Abstract

Disaster Preparedness and Response: Applied Exposure Science

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In 2007, the ISEA, predecessor to ISES, held a special roundtable to discuss lessons learned for exposure science during and following environmental disasters, especially the 9/11 attacks and Hurricane Katrina. Since then, environmental agencies have been involved in responses to the Deepwater Horizon oil spill, Fukushima tsunami and nuclear plant failures, Hurricane Sandy, as well as regional disasters, such as ash pile leaks near coal-fired power plants. This discussion will compare actual exposure science application experiences to the recommendations from the 2007 discussion and subsequent literature. The discussion will include an assessment of potential decision support tools can be used in such a comparison, e.g. multi-criteria decision analysis, life cycle analysis, Bayesian belief networks and root cause failure analysis. It will also propose a taxonomy system for disasters based on a scale between exclusively human exposure potential to exclusively ecological exposure potential. The comparison will focus on the differences in exposure assessment needs during response, recovery, reentry, reconstruction and re-habitation.