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IMS DATA IN STUDIES

There have been many scientific publications relating to the Fukushima Dai-ichi nuclear accident of 2011. This poster investigates what data sources were used in publications about the atmospheric radioactivity content resulting from this radiological emergency. The IMS with its global network of radionuclide detection systems is a very important contender in providing high-quality radionuclide analysis.

The major publication is a report by UNSCEAR (United Nations Scientific Committee on the Effects of Atomic Radiation): *2013 Report Volume I REPORT TO THE GENERAL ASSEMBLY SCIENTIFIC ANNEX A: Levels and effects of radiation exposure due to the nuclear accident after the 2011 great east-Japan earthquake and tsunami, UNSCEAR 2013*, and also a follow-up in 2015: *Developments since the 2013 UNSCEAR Report on the Levels and Effects of Radiation Exposure Due to the Nuclear Accident Following the Great East-Japan Earthquake and Tsunami, UNSCEAR, 2015*. Both of these reports praise the accuracy and reliability of IMS data.

MAIN NON-IMS SOURCES

Besides of data made available through the IAEA, data sources split into two main groups:

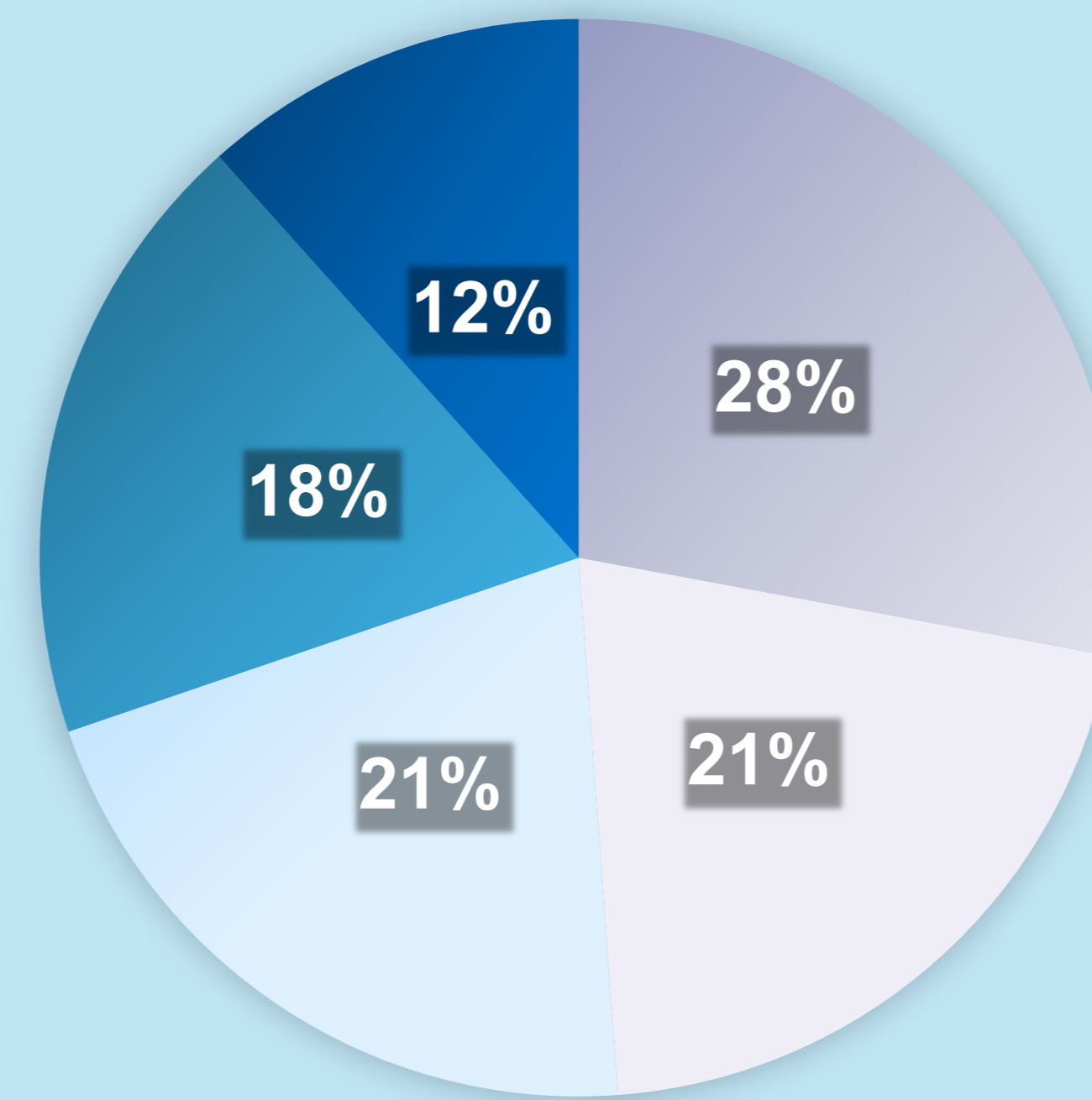
AMERICAN SOURCES:

