

SEASONAL VARIATION OF ^7Be CONCENTRATIONS MEASURED AT GROUND LEVEL AIR IN SÃO PAULO – BRAZIL

DAMATTO, S. R.; MÁDUAR, M. F.; PECEQUILO, B. R.S.; NISTI, M.B.

Laboratório de Radiometria Ambiental, Instituto de Pesquisas Energéticas e Nucleares, São Paulo - Brazil damatto@ipen.br

The short-lived cosmogenic isotope ^7Be ($T_{1/2} = 53.3$ d) has been used as tracer of heavy metals and pollutants, transport processes in watershed and chronometers in the environment. This isotope is a highly particle reactive and it has a strong affinity with aerosols after their production in the atmosphere and it is scavenged from the atmosphere by precipitation, dry fallout and radioactive decay. The concentration of this radionuclide was measured at a ground level air during the period from 2001 to 2010 at Instituto de Pesquisas Energéticas e Nucleares - IPEN's campus located in the city of São Paulo, São Paulo, Brazil. The sampling site is approximately 10 km west from downtown São Paulo ($23^{\circ}32'S - 46^{\circ}37'W$ at 760 m above sea level). Climate in the area is temperate tropical with dry period in winter and rainy in summer with the annual rainfall ranged from 443 mm to 1083 mm. The annual average temperature is 19.1°C , showing minimum and maximum of 15.3°C and 24.9°C , respectively. The radionuclide was measured by non-destructive γ -ray spectrometry using a coaxial Be-layer HPGe detector with 22% relative efficiency, 2.09 keV resolution at 1.33 MeV and associated electronic devices, with live counting time of 150,000 s. The spectra were acquired by multichannel analyzer Ethernim and, for the analysis, WinnerGamma software was used. The obtained results displayed clearly seasonal variations with higher values in spring and summer time and with the amount of precipitation.