

KIC 009531991

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})
009531991-01	OBS	No	1.155588	132.079881	135.3	11.108	23.9	28.5	4.43	10715	6.10	226881.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009531991-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV

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

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

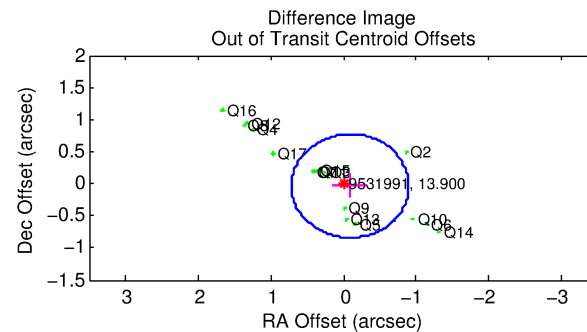
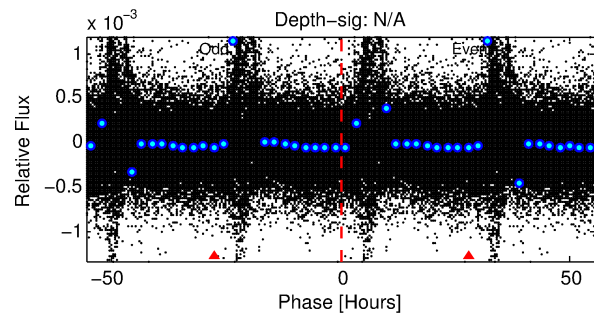
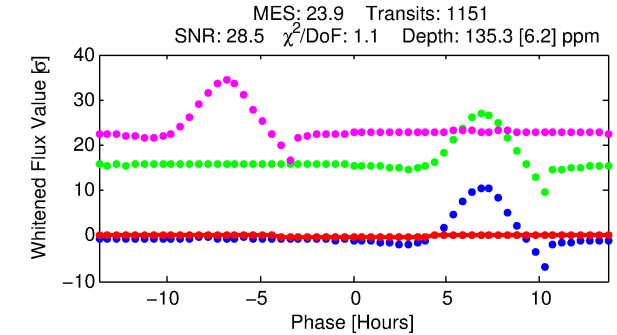
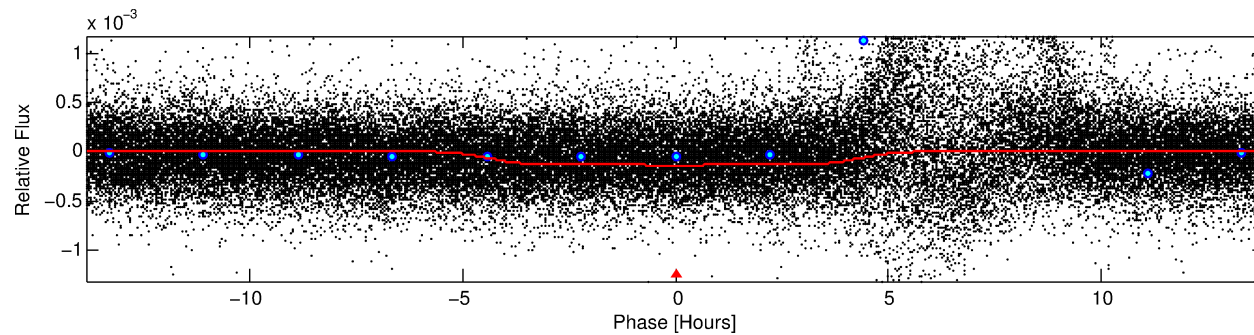
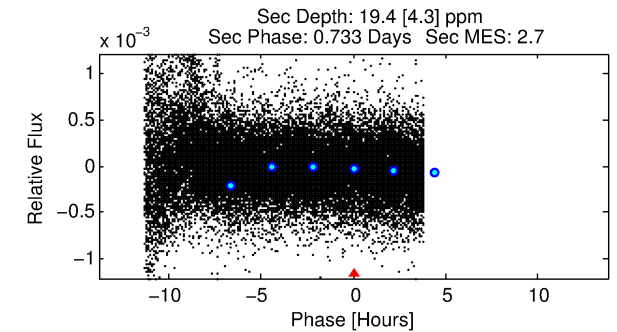
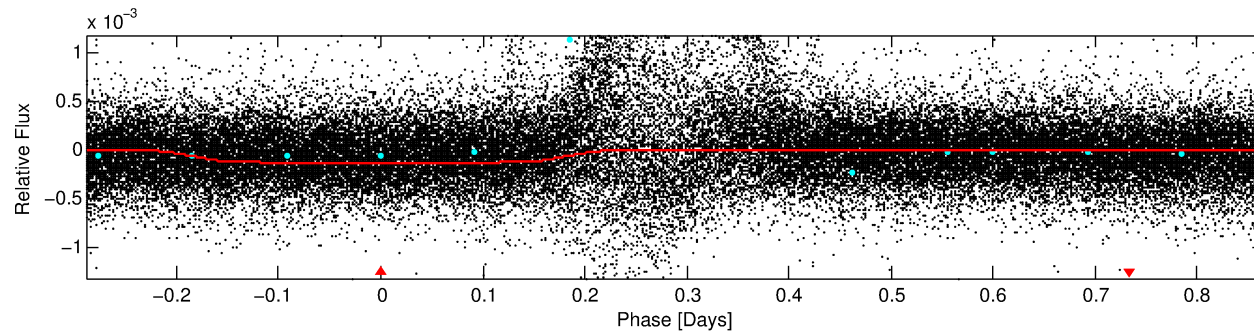
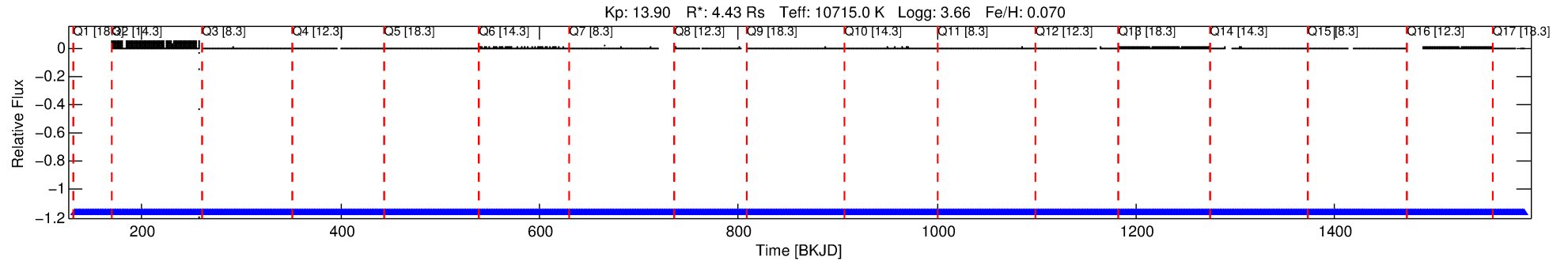
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009531991-01

No Significant Match Found

DV One-Page Summary

KIC: 9531991 Candidate: 1 of 1 Period: 1.156 d



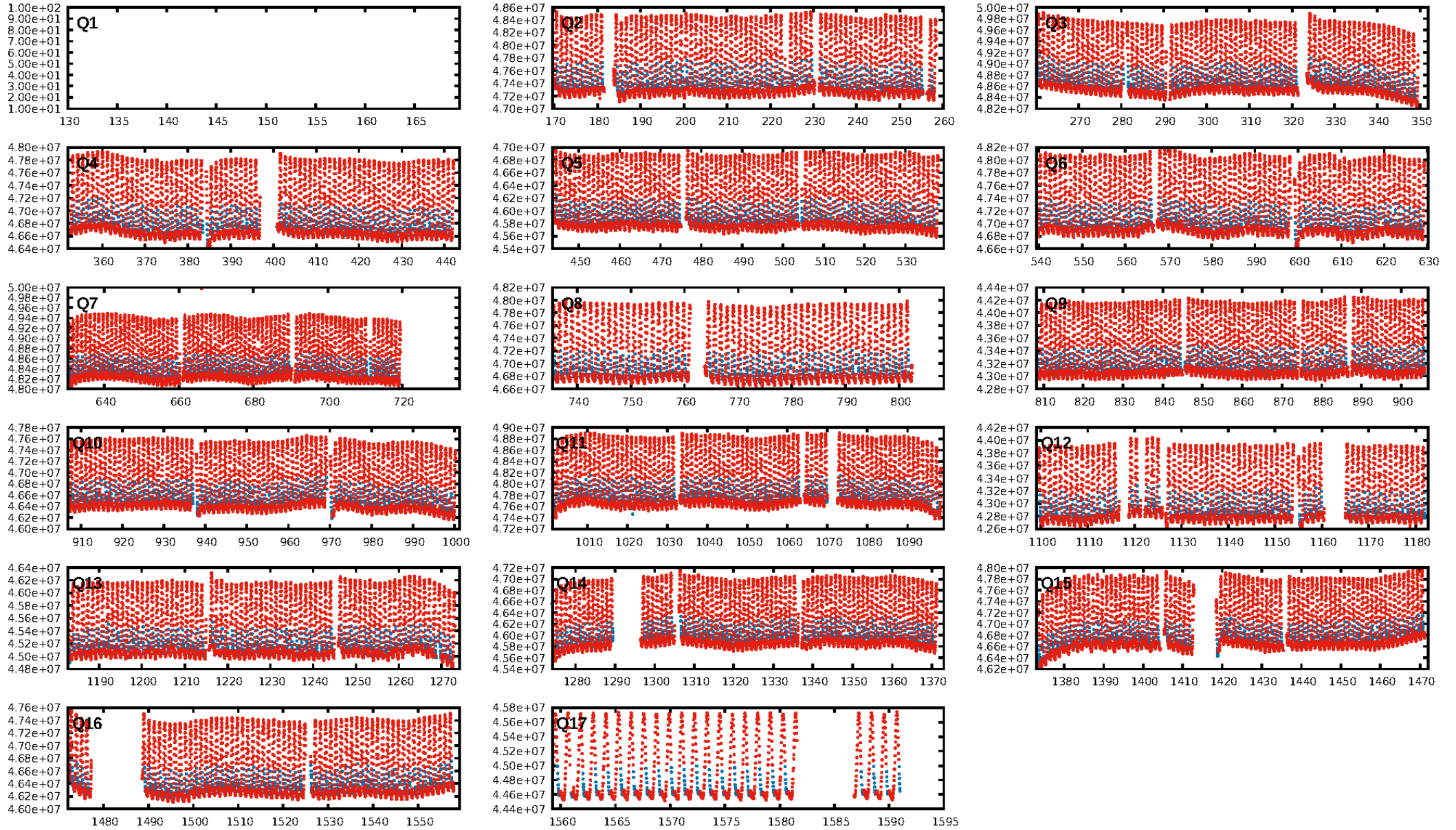
DV Fit Results:

