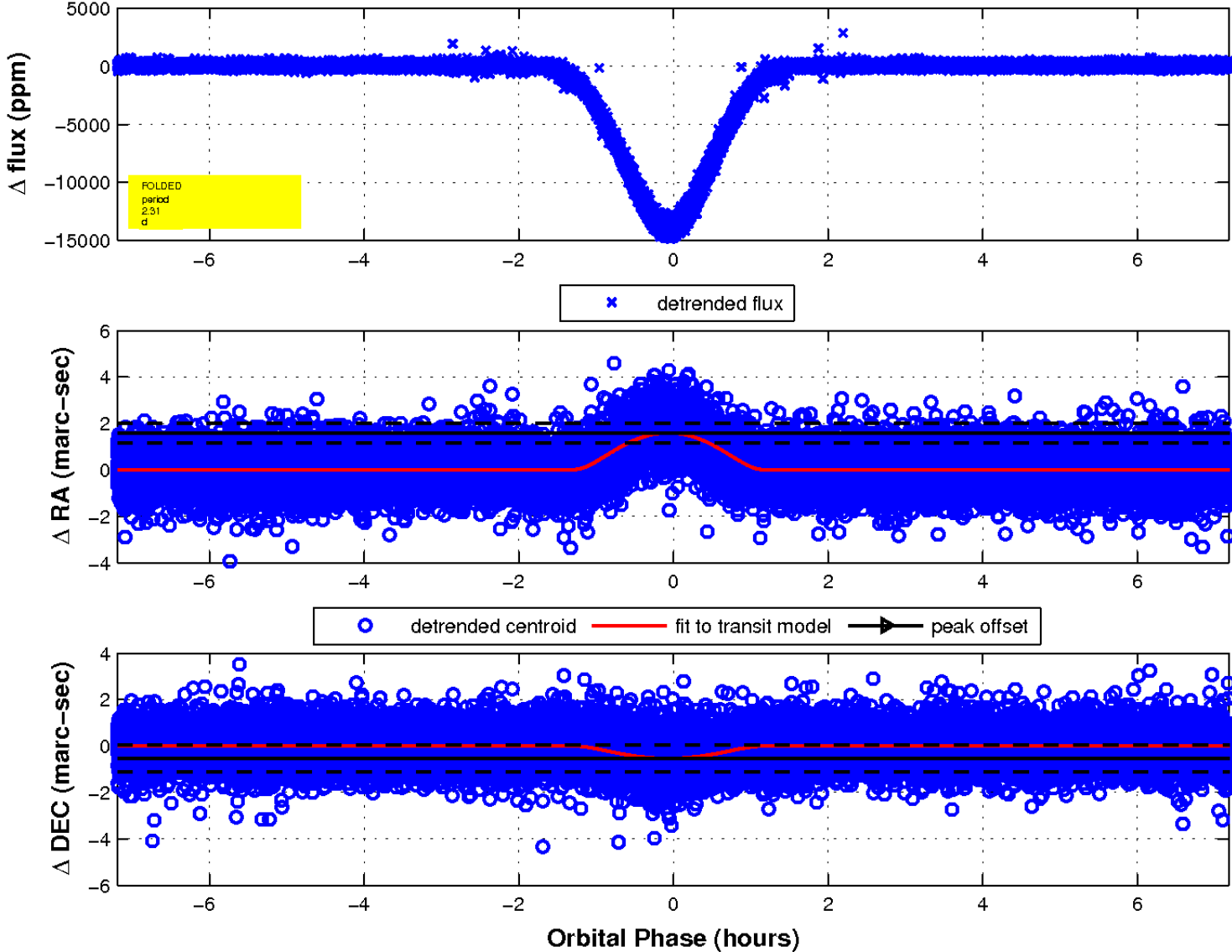
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

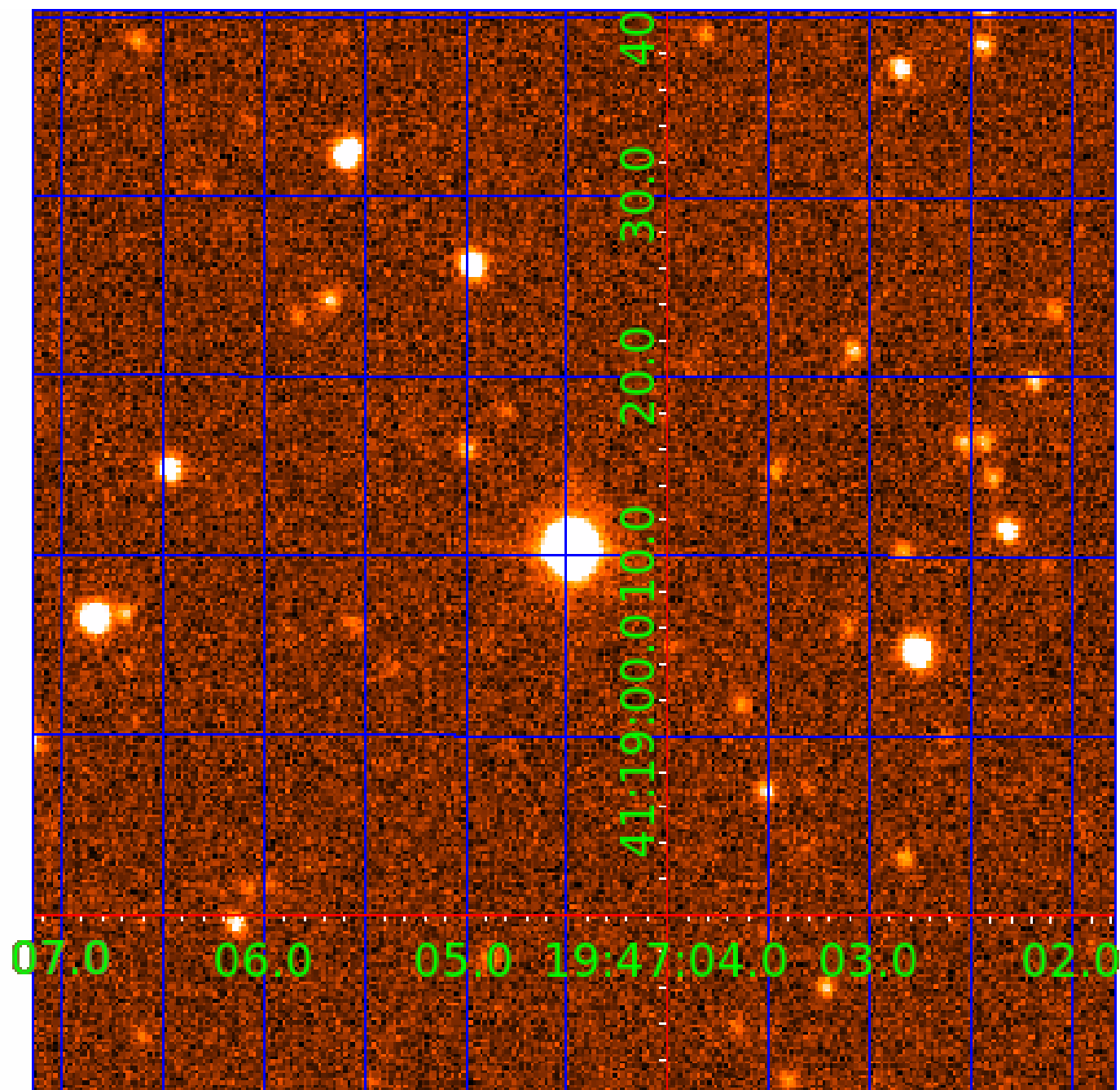


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006060580

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})
006060580-01	OBS	6658.01	2.313373	133.198801	13298.6	2.396	2563.3	1914.9	0.76	5508	12.06	459.84
006060580-02	OBS	No	2.313369	132.042943	5352.2	2.468	1088.0	1042.0	0.76	5508	8.39	459.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006060580-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
006060580-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

