

### Breakout Session 3: Japan Radiological Disaster

What expertise present?

- Ocean science
- Coastal Engineer
- Geotechnical Engineer
- Robotics
- Mathematics & Health/Radiation
- Psychology & Emergency response



Japan and NZ Earthquakes RAPID and Research Needs Workshop  
Arlington, VA Feb 9 and 10, 2012



### Q1: What new questions require basic research?

- What is the appropriate emergency response?
  - Warning & screening of public & workers
  - Decontamination & enabling use of Robotics.
- How to take advantage of (and understand limitations of) predictive capability (e.g. vs wind trajectory at time of release).
- What is the appropriate initial “default” exclusion zone radius?
- What is the long-term radius for remediation (stigma issues)
- What is the fate of the radionuclides?
  - in human populations
  - ecologically (in the ocean as well as on land)



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Q2: What new data are available as a result of these events?

- Deposition on land – good spatial coverage but uncertainties in full range of isotopes released and how far this has propagated into food chain.
- Modelling of atmospheric dispersion - mostly to land not sea, although atmospheric dispersion on a global scale.
- Evidence for some release to ocean but data coverage relatively poor.
- Social data – timelines for evacuation, screening, health & state of awareness of local population & workers.



Q3: What is unique here and demands new research?

- First major hydrologic (vs atmospheric) release
- Largest ever release to the oceans?
- Not a single event, but part of a cascade (EQ, tsunami) and also a chronic release.
- Transparency & access to information better than Chernobyl (including Social data).
- Significant use of robotics in response



Q4: What are the important lessons, internationally?

- Lack of public education hinders effective communication & Lack of *effective* communication hinders public understanding
- Time to revisit nuclear power plant safety & technology
- Why no training in schools like “earthquake, tsunami”.
- Fleets of response robots on standby – e.g. retasking of maintenance robots via both human and autonomous responses?