Period = 1.15559 [0.00001] d
Epoch = 132.0799 [0.0033] BKJD
Rp/R* = 0.0126 [0.0003]
a/R* = 1.02 [0.00]
b = 0.95 [0.01]
Seff = 226881.89 [145895.78]
Teff = 5565 [895] K
Rp = 6.10 [2.53] Re
a = 0.0319 [0.0125] AU
Ag = 0.29 [0.19] [-3.68σ]
Teffp = 6325 [460] K [0.75σ]

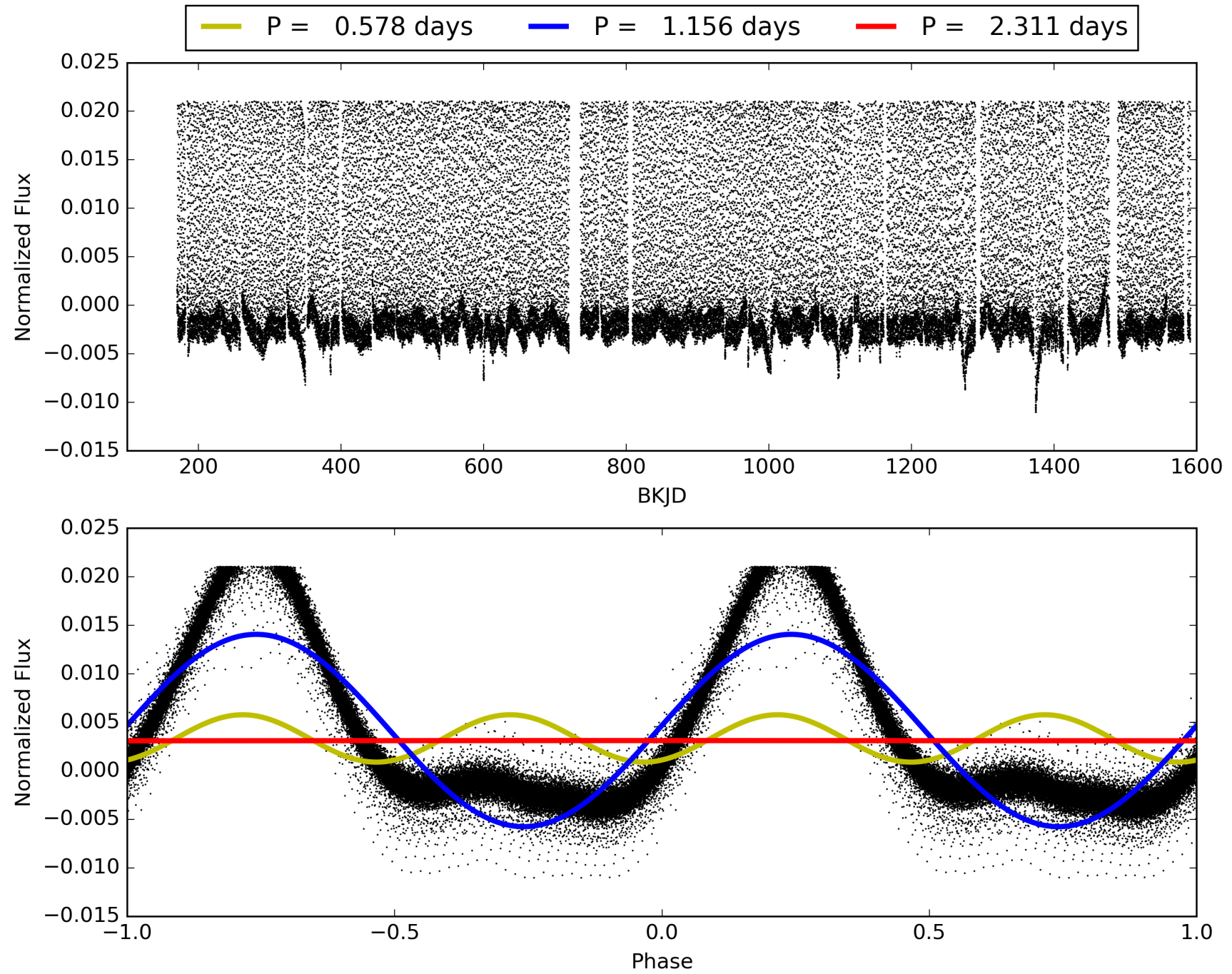
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1127/1127]
GhostDiagnostic-chr: 2.453
Centroid-sig: N/A
Centroid-so: 1.173 arcsec [5.82σ]
OotOffset-rm: 0.097 arcsec [0.36σ]
KicOffset-rm: 0.326 arcsec [1.24σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 009531991-01, PDC Light Curves