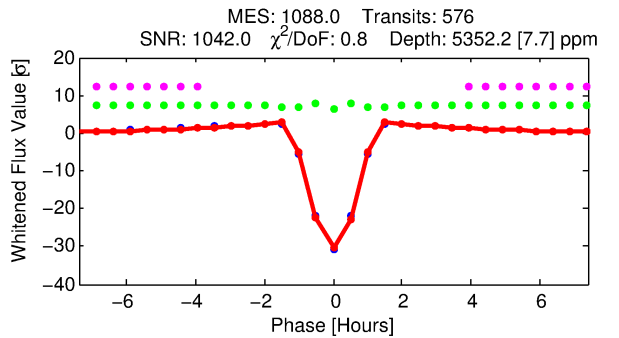
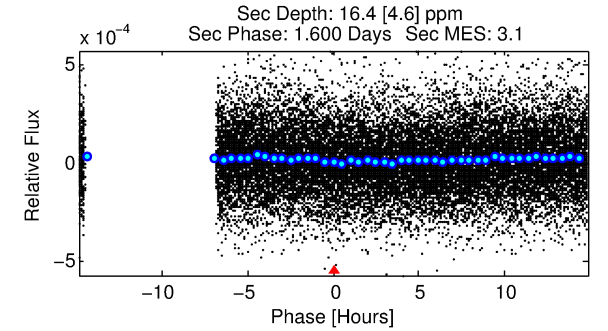
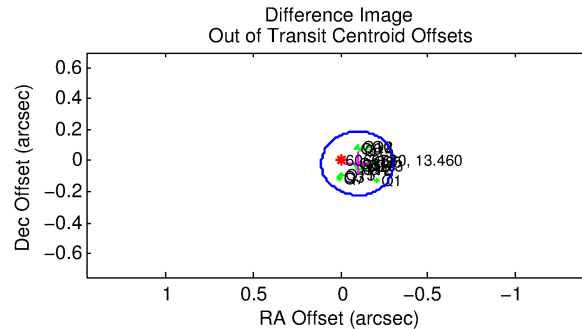
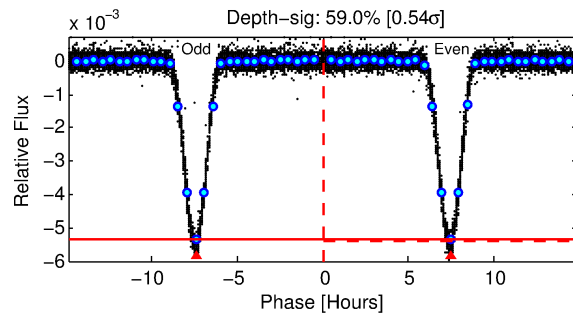
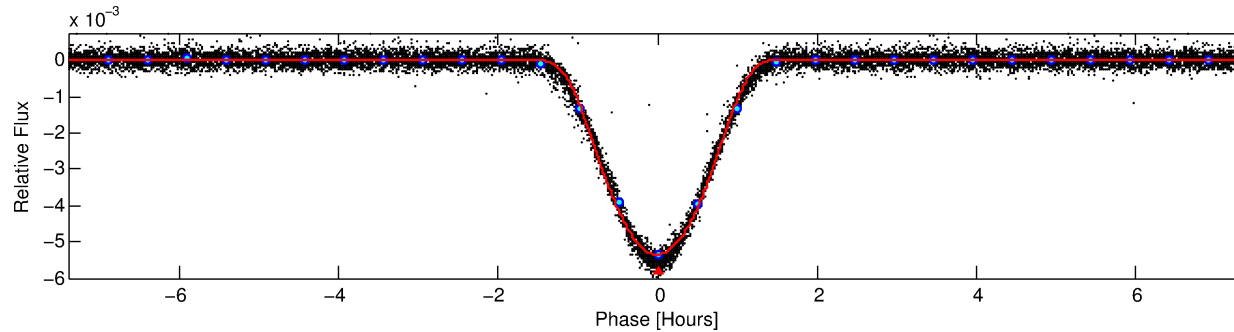
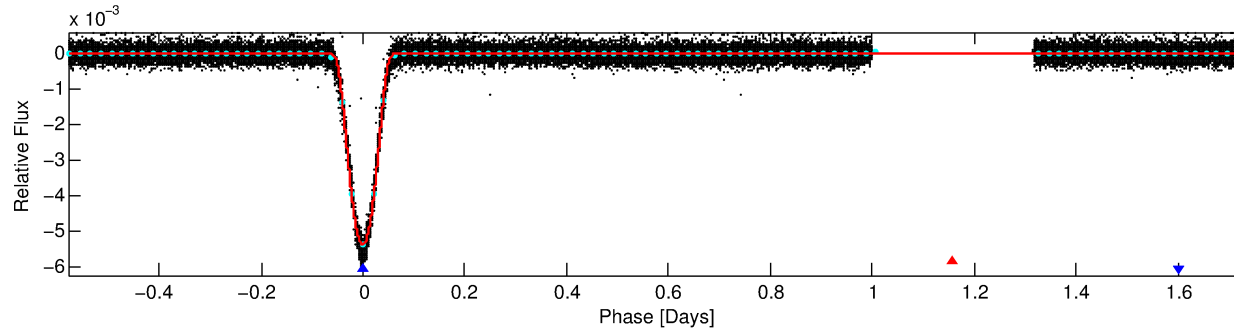
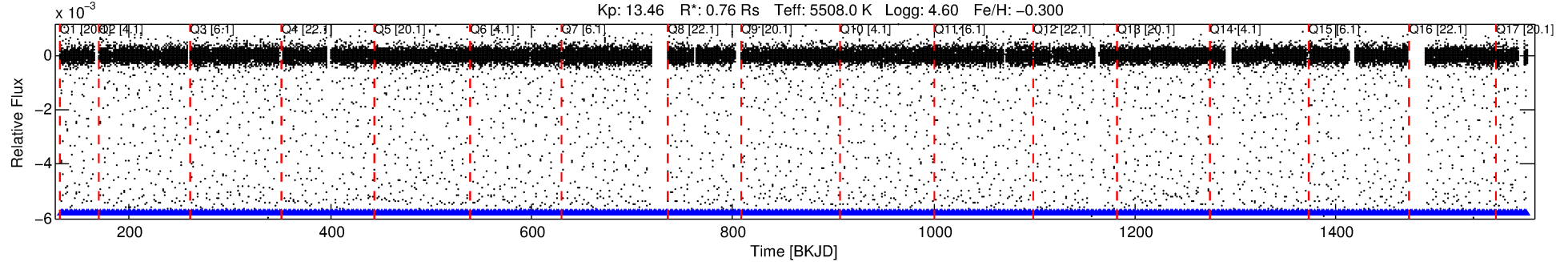
Ephemeris Match Information For 006060580-02

No Significant Match Found

DV One-Page Summary

KIC: 6060580 Candidate: 2 of 2 Period: 2.313 d
KOI: K06658 Corr: No Ephemeris Match

Kp: 13.46 R*: 0.76 Rs Teff: 5508.0 K Logg: 4.60 Fe/H: -0.300



DV Fit Results:

Period = 2.31337 [0.00000] d
Epoch = 132.0429 [0.0000] BKJD
Rp/R* = 0.1007 [0.0023]
a/R* = 3.97 [0.03]
b = 0.96 [0.00]
Seff = 459.84 [119.03]
Teff = 1181 [76] K
Rp = 8.39 [1.66] Re
a = 0.0324 [0.0053] AU
Ag = 0.13 [0.05] [-17.56σ]
Teffp = 1105 [84] K [-0.67σ]

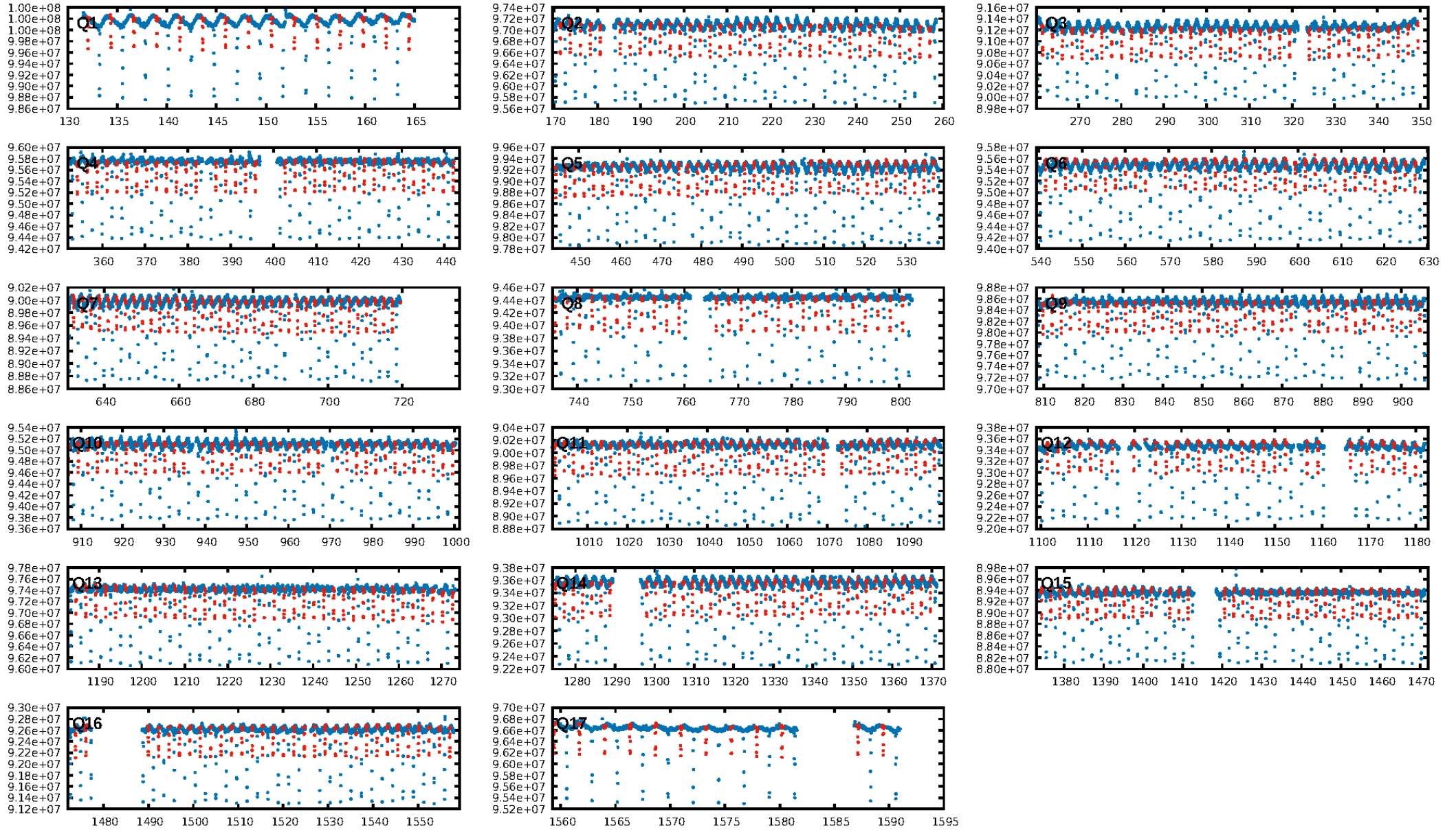
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [549/549]
GhostDiagnostic-chr: 8.573
Centroid-sig: 0.0%
Centroid-so: 0.213 arcsec [18.95σ]
OotOffset-rm: 0.098 arcsec [1.43σ]
KicOffset-rm: 0.045 arcsec [0.62σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

