

# Long-Duration Observation of Propagating Slow Magnetoacoustic Waves

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## Abstract

Transition Region And Coronal Explorer (TRACE) performed long-term observations over active region AR8253, from 30 June to 4 July 1998 in two EUV bandpasses (171Å and 195Å connected with FeIX and FeXII emission, respectively). The cadence was about either 41 s or 30 s for both EUV bandpasses, 195Å images were normally captured about 11 s later than the 171Å ones. The data contained several gaps, but the observations covered about 70% and 40% of the time interval in the 171Å and 195Å bands, respectively. In the magnetic fan that forms the leading (Western) part of the active region, propagating periodic variations of the EUV intensity are seen clearly in both bands for almost five days. Our analysis shows that the variations are harmonic with very high quality in both bands. The period is estimated as  $179 \pm 14$  s in the 171Å and  $183 \pm 16$  s in the 195Å bands. The periodicity is found to be persistent and not significantly varying during the whole period of the observation. The behaviour of the parameters of the EUV propagating disturbances is studied by various techniques: the frequency variation is measured by applying wavelet and windowed FFT techniques to the time series of selected macro-pixels of size  $3 \times 3$  pixels; the phase stability is analysed by fitting the narrowband and autocorrelation signals with a sinusoidal function using the robust Levenberg-Marquardt least-squares method. Preliminary results of this study are reported.