- United States Department of Energy (USDOE)
- The National Nuclear Security Administration (NNSA)
- Nuclear and Industrial Safety Agency (NISA)

JAPANESE SOURCES:

- Ministry of Education, Culture, Sports, and Technology in Japan (MEXT)
- Tokyo Electric Power Company (TEPCO)
- Japanese Atomic Energy Agency (JAEA)
- Japan Chemical Analysis Centre (JCAC)

USES OF IMS DATA



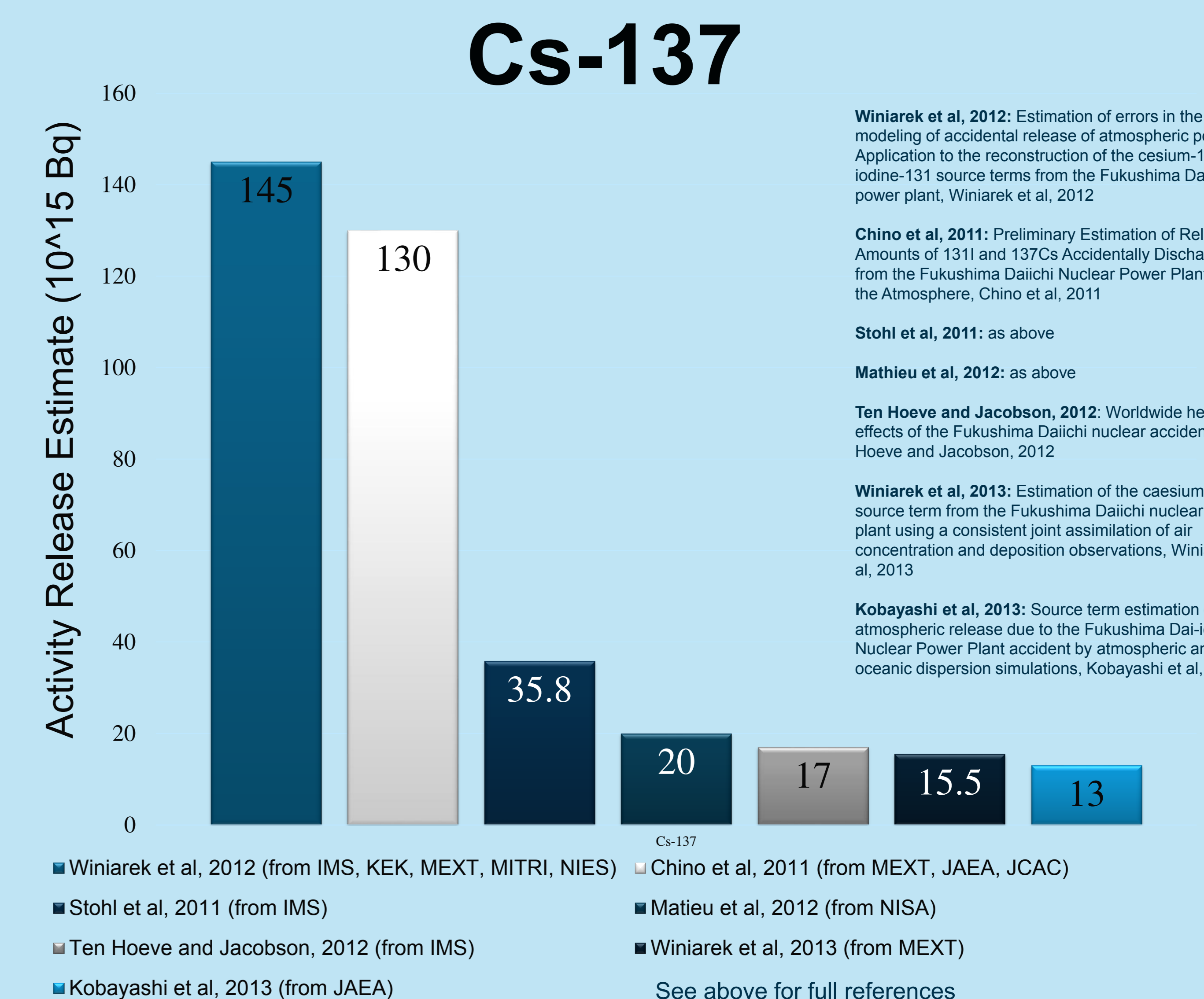
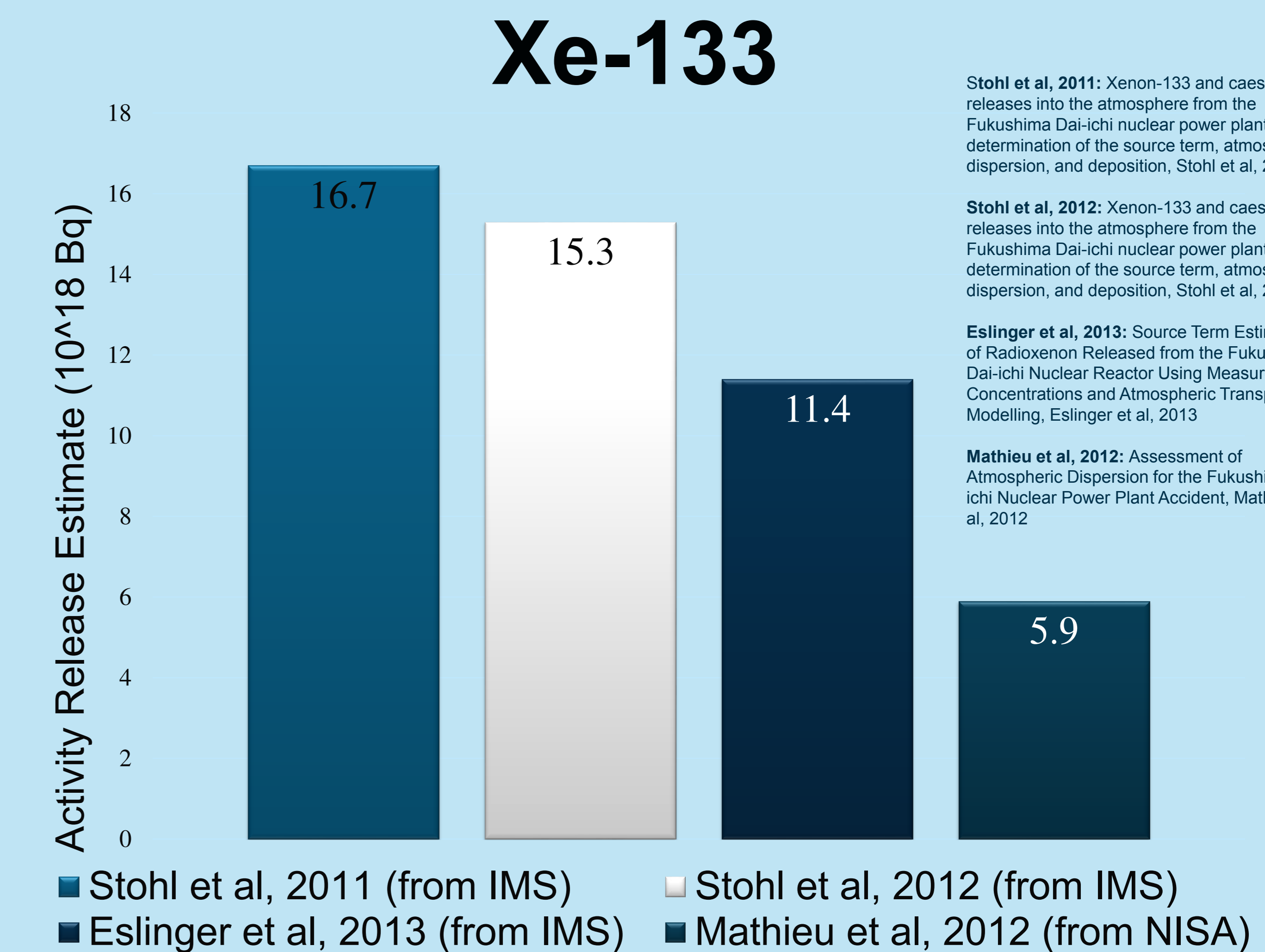
- Regional Analysis (12)
- Documenting Information (9)
- Source Term Estimates (9)
- Dispersion Model (8)
- Other* (5)
 - Determine source of radionuclides
 - Assess reactor damage
 - Investigate how meteorological phenomena affected dispersion models
 - Investigate differences in dispersion models
 - Assess distributions of certain radionuclides

PROS AND CONS OF IMS DATA

- The IMS is the only system with detectors covering the whole globe and being located even in remote areas.
- The IMS data have a very high availability (>95%).
- The IMS data are automatically analyzed immediately and interactively reviewed analysis products are released within a short time. This guarantees a high quality and reliability.
- The organisations listed in the left column published their data online which was easily accessible; IMS data access requires either being officially authorized by a State Signatory or signing a zero-cost contract to access the IMS data through vDEC (Virtual Data Exploitation Centre). With a delay, all relevant IMS observations were published by UNSCEAR.
- IMS stations are designed to detect low-level radioactivity; not the high levels that maybe associated with a nuclear accident at an IMS station nearby. The particulate station at Takasaki, Japan was affected by radioactive leaks for a few days after the accident outside the dynamic range of the measurement instruments. IMS air samples are not detecting gas-phase ¹³¹I.

SOURCE TERM COMPARISONS

Release estimates of two main radionuclides from researchers using a range of data sources including IMS.



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