

Introduction and overview of the activities of UNSCEAR

Hans Vanmarcke

SCK•CEN

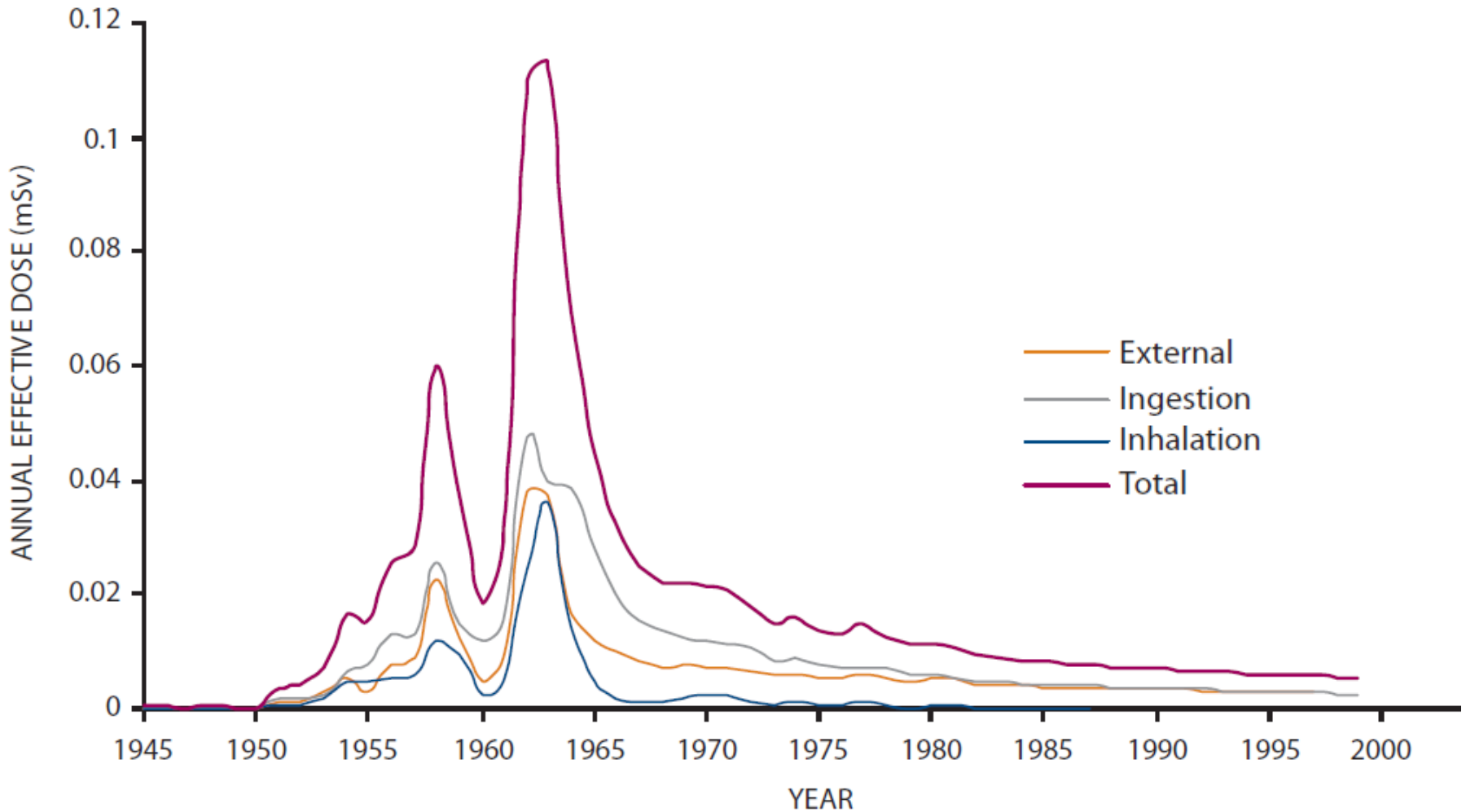
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United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

- UNSCEAR was established by the General Assembly of the United Nations in 1955 in response to concerns about the health effects of ionizing radiation
- At that time the main concern was the radioactive fallout from the many atmospheric nuclear weapons tests

The testing of nuclear weapons in the atmosphere, from 1945 until 1980, caused the largest collective dose thus far from man-made sources of radiation (excluding medical imaging)

