

SI Units in Emergency Response

Perspective of Responders

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Perspectives from the Local Responder Community

Local First Responders Views

- Appears to be happening anyway
 - Equipment manufacturers provide both modes of display.
 - Dual use equipment creates an environment for change
- The crux of the problem for the fire service is radiation response is a very infrequent issue.
 - Limited radiological training
 - Updates to guidance and standards needed, i.e. EPA, NFPA
 - No one seems to be championing it.
- Much time spent teaching a 2 mR/hr hot zone boundary, that is pretty well ingrained.
 - Can look at switching to 20 microsieverts/hr is either a real pain and not able to be accomplished, or it is an opportunity to refresh our rad training.
 - Refreshing rad training, is a low priority

Local First Responders Views

- Huge change and cost to re-train first responders
 - These are the same emergency responders who have had a difficult time already learning and understanding not to fear radiation, to use equipment, and make good safe decisions.
 - Some equipment has the capability to change units on the display, but not all of the older units; potential to incur cost.
- It is already incorporated. Dual units in formal documents NCRP, NFPA, ASTM, etc., used by the community
- It will eventually come around to our level.

Local First Responders Views

- First responders simply report measurements as displayed on their instruments.
 - In most circumstances, they typically do not have the training and experience to do otherwise.
 - Instead, they follow the radiological technical leadership in their incident command structure.
- On the impact of change they seem to be saying:
 - Some will not notice
 - For others, it will be frustrating to fully embrace

My View of Local Responders

- Except for the senior managers engaged in response planning, front line personnel may not have great difficulty with the change
 - They already do not have a good working knowledge of units
- The change may be difficult and disruptive for some but not all, it may take a generation to complete.

Perspectives from Responders in the State Radiation Protection Community

State EOC Responders

- For domestic emergency preparedness States find themselves solely working with traditional
 - The Federal Emergency Management Agency (FEMA) Radiological Emergency Program for nuclear power plants, only use traditional units.
- Mistakes are often made translating from traditional units to SI. Using one or the other presented parenthetically, adds to the problem.
 - Transition to SI should be “cold turkey.”

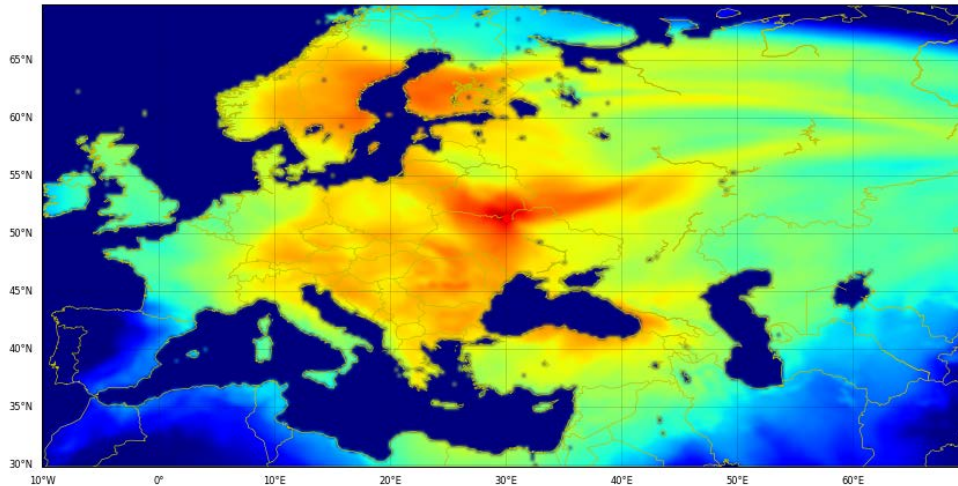
State EOC Responders

- The use of SI units is growing in prevalence with parties with whom the States interact
 - Entities the States regulate already have relationships with international product and service vendors who have adopted SI which reinforces the use of SI
- The CRCPD is engaged in joint international projects and agencies who all use SI
- Transportation of radioactive materials requires the use of SI units
- When the NRC proposed rulemaking to change 10 CFR 20, CRCPD supported the change

