Radiation Phobia in Korea Provoked by Fukushima Accident

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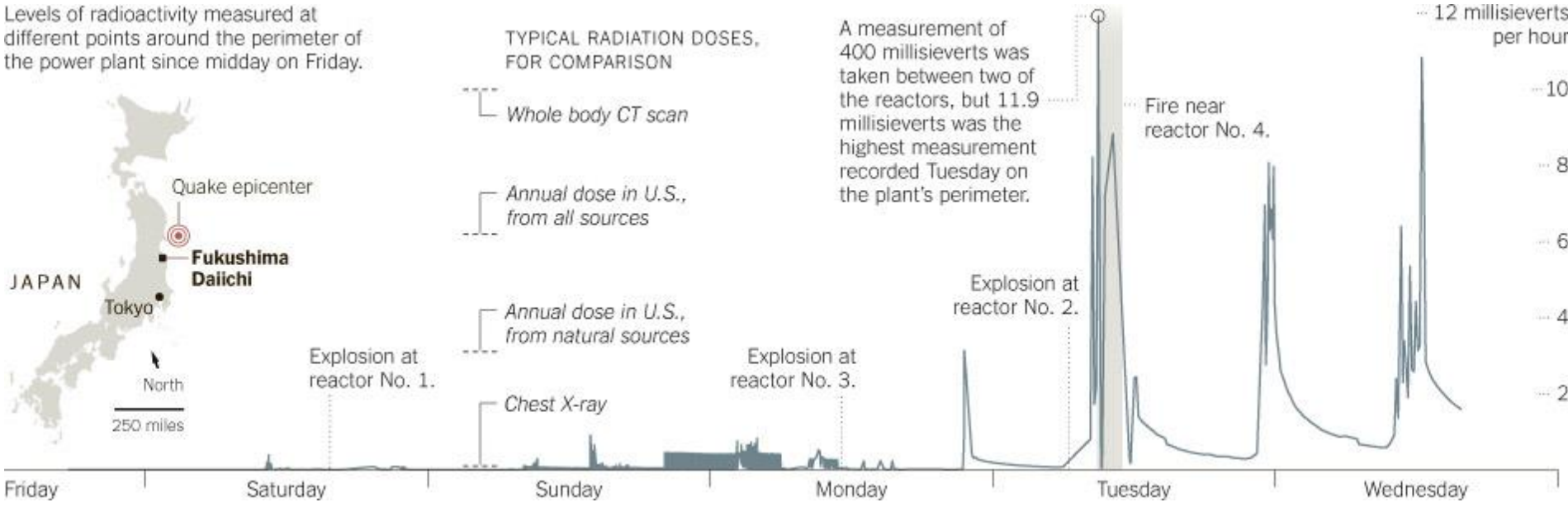
Fukushima Radiation vs. CT scan