Atmospheric nuclear testing

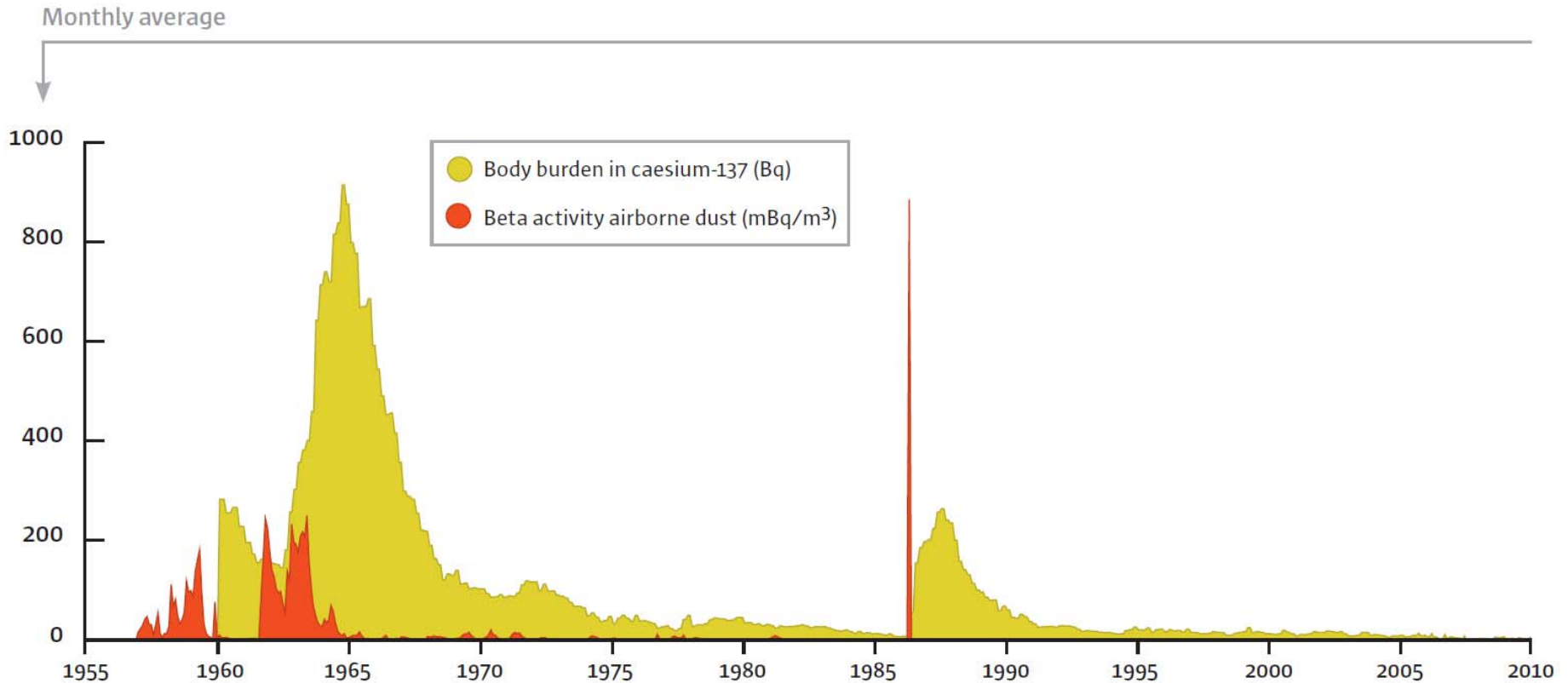


- Maximum world dose (1963) = 0.11 mSv/y
- Present world average = 0.005 mSv/y

Source UNSCEAR

Cesium-137 whole body contamination of non-occupationally exposed workers in the Mol-Dessel region

Average radioactivity of aerosol particles in Mol



Year	Accident	manSv
1986	Chernobyl	295 000
2011	Fukushima	?? ...
1957	Kyshtym	2 500
1964	SNAP 9A	2 100
1957	Windscale fire	2 000
1983	Ciudad Juarez	150
1987	Goiânia	60
1979	TMI	40
1978	Cosmos 954	20
1966	Palomares	3
1999	Tokai-mura	< 0.6
1993	Tomsk	0.02

