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Radiation can pose great dangers to an environment that has been exposed to radioactive materials. Globally, such hazardous materials are seen as a threat to the air and water supplies, the natural vegetation of the region, and the population. Investigating the dispersion of radionuclide particles in the air and sea near a nuclear power plant justifies the use of computer simulations to determine the trajectory of the particles and analyze the concentration of the hazardous material originating from the nuclear power plant. Tracing the dispersion of radionuclide particles can be achieved utilizing a Global Climate Model (GCM). GCM's key modules, Atmospheric General Circulation Model (AGCM) and Oceanic General Circulation Model (OGCM), are vital to determine the radionuclide particles' dispersion trajectory in the air and sea, respectively. In conjunction with AGCM and OGCM, a Radiative-Convective Model (RCM) can also be used within the simulation to analyze the concentration of radionuclide particles. Results from this simulation will provide a visual representation of the radionuclide particles' trajectory over a period of time in the air and sea and graphically determine the radionuclide's concentration levels at areas within the determined path. This analysis will offer useful information regarding the particles' direction and radiation concentration levels. Warning of such hazardous materials will provide an opportunity to alert and evacuate citizens if needed.

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