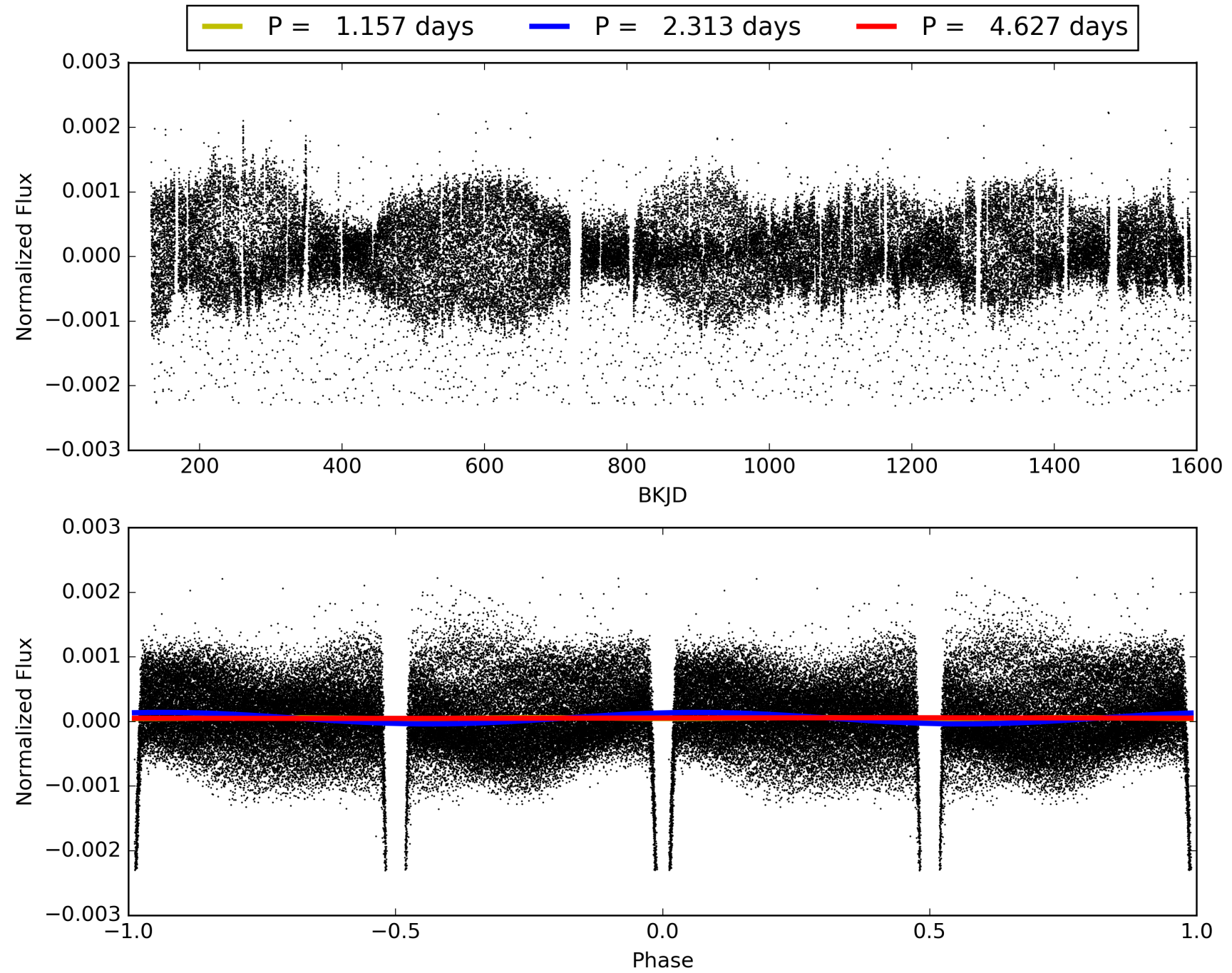
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:56:18 Z

