

عنوان مقاله:

Analysis of the Effects of Mixing Height and Other Associated Factors on the Effective Dispersion of Plume

محل انتشار:

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خلاصه مقاله:

The overall focus of the research work was to study the various factors that affect plume dilution and dispersion. Some of the factors that were studied include; the effects of mixing height, the effects of plume rise and the effects of terrain in addition to momentum and buoyancy on the overall dispersion of plume released from a stack of known effective height. Data on temperature versus altitude was collected using an infra - red thermometer at different height of a telecommunication mast under construction. The highest temperature for the month was noted and the validity of the recorded data was done using correlation analysis. Mathematical analysis was then employed to determine the mixing depth which represents the effective height of any stack that must be placed in such location in order to allow for complete dispersion/dilution of any form of pollutant released from any source. Result obtained shows that the effective height of stack that can be erected in such location that will allow for effective dispersion of any pollutants was shown to be 1700m. Any stack below this height will lead to ground level pollution. Also discussed in this research paper is the application of Gaussian Plume model in the evaluation/analysis of the horizontal dispersion of (pollutants released from a height (h

کلمات کلیدی:

Plume Dispersion, Mixing Height, Momentum/Buoyancy, Gaussian Plume equation, Air quality

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