

A study of terrain effect on air pollution in Taiwan

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Abstract. Air pollution is formed by two main factors, one of which is pollutant emission, and the other is the atmospheric condition, which is greatly influenced by the terrain. Taiwan is an island with complex terrain which locates in the Asian Monsoon zone, the well-developed industry and heavy traffic made serious air pollution problems. The main focal point of this study is to investigate if in the occurrence of a pollution event, whether the wind flow affected by Taiwan's complex terrain will change in relation with the accumulation of pollutants, while attempting to discover a way to identify from the indexes resulting from the research. 31 events during 2003-2008 in spring and winter were selected for this study, using a mesoscale meteorological model to simulate wind field, associated the Froude Number (Fr)calculated by the sounding data of Yonaguni Island, Japan, it is found that the area of air pollutants accumulation was in strong relation with the air flow changed by the effect of terrain.

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