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source origin of cesium-137 detections at station MXP44 in 2024

The International Monitoring System stations may occasionally detect radionuclides relevant to the CTBTO. Such is the case of station MXP44, which is located in Guerrero, in the Mexican state of Baja California. Cesium-137 was detected three times in the year 2024 with a level 4 categorization. The objective of this work is to estimate the possible source origin of the cesium-137 detections. Therefore, back trajectories were simulated using the HYSPLIT trajectory model at 500 m altitude. The RNToolkit web application tool was used to determine the periods in which cesium-137 was detected at that station and the level of the categorization. The simulations showed that the possible source origin of these detections were episodic emissions from the Diablo Canyon nuclear power plant located in the United States of America. Because of the wind dominance from northwest, an advection of stable air mass coming from the Pacific. The air masses took approximately between four and three days to arrive at the station. These results also indicate that the MXP44 station would contribute to evaluate the evolution of the emissions in the event of an accident at the Diablo Canyon nuclear power plant.

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