



Montevideo, walkable city: pedestrianization of a large avenue during 2020 pandemic

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ABSTRACT

On March 13, 2020, the first cases of SARS-COVID19 were detected in Uruguay. During the first weeks of the pandemic, mobility was significantly reduced under the motto: "Stay home, if you can"; it was not a mandatory but encouraged confinement. After a couple of months, there was a big drop in the number of people affected by the disease. Thus, the Municipality of Montevideo defined that a small stretch of the main avenue of the city should be converted into a pedestrian walkway on Saturday afternoons, betting on a more human and 'walkable city'. It resulted in a greater enjoyment of the city by its inhabitants, as they had more space to walk while maintaining safe distancing between pedestrians. It was also possible to promote shopping, since Ave. 18 de Julio is normally a commercial walkway. Additionally, the sound pressure levels recorded by the Municipality's stationary sound level meters located at three points along the avenue, showed a reduction of environmental sound levels in pedestrian areas, improving the acoustic quality of the walkway. Sound pressure levels on Saturday afternoons at different times of the year 2020, are compared and discussed in this paper. They have been registered during and after the initial lockdown due to the COVID-19 pandemic.

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1. INTRODUCTION

The world faces one of the biggest health crises in recent history, if not the biggest of all. The SARS-COV-2 pandemic began in China on December 2019 and it spread very quickly across five continents, affecting huge numbers of human lives in its path.

When science began to learn about the main forms of transmission of the disease, the need to minimize interpersonal contacts became a worldwide urgency. Undeniably, we are facing a problem on a global scale. Many countries resorted to compulsory confinement and even "curfews", while others, such as Uruguay, opted for a different approach.

Uruguay is a small country on the South East corner of South America. It has a population of 3:500.000 inhabitants, half of which live in its capital city, Montevideo.

The first cases of SARS-COV-2 were confirmed in Uruguay on Friday 13 March, 2020. A big pop music festival was scheduled for the day after, but it was immediately cancelled. Football matches, theatre and all leisure activities were cancelled as well. No compulsory measures were taken: the official strategy was to rely on 'oneself- responsible behaviors'.

Almost all the public offices, schools, universities, theatres, etc. remained locked down for more than one month. Only the essential services were operating during the emergency: health services, supermarkets, pharmacies, etc. After the first four weeks, the Authorities decided to allow some activities to re-open in a slow and progressive manner. Dedicated hygiene protocols and strict overcrowding prevention controls were mandatory. The Government asked its population to avoid crowding and to reduce their movements as much as possible, under the motto: '*Stay home, if you can*'.

After the shopping-centers were authorized to re-open, attending special protocols and hygiene measures, the Municipality of Montevideo decided to convert some blocks of its main avenue in a pedestrian way during Saturday afternoons. It aimed to offer another option of safe-walking and shopping in an open space, both cooperating with the strategy of trusting on individual responsibilities but also taking into account the reduction of economic activity.

The focus of this paper is on sound pressure levels variations during Saturday afternoons.

2. 18 DE JULIO AVENUE

2.1. Introduction

18 de Julio is a traditional commercial area. Most of the people in Montevideo like to go to Shopping Centers, however there are a lot of shops on 18 de Julio. Once a month, the 'Downtown Day' takes place, and a lot of sales and discounts are promoted to encourage shoppers.

The average hourly traffic count of the avenue is between 1000 and 2000 vehicles, depending on its time. The measured $L_{AF,eq,1h}$ during business days were from 73 dB to 77 dB in an exhaustive campaign held during the second part of the year 2020 (Figure 1). All the measurements lasted at least 1 hour; they were taken manually with a Class 1 Bruel & Kjaer 2250 sound level meter from the Department of Environmental Engineering of the Faculty of Engineering, UdelaR.

When the society returned to its normal activities, many people coincided at the same place and at the same time.

The Municipality of Montevideo decided to turn its main avenue, 18 de Julio, temporarily detouring its traffic on some Saturday afternoons. Converting an important stretch of the avenue in a pedestrian walkway on Saturday afternoons, stimulating people to walk through it, and maintaining shops open by promoting special discounts and sales.

Thus, the Municipality cooperated in the encouragement with the preservation of safe distancing between people and the reactivation of commerce, as the economic downturn related to the pandemics has strongly affected small shops.