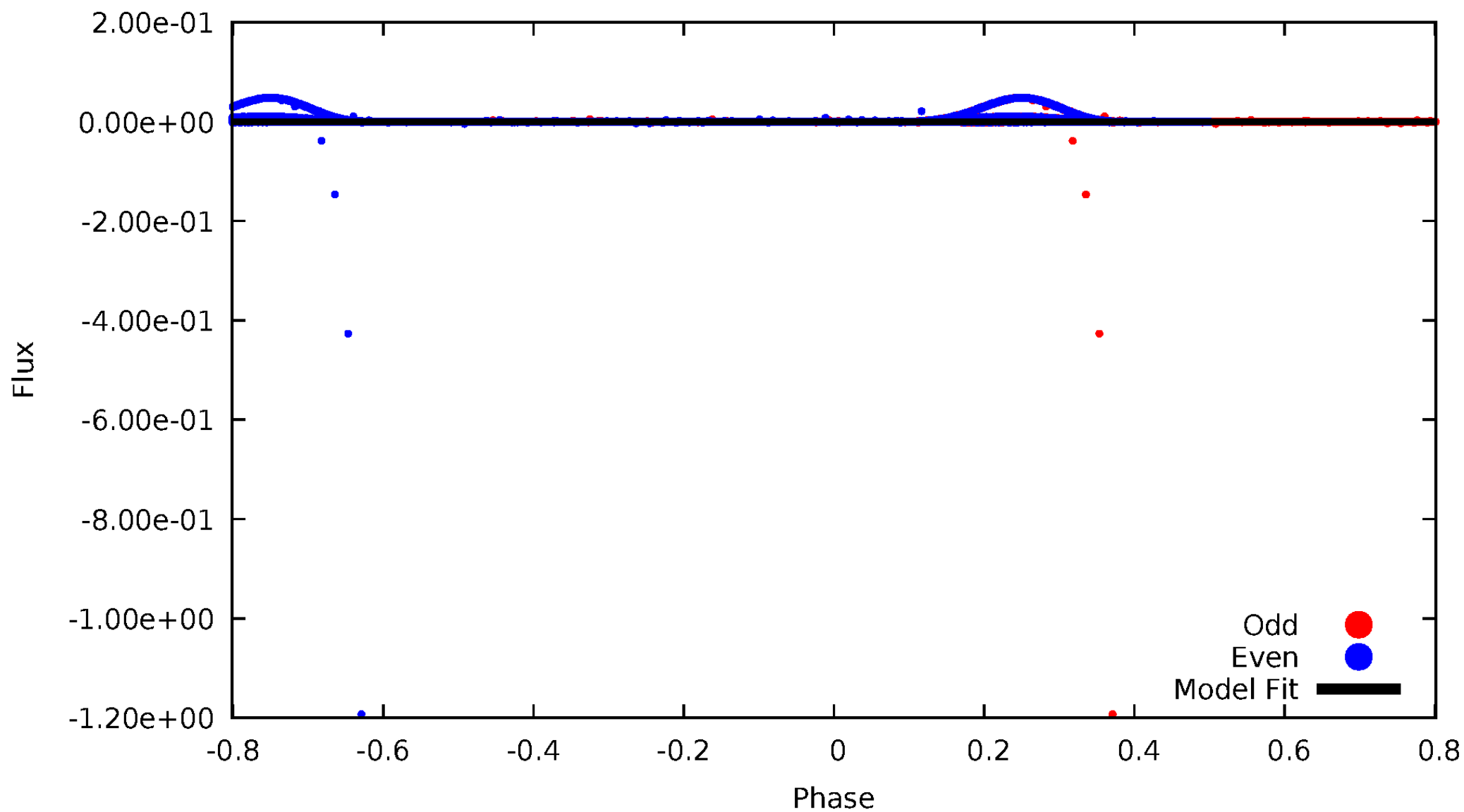


TCE 009531991-01



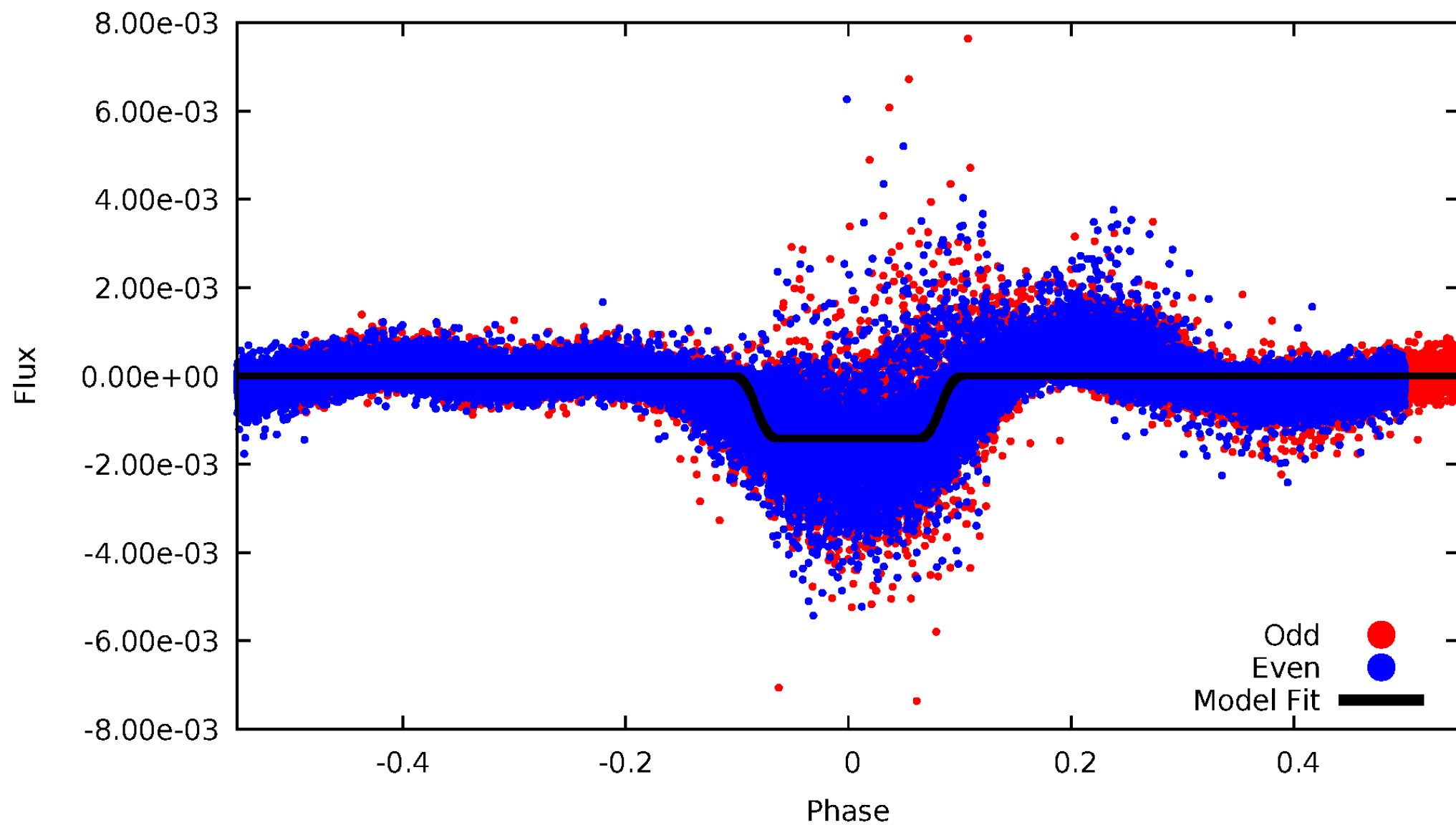
DV Odd/Even

TCE 009531991-01



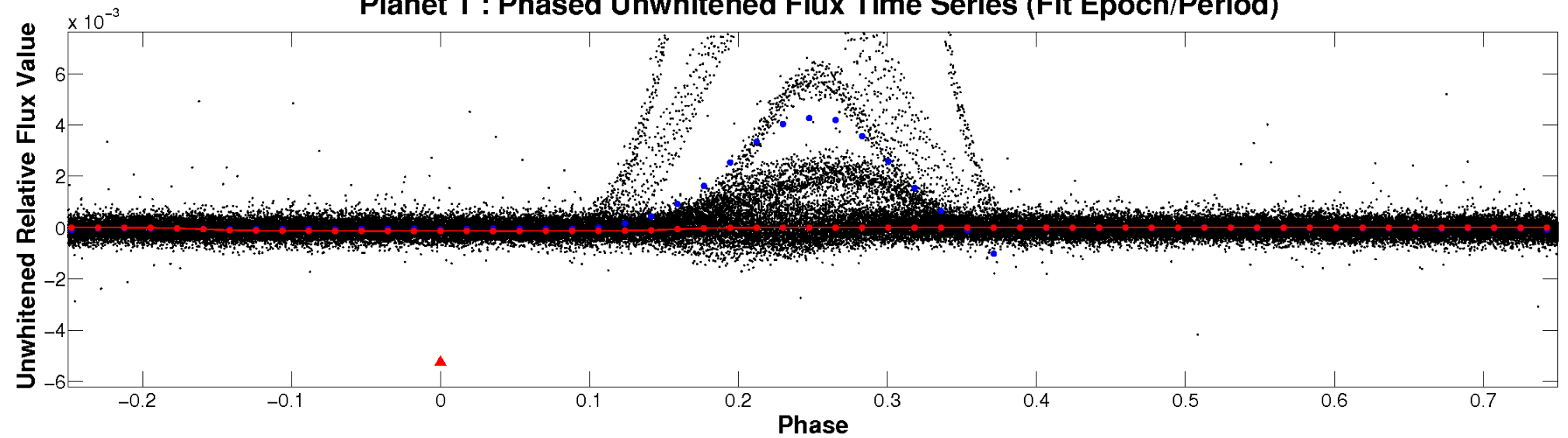
ALT Odd/Even

TCE 009531991-01

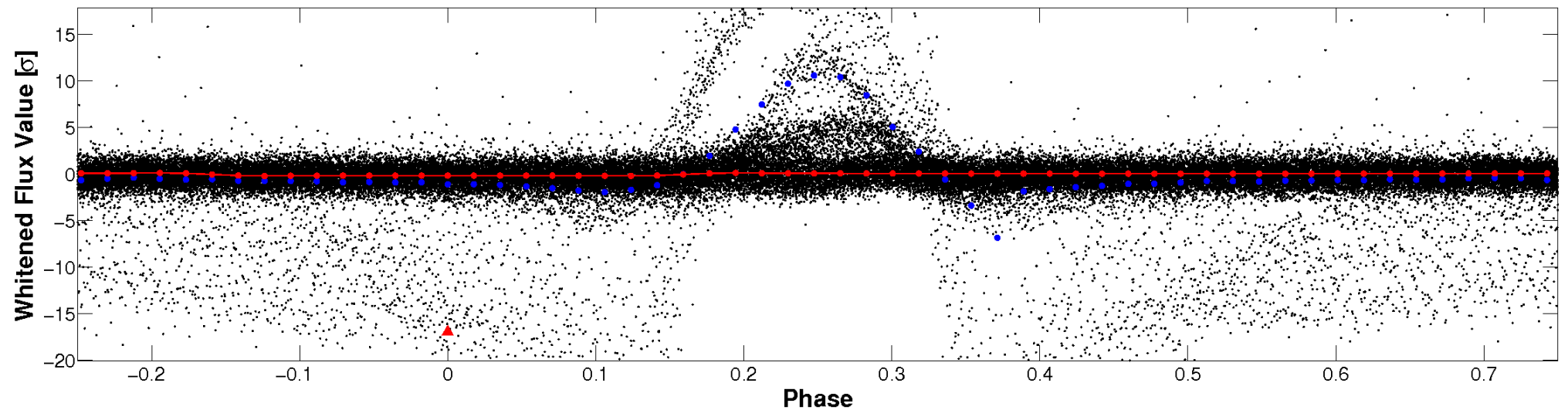


Non-Whitened Vs. Whitened Light Curve

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

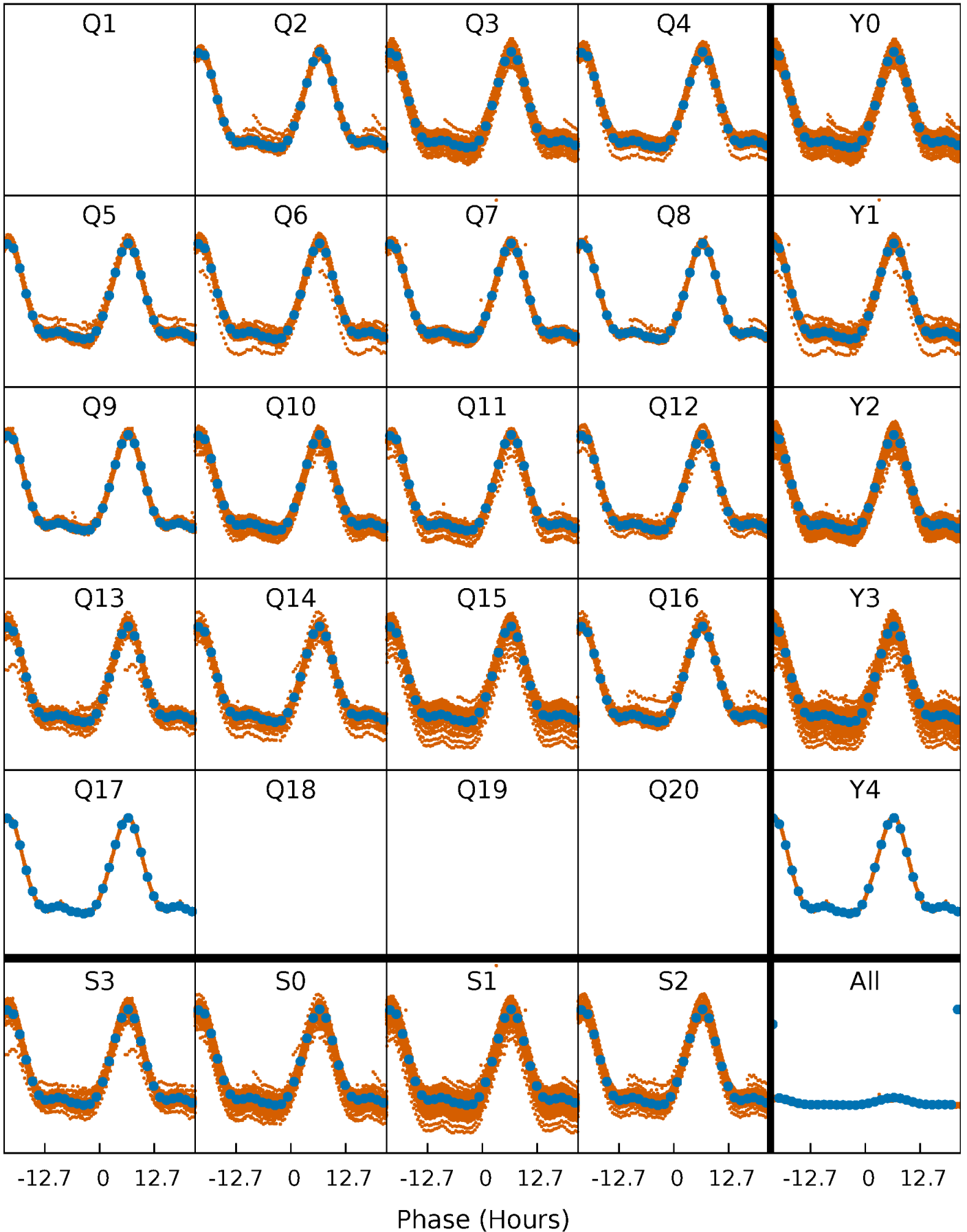


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



