

A new full 3D model of cosmogenic tritium ^3H production in the atmosphere (CRAC:3H)

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Introduction

This supporting information provides the tritium production functions for cosmic-ray protons and alpha-particles (see the main text) as tabulated values.

Names of the sheet include the name of the isotope and the type of the primary cosmic ray particle: "3H_p" stands for tritium produced by cosmic-ray protons while "3H_a" stands for tritium produced by cosmic-ray alpha-particles. "3H_columnar" is the sheet for the columnar production functions by both protons and alpha-particles.

Sheets "3H_p" and "3H_a" present tables of the computed production function (in atoms of the isotope per one incident nucleon in 1 g/cm² of air at the given atmospheric depth). Columns correspond to different energies of the primary cosmic-ray particle (in GeV/nuc), while lines to atmospheric depths (in g/cm²). The first data line corresponds to the integral production in the first 10 g/cm² of the atmosphere, next lines give the production at the exact atmospheric level. The tabulated production function S corresponds to eq. (3) in the main text.

Sheet “3H_columnar” presents a table of the computed columnar production functions (in atoms of the isotope per one incident nucleon). First column corresponds to the energy of the primary cosmic-ray particle (in GeV/nuc), second and third columns are the columnar production functions for protons and alpha-particles, respectively. In this sheet, the tabulated production function S corresponds to eq. (5) and Table 1 in the main text.