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GIS as a Decision Support Tool in the Area of Influence of the Nuclear Complex Angra dos Reis, Brazil

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ABSTRACT

The outlook concerning the occurrence of industrial accidents has led to the implementation of response systems based on geoprocessing tools, which are widely adopted in emergency for such ventures, since they have helped and served as a support for decision making, as well as for the preparation of guidelines aimed at managing emergencies. Nuclear power plants, because they constitute types of industrial activities that present dangerous conditions and attention regarding security are characterized as hazardous, especially due to consequences that occurred from large accidents— such as Chernobyl (1986) and Fukushima (2011)—highlighting the importance to its negative impacts, since the occurrence of accidents at nuclear power plants may affect surrounding areas, thus exposing a set of elements that are part of the environmental dynamics that integrates the catchment area where this type of plant is situated. In this way, through an integrated view of the region where the nuclear complex is located in Angra dos Reis City (Rio de Janeiro State) and, also, by aggregating information that portray the geobiophysical reality of its surroundings, several elements were incorporated into a database developed in a virtual environment, in which was produced a geographic information system (GIS) that presents a complex of variables that, once considered, can enhance various analysis in order to support emergency situations and planning, as well as guidelines that help define actions from the occurrence of accidental events at the nuclear plant.

KEYWORDS

Industrial Accidents; Nuclear Power; GIS; Planning of Emergency; Response Systems

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