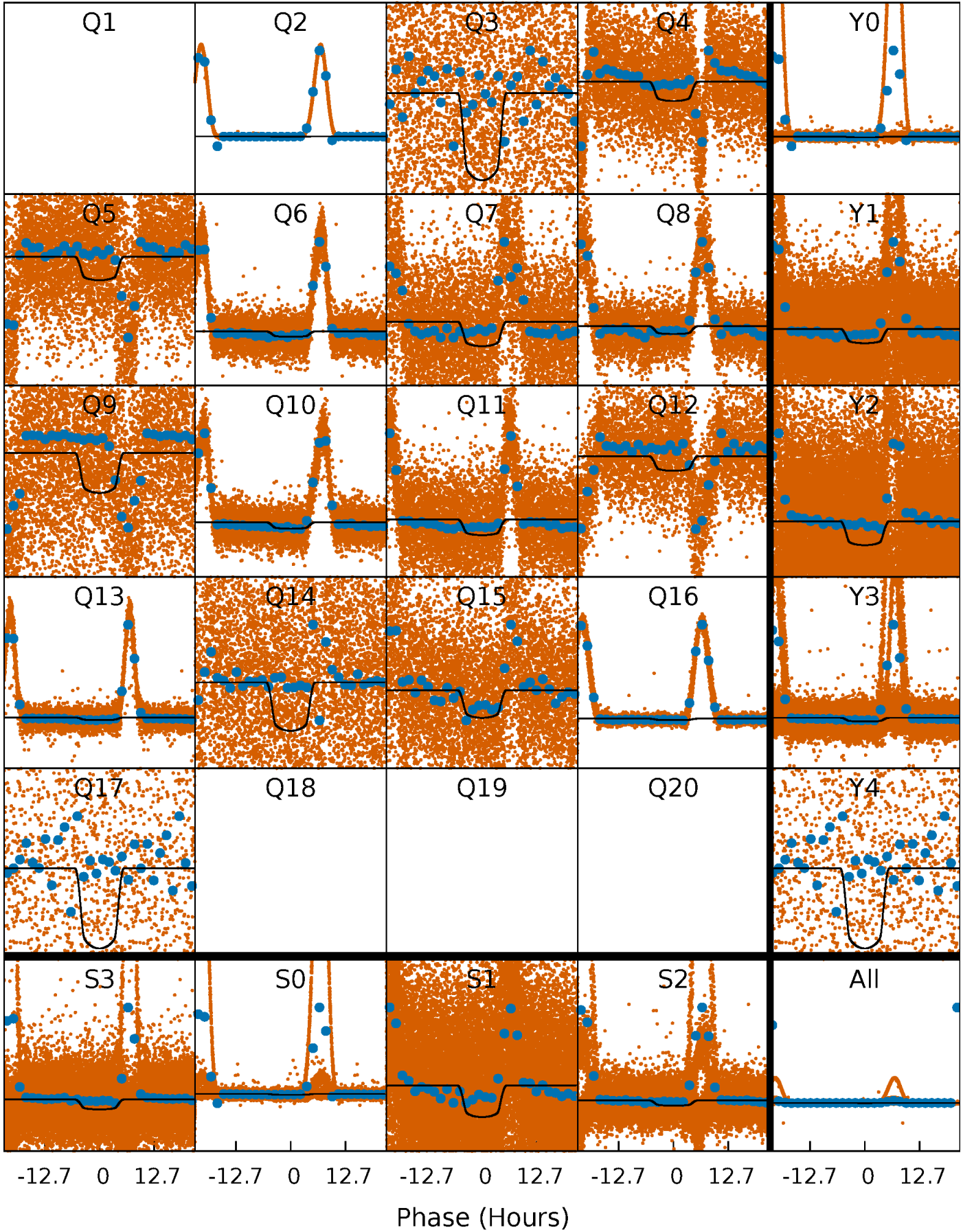
PDC Quarter-Phased Transit Curves

TCE 009531991-01 P= 1.155588 Days $T_0=132.079881$ (BKJD)



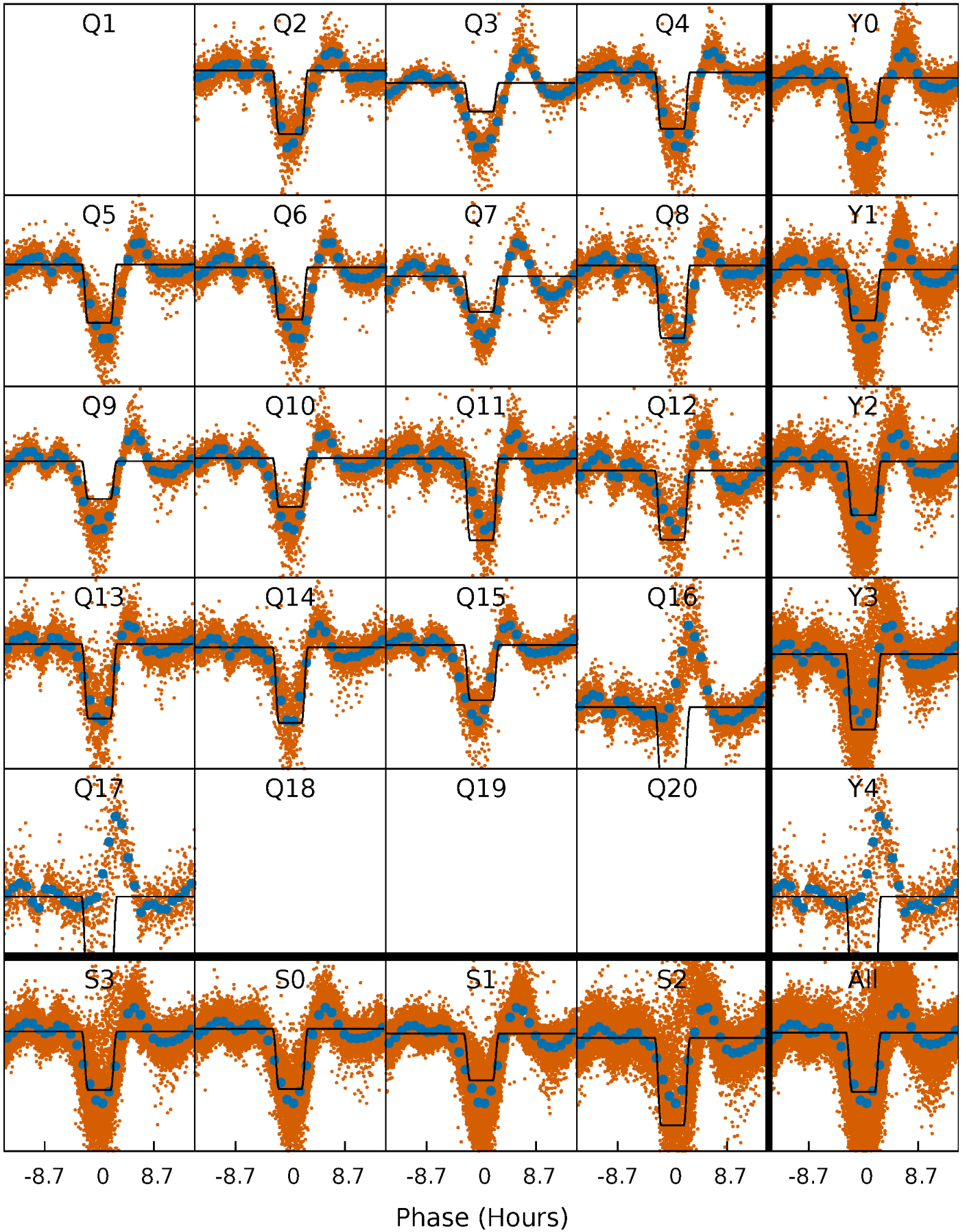
DV Quarter-Phased Transit Curves

TCE 009531991-01 P= 1.155588 Days $T_0=132.079881$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

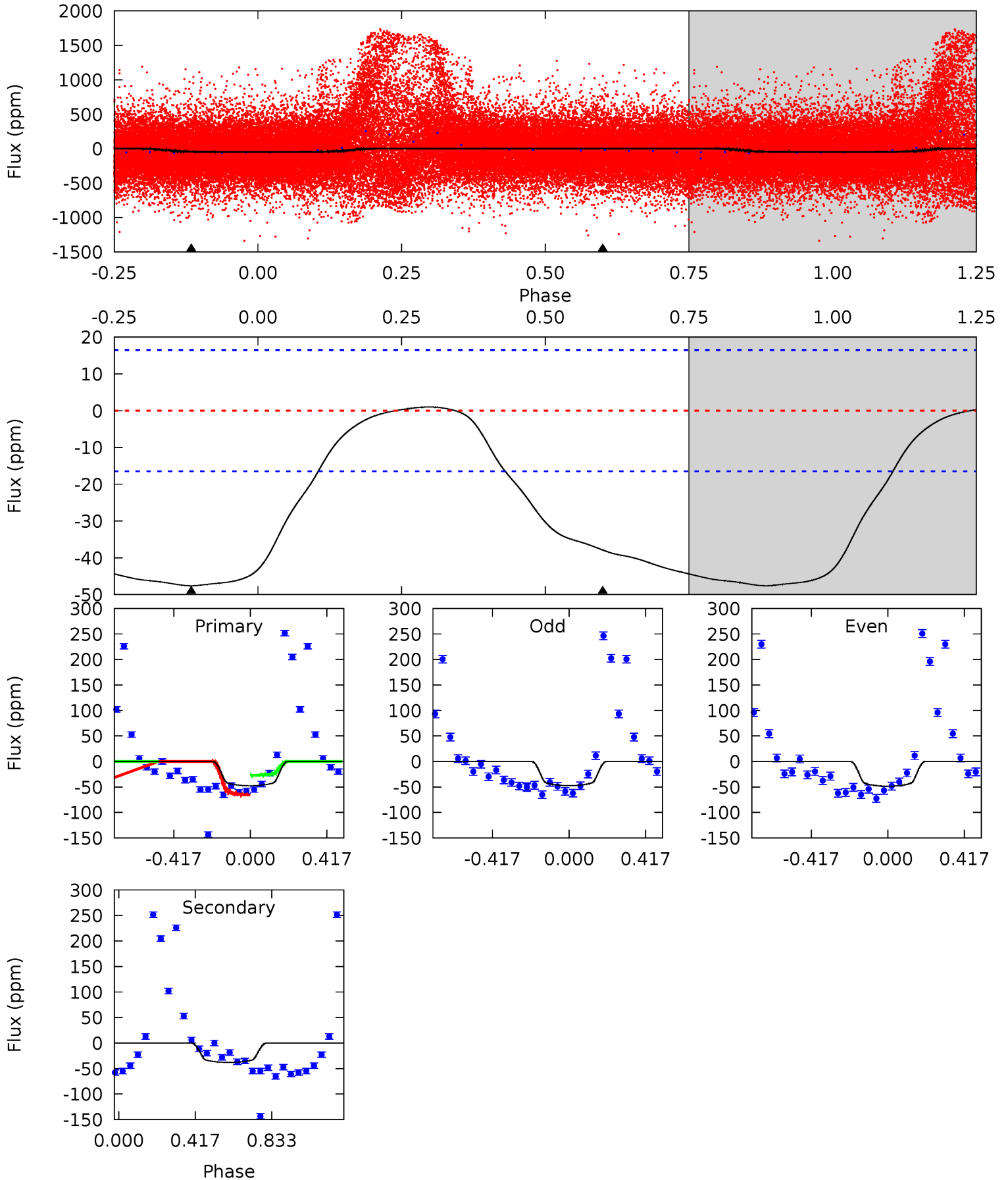
TCE 009531991-01 P= 1.155685 Days $T_0=132.090437$ (BKJD)



