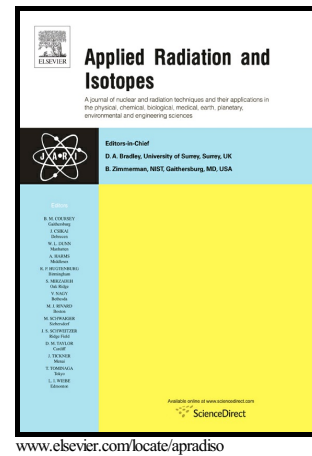


Author's Accepted Manuscript

Assessment of ^{53}Mn deposition on Earth via Accelerator Mass Spectrometry

Darío Rodrigues, Agustín E. Negri, Christian Balpardo, Andrés Arazi, Thomas Faestermann, Jorge O. Fernandez Niello, Leticia Fimiani, José Manuel Gómez Guzmán, Karin Hain, Gunther Korschinek, Peter Ludwig, Guillermo V. Marti



PII: S0969-8043(17)31376-3
DOI: <https://doi.org/10.1016/j.apradiso.2018.08.001>
Reference: ARI8443

To appear in: *Applied Radiation and Isotopes*

Received date: 2 December 2017
Revised date: 30 July 2018
Accepted date: 2 August 2018

Cite this article as: Darío Rodrigues, Agustín E. Negri, Christian Balpardo, Andrés Arazi, Thomas Faestermann, Jorge O. Fernandez Niello, Leticia Fimiani, José Manuel Gómez Guzmán, Karin Hain, Gunther Korschinek, Peter Ludwig and Guillermo V. Marti, Assessment of ^{53}Mn deposition on Earth via Accelerator Mass Spectrometry, *Applied Radiation and Isotopes*, <https://doi.org/10.1016/j.apradiso.2018.08.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Assessment of ^{53}Mn deposition on Earth via Accelerator Mass Spectrometry

Darío RODRIGUES^{1,2,3,*}, Agustín E. NEGRI^{2,4}, Christian BALPARDO⁵, Andrés ARAZI^{1,2}, Thomas FAESTERMANN⁶, Jorge O. FERNANDEZ NIELLO^{1,2,4}, Leticia FIMIANI⁶, José Manuel GÓMEZ GUZMÁN⁶, Karin HAIN⁶, Gunther KORSCHINEK⁶, Peter LUDWIG⁶, Guillermo V. MARTI¹

¹Departamento de Física Experimental, Laboratorio TANDAR, Comisión Nacional de Energía Atómica, Av. Gral. Paz 1499, BKNA1650 San Martín, Argentina

²CONICET, Av. Rivadavia 1917, C1033AAJ Buenos Aires, Argentina

³Departamento de Física, FCEyN, UBA and IFIBA, Conicet, Pabellón 1, Ciudad Universitaria, 1428 Buenos Aires, Argentina

⁴Instituto de Investigación e Ingeniería Ambiental, Universidad Nacional de San Martín, 25 de Mayo y Francia, B1650BWA San Martín, Buenos Aires, Argentina

⁵Laboratorio de Metrología de Radioisótopos, Centro Atómico Ezeiza, Comisión Nacional de Energía Atómica, Pbro. González y Aragón 15, B1802AYA, Ezeiza, Buenos Aires, Argentina

⁶Technische Universität München, Fakultät für Physik, James-Franck-Straße 1, 85748 Garching, Germany

*Corresponding author. E-mail: darodrig@tandar.cnea.gov.ar

Abstract- The ^{53}Mn flux onto Earth is a quantity relevant for different extraterrestrial and astrophysical questions. It is a proxy for related fluxes, such as supernova-produced material or interplanetary dust particles. In this work, we performed a first attempt to assess the ^{53}Mn flux by measuring the $^{53}\text{Mn}/^{10}\text{Be}$ isotopic ratio in a 1400 L sample of molten Antarctic snow by AMS (Accelerator Mass Spectrometry). Using the ^{10}Be production rate in the atmosphere, an upper limit of $5.5 \times 10^3 \text{ atoms cm}^{-2} \text{ yr}^{-1}$ was estimated for the deposition of extraterrestrial ^{53}Mn . This result is compatible with one of the two discrepant values existing in the literature.

Download English Version:

<https://daneshyari.com/en/article/8208395>

Download Persian Version:

<https://daneshyari.com/article/8208395>

[Daneshyari.com](https://daneshyari.com)