

Atmospheric Dispersion

Assignment 1

The assignment is based on the paper “Dispersion of Sulphur Dioxide Around the Thermal Power Plant at Ahmedabad, India”, by M.S. Naik (*Atmospheric Environment*, **26B**, 331–338, (1992)). Read the paper carefully and then try to reproduce the results for the surface concentration of sulphur dioxide for the months of February, July and August. You will need to consider the following factors:

1. The rate of emission of sulphur dioxide,
2. The wind speed and direction,
3. The atmospheric stability,
4. How to deal with day and night-time conditions,
5. How to determine σ_y and σ_z ,
6. The heights of the chimneys.

Write a report on your work, explaining how you approached the problem and what assumptions you made. Show your results and compare them with those in the paper. How good (or bad!) is the comparison? Why may your results differ from those in the paper? What were the main conclusions reached in the paper? Do you agree with them?

You should aim to spend about 12 hours on this problem. As a rough guide, you should make your report 4–8 pages in length, excluding diagrams.

MSc in Computational Fluid Dynamics

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