

**INTRODUCTION:** There are also many studies on noise pollution in road traffic of big cities conducted in the last thirty years demonstrating that traffic is the main source of noise in the urban environments. Thus, the ambient noise levels have increased since the 1980s mainly due to increased traffic. Thus more than 50 percent of the European population is exposed to noise levels ( $L_{eq}$ ) over 55 dBA due to road transport. The impact that noise has on the health of people is widely known from the large number of studies that have been conducted in different fields of medicine. But the specific case of coastal tourist towns has been very little studied. They have significant increases in the volume of traffic during the summer compared to the winter (one order of magnitude in many cases), which results in a dramatic increase in noise. This increased noise will produce a degradation of the acoustic environment during the summer season, which is the opposite of what people are looking for during their holidays.

**AIM:** The main objective of this study has been to characterize and assess the acoustic environment of a typical Spanish coastal tourist city (El Portil - Huelva), which undergoes big changes of the population between winter and summer.

**METHODOLGY AND MATERIALS:** To achieve the objectives of this work, monitorings for 24 hours of a point close to the main source of noise (the A-5052 road), both in winter and in summer.

**RESULTS AND DISCUSSION:** Here, two distribution functions of the 1 s measurements are observed for winter, while for summer there is only one peak, and therefore only one frequency distribution function. The first peak of winter appears at about 40 dBA, and it corresponds as night background noise.

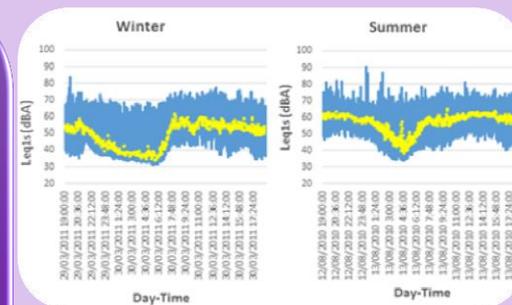
The second distribution will come mainly from the noise produced by the A-5052 road, and shows a maximum of

about 60 dBA. About 78% of the individual measurements (1 s) belong to the right distribution (road), while only 22% of them are assigned to background levels.

By contrast, the frequency distribution for the summer period only has one peak (about 63 dBA), although a small bulge is observed in the zone of low levels (about 40 dBA and only 2% of the noise events), which probably correspond to the same noise source as in the winter (background without traffic events).

During winter, a big plateau is observed for  $L_{90}$  between 23:00 and 6:00 h with a relative minimum around 5:00 h (34 dBA), while for summer this plateau is not found, but there is a pronounced minimum at 4:00 h (37 dBA). This fact indicates that during these hours (around 4:00 h) the noise is similar for both seasons. In addition, it should be noted that  $L_{90}$  and  $L_{50}$  (median) are very similar during winter nights (1:00 to 5:00 h) but they are very different from  $L_{eq1h}$  (a difference of about 7–8 dBA), showing that the majority of the 1 s measurements for this period are very similar, given the  $L_{eq1h}$  for a few noise events of high intensity.

**CONCLUSIONS:** 1) The A-5052 road is the main source of noise pollution in El Portil, generating during a summer 24 h period a continuous equivalent level about 4–5 dBA higher than in winter. 2) The background levels existing during the night periods reach 37 dBA, corresponding to a period of 5 hours (1:00 to 6:00 h), while in summer they reach 40 dBA for a duration of only 1 hour (3:30 to 4:30 h). 3) While on winter nights (1:00 to 6:00 h) there is only one source of noise, corresponding to the background noise, on summer nights three sources of noise were identified: background noise, the recreational activities of the tourists, and traffic noise from the road. 4) In both winter and summer, noisy activities begin at 5:00 h and last until 8:00 am, dominated by traffic for the beginning of the working day.



Indices (dBA)	$L_{AeqT}$	$L_{A5}$	$L_{A10}$	$L_{A50}$	$L_{A90}$	$L_{A95}$
Winter	57.1	63.6	61.6	49.7	36.2	35.0
Summer	61.7	66.4	65.0	59.1	44.6	40.4

