

# Fukushima Released 13,000,000,000 Times More Neutrons than Initially Estimated

“Neutron radiation is the most severe and dangerous radiation” known to mankind

By [Global Research News](#)

Global Research, January 14, 2015

[ENEnews](#) 13 January 2015

Region: [Asia](#)

Theme: [Environment](#)

[Scientists from Tokyo Institute of Technology, Univ. of California San Diego & Kyushu Univ.](#), made available Oct 16, 2014 (*emphasis added*):

We estimated a lower limit of  $5.2 \times 10^{21}$  slow neutrons  $m^{-2} \text{ sec}^{-1}$  [ $m^{-2} \text{ sec}^{-1}$  = [per sq. meter per second](#)] were emitted from the nuclear fuel rods to the sea water injected in the reactors

- *Priyadarshi et al. (2011)* have estimated a release amount of  $4 \times 10^{11}$  slow neutrons  $m^{-2}$ . The large difference with our estimation [[13,000,000,000 times higher](#)] comes from the intrinsic limit of the box model study by *Priyadarshi et al.*
- Our model directly estimates the amount of material released from the reactor core
- The estimated... number of neutron represent a lower limit of the amount of radiation emitted from the nuclear reactors... These values can be used as a proxy to the total amount of radiation emitted since the melt down
- [The authors] express their gratitude to... the Japanese Ministry of Environment...Ministry of Education, Culture, Sports, and Technology (MEXT)... [and] the Cabinet Office

[Priyadarshi et al.](#): *Evidence of neutron leakage at the Fukushima nuclear plant...* Despite the obvious implication for human health... there are no quantitative estimates of the neutron flux leakage... [T]ons of seawater were used as a coolant... A consequence is that salts and minerals present in seawater become radioactive by reaction with thermal neutrons... We calculated the total number of neutrons that leaked from the reactor core [and] estimate that a total of  $4 \times 10^{11}$  neutrons per  $m^2$  were released before March 20.

[Office of Homeland Security & Emergency Coordination](#): Neutron radiation is a kind of ionizing radiation which consists of free neutrons... Neutrons readily pass through most material, but interact enough to cause biological damage. Neutron radiation is considered to be the most severe and dangerous radiation available. Neutrons can travel great distances...

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