DV Model-Shift Uniqueness Test

009531991-01, P = 1.155588 Days, E = 132.079881 Days

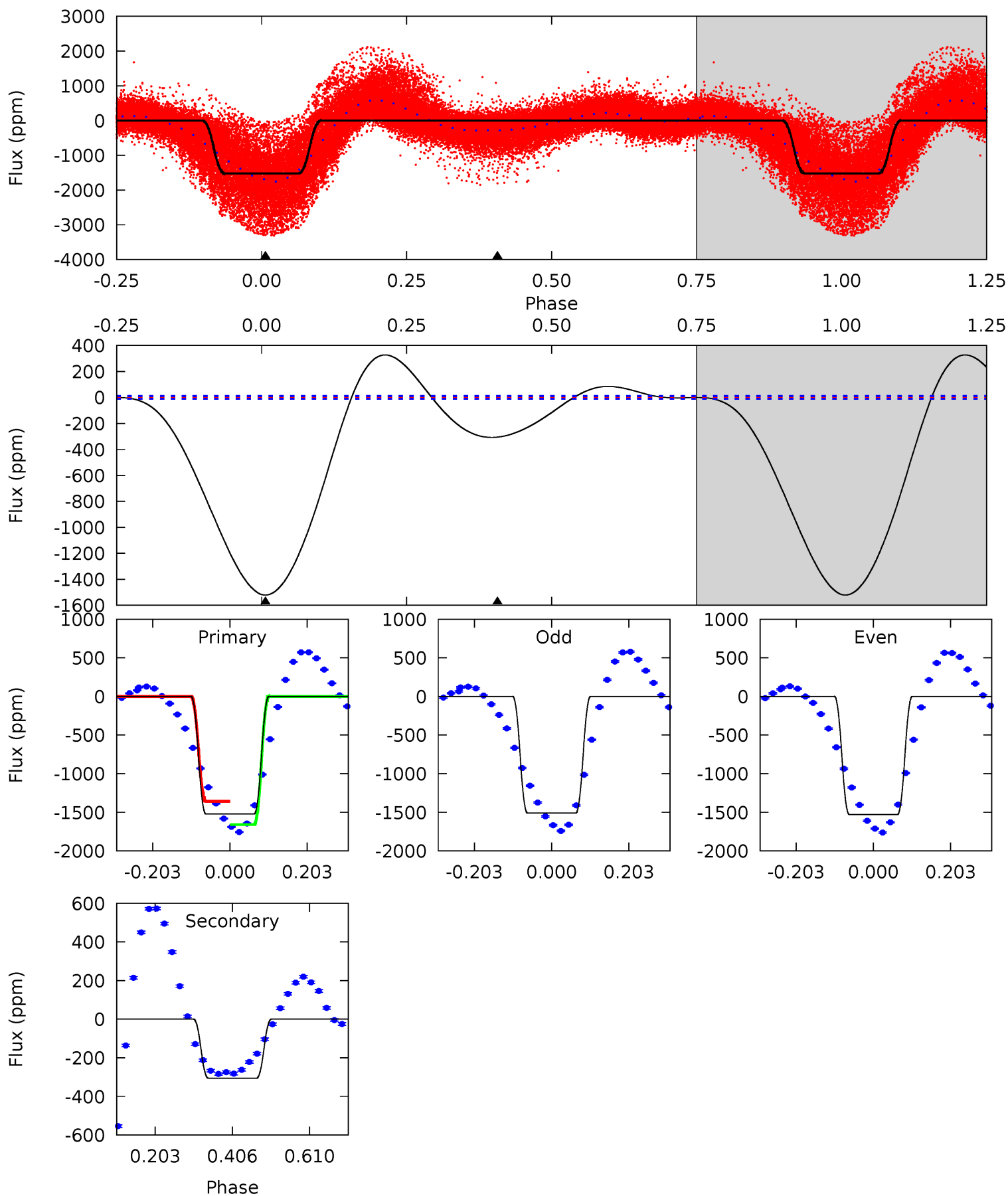
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	9.78	0	0	4.26	0.81	0.34	12.3	12.3	9.78	9.78	0.14	-2.27	0.02	11.3



Alt Model-Shift Uniqueness Test

009531991-01, P = 1.155685 Days, E = 132.090437 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
623.6	125.2	0	0	4.41	1.27	12.7	623.6	623.6	125.2	125.2	3.50	1.02	0.18	36.9



Stellar Parameters For KIC 009531991

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	10715^{+332}_{-479}	$3.658^{+0.360}_{-0.090}$	$0.070^{+0.150}_{-0.550}$	$4.426^{+0.458}_{-1.832}$	$3.249^{+0.105}_{-0.597}$	$0.053^{+0.161}_{-0.011}$
	+3%/-4%	+10%/-2%	+214%/-786%	+10%/-41%	+3%/-18%	+305%/-22%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009531991-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-38 ± 4	$5.99^{+0.52}_{-1.21}$	7617^{+511}_{-799}	5677^{+468}_{-497}	$0.597^{+0.295}_{-0.117}$
Alt.	-305 ± 2	$18.01^{+1.29}_{-3.88}$	7620^{+508}_{-719}	5389^{+460}_{-340}	$0.528^{+0.300}_{-0.070}$

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

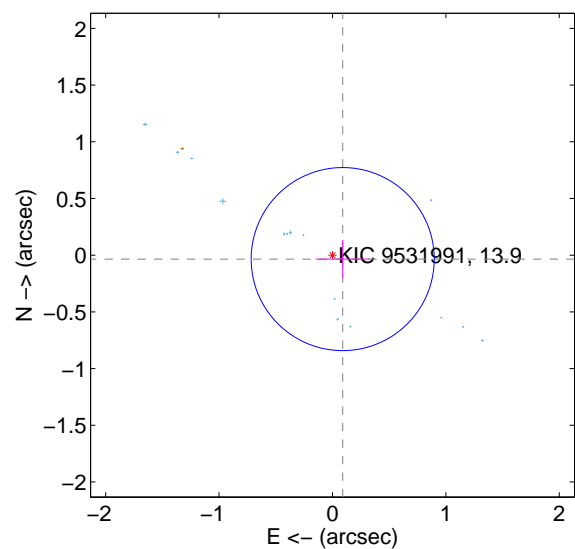
Supplemental centroid analysis for 009531991-01. Kepler magnitude: 13.90. Transit SNR 28.46

There are 15 quarters with good PRF difference image offsets

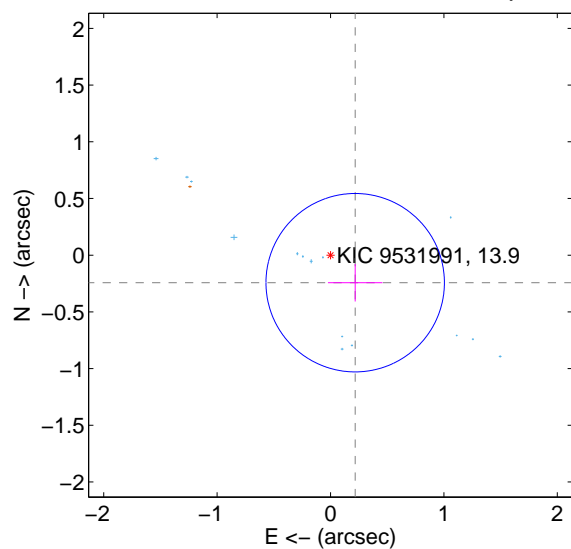
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.097 ± 0.269	0.36	-0.090 ± 0.237	-0.035 ± 0.168
PRF-fit source offset from KIC position	0.326 ± 0.262	1.24	-0.218 ± 0.240	-0.243 ± 0.165
photometric centroid source offset	1.17 ± 0.20	5.82	-0.35 ± 0.20	-1.12 ± 0.20

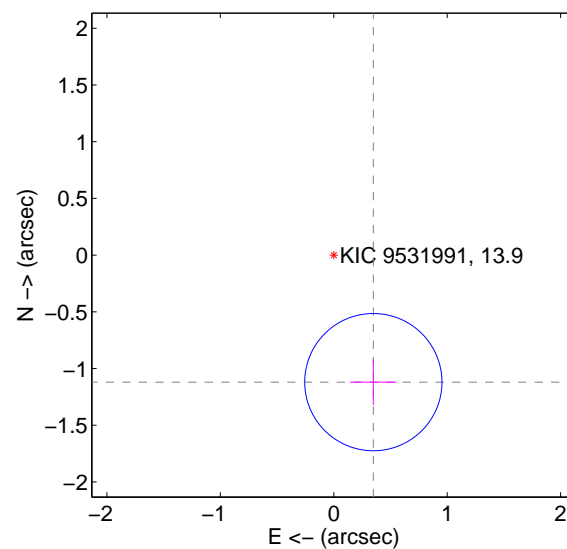
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

