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Environmental sustainability for scientific software

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UN Secretary-General António Guterres described the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report as a "code red for humanity". Urgent CO2 emission reductions are needed, and it is therefore important to consider the environmental sustainability of everything that we do including our actions as researchers and software engineers. ICT is responsible for between 2 and 4 % of global greenhouse gas emissions when full life cycles are considered. The high rate of growth in computing makes it hard to predict if expected efficiency improvements will be sufficient to bring down emissions. This talk will explore the sources of GHG emissions from computing, and how changes in what we write and how we run it can make a difference. We also consider the context of computing, how does computing effect the operation of facilities and rebound effects.

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