MODELLING SEASONAL EFFECTS IN IRISH INDOOR RADON LEVELS

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The Radiological Protection Institute of Ireland (RPII) have estimated that the average radon level in Ireland is 89 Bq/m^3 placing Ireland as a country with one of the highest radon levels in Europe. Indeed it has been estimated that approximately 13% of lung cancer deaths in Ireland are due to indoor radon exposure.

Previous studies (e.g. Pinel *et al*) of indoor radon levels in the UK have established that measurements of residential radon are subject to seasonal variation. The standard measurement technique used by the RPII is to place detectors in homes for a three month period. Due to the substantial seasonal variation that occurs in indoor radon levels, it is necessary to seasonally adjust all three month measurements to allow for accurate estimations of annual radon levels in a given locality.

This paper reports on the development of new methodologies to produce, for the first time, seasonal correction factors calculated specifically for Ireland. Prior to this, estimates of seasonal correction factors calculated from UK data were applied to the Irish data. The analysed data set, provided by the RPII, consisted of indoor radon measurements carried out for the purpose of the National Radon Survey in 11,046 dwellings throughout Ireland.

References

Pinel, J., Fearn, T., Darby, S., and Miles, J. *Seasonal Correction Factors for Indoor Radon Measurements in the United Kingdom,* Radiat. Prot. Dosim. 58(2), 127-132 (1995).