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

TCE 006060580-02, PDC Light Curves

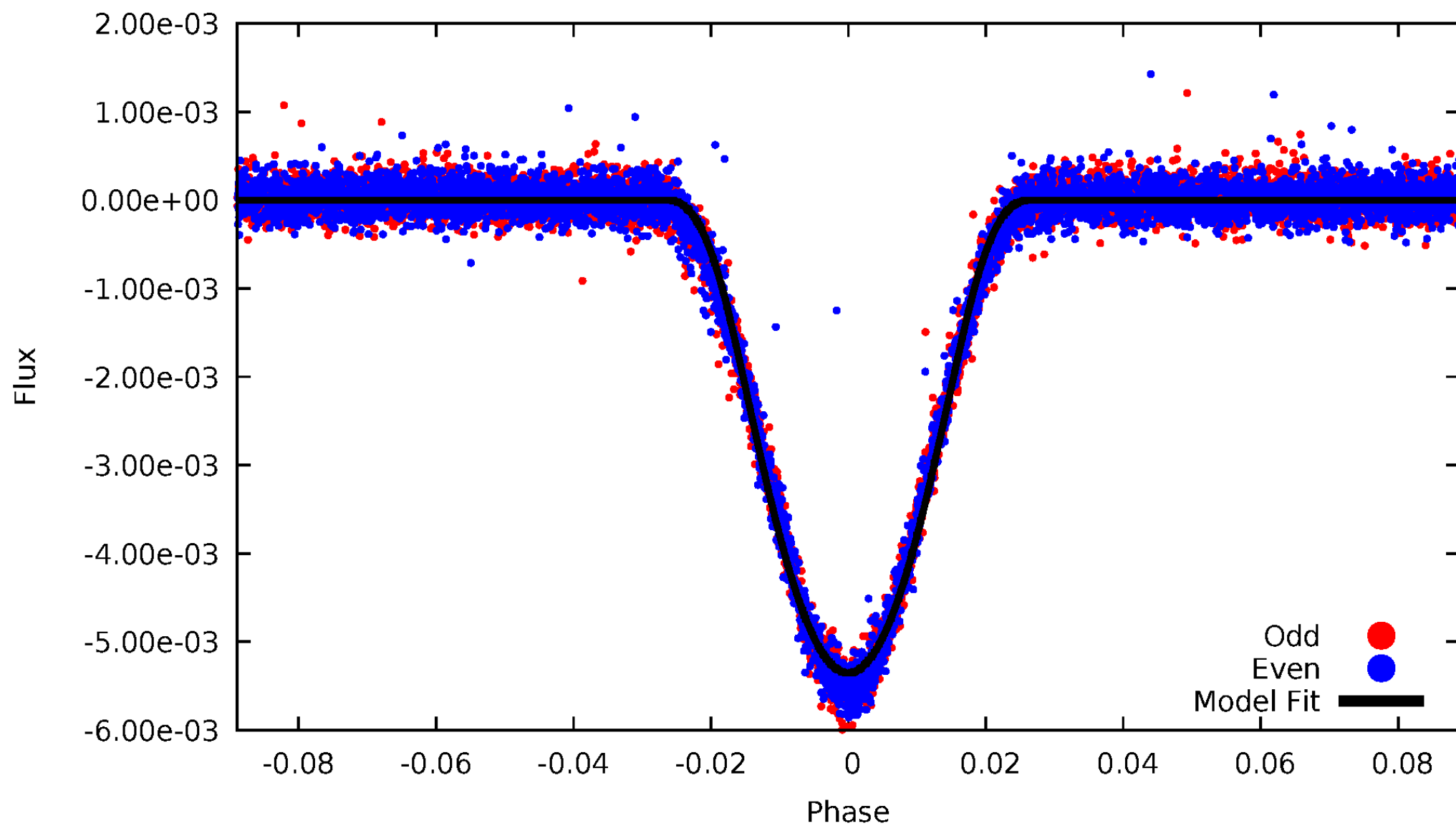


TCE 006060580-02



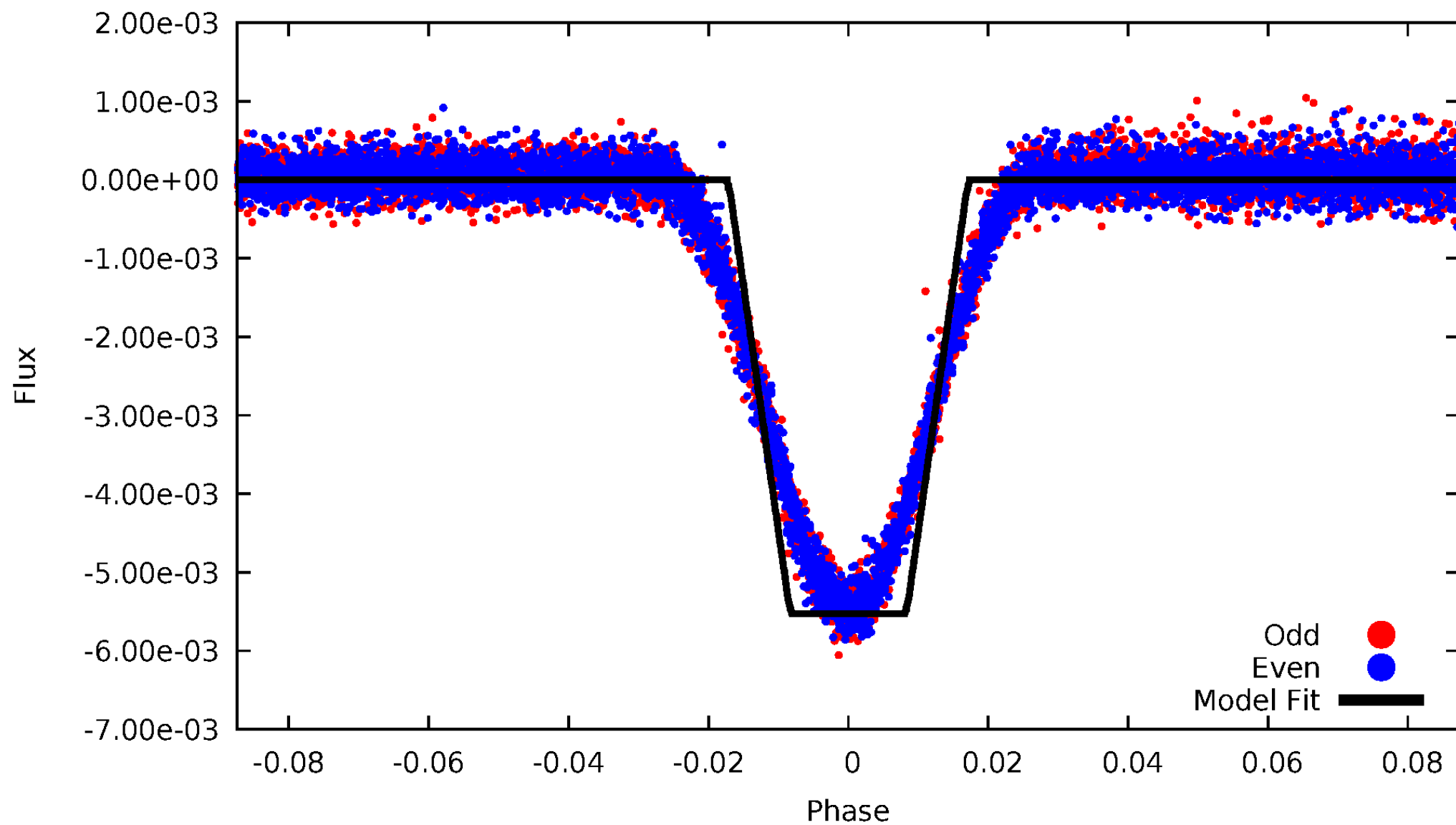
DV Odd/Even

TCE 006060580-02



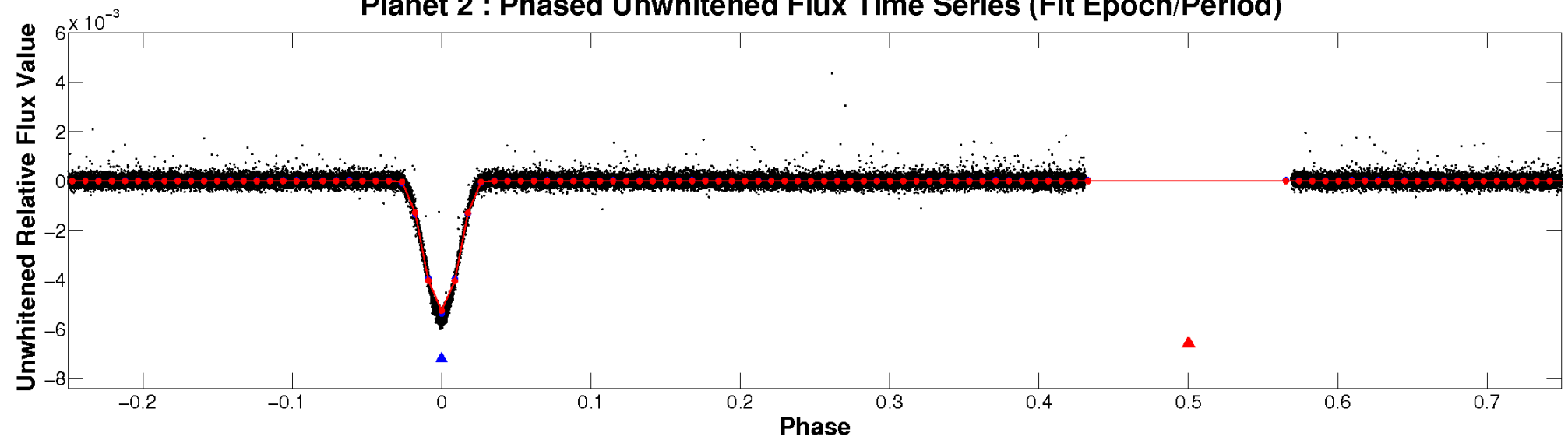
ALT Odd/Even

TCE 006060580-02

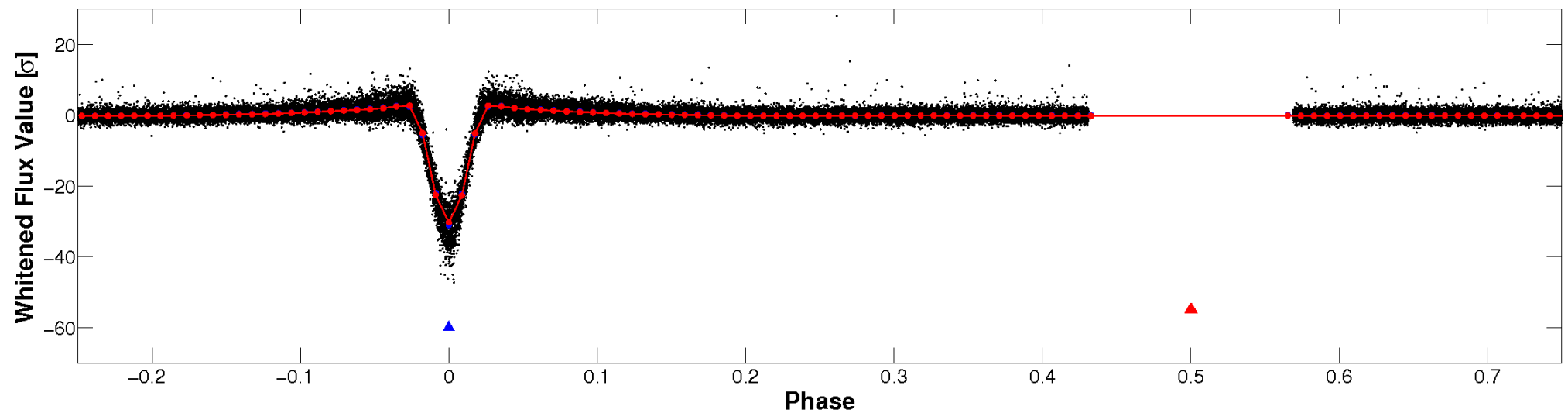


Non-Whitened Vs. Whitened Light Curve

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

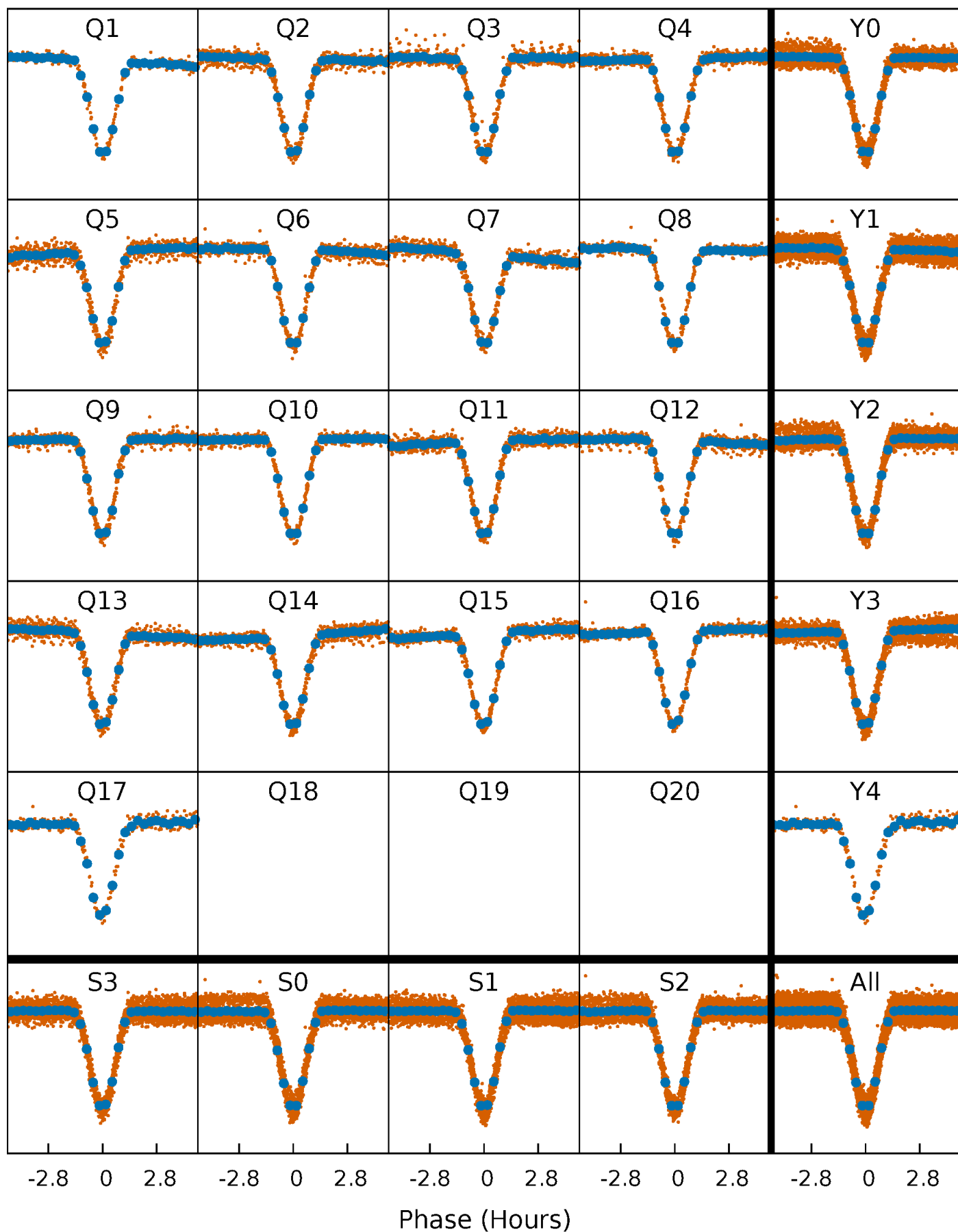