ChosunMedia
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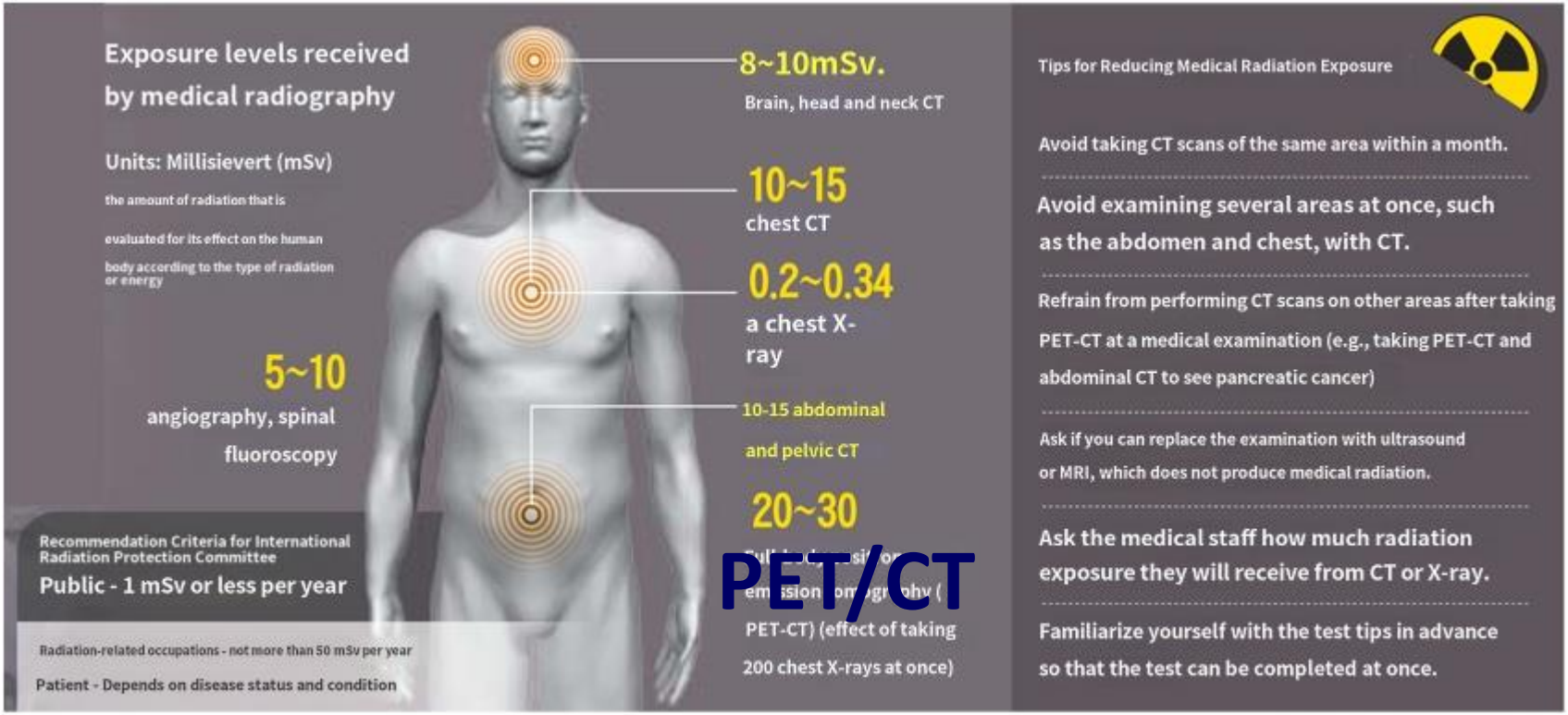
Jul 13, 2013

