

***Interactive comment on “Comment on “Global risk of radioactive fallout after major nuclear reactor accidents” by J. Lelieveld et al. (2012)” by J. Lelieveld et al.***

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We thank Dr. Ehlermann for his comment and are happy to clarify some aspects of our original publication.

In view of the conclusion by the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission that the accident was a “profoundly man-made disaster”, Fukushima and Chernobyl have in common that they resulted from human errors; even if the accident in Fukushima was directly caused by the natural disasters, it would have been far less likely if appropriate precautions had been taken in this high-risk region.

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The term “core melt”, though not officially defined by the International Atomic Energy Agency, was adopted from NRC (1990). History has shown that so far, every case in which there has been a near-complete core melt has led to an INES 7 accident (note that the Three Mile Island accident, an INES 5, was only a partial core melt). Thus, the probability of containment upon core melt, which was estimated by NRC (1990) to be 99%, is not supported (though it cannot be ruled out for future accidents).

Sect. 7 begins with “In the wake of the events in Fukushima the German government has decided to phase out all nuclear power plants over the next decade (in accord with the theory that large-impact and rare events are leading causes of societal change; see Taleb, 2010)”. We object to the claim that this qualifies as “clearly ideological observations and political statement”, since we are only reporting on two historical events (the decision of the German government, which closely followed the Fukushima accident), along with a conclusion from another publication (which is cited).

**References**

Nuclear Regulatory Commission (NRC): Severe Accident Risks – An Assessment for Five U.S. Nuclear Power Plants, NUREG 1150, 1990.

Taleb, N.N.:The Black Swan: The impact of the highly improbable, Random House, 2010.

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Interactive comment on Atmos. Chem. Phys. Discuss., 12, 19303, 2012.