

# GRAS - Geant4 Radiation Analysis for Space

## Introduction

GRAS is a Geant4-based tool that deals with common radiation analyses types (TID, NIEL, fluence, SEE, path length, charge deposit, dose equivalent, equivalent dose, ...) in generic 3D geometry models.

The main requirements for a new generic tool for radiation analyses in space were flexibility and modularity of the application. Thanks to flexibility GRAS can be used for obtaining a variety of simulation output types for whichever (GDML or C++) 3D geometry model. This avoids the creation of a new tailored C++ Geant4-based application for every new project. Thanks to a modular design, the GRAS analysis type capabilities can be easily extended.

Other Geant4 applications in the space domain can be found [here](#).

## GRAS Paper

Official GRAS publication in IEEE Transactions on Nuclear Science:

G. Santin, V. Ivanchenko, H. Evans, P. Nieminen, E. Daly, "[GRAS: A general-purpose 3-D modular simulation tool for space environment effects analysis](#)", IEEE Trans. Nucl. Sci. 52, Issue 6, 2005, pp 2294 - 2299

## Other GRAS Related Documents

[Presentation](#) at the [9th Geant4 Collaboration Workshop](#), Catania, Italy, 4/10/2004.

[Presentation](#) at the [GEANT4 Tutorial for Space Industry](#), ESA/ESTEC, The Netherlands, 3/3/2005.

[Presentation](#) at the [Nuclear and Space Radiation Effects Conference \(NSREC\)](#) 2005, Seattle, US, 15/07/2005.

## Code

The access to the code is open upon registration.

The authors kindly ask to reference the GRAS official paper (as above) in all publications in which the GRAS code was used. This is valid both when the GRAS tool was used directly, and in case significant parts of the GRAS source code were taken for use in private code.

We also welcome feedback from GRAS users, in form of bug reports, suggestions for further development or generic comments.

Latest GRAS version: release 2.3, tested with Geant4 9.1.p02

Binary executables for Linux and Windows will be made available soon.

The source code can be accessed upon [registration](#).

In case of problems with the registration process, please [contact us](#).

For more information, please contact:

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