# Regional Impact of a hypothetical Severe Accident at a Floating Nuclear Power Plant containing KLT-40S-like reactors

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**Abstract**

SERPENT, a continuous-energy Monte Carlo Reactor Physics burnup calculation code, was used to create a reactor core that approximates available information on the KLT-40S reactor. Fission product inventory and decay heat values were extracted from the results and fed into ASTEC (Accident Source Term Evaluation Code), alongside other required physical parameters. A vessel break was simulated to obtain the accident progression and amount of volatile fission products released. These values were then fed into ARGOS, which is an atmospheric dispersion code based on the RIMPUFF (Riso Mesoscale PUFF) model, as the accident source term. The regional radiological impact of the accident was investigated for a hypothetical location and date of the accident, based on real weather data.

*Keywords:* KLT-40S, SERPENT, ASTEC, ARGOS

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