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PAPER TITLE... ASTRAL : A SOFTWARE FOR THE ESTIMATION OF ACCIDENTAL RELEASES OF RADIONUCLIDES IN THE ENVIRONMENT

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ABSTRACT (See instructions overleaf)

Although every precaution is taken about the use of nuclear energy, the occurrence of a major accident cannot be totally ruled out. The Institute of Protection and Nuclear Safety set up a Technical Crisis Centre to face such an eventuality. This centre is often tested through crisis exercises. In order to meet the needs in environmental consequences assessment of nuclear accidents a Software called « ASTRAL » (technical assistance in post-accidental radioprotection) is under development. It allows to : characterise the radioactive state of the environment, forecast its evolution in time and space, estimate the efficacy of rehabilitation actions and countermeasures and compare the calculated values with regulatory levels.

The ASTRAL software is based on the following elements :

❏ A data bank containing information such as :

- population, land use, characteristics of nuclear facilities, potential radionuclides releases, counter-measures
- computation parameters such as transfer factors, radiological data...,
- specific crisis data.

❏ A cartographic module based on a Geographical Information System, used to visualise the concerned zone, extract data, and display results,

❏ a calculation module integrating dynamic mathematical models, especially developed or coming from the literature (ECOSYS, AIEA...),

❏ tools for the graphical presentation of results,

❏ an ergonomic interface Machine - Man in order to manage the system.

Special attention has been given to the simplicity of use in the case of a crisis and to the minimisation of the risk of errors.