

Draft „Mission“ I

drafted by the steering committee and the Co-Chairs on the grounds of the discussions of the ESM-Workshop on 02/03 september 2019

The challenges currently posed by global change require a step change in our capability to simulate, predict, and understand the Earth system and its impact on society. Advances in Earth-system modelling (ESM) are fundamentally challenged by the uncertain prospects of future high-performance computing architectures. The German ESM community must establish a new level of sustainable, institutional cooperation to develop the next-generation ESM system, bundling national resources such that scientific and technological developments are accelerated and shared.

Draft: „Mission“ II

as agreed upon by the plenary in the last session of the ESM-Workshop 02/03 sept. 2019

Our ambition is to create a world-leading, multiscale, seamless Earth System modelling system, usable in research, operational applications, training, and education

That has the following properties:

- Well-defined interfaces between Earth System components
- Allows simulations from global to local
- Exascale ready
- Scalable work flows
- Portability
- Modularity
- Data assimilation capacity
- Diagnostic capacity
- User friendly and well documented
- Traceability, reproducibility and version control
- Standardization
- Open source

The modelling system considers German expertise, does not exclude international components but avoids dependencies, and has a fit-for-purpose transparent governance structure.