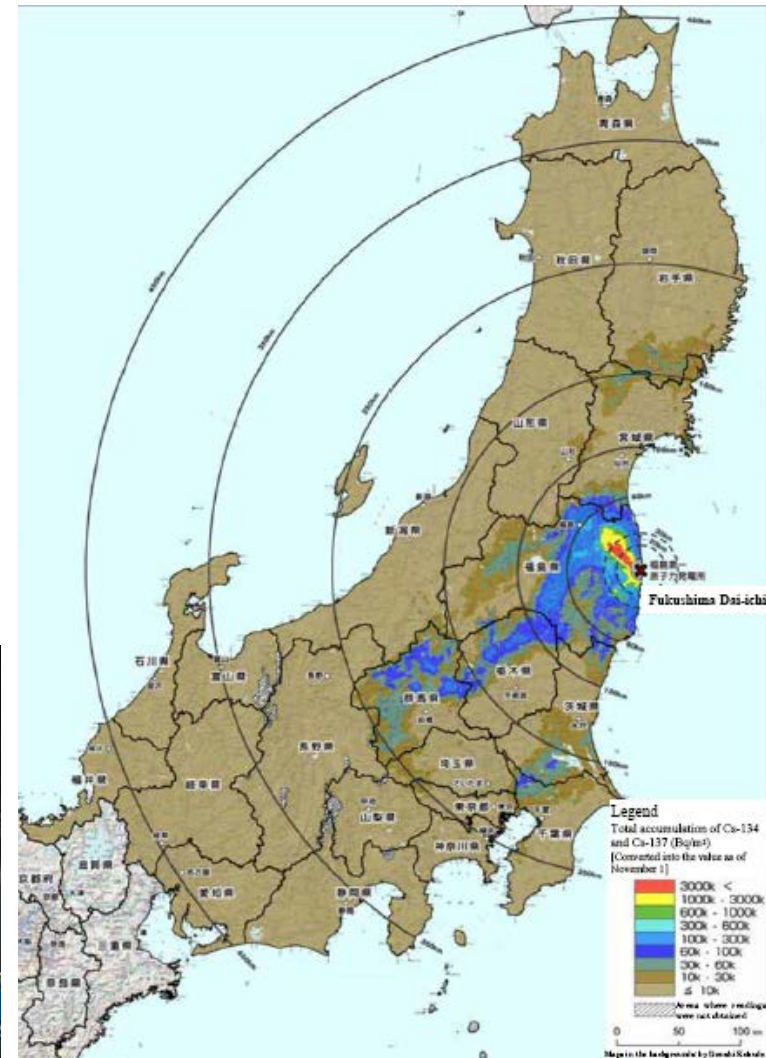
Radiation Emergencies are Global in the Information Age

Chernobyl vs Fukushima ^{137}Cs Deposition

Chernobyl, caesium-137, 1986-05-09 00:00:00, base-10 log of total ground deposition ($\text{Bq}\cdot\text{m}^{-2}$)



But...



Cs color scale not the same

Federal and State Health Responders Views

- During the Fukushima response this dichotomy required constant translations of projections
 - Required time and resources and added an opportunity for numerical errors
 - Complicated communications between experts, other professionals, and the public

Impact of the Change on Federal and State Responders

Federal and State responders are already there



Acknowledgements

Thanks for the insights from:

John Donnelly, Sr.

Deputy Fire Chief, District of Columbia Fire & EMS

Robert Ingram

Battalion Chief, New York City Fire Department

William Irwin

Vermont Department of Health (and volunteer firefighter)

Charles Miller

CDC (ret.)

Adela Salame-Alfie

CDC, (New York State Department of Environmental Protection, ret.)