Koreans Exposed to Medical Radiation a Lot, Due to Repeated CT Scans



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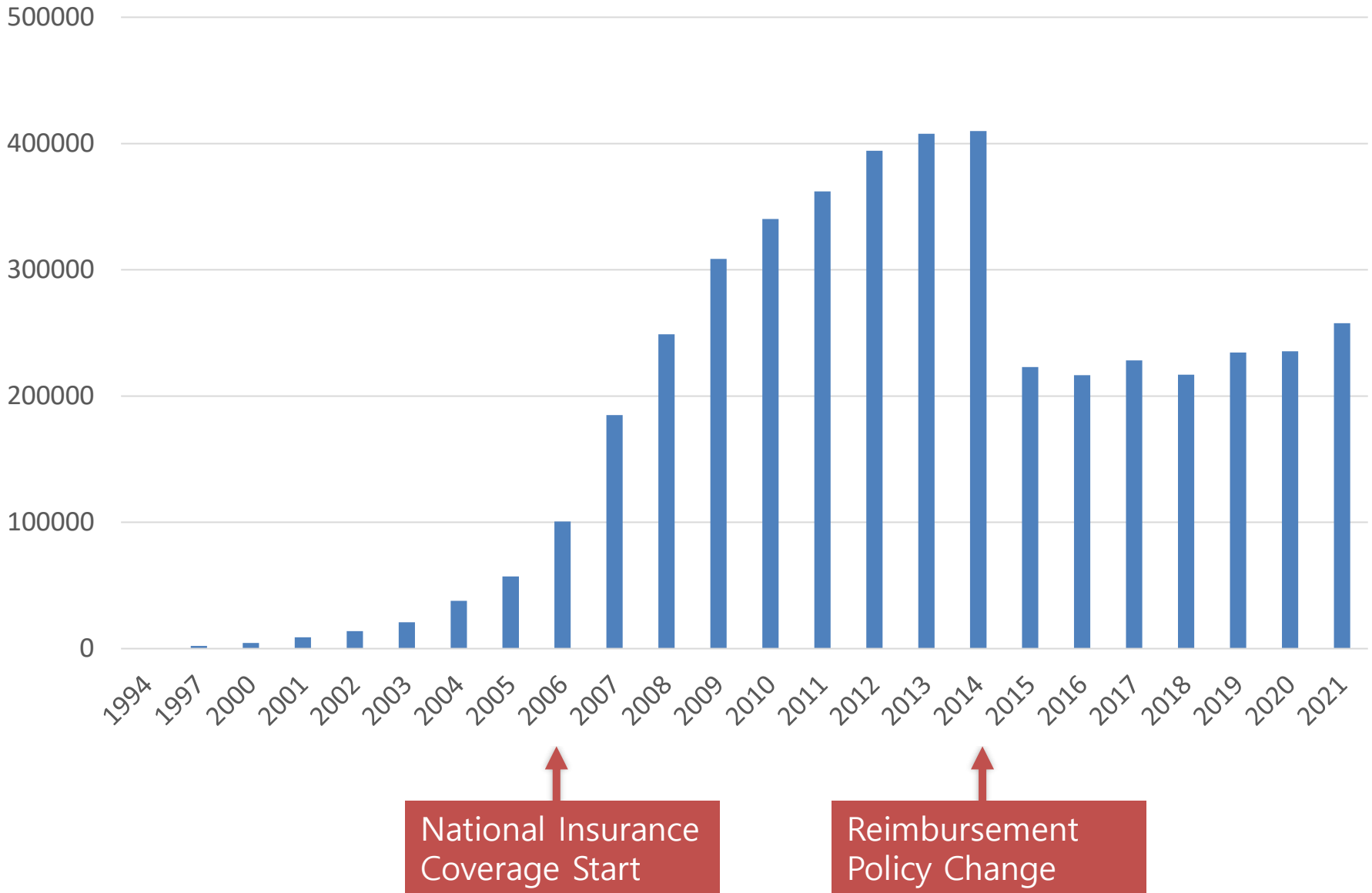
No. of PET exams in Korea



Staffs at PET center

Annual doses of staffs (mSv)

Specialty	2013	2014
Nurse 1	1.44	1.40
Nurse 2	3.61	3.57
Nurse Assistant 1	1.59	2.50
Nurse Assistant 2	0.91	0.70
Technologist 1	3.28	1.36
Technologist 2	2.54	1.68
Technologist 3	2.65	2.28
Technologist 4	1.86	1.96
Technologist 5	1.67	1.00
Technologist 6	2.58	2.72
Technologist 7	0.79	2.13
Technologist 8	1.88	2.16
Technologist 9	2.16	1.36

Annual number of handling patients after FDG injection at the same day

1 Nurse at Nuclear Medicine	7006
Endoscopy	212
Ultrasonography	296
Echocardiography	220

Radiation dose from patients

Exposure time	5 min	10 min	15 min	20 min
Calculated dose (mSv)	0.0017	0.0033	0.0048	0.0063
Measured dose (mSv)	0.0007	0.0013	0.0019	0.0025

- 2 h after injection of 8 mCi FDG
- Average of 9 patients is 0.0148 mSv/h(±0.003) at 1m

0.0013 mSv X 300/y = 0.39 mSv/y

7. Can a pregnant woman accompany a friend, partner or child who is having a scan?

It is not desirable. Although the radiation dose from the person undergoing a scan is fairly low, it is desirable to keep the radiation exposure to the foetus as low as reasonably achievable. Should a pregnant woman's presence be necessary to comfort a small child, specific advice to keep their distance from the child and from other patients who have undergone PET scans or other diagnostic and therapeutic radionuclide procedures should be provided. In such a case, the contact time should be as short as possible.

