論文 / 著書情報
Article / Book Information

題目(和文)	
Title(English)	Development of a User-Friendly Interface for Atmospheric Dispersion Database and its Application for Nuclear Emergency Preparedness
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出典(和文)	学位:博士(学術), 学位授与機関:東京工業大学, 報告番号:甲第11206号, 授与年月日:2019年3月26日, 学位の種別:課程博士, 審査員:相樂 洋,小原 徹,竹下 健二,千葉 敏,松本 義久,永井 晴康
Citation(English)	Degree:Doctor (Academic), Conferring organization: Tokyo Institute of Technology, Report number:甲第11206号, Conferred date:2019/3/26, Degree Type:Course doctor, Examiner:,,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

Dissertation Outline

Development of a User-Friendly Interface for Atmospheric Dispersion Database and its Application for Nuclear Emergency Preparedness

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A user interface has been developed using a database of atmospheric dispersion of radioactive nuclides to provide a user-friendly and quick information fetching platform for nuclear emergency preparedness. The output of the user interface comes in different forms, depending on the purpose of the user; for example, comprehensible tables highlighting important values, such as maximum dose levels, its locations and distance from source, and insightful figures of plume horizontal dispersion and distribution. This interface was applied to optimize monitoring post installations for emergency preparedness by investigating various types of plume dispersions and dose distributions. The interface was also utilized to construct more robust protective action plans for evacuation pre-planning based on exploring a number of fast-travelling plume dispersion.