

meteoLCD Weblog

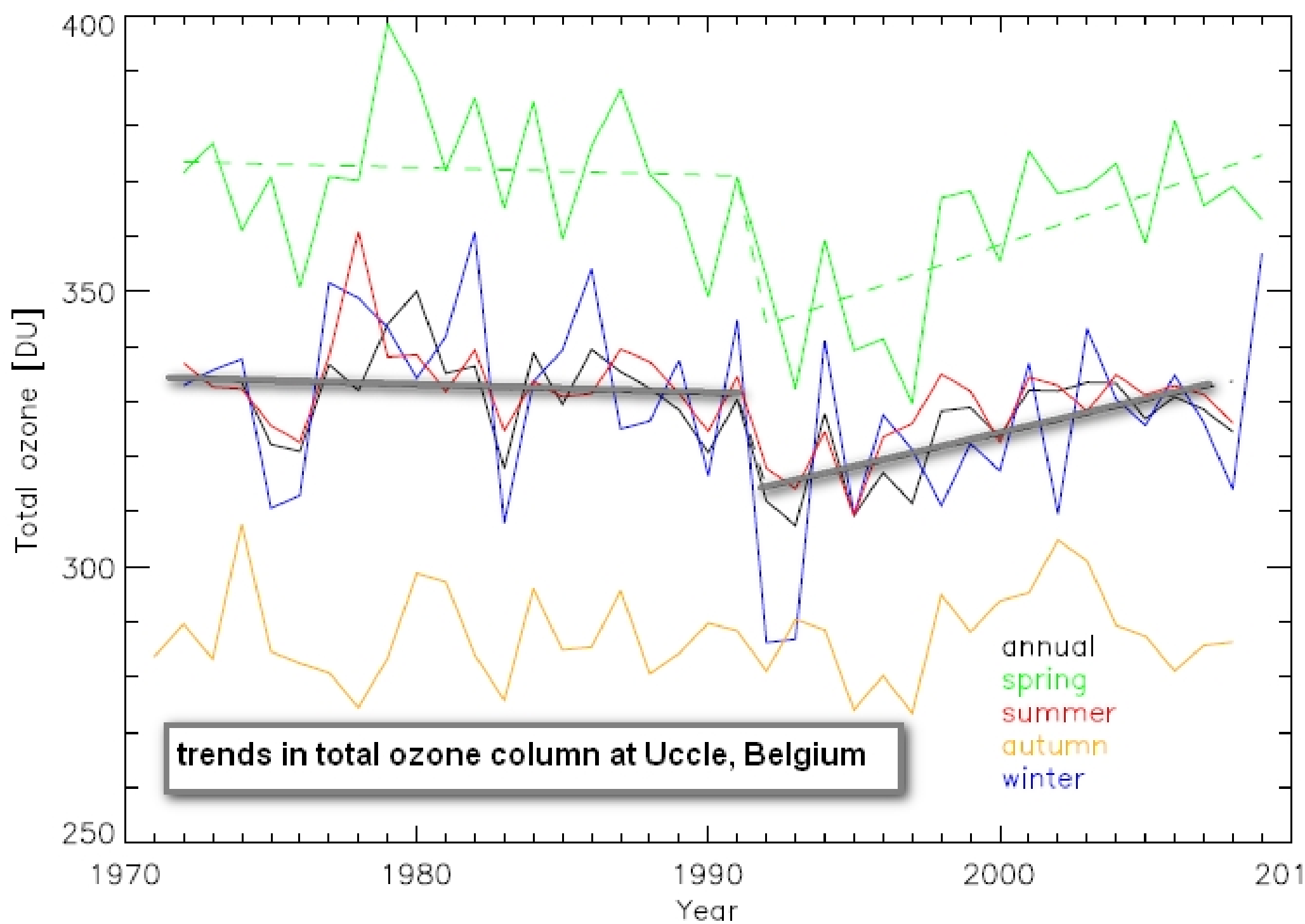
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Meteorological trends at Diekirch, Luxembourg

I am almost done with updating the [trends page](#) to include the year 2009. I use Statistica for the graphs and calculations and the [Faststone](#) screencapture to enhance the calculated trend lines. There are not many surprises:

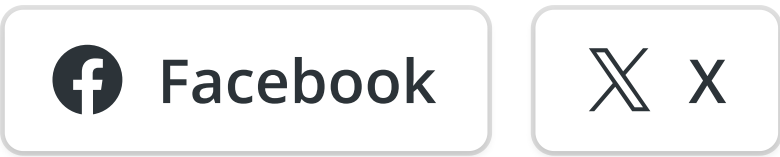
1. mean annual temperatures are practically at a standstill since 2001
2. Ground ozone levels are decreasing (as observed at many European locations), even if there is a small increase during 2009.
3. Total ozone column is increasing since 1998. The [KMI](#) from Belgium reports in an interesting 2009 [poster](#) a decrease of 0.79%/year (what amounts to a miniscule -0.26 DU/year approx.), but in fact, close inspection of the relevant picture shows a first period from 1971 to 1991 with a slightly decreasing trend, the following period from 1992 to 2008 showing a much more visible increasing one (picture enhancements by me):



So insisting on the miniscule overall negative trend seems more an exercise in politically correctness than scientific rigor.

4. I have a problem with the DTR trend: at Diekirch, DTR is increasing, even if total solar irradiance is decreasing. This observation is the contrary to what Makowsky et al. say in a [dissertation](#) (mainly a collection of published papers) from the ETHZ: according to these authors, DTR should vary as does solar irradiance (positive correlation). Well, we don't have this at meteoLCD. I am still looking for good solar data from other neighbouring stations to make a comparison on this diminishing TSI (which could easily be explained by the long agony of solar cycle #23)
5. NOx gases are down, but I guess that they are close to a bottom plateau.
6. Sunshine duration is difficult to quantify: I use a formula derived by Jean Oliviéri from Meteo France (now retired) that gives usually a lower number than that reported by the Findel airport (using the old Campbell-Stokes glass sphere instrument). As meteoLCD is located in a valley (with frequent fog periods) and Findel at about 160m higher on a much more windy plateau, the lower Diekirch values could be explained at least partially from these regional differences.

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