9. What if an ancillary staff member is in the early stage of pregnancy and is exposed to a patient who has undergone PET/CT?

There is no significant risk involved in such an exposure. For details »

14. Are there any radiation risks to other non-radiation workers, e.g. anaesthetists, para medical staffs, nurses?

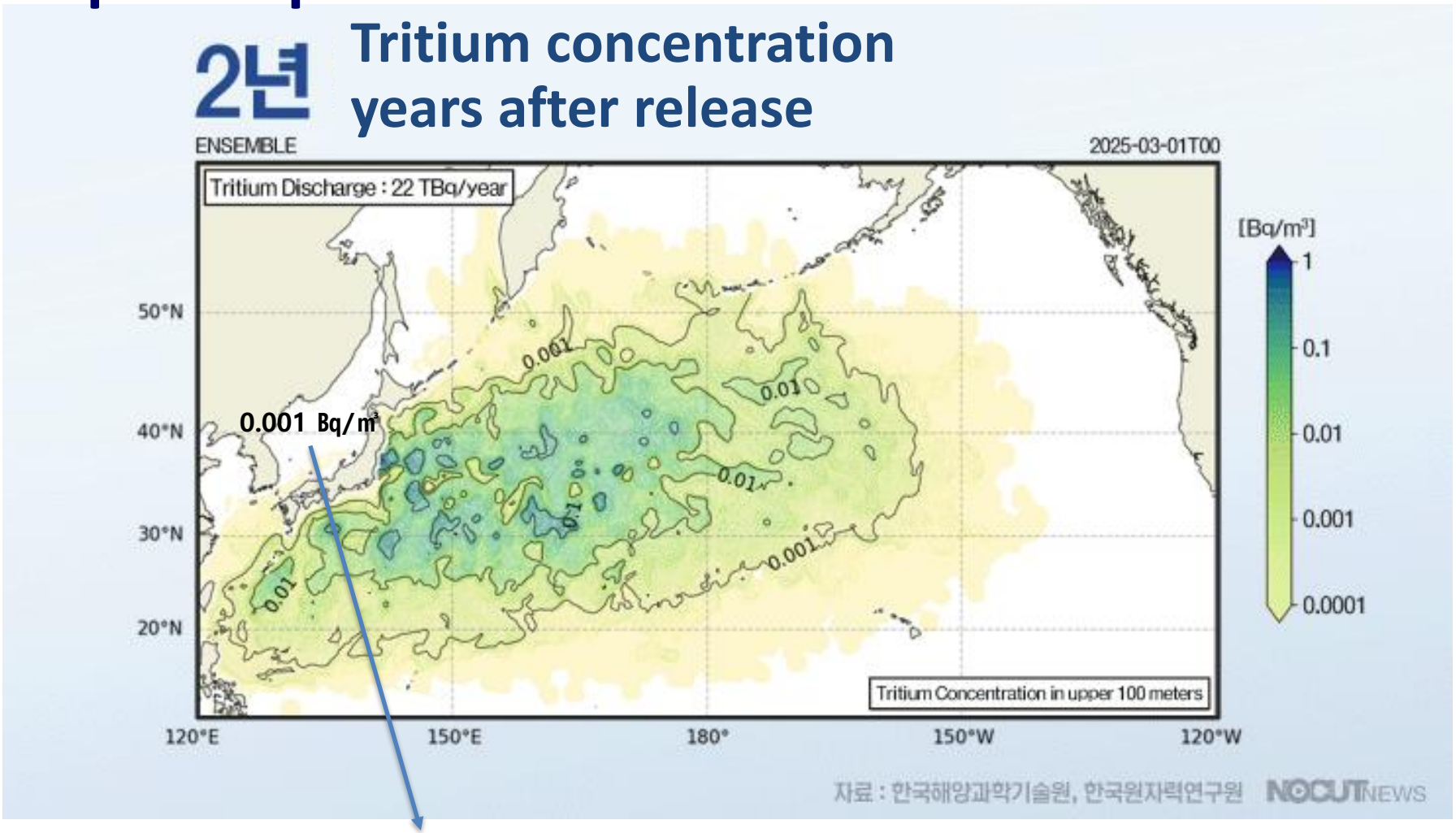
No, there is no need for restrictive advice for non-radiation workers who have only occasional contact with patients who have undergone a PET/CT examination. The usual principles of reducing contact time and keeping distance apply.