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



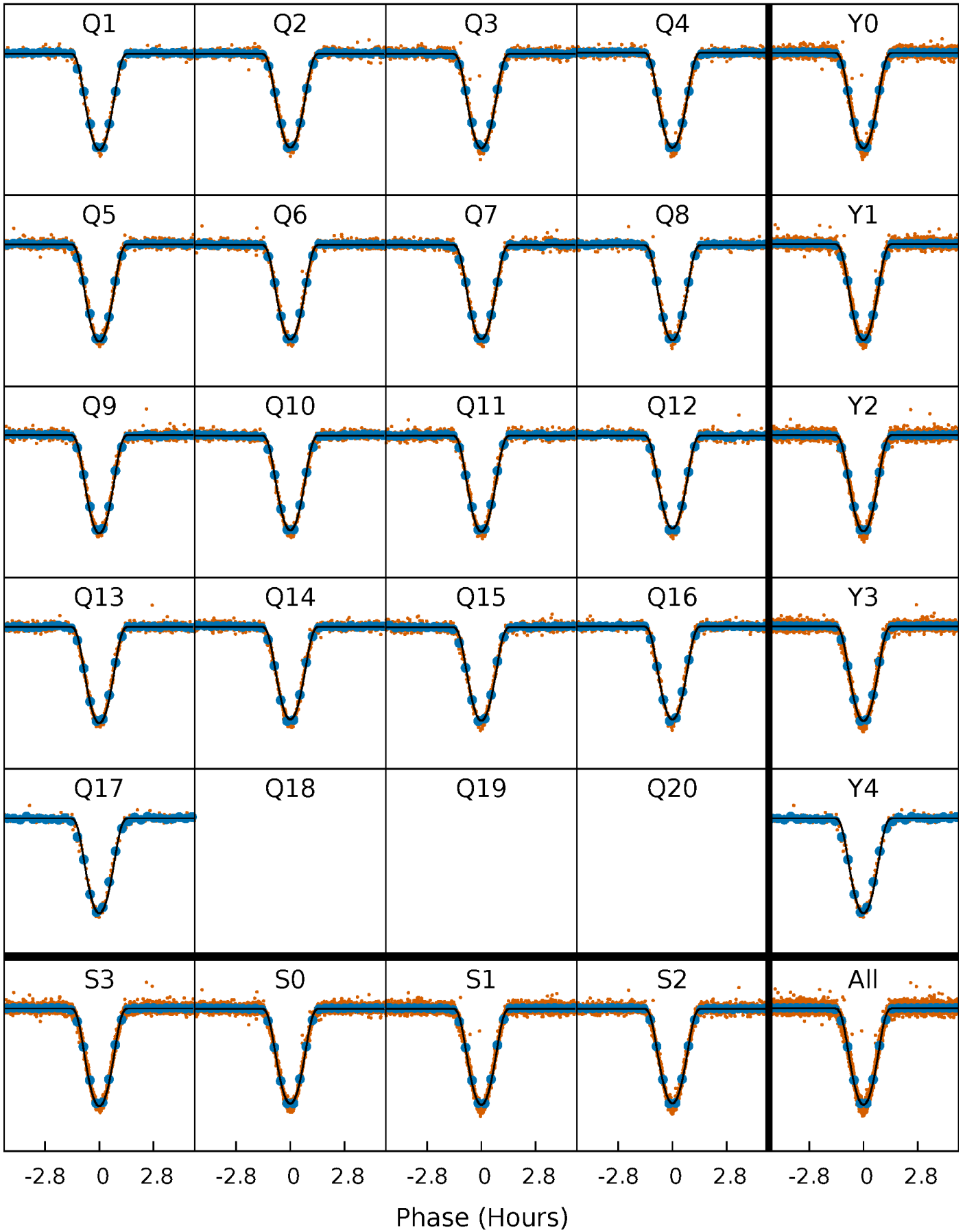
PDC Quarter-Phased Transit Curves

TCE 006060580-02 P= 2.313369 Days $T_0=132.042943$ (BKJD)



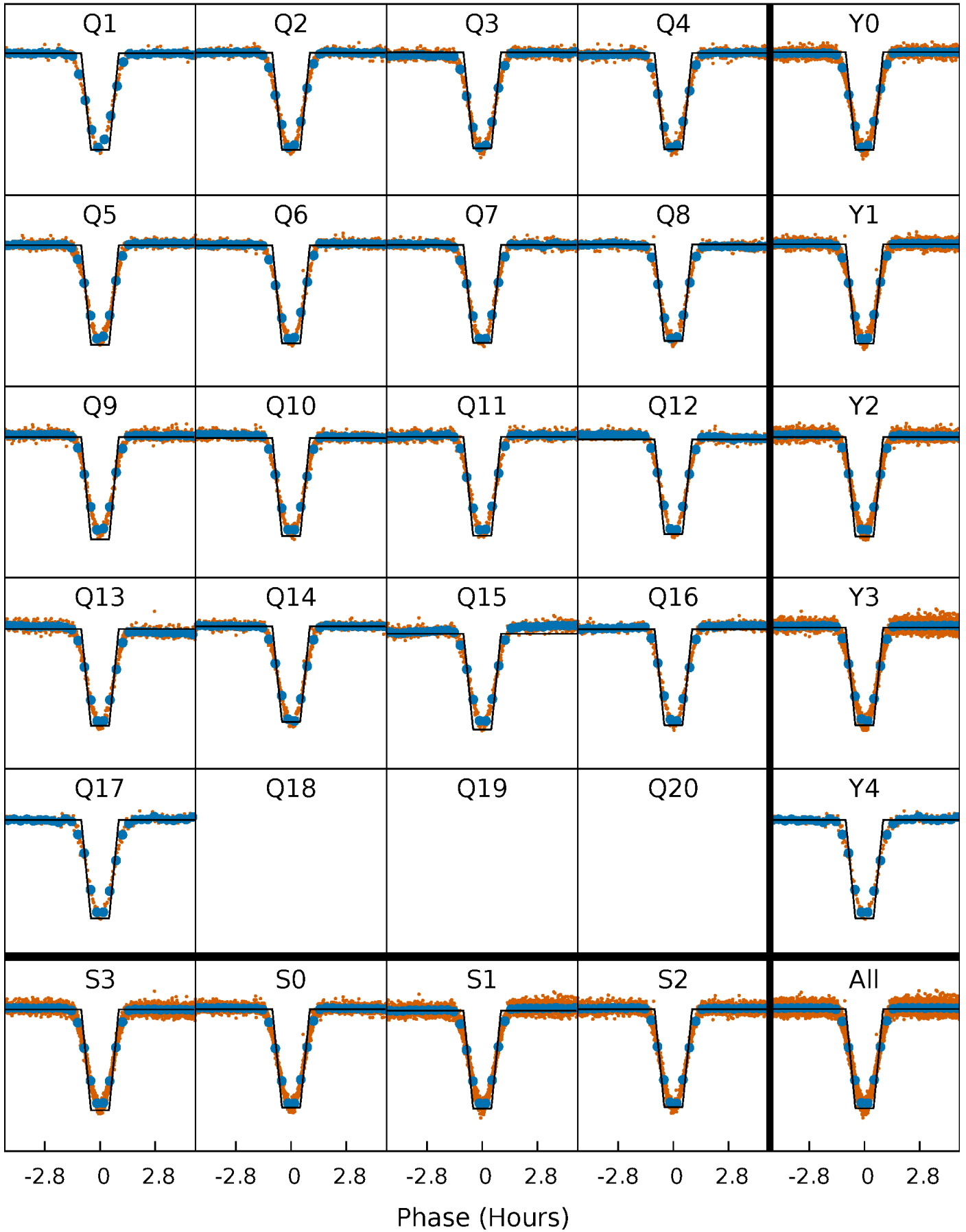
DV Quarter-Phased Transit Curves

TCE 006060580-02 P= 2.313369 Days $T_0=132.042943$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

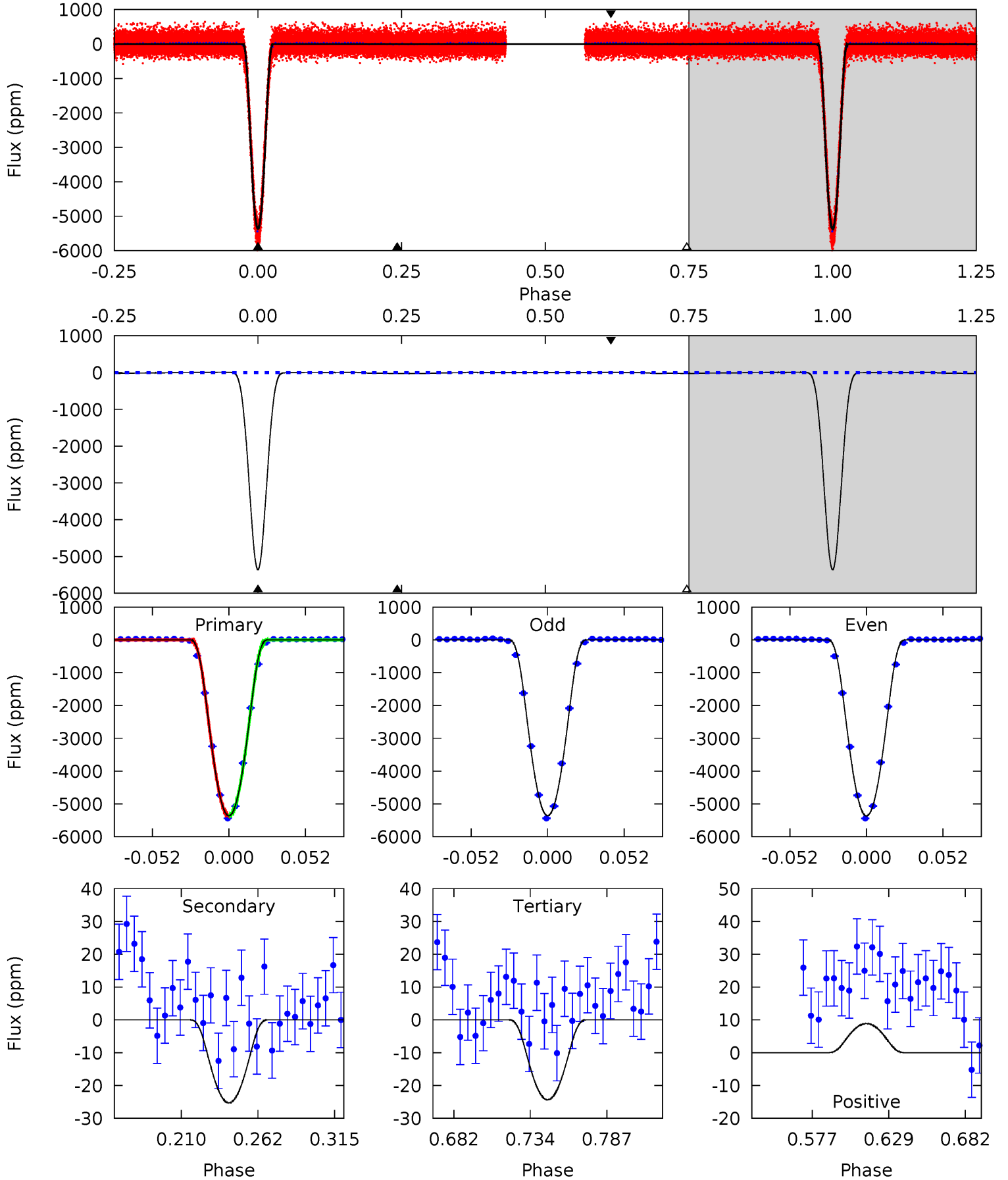
TCE 006060580-02 $P = 2.313363$ Days $T_0 = 132.044654$ (BKJD)



