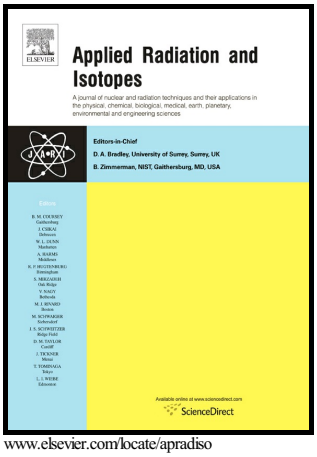

www.elsevier.com/locate/apradiso

Mapping ^{238}U decay chain equilibrium state in thin sections of geo-materials by digital autoradiography and microprobe analysis

Axel Angileri, Paul Sardini, Jérôme Donnard, Samuel Duval, Hugo Lefeuvre, Tugdual Oger, Patricia Patrier, Nicolas Rividi, Marja Siitari-Kauppi, Hervé Toubon, Michael Descostes

PII: S0969-8043(17)31131-4
DOI: https://doi.org/10.1016/j.apradiso.2018.06.018
Reference: ARI8400

To appear in: *Applied Radiation and Isotopes*

Received date: 26 September 2017
Revised date: 27 April 2018
Accepted date: 22 June 2018

Cite this article as: Axel Angileri, Paul Sardini, Jérôme Donnard, Samuel Duval, Hugo Lefeuvre, Tugdual Oger, Patricia Patrier, Nicolas Rividi, Marja Siitari-Kauppi, Hervé Toubon and Michael Descostes, Mapping ^{238}U decay chain equilibrium state in thin sections of geo-materials by digital autoradiography and microprobe analysis, *Applied Radiation and Isotopes,* https://doi.org/10.1016/j.apradiso.2018.06.018

Mapping ^{238}U decay chain equilibrium state in thin sections of geo-materials by digital autoradiography and microprobe analysis.

Axel Angileri[1], Paul Sardini[1], Jérôme Donnard[2], Samuel Duval[2], Hugo Lefeuvre[2], Tugdual Oger[2], Patricia Patrier[1], Nicolas Rividi[3], Marja Siitari-Kauppi[4], Hervé Toubon[5], Michael Descostes[5]

[1]IC2MP Equipe HydrASA, Poitiers, France.

[2]Ai4R SAS, Nantes, France.

[3]Service Camparis, Paris, France.

[4]Department of Chemistry, University of Helsinki, Finland.

[5]AREVA, Paris, France.

Keywords: Uranium, alpha particle, radioactive equilibrium, digital autoradiography, alpha spectrometry

1. Introduction

In sub-surface sediments, soils and rocks, actinides are naturally produced in the decay chains of ^{238}U, ^{235}U and ^{232}Th. Human activity linked to the nuclear industry also produces artificial actinides such as ^{239}Pu. Radioisotopes found in these series are alpha or beta