Figure 1: Sound pressure levels in 18 de Julio Ave., 2020 (from [1])

2.2. Sound pressure levels on Saturday

Sound pressure levels at 18 de Julio Ave. during Saturday have no particularities, as it is shown in Figure 3. The orange line is the evolving of $L_{AF,eq,1s}$ and the red one, is of $L_{AF,eq,1min}$. Both graphs are from two different blocks from the downtown area. As it can be seen in Figure 2, public and personal vehicles circulate on 18 de Julio.

The longtime registers were taken with a Class 1 Casella 63C sound level meter, from the Department of Environmental Engineering of the Faculty of Engineering, UdelaR. It was attached to light columns in different blocks of the avenue, at 4 m in height.



<https://www.elpais.com.uy>



<https://www.enperspectiva.net>

Figure 2: 18 de Julio Ave. Left: Pedestrianized in 2020. Right: At normality.

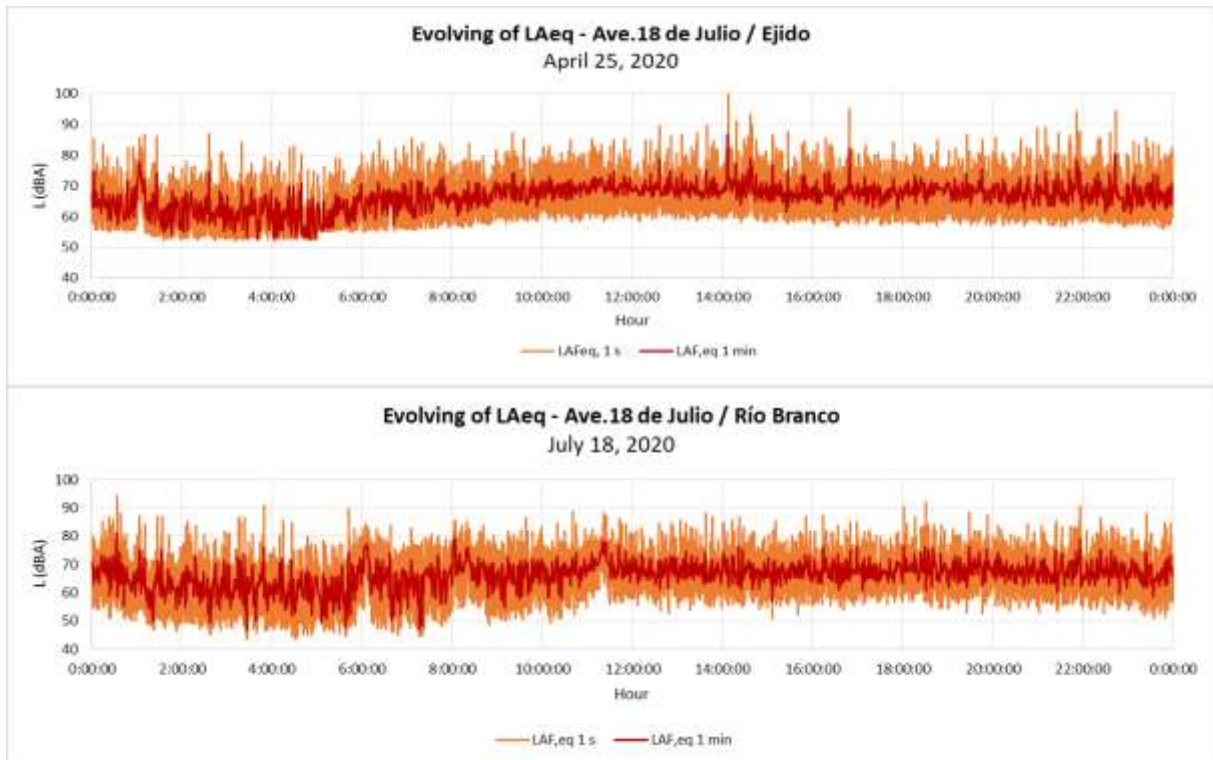


Figure 3: Evolving of sound pressure levels on Saturday, in different blocks from the downtown area

2.3. Sound pressure levels on Saturday with pedestrian walkway

The graphs in Figure 4 show the time evolving of sound pressure levels during two Saturday afternoons. In the first case, the traffic detour was between 1 PM to 6 PM; in the second one, it ended earlier, at 5 PM.

