

# CELARIT

## Climate Engineering Liability and Reliability: An Integrated Treatment

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## Summary

CELARIT reunites a team of climate modelers, economists, legal scholars, and philosophers to examine climate engineering (CE) capabilities through an integrated treatment of international liability issues and issues of model reliability and robustness. This treatment acknowledges the fundamental way in which the CE context links two questions:

- (1) The question whether a liability regime as a means of allocating and sharing the risks of damages likely to result from CE implementation is desirable and feasible; and
- (2) the question of how to deal with the fact that estimates of the climate effects of CE *prior* to any implementation and the attribution of effects *after* an implementation could only rely on numerical climate modeling, but not on experiential data.

By focusing on liability and questions of model robustness and reliability, CELARIT draws on and contributes to both the state of the art in two distinct, yet interrelated literatures in the interdisciplinary domain of climate research and the state of the art in each discipline involved.

The core objective of CELARIT is the development of an integrated treatment of international liability issues and problems of model reliability and robustness which will build on three pillars: Pillar 1 are the outputs of the predominantly disciplinary research in climate modelling, economics, philosophy, and law carried out under the precursor project CEIBRAL. Pillar 2 are the outputs of the interdisciplinary

integration of these perspectives during CEIBRAL, with IMCEL as its most tangible manifestation. Pillar 3 are the most recent developments in the state of the art in climate and CE research and in the constituent disciplines. Jointly, the three pillars support and inform the particular objective of the project, namely to tackle, across disciplines, the problem of using models as evidence in the context of liability for CE. In contrast to traditional liability regimes, any court or other body having to adjudicate on a liability case involving CE will not be able to evaluate the facts of the case on the basis of inspection or experience. Instead, it will have to rely on the simulations of computer models which may serve as scientific evidence. This dependence assigns central importance to model reliability and model robustness and immediately motivates the four WPs described below. A key feature, and an important step above and beyond CEIBRAL, is that CELARIT addresses cross-cutting issues in all WPs and therefore provides an integrated treatment across disciplines. This constitutes a methodological reorientation towards an amalgamated approach, which includes a systematic investigation of the limitations and potentials that model uncertainty offers for governing CE implementation in a societally responsible fashion. The integration within CELARIT will build on the positive experiences during CEIBRAL with the instrument of *researcher exchange* in order to foster interdisciplinary research: Project staff will again spend extended periods of up to two weeks working *in situ* with another project team.