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Flight data analysis of the BERM radiation monitor aboard the BepiColombo mission to Mercury

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BepiColombo, one of ESA's cornerstone missions, launched in 2018, will study the composition, geophysics, atmosphere, magnetosphere and history of Mercury. On board of one of Bepi's spacecrafts is the BERM radiation monitor, that will complement the scientific investigations of the Hermean environment, by providing measurements of the energetic particle population.

The effect of radiation, both in terms of electromagnetic waves and particles, is one of the major technological impacts of planetary space weather on spacecraft instruments and on the ground. The monitoring and comprehension of the dynamics of radiation in space is therefore a crucial step of space exploration.

This thesis work aims to characterize BERM and to study its sensitivity to solar energetic particles, as well as analyzing the data it obtains during the cruise phase and the first Mercury flyby.

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