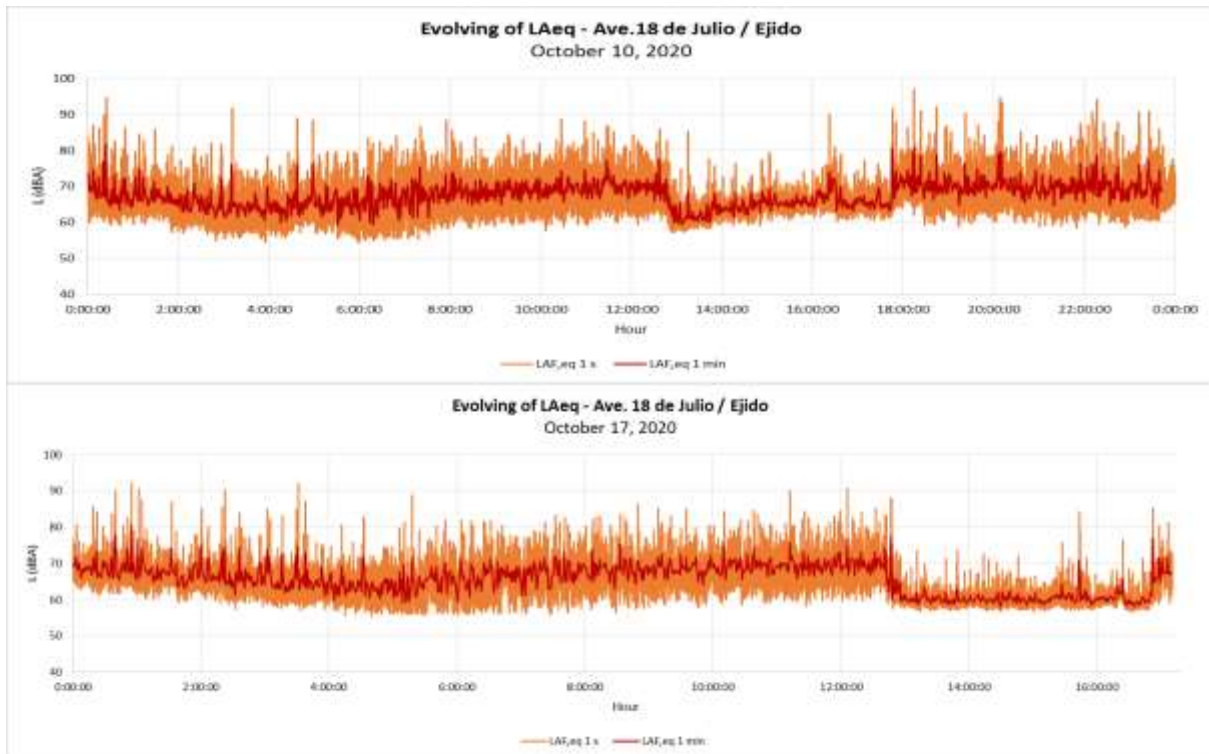
