

METR 113: Assignment 2 (Spring 2011)

Due Date: March 24, 2011

Write a 2-3 page paper (excluding figures, tables, references) summarizing PM2.5. Write in a manner that is targeted towards a general reader (i.e. not me). See 'requirements' below for additional instructions. Issues to address are:

1. Introduction
 - a. Explanation of what PM2.5 is.
 - b. Explanation of why is PM2.5 is of concern from a health standpoint.
 - c. Distinction between PM2.5, PM10 and larger-sized "dust" particles.
2. Regulatory Issues
 - a. Discuss ambient air NAAQS and California PM2.5 standards (including levels and averaging times).
 - b. Explanation of history of particulate regulation under NAAQS and California, noting when PM2.5 became regulated under each.
 - c. Reference an official statement(s) from EPA justifying the expansion of ambient air standards to include PM2.5. Include reference for this statement(s). A good place to read to locate such a statement is the September 2006 "fact sheet" in http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_plain.html, which is one of the links provided below.
3. PM2.5 concentrations and composition measured in California (look at two stations)
 - a. A Bay Area station
 - b. A Central Valley station
 - c. Discuss similarities and differences in concentration and composition between stations.
4. Emissions
 - a. Sources of primary PM2.5 (i.e. PM2.5 directly emitted as particles)
 - b. Sources of precursor gases for secondary PM2.5 (i.e. the gases that form particles in air through chemistry)
 - c. Based on this, discuss the degree to which PM2.5 can be attributed to one/few main sources. Discuss the potential difficulty this poses in regulating and formulating statewide strategies to reduce PM2.5 concentrations.

Some weblinks to find information include ...

- http://www.epa.gov/ttn/naaqs/standards/pm/s_pm_plain.html
- <http://www.arb.ca.gov/aqd/almanac/almanac.htm>
- <http://www.arb.ca.gov/newsrel/newsrelease.php?id=149>
- http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm
- <http://www.arb.ca.gov/pm/pm.htm>
- <http://www.arb.ca.gov/research/aaqs/pm/pm.htm>
- <http://www.arb.ca.gov/pm/pmmeasures/pmch05/pmch05.htm>
- <http://www.ncuaqmd.org/files/Particulate%20Matter%20Mortality%20Fact%20Sheet.pdf>
- <http://www.baaqmd.gov/Divisions/Planning-and-Research/Particulate-Matter.aspx>
- Diesel Particulate links on 'Lecture 4' lecture slide

Requirements

1. Final paper is to be submitted through turnitin.com in addition to a hardcopy handed in on the due date in class. For turnitin.com, the classid (METR/ENVS113) is 3911707 and the password is 'airpollution'
2. In your write-up, **present and discuss at least three visuals**. These can be graphs, pie-charts or tables. However they cannot be a photo or map. Reference and explain the meaning of the visual presented and why it is relevant to the point you are making. The visuals you will use should be obtained from PM2.5 reports and documents from official agencies. Such reports and documents can be found from the weblinks below.
3. Write-up should be organized into separate sections that are appropriately titled and very clearly formatted (font size, font type, numbering system) so that the beginning of a new section is very clear to the reader. Please use page breaks to prevent new sections from beginning near the bottom of a page. This assignment should be about 2 – 3 pages excluding visuals, using 1.5 inch spacing and standard size margins. It's ok if you go slightly above 2 – 3 pages if you feel the need, however going much beyond this indicates that you probably aren't being concise enough in your write-up. In that case, make an effort to be more concise in your explanations or discussions. This paper is to be written as a short technical report. This means among other things being very concise, presenting only facts with some brief explanation, and breaking up new topics into sections. A reader (for example, your boss at work) needs to be able to quickly read through the paper, and if necessary skip to the sections of interest to him or her. Note that this format is very different than the standard college essay, where there are longer paragraphs and more free expression of individual opinions.
4. See course greensheet for general writing instructions. I **do** grade on presentation, spelling, punctuation, etc ... as well as content. This is to be "final product" quality work, not "rough draft". However, no cover page or other things ("pretty fonts") should be included to embellish the visual presentation of the work. Leave it fairly generic and bland ... just no typos, spelling errors, inconsistent margins and indentations, etc ... (!)
5. Try to avoid using semi colons (;'). Separate sentences should be used instead. Rarely is a semi-colon necessary, and in many cases in my reading of course papers these are not used correctly (often in place of commas).

Objectives

1. To learn about PM2.5. PM2.5 is becoming more and more realized to be a main air pollution health hazards. In addition, most air districts within populated and industrial areas of the U.S. are non-attainment areas with respect to PM2.5. PM2.5 is currently among the most important air pollution issues, and will likely stay so in the coming years.
2. To familiarize yourself with official material provided by air pollution agencies (EPA, CARB, BAAQMD).
3. To further develop the practice of substantiating statements by presenting and referencing data from official sources.
4. To further develop technical and scientific writing skills.