Atmospheric weapons testing:
22 000 000 manSv

Medical exposure in Belgium:
22 000 manSv/y

Main international organization with respect to

- **Worldwide levels and trends** of radiation exposure of the public, of workers and of patients: natural radiation, nuclear fuel cycle, medical uses of radiation...
- **Review of the health effects** of ionizing radiation
 - **at high exposures**: radiation burns, acute radiation sickness or even death
 - **at lower levels** the principal risk is an increase in radiation-induced cancer
 - **but also** hereditary disease, non-cancer effects and effects of radiation on non-human species

The committee is composed of 21 member states:

Argentina, Australia, **Belgium**, Brazil, Canada, China, Egypt, France, Germany, India, Indonesia, Japan, Mexico, Peru, Poland, Russia, Slovakia, Sudan, Sweden, the United Kingdom and the United States of America

The secretariat is in Vienna: Secretary: Malcolm Crick

Annual meetings: to evaluate the scientific reports prepared by the secretariat:

2006 and 2008 / 2000 and 2001 / 1993, 1994 and 1996 / 1988 / 1986 / 1982 / 1977 / 1972 / 1969 / 1966 / 1964 / 1962 / 1958

The 57th meeting of UNSCEAR took place in Vienna in August 2010:

- Chairman: N. Gentner (Canada)
- Secretary: M. Crick (United Kingdom)
- Belgian delegation (Benelux):
Representative: H. Vanmarcke (SCK•CEN)
Alternate representative: P. Smeesters (FANC/AFCN),
Advisors: H. Engels (RIZIV), H. Bosmans (KUL), F. Jamar (UCL),
A. Wambersie (UCL) (also ICRU), G. Eggermont (VUB),
H. Bijwaard (RIVM), L. Mullenders (Univ. Leiden)

The first part of the current cycle

Volume I

Annex A. Epidemiological studies of radiation and cancer

Annex B. Epidemiological evaluation of cardiovascular disease and other non-cancer diseases following radiation exposure

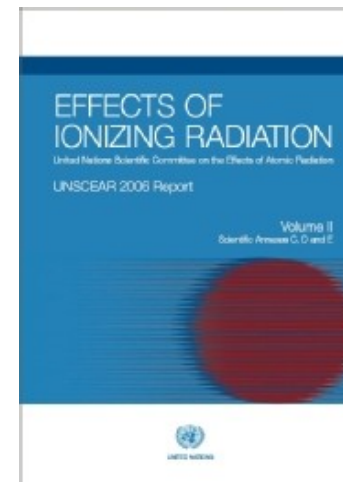
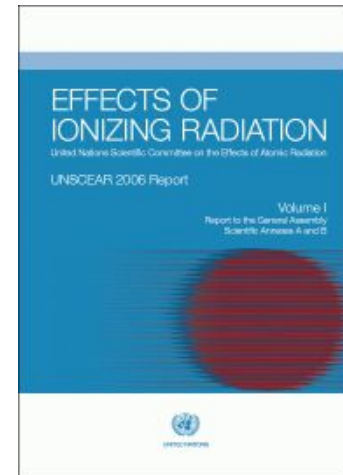
Volume II

Annex C. Non-targeted and delayed effects of exposure to ionizing radiation

Annex D. Effects of ionizing radiation on the immune system

Annex E. Sources-to-effects assessment for radon in workplaces and homes

The scientific annexes are available at the UNSCEAR website:
<http://www.unscear.org/reports.htm>



The UNSCEAR 2008 report

The second part of the current cycle

Volume I: Sources (since 2010 available)

Annex A. Medical radiation exposures

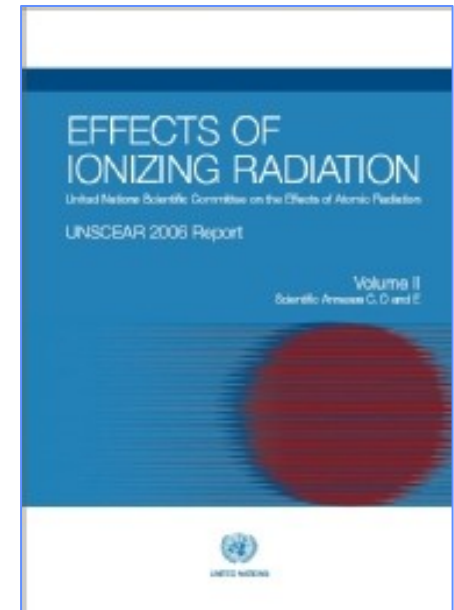
Annex B. Exposures of the public and workers from various sources of radiation