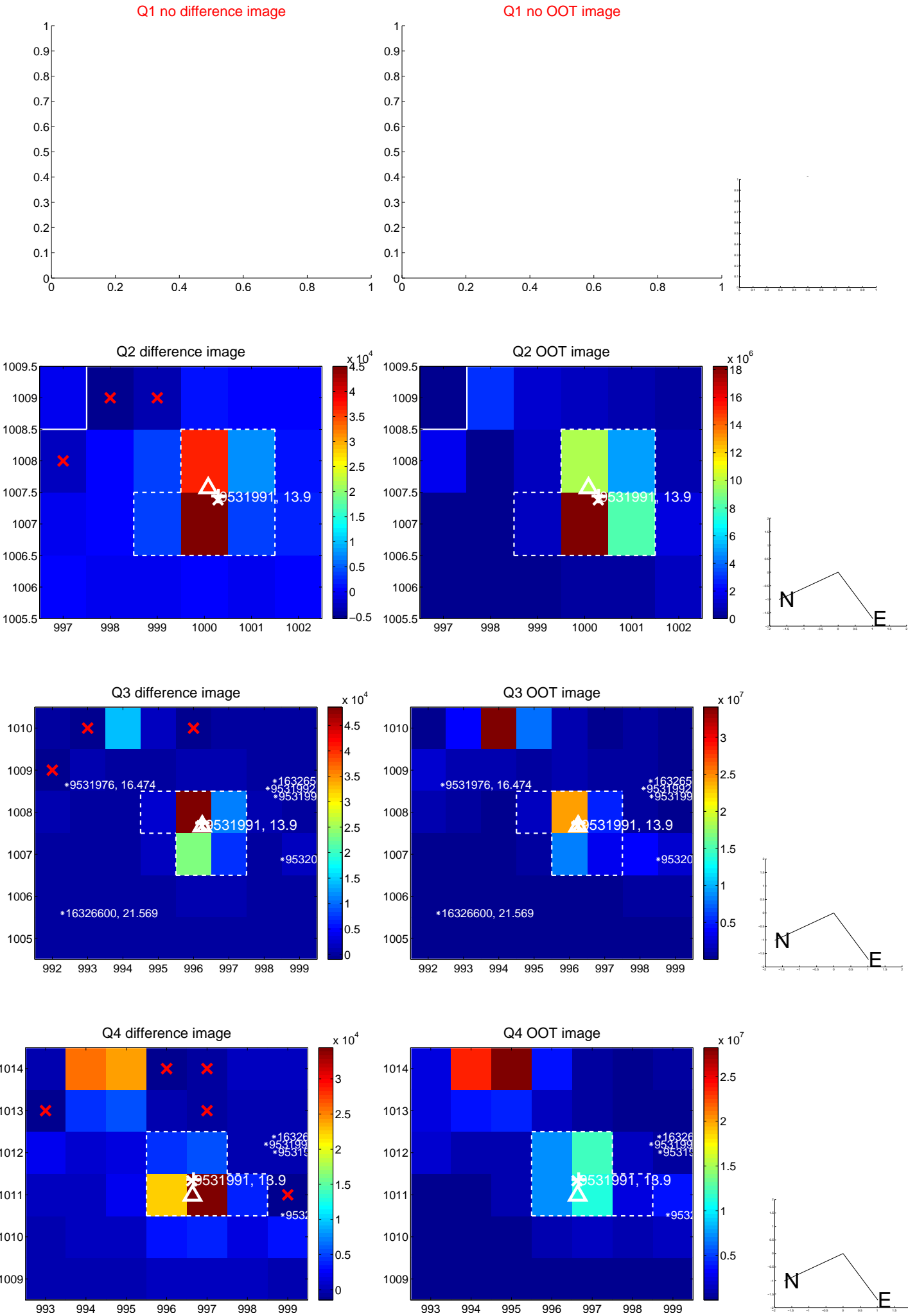


offset from photometric centroids

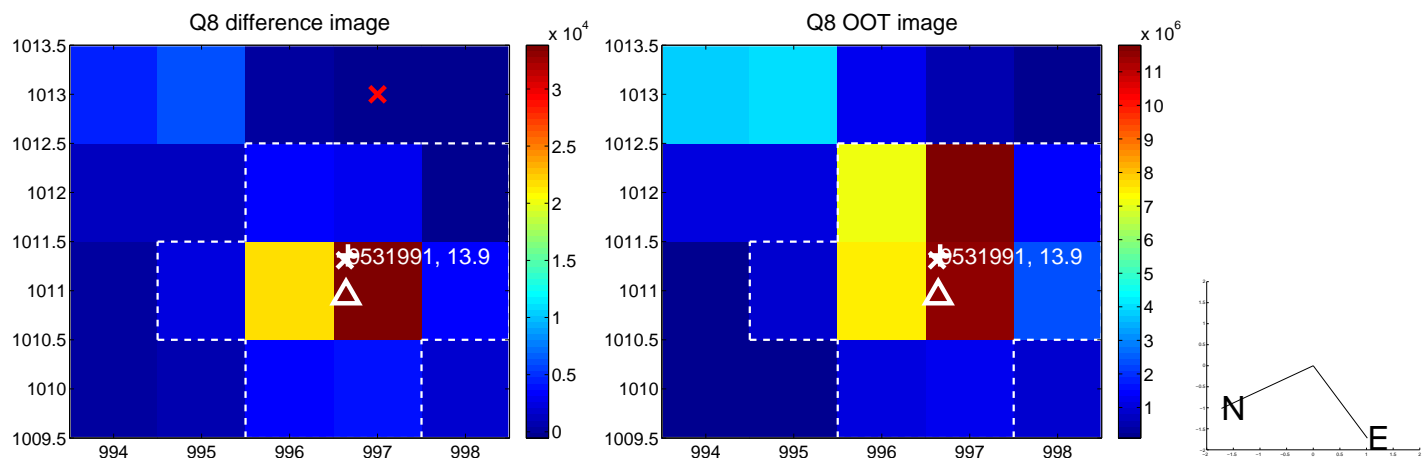
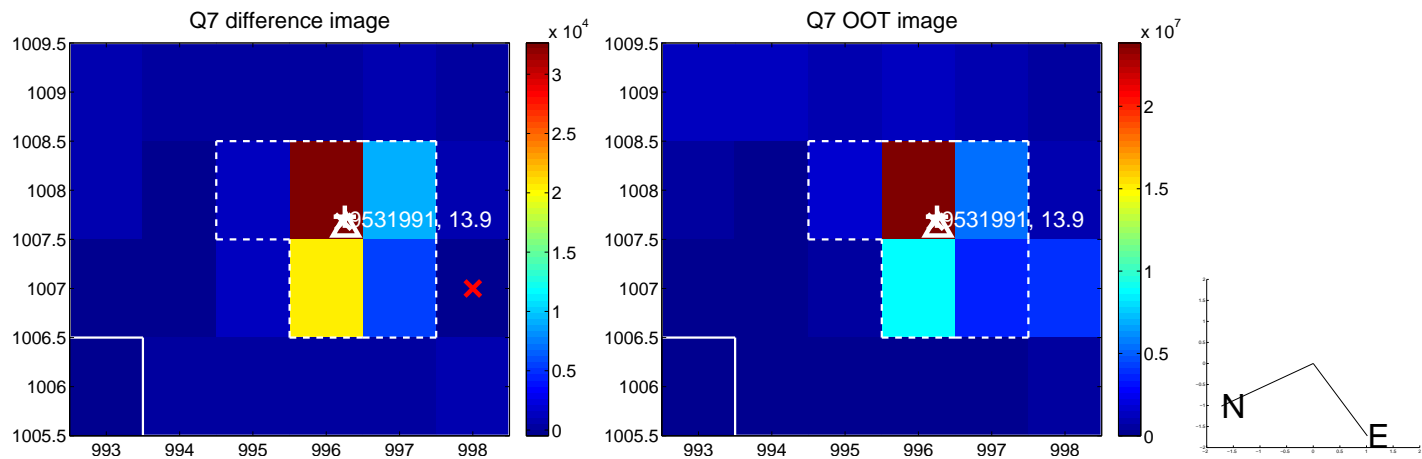
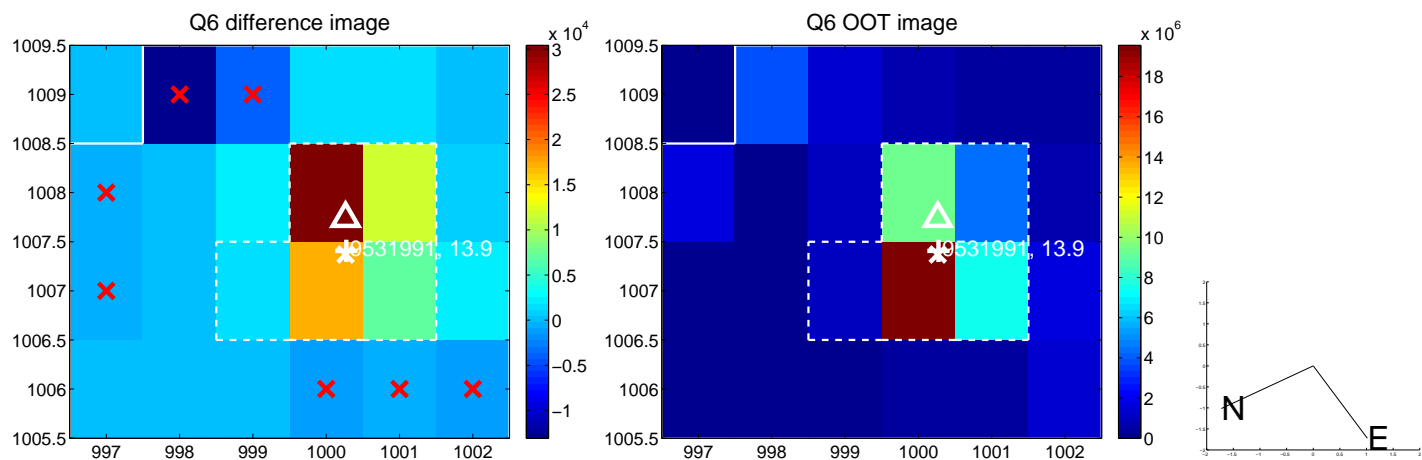
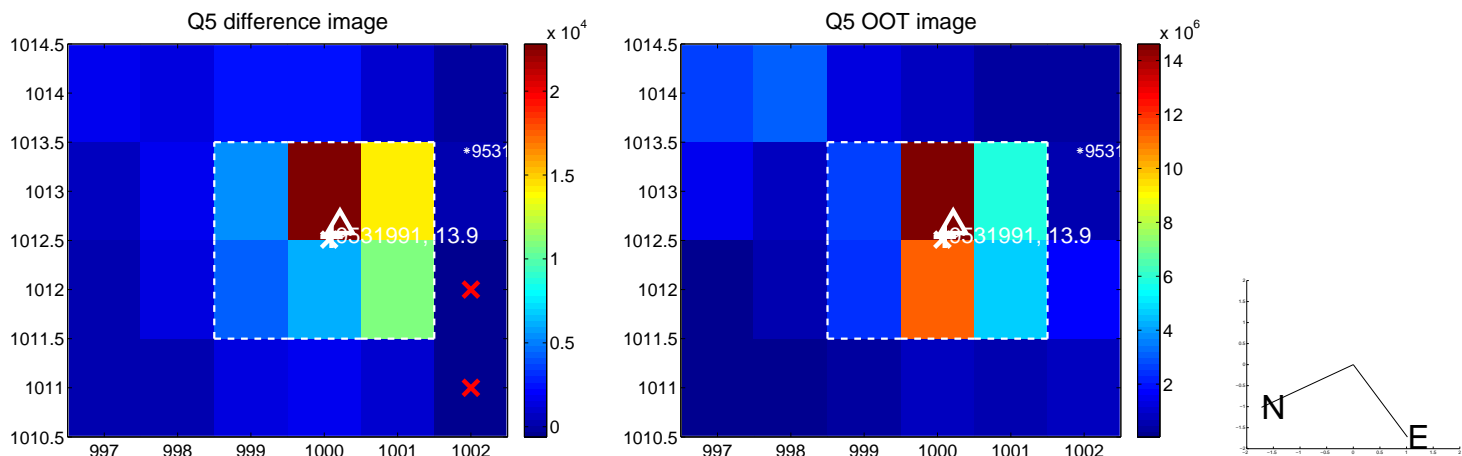


