

meteoLCD Weblog

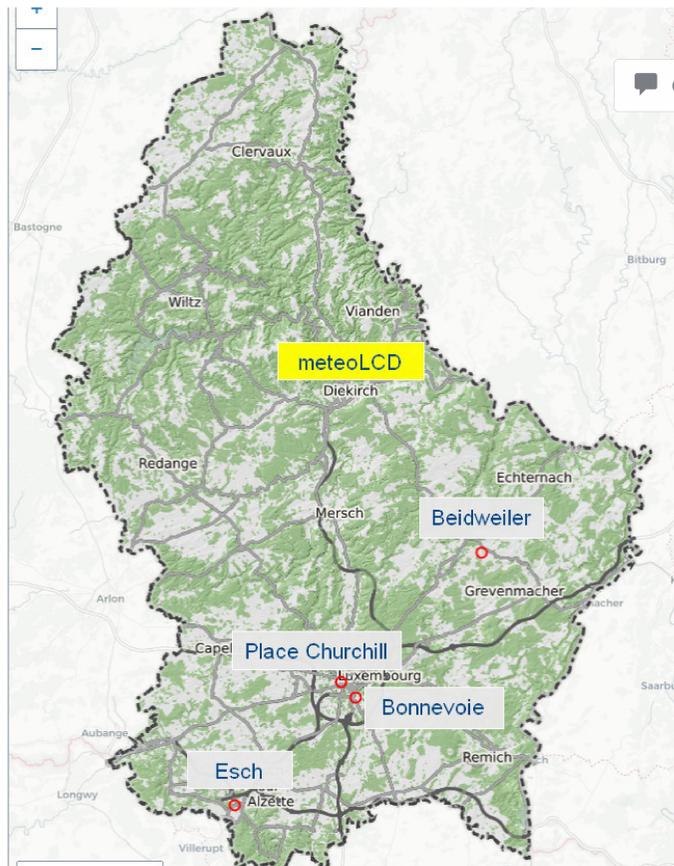
A weblog on climate, global change and climate measurements

« [Lockdown and no PM improvement! \(1/2\)](#)

[On wind, CO2 and other gases \(1/3\)](#) »

Lockdown and no PM improvement! (2/2)

I took the time today to look at the 4 PM measuring stations of Luxembourg, and to check if these stations that all use the same equipment (Horiba APDA371) show an improvement in PM 2.5 concentration between the periods 14-March to 12-April in 2019 and 2020. Here a map of tiny Luxembourg (distance from South to North is about 86 km) with the 4 official stations and our meteoLCD facility at Diekirch:



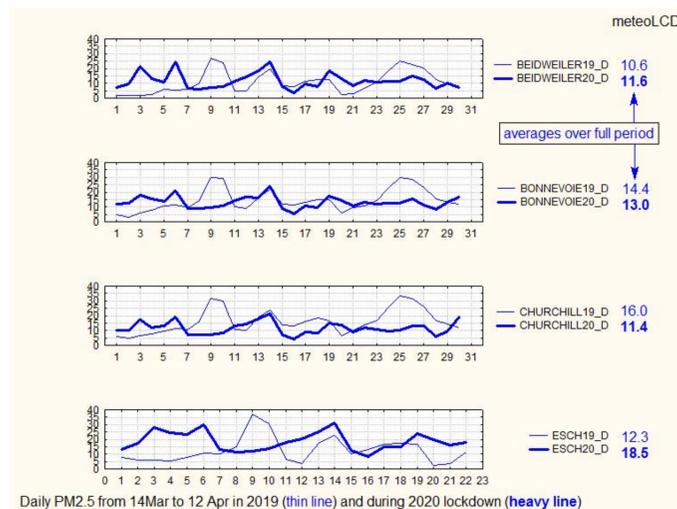
The 3 stations at Place Churchill, Bonnevoie and Esch are town stations, with usually heavy traffic around. Beidweiler is a rural station and Diekirch is best seen as semi-rural.

The official data can be found [here](#) and ours at meteoLCD [here](#).

I downloaded all data from the discomaps site; the labels of the 4 official stations are:

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BONNEVOIE LU_0101A
ESCH LU_0102A
BEIDWEILER LU_0105A
CHURCHILL LU_0109A
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The conclusion is practically the same as in the first part of this comment. The following picture says it all: there is no distinctive fingerprint of the lockdown to be seen. The averages are computed from the published hourly readings.



One could eventually see a more smooth pattern at Churchill, but the difference between the averages is small, and note that all these averages are little. The rural Beidweiler and the town station at Esch do really not behave well, as they have increased PM2.5 levels during the lockdown (not much for Beidweiler, but nearly +50% in Esch).

The EPA's revised standard from 2012 are 35 ug/m3 for the daily average, and all 4 stations are well below this. The annual average should be lower than 12 ug/m3, which seems quite extreme, as wind blowing over dry soil can produce quite spectacular amount of PM2.5 and PM10 (and let's not speak of wood burning). The paper [here](#) for instance gives a number of 12.2 mg/m2 blown away as PM2.5 when wind at 8m/s blows over uncrushed soil: so every m2 of soil surface would expel 12200 ug of PM 2.5 in these windy conditions! Even with a 100 fold dilution does this still amount to concentration of 12 ug/m3.

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