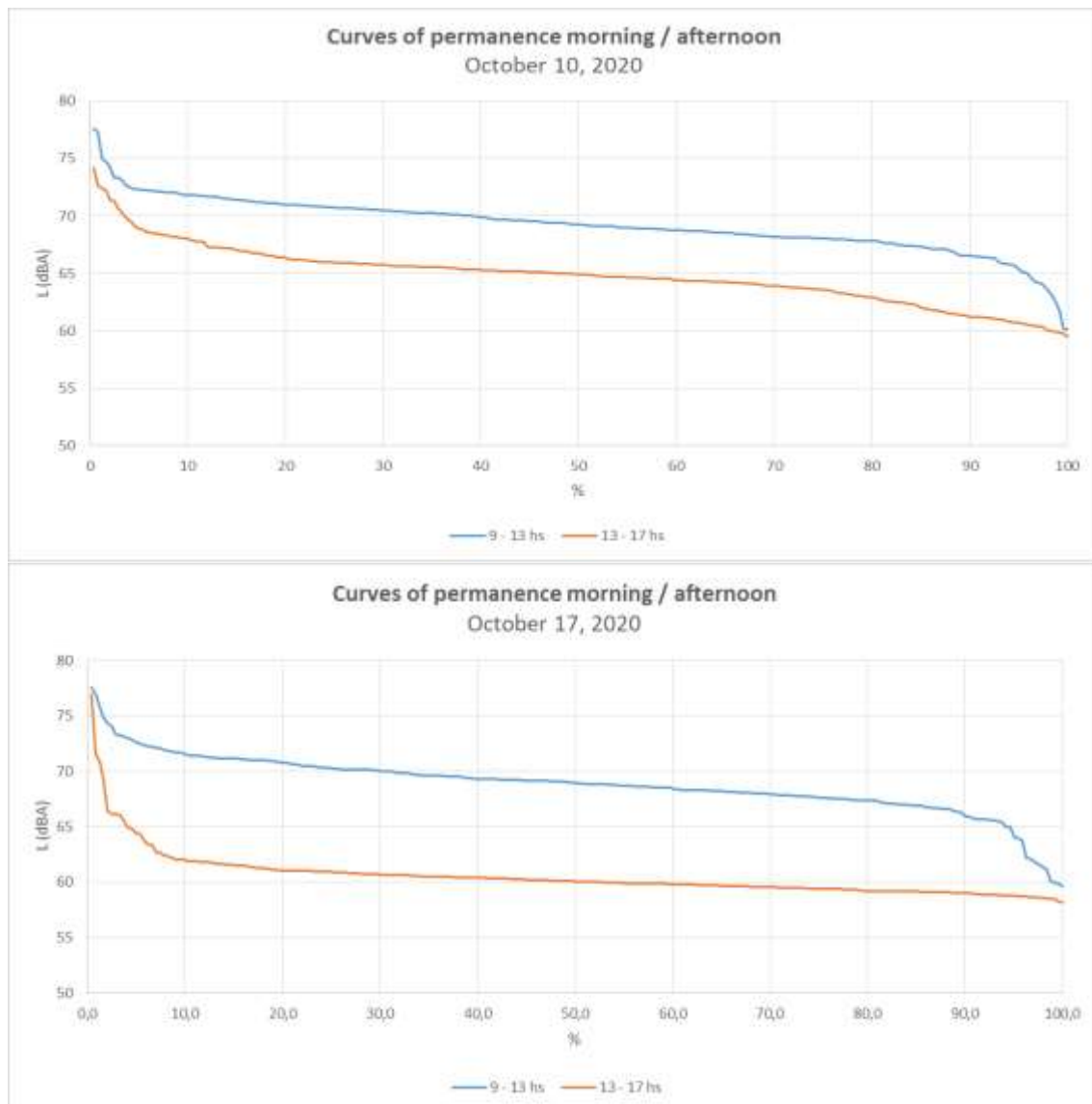


