行政院原子能委員會核能研究所
委託研究計畫研究報告

期末報告

輻射彈事故市區小尺度氣象模式建立
The Small Scale Meterorology Model in City for Radiation Bomb Accident

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受委託機關（構）：財團法人氣象應用推廣基金會
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中文摘要

本計畫為配合輻射防護與緊急應變子項計畫進行需求。由於輻射彈很可能會在人口密集的都市開放空間，如市區街道中引爆並隨建築物周圍之大氣擴散污染物。因此若要評估污染的程度及範圍，首先需要建立含建築物之市區小尺度大氣邊界層氣象模式，作為分析大氣擴散時所用。

首先我們要先選定一包含大氣變化之市區（含建築物）大氣邊界層模式，進而為台灣之一特定市區建立一套專屬的市區小尺度氣象模式。在工作內容上則包含了國內外相關模式資料的收集及其優缺點之評估。特定市區之街道建築與地形高度模型之建立。並利用此模型套入選定之市區小尺度氣象模式中，進行測試運算及評估校驗。最後提供此特定區域市區小尺度氣象模式資料庫之評估建議及應用資料庫所需之實際氣象預報之評估。

英文摘要

This two-year project is to support the main project which is to establish the radiation protection and emergency preparedness system for dirty bomb. There is a big probability for a dirty bomb's detonation in an open area such as on the street in a big city. Then the radiation pollution will transport and diffuse in the air around buildings. In order to evaluate the radiation dose, we need to build a small-scale atmospheric boundary layer model which included building effect.

At first, we will choose a suitable boundary layer model among all possible sources in the world after some scientific evaluations. Then we will establish a small-scale boundary layer model in a specific area in a big city in Taiwan. We also need to set up the surface model which included the surface height, building and street distributions in this specific area as the based data for the small-scale boundary layer model. We will do some case studies by using this small-scale boundary model to verify this model. Finally, we will give some consultancies about the applications of this model in the emergency preparedness system.