**Appendix 2**

**Advancing the Frontiers of Earth System Prediction:**

 **HPC and data analysis resources**

**Principles**

* It is expected that AFESP investigators will work collaboratively, both within and across Themes. In order to facilitate such collaboration, the AFESP Steering Group has been negotiating with partners to provide continued access to some key resources.
* For HPC, e.g. for running simulations, the main resource will be provided by the ECMWF and MONSooN3 supercomputers.
* For Data Analysis, the main resource will be CEDA-JASMIN, initially using NCAS allocations which will need to be negotiated with the relevant consortium manager (currently Grenville Lister).
* Additional resources, e.g. supercomputing time won internationally, will be considered as additional contribution in kind and must be stated on the main proposal.

**Resources available to AFESP investigators**

Successful projects will have access to:

1. ECMWF supercomputer resources
2. MONSooN3[[1]](#footnote-1) and
3. JASMIN.

The exact mechanisms for requesting and gaining access have not yet been finalised, but one might expect the use of resources awarded via AFESP to be monitored, and to be asked to provide continuation bids on an annual basis.

**Guidance on bidding**

* Provide an estimated amount of AFESP supplied HPC per year for your target platform, in node hours, as well as a Gantt chart detailing the intended usage per semester (recognising that usage beyond a one-year horizon is likely less well defined at the start of each new project and shall be revisited annually)
* Include an HPC risk analysis which covers both what you would do if you were unable to obtain all the HPC in your analysis, and how likely you think it is that you will actually need it all on the timescale you predict (i.e. if you expect substantial development with concomitant risk of delays in HPC usage, say so).
* If you think very large amount of HPC might be needed, these will likely have to come via your ECMWF/Met Office collaborators. Indicate if you expect this is likely to be needed.
* Provide the amount of short-term (scratch), medium term (GWS) and long-term (tape/MASS) storage you would expect to require, in the form of a Gantt chart.
* Indicate whether your intended tools (both for simulation and for data analysis) are capable of running:
	+ In parallel, including clear evidence of their scalability on platforms comparable to the ECMWF and MO supercomputers as well as, where relevant the JASMIN service
	+ On multicore and/or on hybrid partitions.
* List any key requirements/dependencies in terms of installed libraries on the main HPC, as well as on JASMIN.

**Technical support**

A dedicated technical support person within the NCAS CMS team (funded by the AFESP programme) will provide technical support for all of the above, as well as key links to experts on the various techniques/tools at each partner institution.

1. Note that projects planning to use MONSooN3 will be expected to have a Met Office Co-Investigator [↑](#footnote-ref-1)