DV Model-Shift Uniqueness Test

006060580-02, P = 2.313369 Days, E = 129.729574 Days

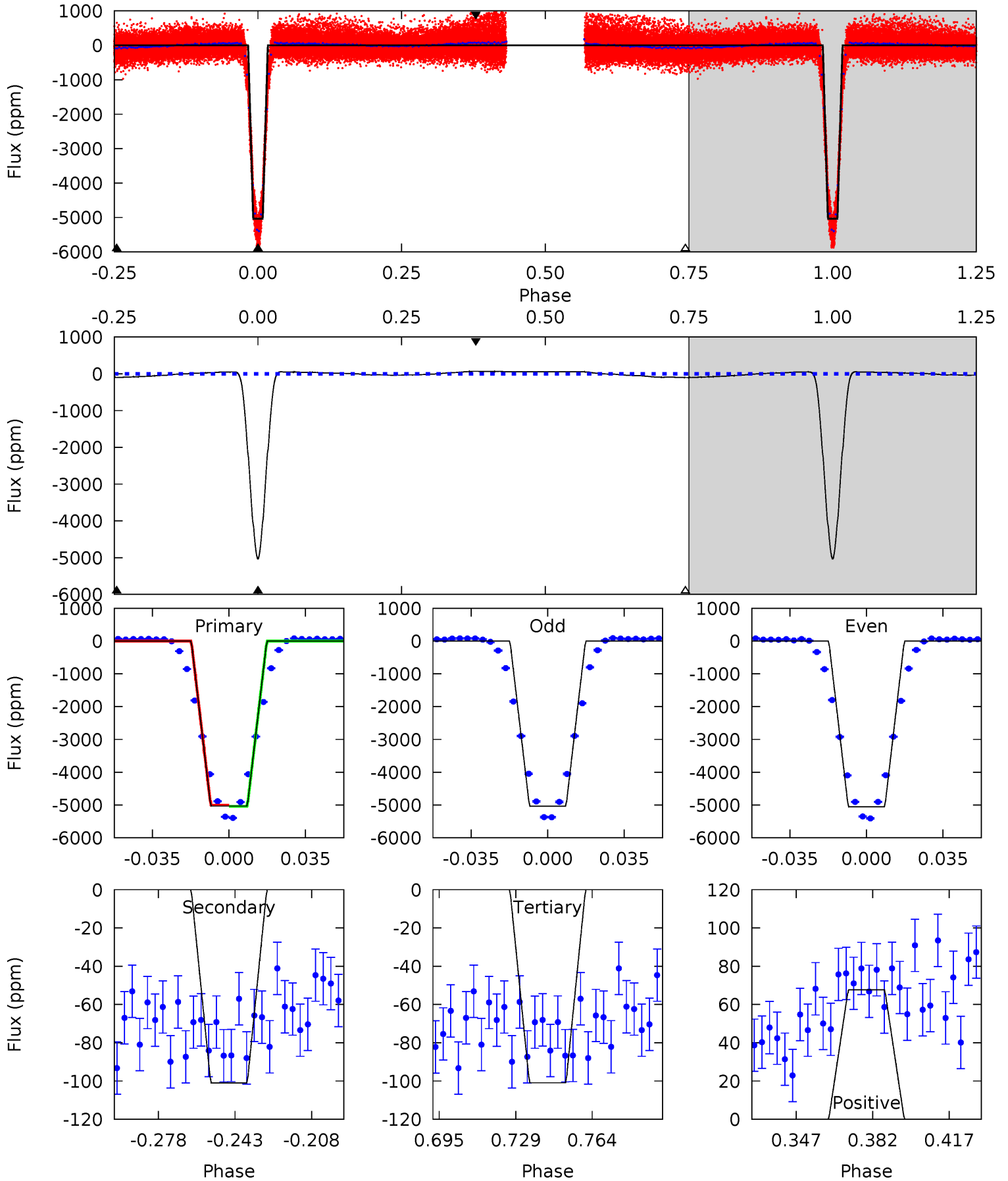
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1999	9.43	9.08	3.31	4.70	1.94	3.68	1990	1996	0.35	6.12	1.55	1.00	0.00	0.15



Alt Model-Shift Uniqueness Test

006060580-02, P = 2.313363 Days, E = 129.731291 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
981.9	19.7	19.7	13.2	4.78	2.11	9.14	962.2	968.7	0.01	6.50	1.98	1.00	0.01	3.68



Stellar Parameters For KIC 006060580

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5508^{+150}_{-150}	$4.598^{+0.034}_{-0.127}$	$-0.300^{+0.300}_{-0.300}$	$0.764^{+0.150}_{-0.064}$	$0.855^{+0.082}_{-0.100}$	$2.700^{+0.478}_{-1.048}$
	+3%/-3%	+1%/-3%	+100%/-100%	+20%/-8%	+10%/-12%	+18%/-39%
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 006060580-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-25 ± 3	$8.62^{+0.81}_{-0.63}$	1676^{+81}_{-65}	-2045^{+94}_{-94}	$0.193^{+0.033}_{-0.034}$
Alt.	-101 ± 5	$6.39^{+0.67}_{-0.47}$	1683^{+80}_{-67}	2685^{+60}_{-57}	$1.412^{+0.218}_{-0.231}$

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 $A_{obs} \gg 1.0$

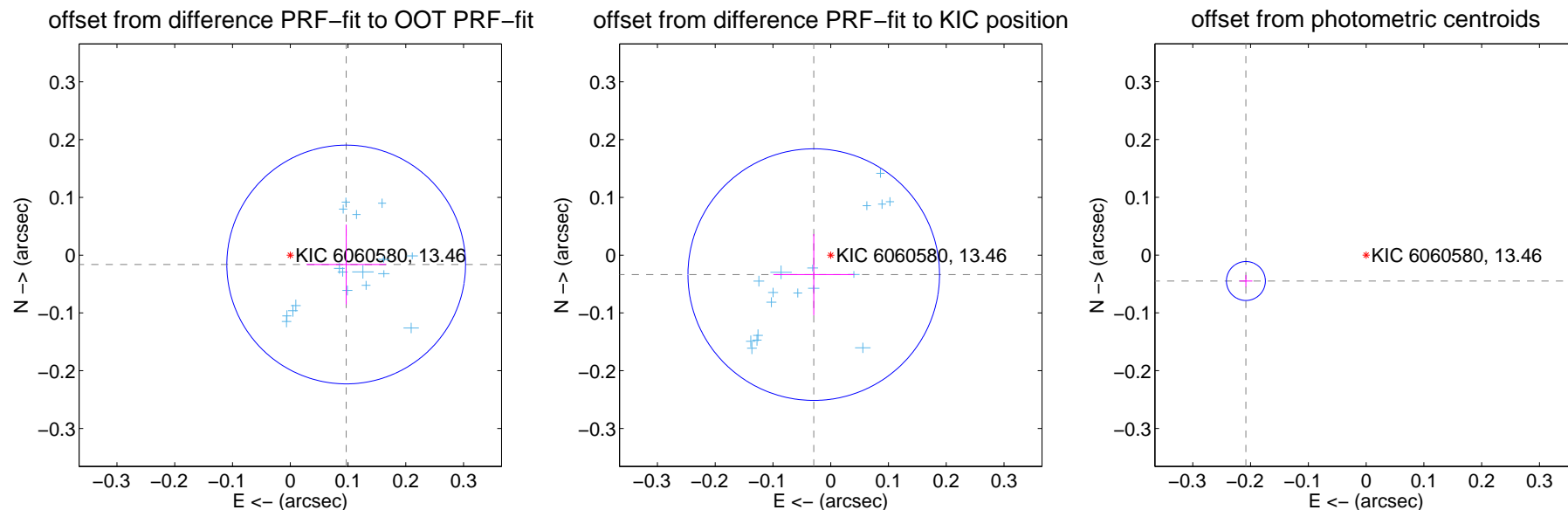
DV Centroid Data

Supplemental centroid analysis for 006060580-02. Kepler magnitude: 13.46. Transit SNR 1041.99