Volume II: Effects (only recently available at the website)

Annex C. Radiation exposures in accidents

Annex D. Health effects due to radiation from the Chernobyl accident

Annex E. Effects of ionizing radiation on non-human biota



Interaction with other international organizations

UNSCEAR produces detailed reports to the UN General Assembly on global levels and effects of ionizing radiation

The evaluation of the radiation risks by UNSCEAR provides the scientific basis of the radiation protection system for workers, patients and members of the public: ICRP-60, ICRP-103, IAEA and EURATOM basic safety standards, ARBIS/RGPRI, ...

IAEA, WHO, ICRP, ICRU and European Union send observers to the annual UNSCEAR meetings

Scientific chapter in the report to the General Assembly of 2010

- Summary of low-dose radiation effects on health

The committee is currently reviewing the following documents

- Ability to attribute risks and effects to radiation exposure
- Uncertainties in risk estimates for cancer due to radiation exposure
- Radiation exposures from electricity generation
- Methodology for estimating human exposures due to discharges
- Biological effects of selected internal emitters

The committee accepted two new proposals

- Radiation risks and effects in children
- Epidemiology related to environmental sources at low doses and low dose rates

The next UNSCEAR meeting will be in Vienna from 23 - 27 May 2011

Chernobyl, 25 years later

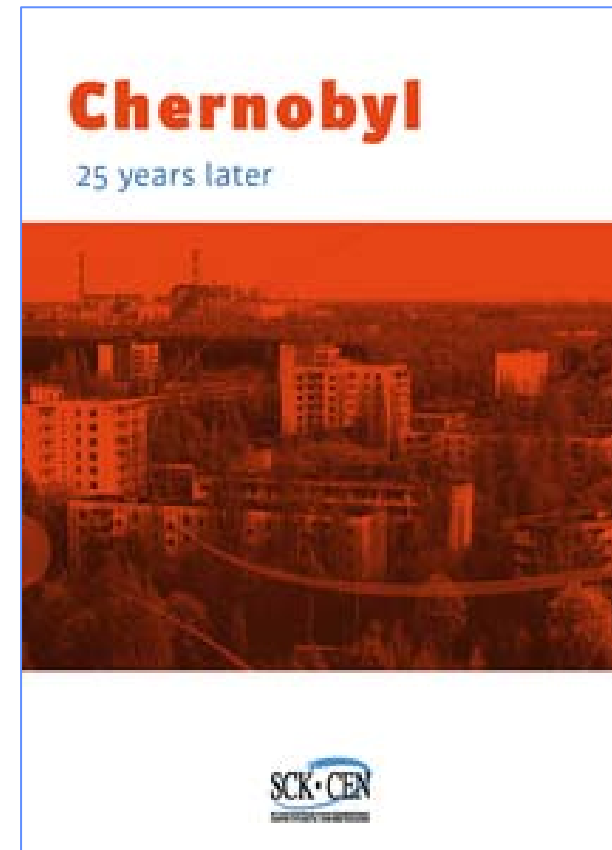
SCK•CEN brochure with contributions from:

Philippe Antoine, Max Bausart, Michel Bruggeman, Johan Camps, Louis de Saint-Georges, Andrew Dobney, Luc Holmstock, Christian Hurtgen, Paul Jacquet, Frank Joppen, Felice Mastroleo, Lieve Sweeck, Hans Vanmarcke, Eric Van Mieghem, Ellen Van Roey, Anne Verledens

The web versions of the Chernobyl brochure in English, Dutch and French are available at:

<http://www.sckcen.be/en/Wetenschap-Samenleving/Documentatie-Multimedia>

Print versions are also available



14h00 Introduction and overview of the activities of UNSCEAR

Hans Vanmarcke

14h15 Health effects due to radiation from the Chernobyl accident

Patrick Smeesters

14h50 Medical radiation exposures

Hilde Bosmans

15h25 Coffee

15h45 Effects of ionizing radiation on non-human biota

Hildegarde Vandenhove

16h20 Exposures of the public and workers from various sources of radiation

Hans Vanmarcke

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SCK•CEN

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