

**IRSN**INSTITUT  
DE RADIOPROTECTION  
ET DE SÛRETÉ NUCLÉAIRE

## EFFECTS ON HEALTH

# Mean doses received by the French population from the Chernobyl accident were low

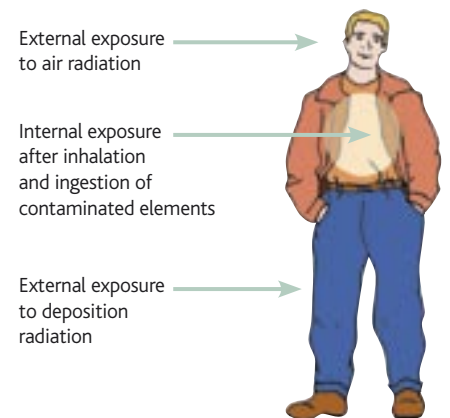
In the most affected area in the east of France, the annual individual dose due to the fallout from the accident fell from nearly 1 mSv in 1986 to 0.01 mSv in 2006. In 1986, the dose was mainly related to the ingestion of contaminated foodstuffs. But from 1987 onwards, it was exposure to radiation from deposition which was the key contributing factor.

## CONTAMINATED AIR, SOIL AND FOODSTUFFS ARE THE THREE SOURCES OF EXPOSURE TO RADIATION

■ From 26 April, the population of most of Europe was exposed to fallout from the Chernobyl accident. Initial exposure was from radioactive dust contained in the air (external exposure to air radiation and internal exposure due to inhalation). These channels of exposure gradually disappeared as the masses of air were renewed and the very short-lived contaminants disappeared.

■ The population was then exposed to the radiation from radioactive deposition in soil and plants (external exposure to deposition radiation), and to contamination in the food chain resulting from this (internal exposure through ingestion). While these two exposure channels have significantly diminished over the years, they continue to persist due to caesium 137's long half-life (30 years).

### Radiation exposure channels



## THE QUANTITY OR «DOSE» OF RADIATION RECEIVED IS USED TO ASSESS EFFECTS ON HEALTH

High doses have systematic and immediate consequences on health. They are expressed in grays (Gy). The lowest doses have random and more long-term effects on health.

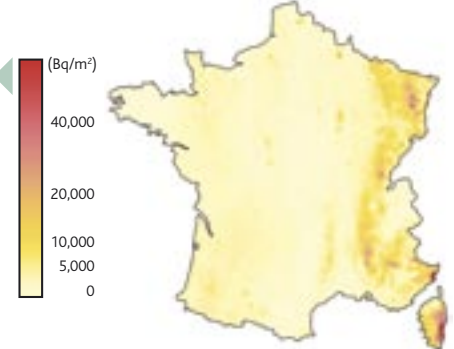
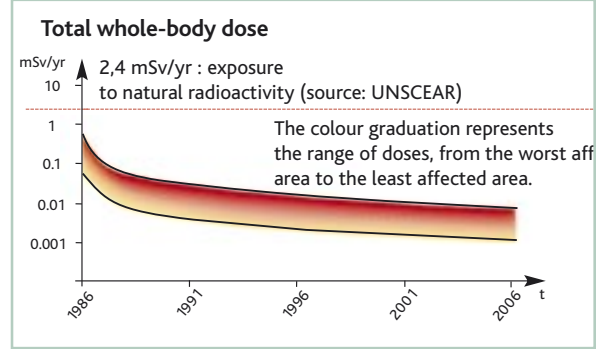
They are expressed in millisievert (mSv). In France, the mean doses from fallout from the Chernobyl accident were low and thus expressed in mSv.

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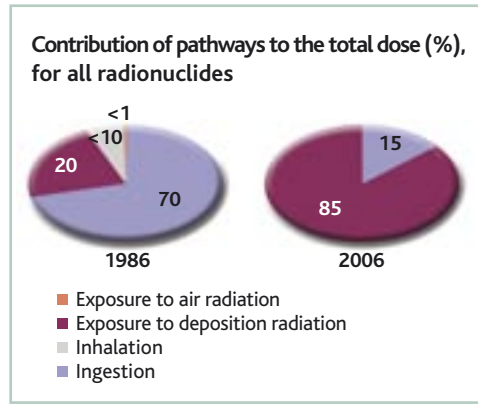
[www.irsn.org](http://www.irsn.org)

**THE DOSE FROM FALLOUT FROM THE ACCIDENT FELL FROM 1 TO 0.01 MSV/YR IN 20 YEARS, IN THE WORST AFFECTED AREA IN THE EAST OF FRANCE**



Map of France showing caesium 137 deposition in May 1986

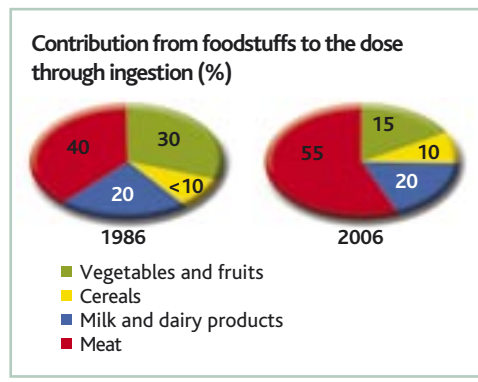
- In 1986, the mean doses received by people living in the east of the country rose to nearly 1 mSv for the year, values which are close to the lowest doses due to natural radioactivity.
- Today, the mean dose received by the French population is less than 0.01 mSv/yr, except in the case of highly specific eating habits, e.g. excessive consumption of mushrooms or game from the east of the country.



It was mainly the ingestion of contaminated food that contributed to the doses received in 1986. There was a reversal of the trend as of 1987. With contamination of the food chain being at a much lower level, it was exposure to radiation from what was left of the deposition which contributed most to the annual doses.

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Dairy products, vegetables and beef were the main contributors to the doses received in 1986.