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T1.3-P06. Identifying the source of specific events: a major challenge for French NDC

Characterization of source from atmospheric radioactivity measurements is an essential task of National Data Center (NDC). One of the objectives of the atmospheric transport modelling is to locate areas that may contain the source at the origin of a set of measurements at IMS stations. The challenge lies in the wide variety of possible solutions, ranging from a single release to a combination of several sources, local or remote, from industrial or military applications. Based on a Possible Source Region method, retro-plumes are calculated using a Lagrangian particle dispersion model, and added to provide a likely area of release. Considering detections and non-detections, it is possible to limit the spatial extent of the solution. In its initial development, the method provided results integrated in time and as such has not made full use of the temporal information inherent to the knowledge of atmospheric transport. This study presents the recent developments undertaken to investigate the comprehensive potential of the PSR method to locate sources. Applied to Xe-133 measurements at FRX27, in Tahiti – a station usually known to experience only a few detections – it defines a narrow solution area, which includes a major producer of medical isotope in Australia.

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