Lorentz Principles[1]

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Principle 1: Good decision-making is best supported by scientific information deemed adequate for purpose. Where today's best available information is not adequate, this must be made obvious.

Principle 2: Good decision-making is enhanced when both our ignorance of the future and the limits of today's science are communicated clearly.

Principle 3: Scientific information to inform decisions regarding the Earth's future climate must always be accompanied by a quantitative statement regarding its expected robustness and potential irrelevance.

Principle 4: Information and insight regarding (a) the behaviours of computational models, (b) the properties of theoretical mathematical constructs and (c) observations of the world itself, must always be distinguished clearly, especially when these three distinct entities share the same name.

Principle 5: "Traceable accounts of uncertainty" must be provided, covering all known significant sources of uncertainty including, but not limited to, those of simulation (imprecision, ambiguity, model inadequacy…) and those identified via expert judgement.

Principle 6: Uncertainty Guidance varies with the context, origins and consumer of the information. Effective Uncertainty Guidance is tailored to the aims, understanding, and risk-appetite of the consumer.

Principle 7: Communication of scientific information for decision support outside the scientific community is more effective when professional means of communication are employed.

Principle 8: Provision of over-precise climate "information" (oversell) damages the credibility of all climate science, and can result in very poor (over-confident) adaptation decisions by practitioners.

Principle 9: Future-tuned simulations designed intentionally to illustrate some selected model property must be clearly distinguished from forecasts and projections (predictions) which, while conditioned on future forcing, are tuned using only the past.

Principle 10: Basic "good practice" for extrapolation tasks (science in the dark) differs from that of more straightforward science in the light tasks where the system is thought stable and a large archive of forecast-outcome pairs are available. Nevertheless, violations of good practice remain well defined and, if allowed, the impacts of knowingly bad-practice elements of an analysis must be clearly identified along with their implications for the relevance of those results for decision support.

[1] #LorentzPrinciples http://www.lse.ac.uk/CATS/Outreach/Lorentz-Principles/Lorentz-Principles Ver19-08-12-1p