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

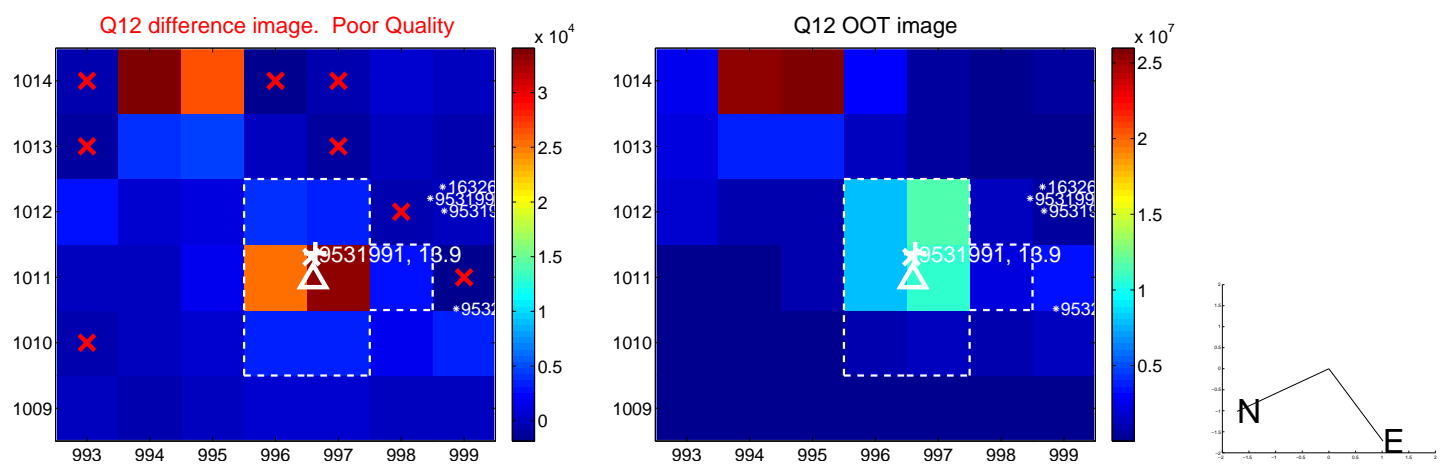
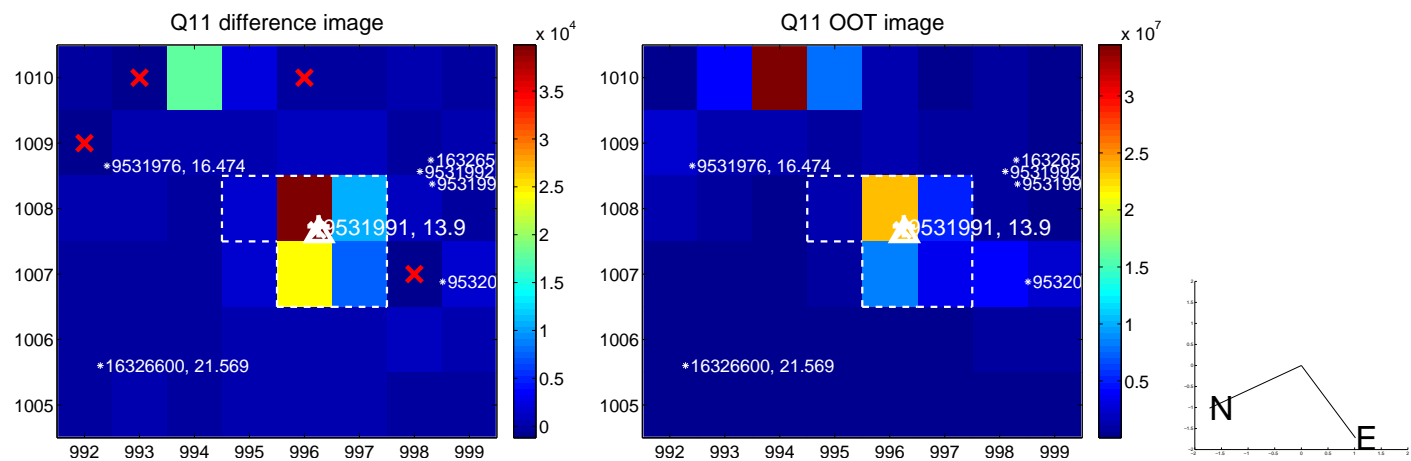
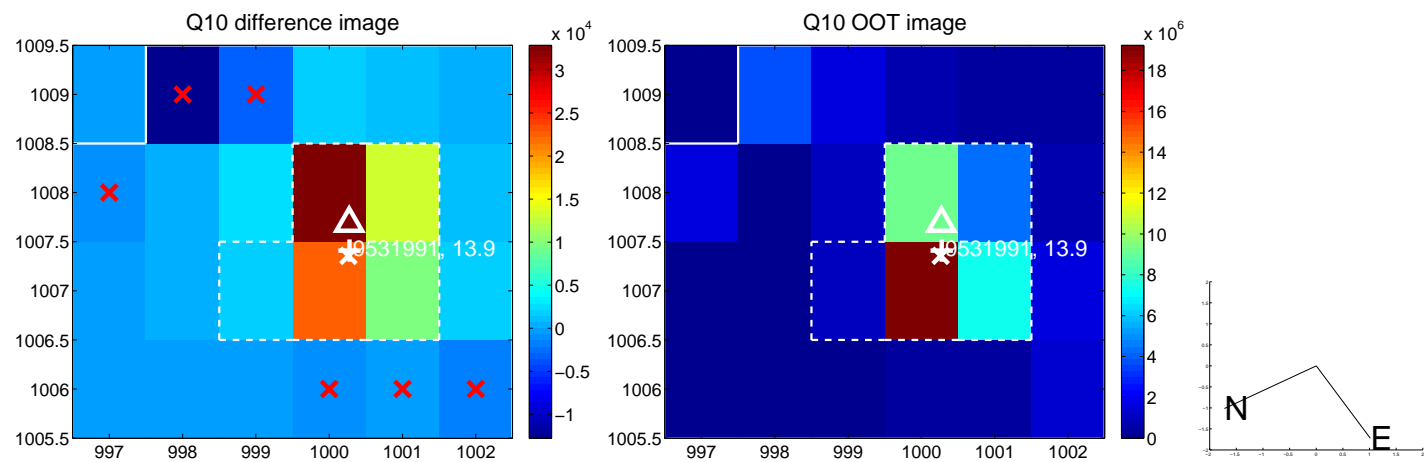
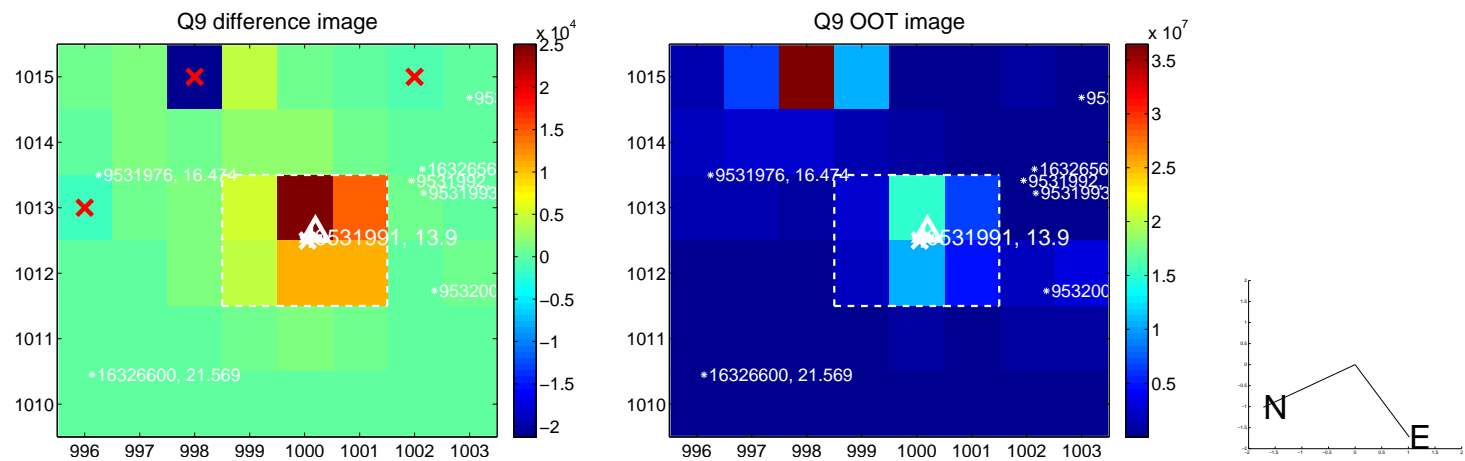
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



