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# An Indoor Radon Survey in Three Different Climate Regions in Mexico, and the Influence of Climate in the Obtained Values

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## ABSTRACT

In this paper we present the results of a survey of indoor radon concentration levels in Mexico. In order to investigate whether differences in climate translate into significant differences in indoor radon concentrations, the country was divided into three climate regions: the northern semi-desert region, the central semitropical region and the southern tropical region. The survey was carried out using nuclear track methodology. The dosimeters employed for the survey were based on the passive closed-end cup device, developed at the Physics Institute of the National Autonomous University of Mexico, and used PADC as detector material. A well-established protocol for chemically etching and reading the detectors was followed. Average annual temperatures differ between regions (from 15℃ to 28℃) but vary relatively little within each region. Atmospheric temperature is one of the most important factors which need to be considered when carrying out a survey of indoor radon concentrations because temperature largely determines building ventilation habits, and ventilation habits are known to have significant effects on indoor radon concentrations. Other factors, including building construction materials, architectural styles, geological and hydrological characteristics, and seismicity, vary from region to region and within each region. In each of the three regions low levels of indoor radon (from 37 to 179 Bq • $m^{-3}$) were found.

## KEYWORDS

Radon, Indoor Radon, Climate Influence, Nuclear Tracks Methodology

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