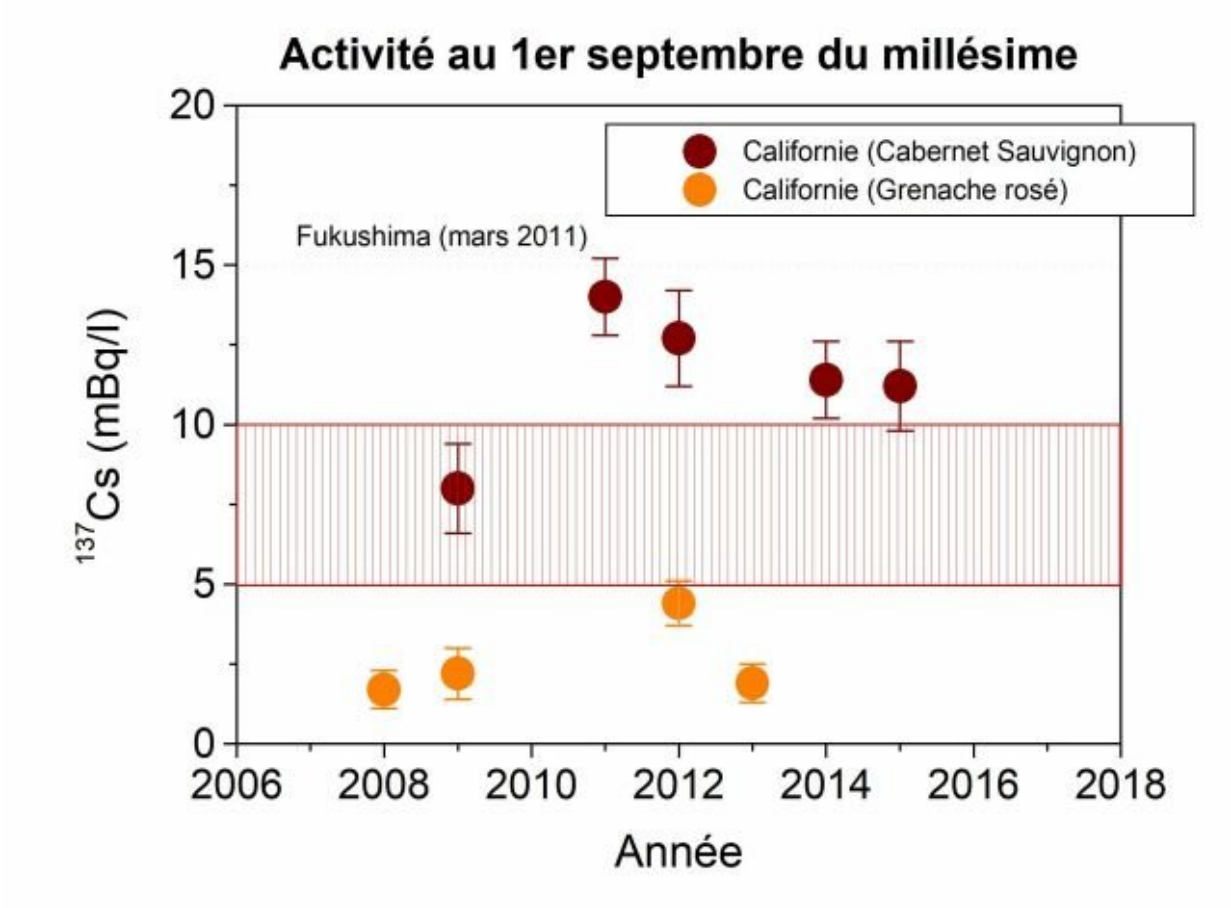
Trace amounts of isotope from Fukushima disaster found in California wine

July 24 2018, by Bob Yirka



California wines – the hatched area corresponds tonowadays “background” for red wines. Credit: arXiv:1807.04340 [physics.pop-ph]

A pair of researchers with CNRS/Université de Bordeaux has found

trace amounts of the isotope cesium-137 in wines produced in California shortly after the Fukushima nuclear disaster. Michael Pravikoff and Philippe Hubert have written a paper describing their study and have posted it on the *arXiv* preprint server.

Prior research has shown that after nuclear accidents such as the Chernobyl disaster in 1986, isotopes such as cesium-137 (a radioactive byproduct produced by fission of uranium-235) can be absorbed by plants. Where they wind up is generally dependent on geography and the direction of the wind. Grape vines are one such plant that can be impacted by the isotope—it can show up in wine produced from the grapes. In 2001, one of the researchers in this new effort discovered that he could date bottles of unopened wine by testing them for cesium-137 levels. Such levels are not considered dangerous for humans, however, because they are too low. In this new effort, Hubert and his colleague Michael Pravikoff wondered if the same situation might now be the case for wines made in California after the Fukushima disaster—prior research by other teams had shown that some degree of fallout had made its way across the Pacific Ocean.

To find out, the pair used the same technique used to test bottles of wine produced after Chernobyl—namely, using sensors to measure gamma rays in proportion to the isotope levels emitted from unopened bottles. The researchers report that this approach failed—likely because the levels of the isotope were too low. Undeterred, they opened some of the bottles and tested them more closely. This involved heating a sample of wine to 100°C for an hour and then heating it some more to 500°C for eight hours. This resulted in reducing the wine to ash. The research pair then tested the ashes with a gamma ray detector and found trace amounts of cesium-137.

The researchers reiterate that the levels they found pose no threat to human health—officials with California's health department have also

issued statements promising that the isotopes found in California wines (or other agricultural products) pose no threat to human health.

More information: Dating of wines with cesium-137: Fukushima's imprint, arXiv:1807.04340 [physics.pop-ph] arxiv.org/abs/1807.04340

Abstract

Did the Fukushima incident in 2011 leave its signature via the Cs-137 radioactivity in wines, mainly from the Nappa Valley? This is a short note about a few measurements done at the PRISNA facility in Bordeaux, France, where the method of dating wine without opening the bottle was initially developed.

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