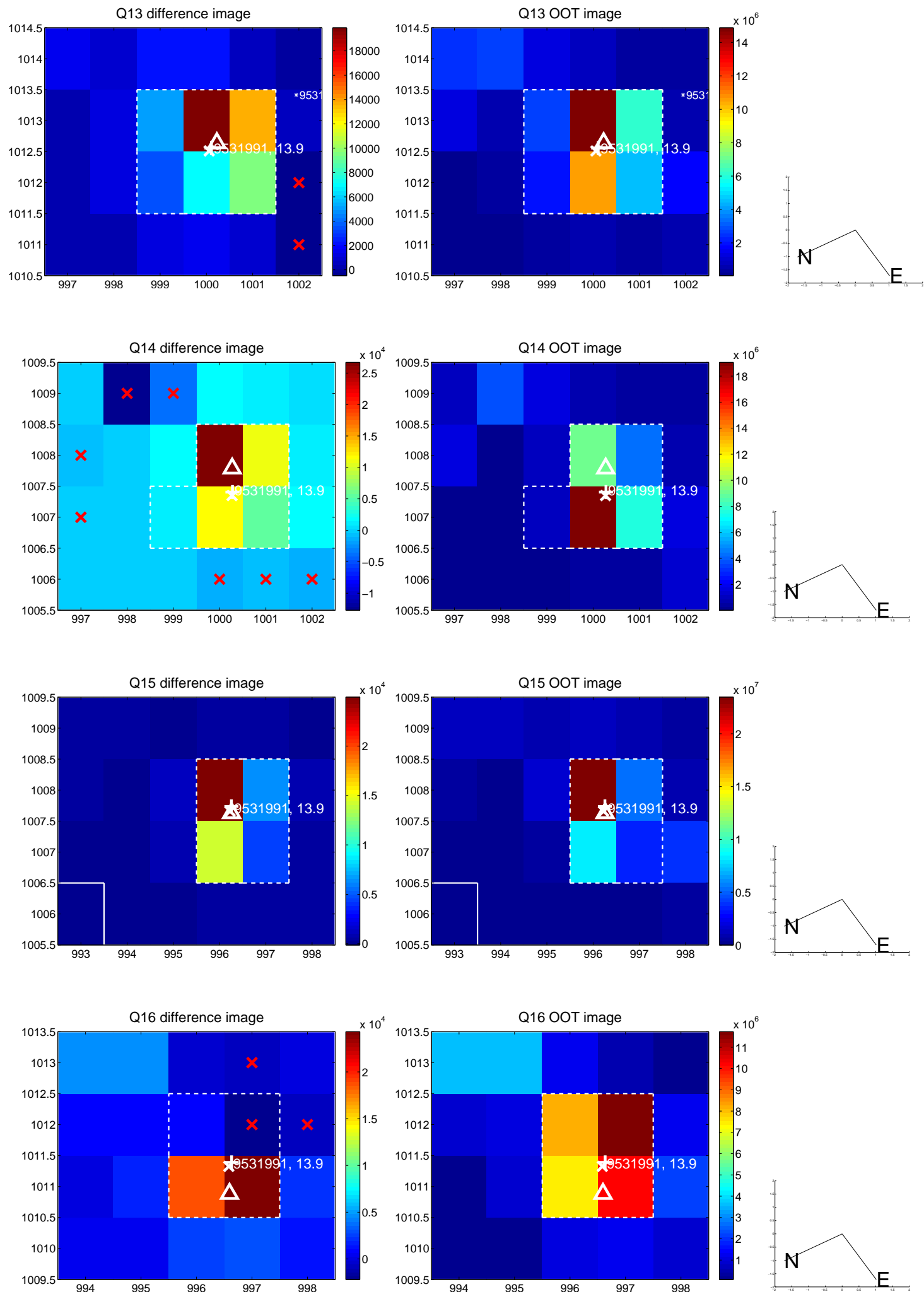
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



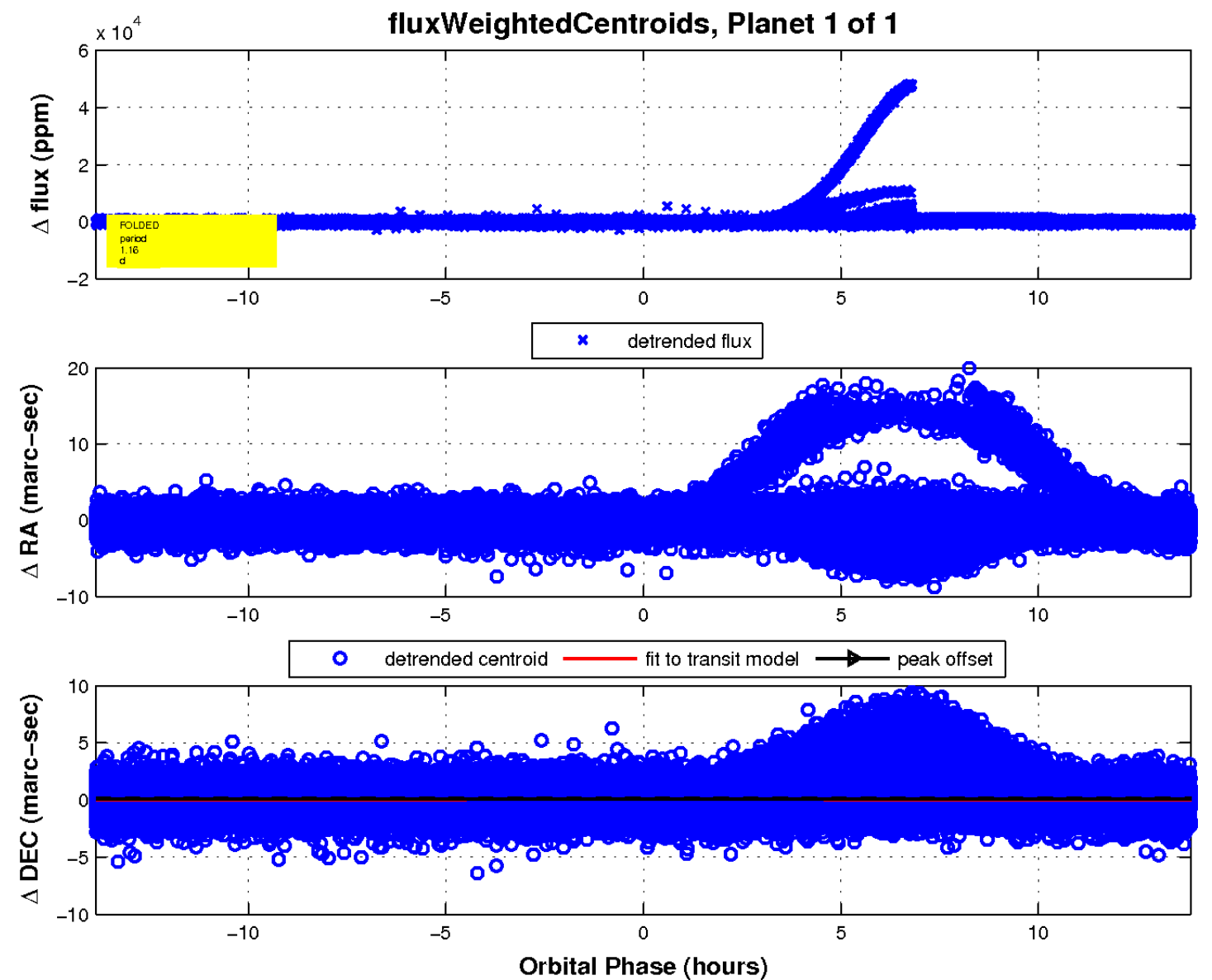
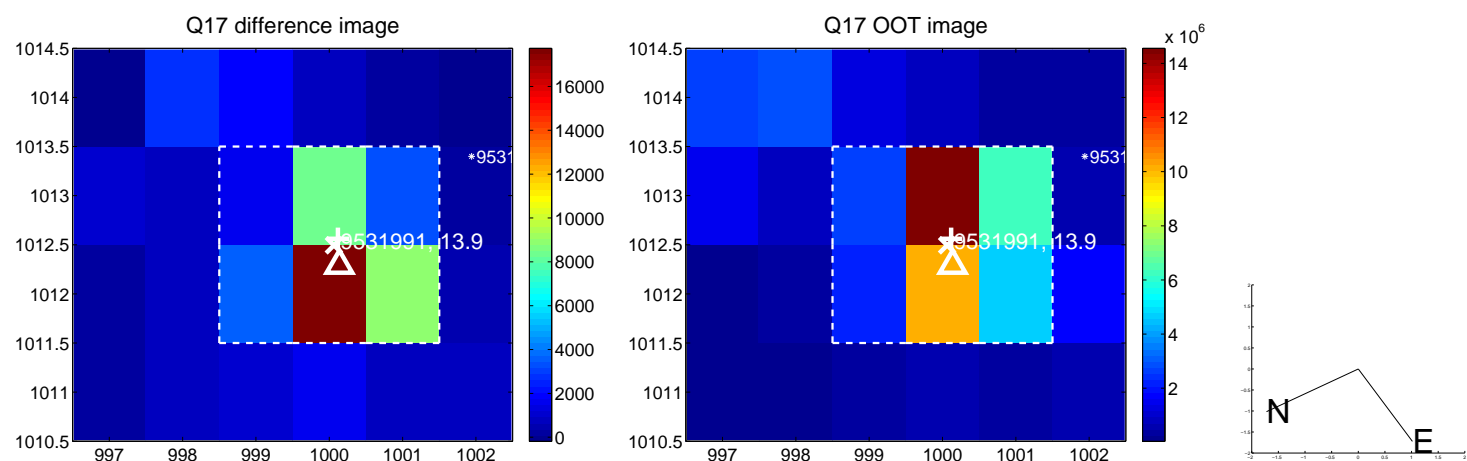
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UKIRT Image

Declination