Fukushima treated water

Mar 2011

Apr 2021

Simulation of marine diffusion by discharging contaminated water from Fukushima nuclear power plant

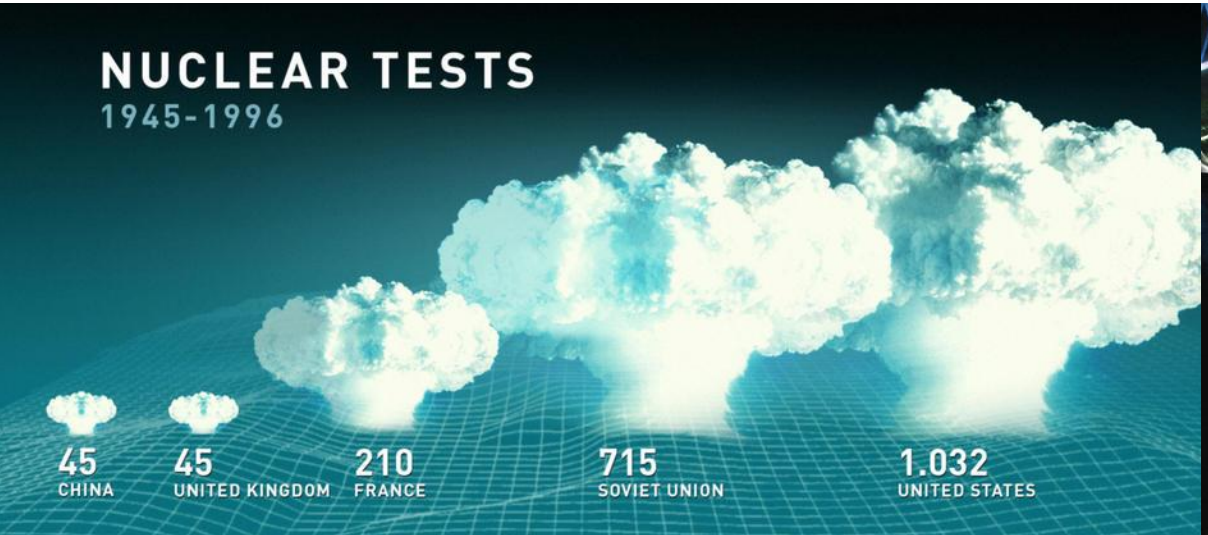


0.000001 Bq/L: average tritium concentration of 0.17 Bq/L in domestic seas

South Korean fishermen protest against Fukushima discharge water

Fear Marketing and Gaslighting

- Politicians during cold war era
- Experts in radiation safety
- NGO for environment protection
- Media (Press, Film, Social Networks, etc.)



CBS

Showdown of Nuclear Experts over Treated Water in Fukushima

Korean government starts daily press briefings on Fukushima water release

Lessons for communications

- **Difficulty to get understand the public on the radiation risk** for extremely low dose level, as well as the radioactivity, radiation doses, or dose limits, with the linear no threshold (LNT) model and the current radiation units, Bq, Gy, Sv, etc.
- Re-evaluation of the effectiveness and the appropriateness of **communication** system among the regulatory body, relevant organizations, academies, and the public.
- ICRP recommends that the computation of cancer deaths based on **collective effective doses** involving **trivial doses to large population is not reasonable** and should be avoided, but many of the intellectuals do so anyway (on the base of the LNT model)
- It needed to emphasize a **recommendation for extremely low dose** effect.