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Allocating Carbon Costs to Computing Payloads across Heterogeneous Infrastructures.

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As UKRI moves towards a NetZero Digital Research Infrastructure [1] an understanding of how carbon costs of computing infrastructures can be allocated to individual scientific payloads will be required. The IRIS community [2] forms a multi-site heterogeneous infrastructure so is a good testing ground to develop carbon allocation models with wide applicability.

The IRISCAST Project [3,4] developed methods to measure carbon costs for a facility. Building on that work the IRIS Carbon Mapping Project [5] has developed models to allocate carbon costs to individual payloads. These models were developed with a learning by doing approach and have been applied to both batch and cloud resources. We present our key findings, lessons learned, and recommendations.

[1] <http://doi.org/10.5281/zenodo.8199984>

[2] <https://iris.ac.uk>

[3] <http://doi.org/10.5281/zenodo.7692451>

[4] <http://doi.org/10.1051/epjconf/202429507029>

[5] <http://doi.org/10.5281/zenodo.10966001>

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