On the carbon footprint of computing at IPSL

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Main infrastructures considered:

- Supercomputers

- Local datacentre

- Personal computers

- Storage and distribution outside IPSL (e.g., ESGF)

Two types of carbon costs to be quantified:

- Running (electric) consumption
- Construction and dismantling of infrastructure

Supercomputers:

Total electric consumption of supercomputers
* Number of cpu hours attributed by GENCI to IPSL
/ Total number of cpu hours annually available at supercomputers

+ construction+dismantling costs / lifetime

Local datacentre:

Annual electric consumption of datacentre
+ construction+dismantling costs / lifetime

Storage and distribution outside IPSL:
  ???

Running cost of IPSL CMIP6 simulations:

300 million hcpu over last 3 years on Curie (TGCC)

100 million hcpu / year ~ 1/8 of supercomputer Curie

Electric consumption of Curie > 2.5 MW

=> 3 millions of kWh per year

In terms of carbon:
    French electricity: 270 tonnes of CO_2 per year
    European electricity: 1350 tonnes of CO_2 per year