There are 17 quarters with good PRF difference image offsets

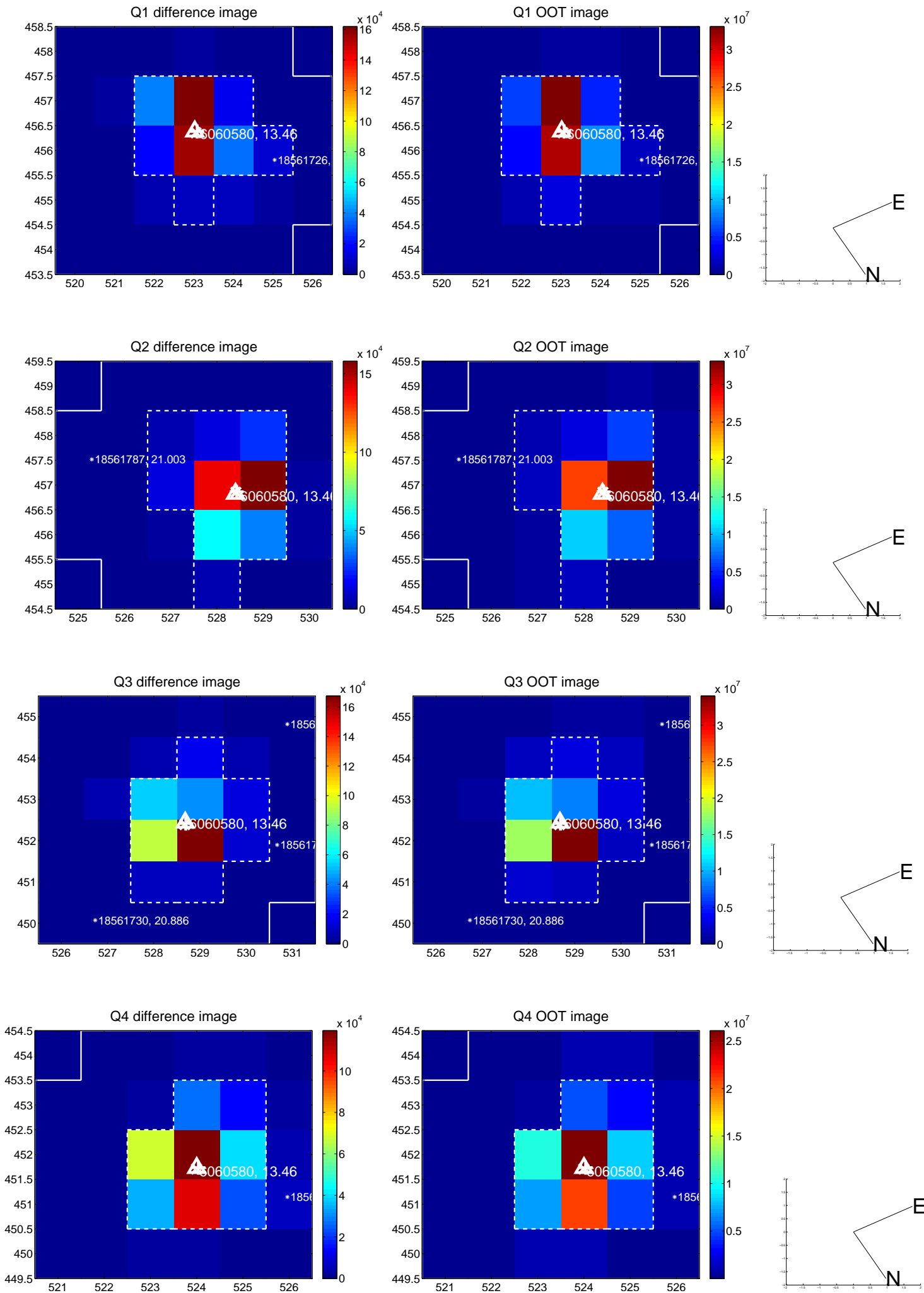
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.098 ± 0.069	1.43	-0.097 ± 0.069	-0.016 ± 0.069
PRF-fit source offset from KIC position	0.045 ± 0.073	0.62	0.029 ± 0.070	-0.034 ± 0.070
photometric centroid source offset	0.21 ± 0.01	18.95	0.21 ± 0.01	-0.04 ± 0.01

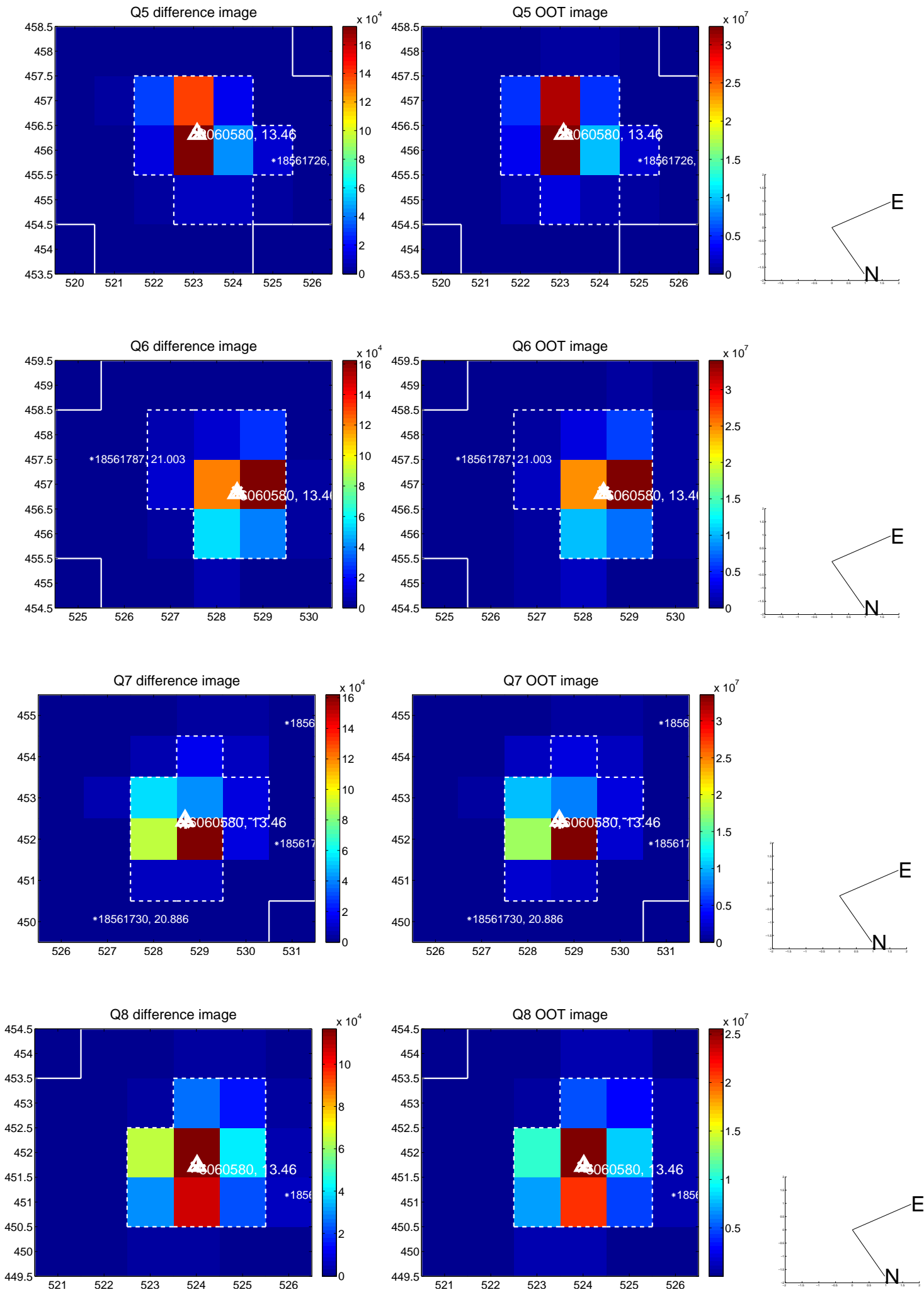


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

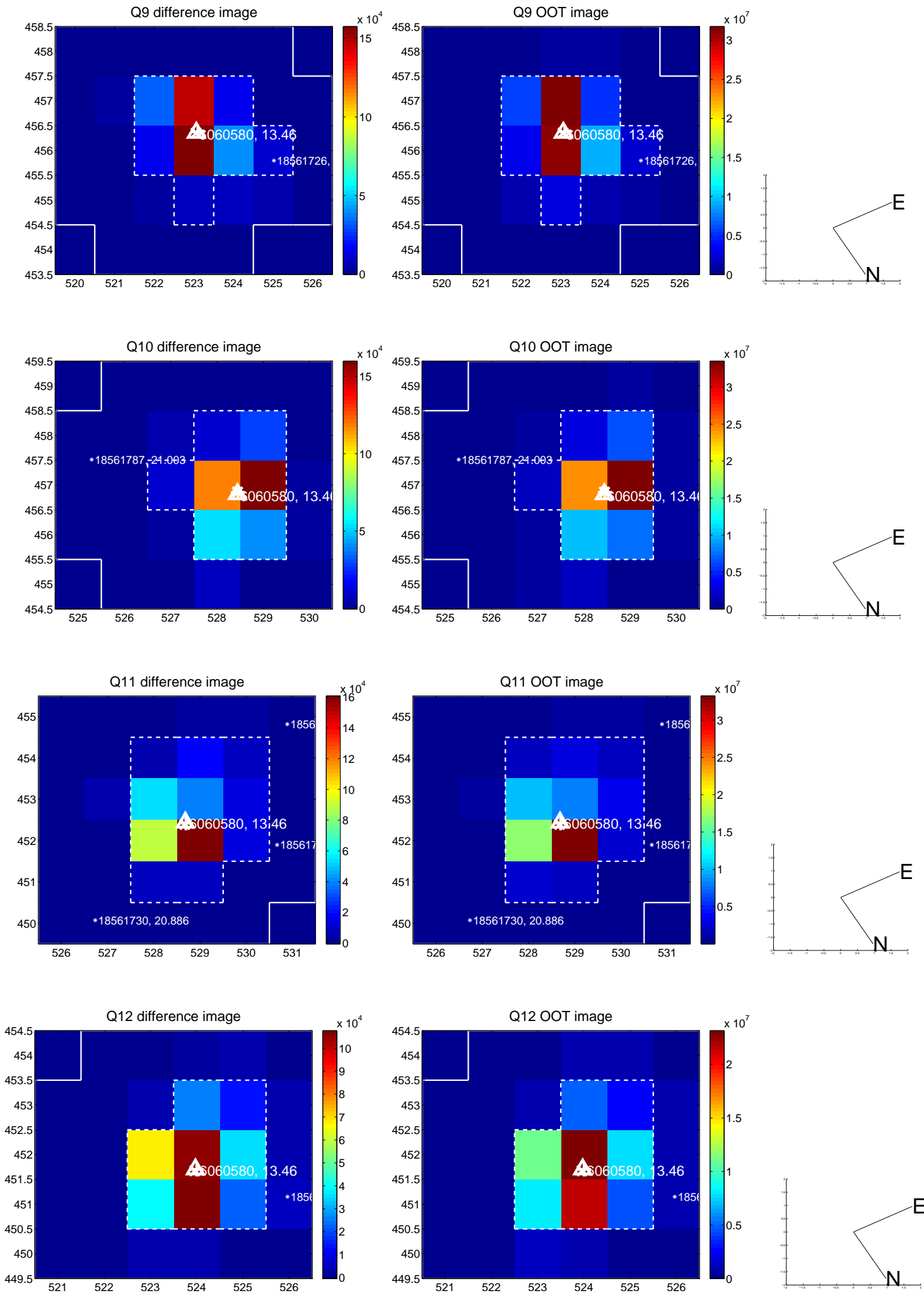
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