Figure 4: Evolving of sound pressure levels on Saturday with pedestrian walkway area

3. COMPARISON BETWEEN SATURDAYS WITH AND WITHOUT PEDESTRIAN WALKWAY AREA

A set of curves of permanence of sound pressure levels are presented in this section. All of them are based on Saturday sound pressure levels' registers. At first, Figure 5 presents the curves of permanence of sound pressure levels during mornings and afternoons of the graphs of Figure 4. The blue line represents the curve of permanence of sound pressure levels in the morning, from 9:00 to 13:00. The orange line corresponds to sound pressure levels from 13:00 to 17:00 hours, when the avenue was pedestrianized.



Two Saturdays when Ave. 18 de Julio had been pedestrianized in the afternoons. The difference between sound pressure levels during mornings and afternoons is evident in the shape and values of its permanence curves: sound pressure levels during walkway are from 5 to 10 dB below morning levels.

Figure 5. Curves of permanence corresponding to the graphs presented in Figure 4

Figure 6 shows the usual curves of permanence of sound pressure levels for Saturdays at the same point as registers from Figures 4 and 5 were taken (in front of the Municipality). The longtime registers were taken by the stationary equipment of the Municipality of Montevideo. The curves of permanence correspond to November 2019. No particularities are evident.

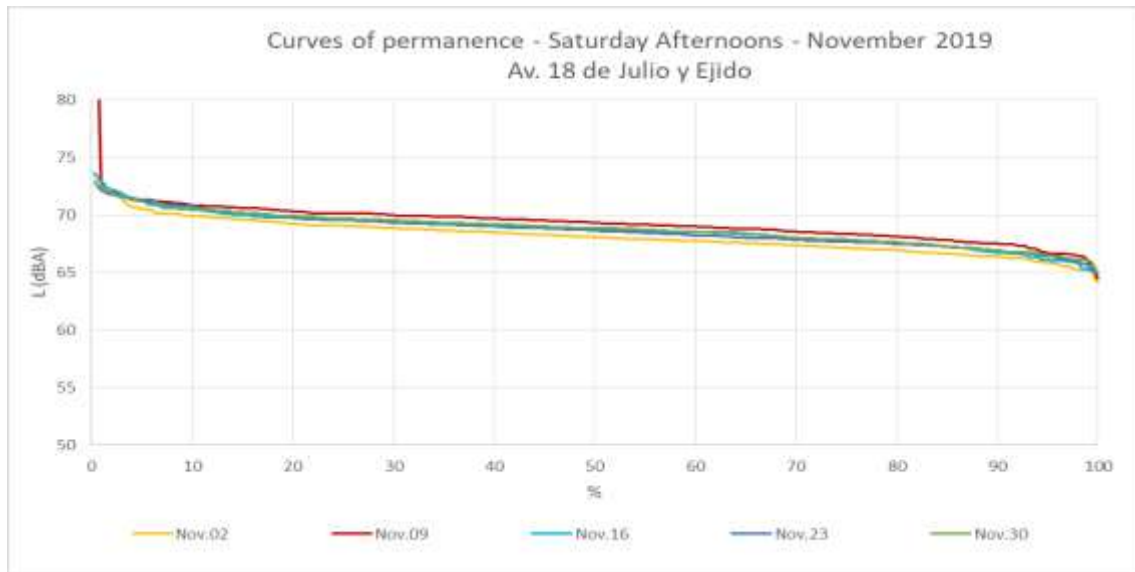


Figure 6. Curves of permanence for Saturday afternoons of November 2019

Just the opposite, the curves of Figure 7 represent the curves of permanence of sound pressure levels during two Saturday afternoons, in June 2020. In both cases, the Avenue was pedestrianized.

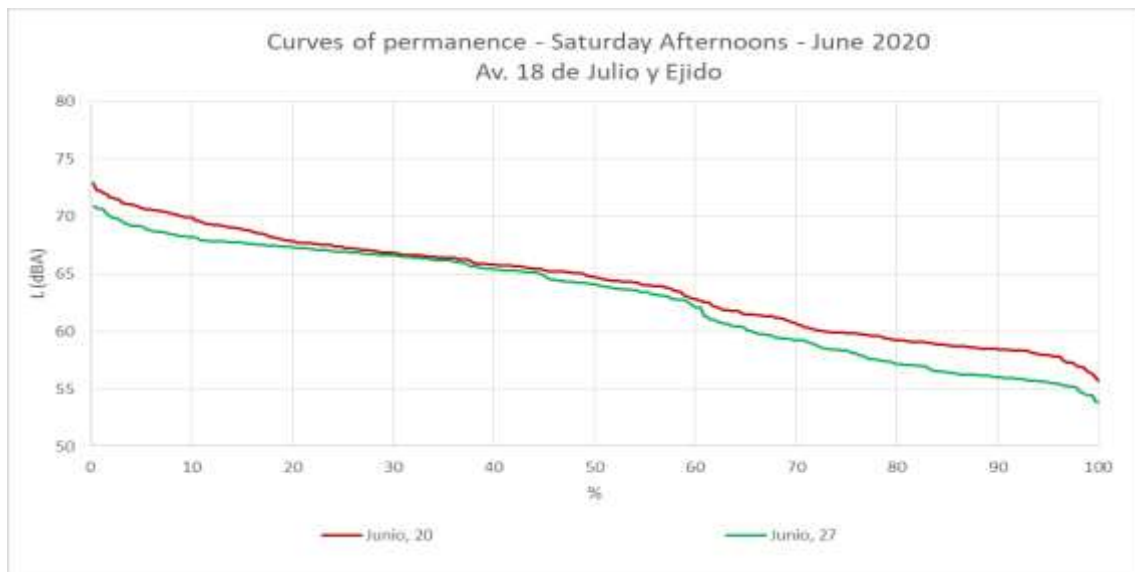


Figure 7. Curves of permanence for Saturday afternoons in June 2020. In both cases, the Avenue was pedestrianized.

Figure 8 present the curves of permanence of sound pressure levels during some Saturdays of July and August 2020. In both cases, there are days with and without pedestrian walkway area, in order to get a more comprehensive comparison. The longtime registers were taken by the stationary equipment of the Municipality of Montevideo.

