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A technique for quantile-based noise estimation is presented for single-input speech enhancement in hearing aids and speech communication devices. The noise spectrum is updated by dynamic tracking of quantiles of the samples of the magnitude spectrum of the noisy speech without sorting of the past samples. Another technique is presented for improved tracking of nonstationary noise using adaptive quantiles, which are calculated by estimation of the quantile functions. The two noise estimation techniques are compared with some of the earlier techniques in terms of computational requirement, error in noise tracking, and speech enhancement using spectral subtraction based on the geometric approach. The technique with fixed quantiles has the lowest computational requirement and its performance in terms of noise tracking and speech enhancement for different SNRs and noise types is found to be better than or comparable to the earlier techniques. The technique with adaptive quantiles, having a higher computational requirement, provides better performance at low SNRs and for nonstationary noises.