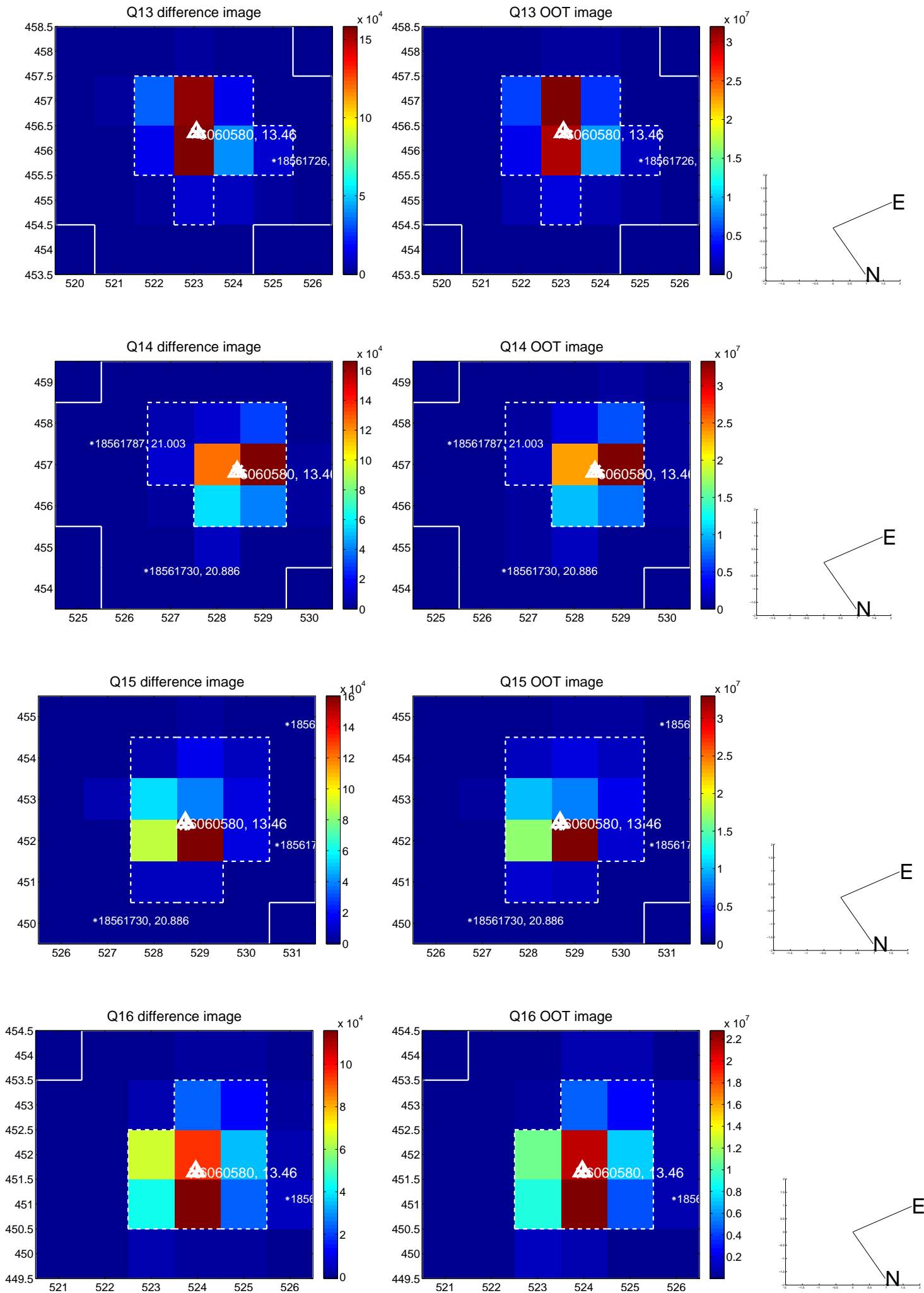
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



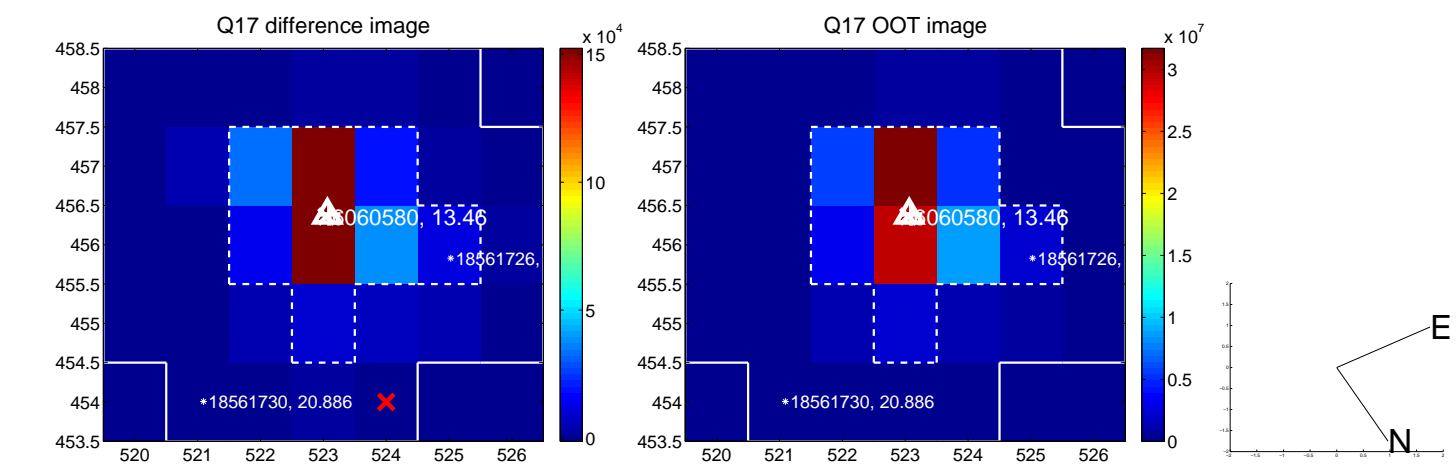
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



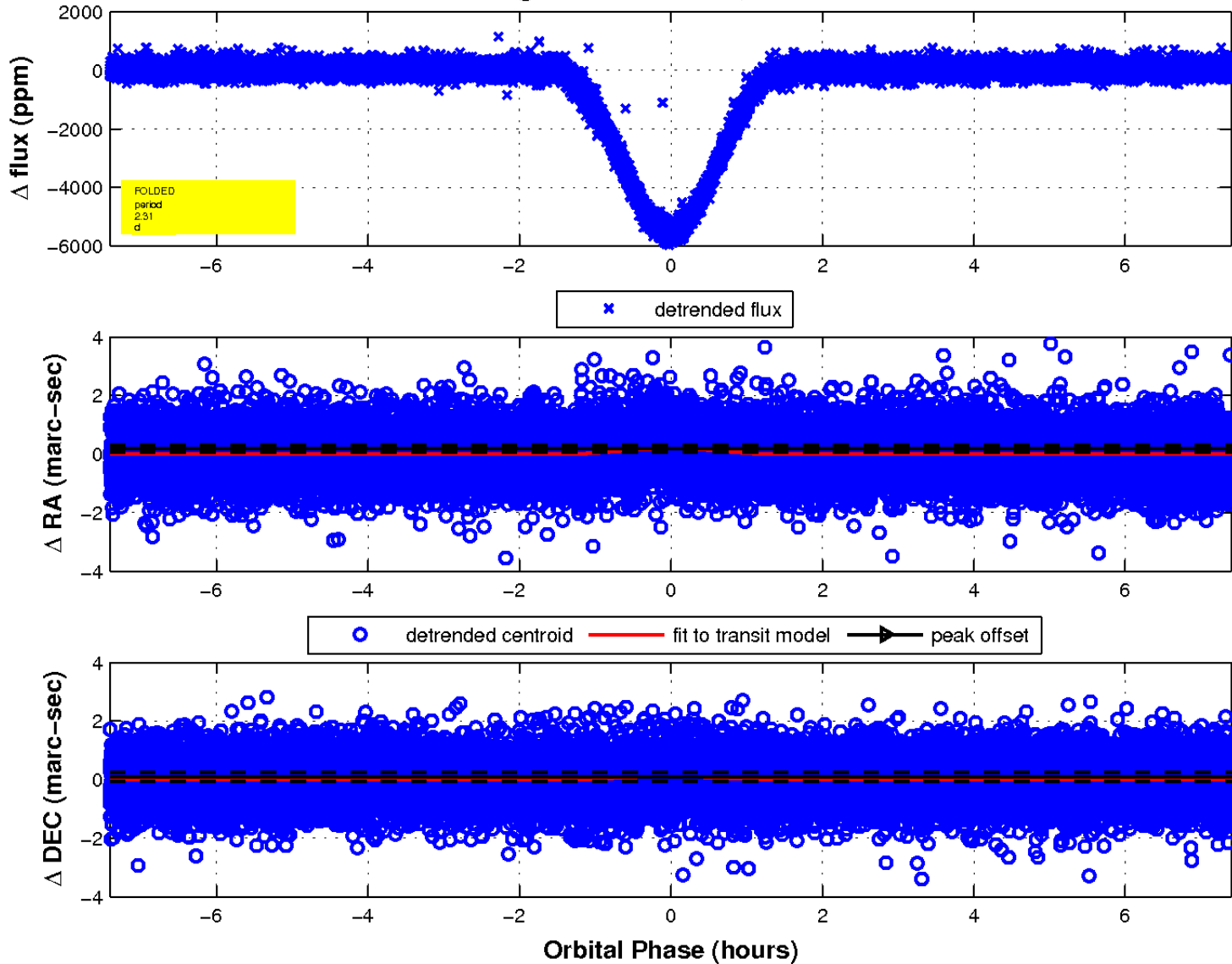
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