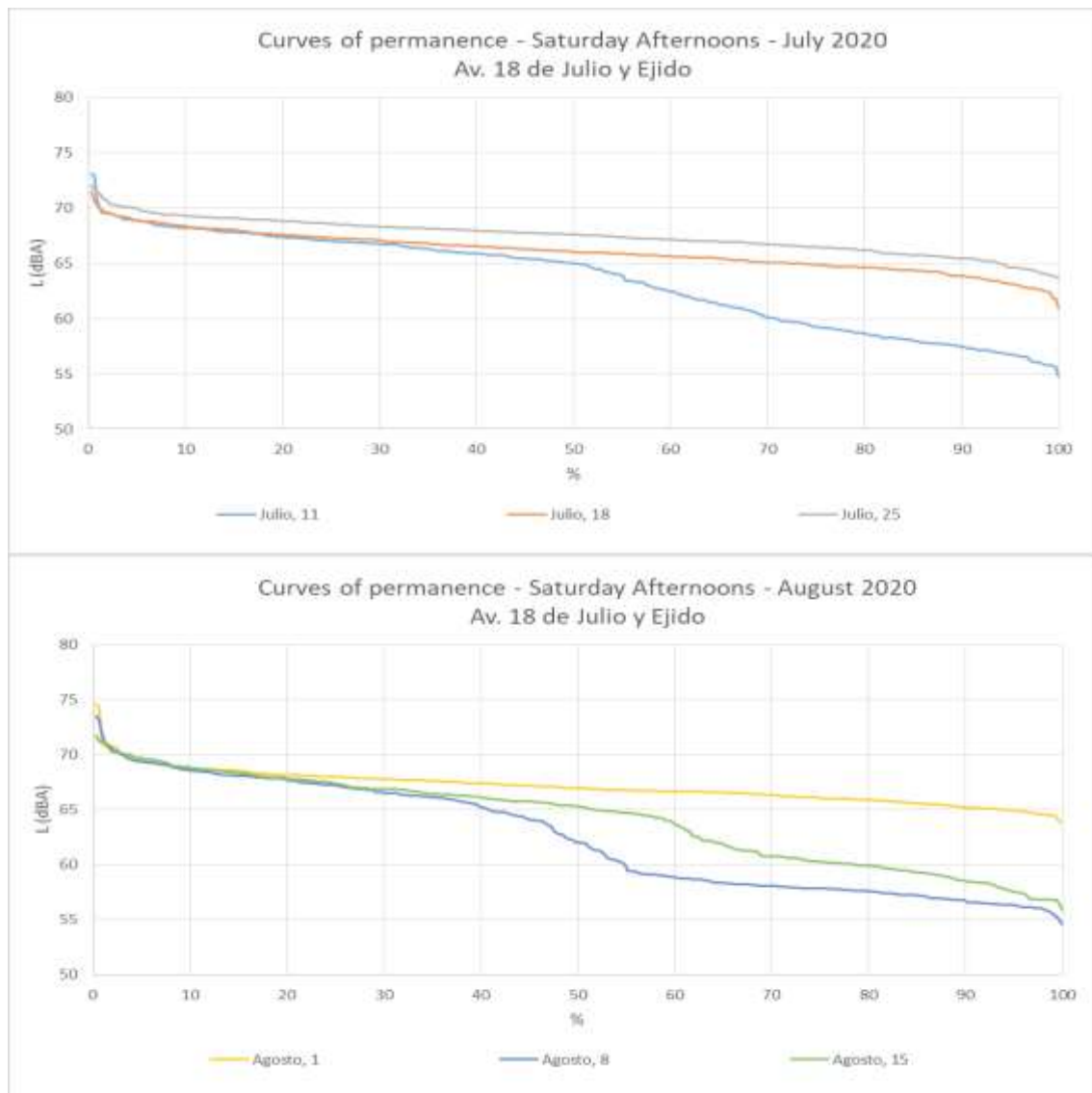


Figure 8. Curves of permanence for both Saturdays of July 2020 (up) and August 2020 (down).

4. CONCLUSIONS

During 2020, the pandemic has affected the life of people all around the world. The first detected cases in Uruguay were confirmed during March 2020.

The Government asked people for 'oneself-responsible behaviors', under the motto: "*Stay home, if you can*".

After the re-opening of shopping-centers, the Municipality of Montevideo decided to cooperate both with safe distancing and by promoting 18 de Julio Ave. as a walkway, by pedestrianizing some blocks of the avenue during some Saturday afternoons.

The results of absence of traffic are reflected in the sound pressure levels registers. They are evident both in the time evolving graphs and in the shape and sound pressure level values of curves of permanence.

Undoubtedly, absence of traffic improves the acoustic quality of the street, with a reduction of about 5 dB to 10 dB in the environmental sound pressure levels.

5. ACKNOWLEDGEMENTS

This project was funded by the Municipality of Montevideo. The authors would like to thank the Municipality and the professional team of Smart Cities Office.

6. REFERENCES

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