Fukushima Nuclear Accident and Environmental Remediation

Site Emergency Response Room

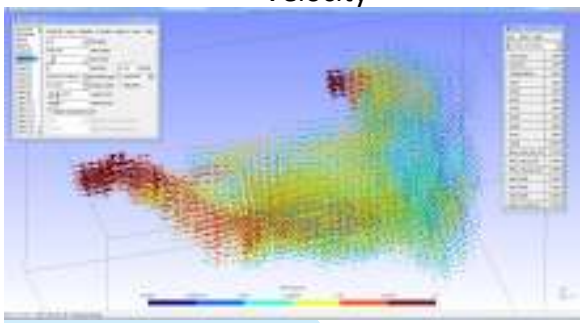
Key Points on Aquatic Environment Remediation

- **Avoid radionuclides to get into surface water and groundwater**

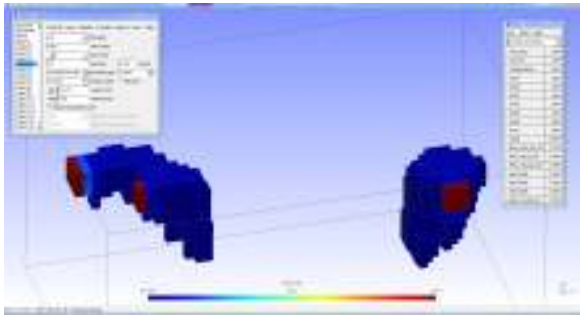
Once water is contaminated:

- **Remediation assessment must be performed, prior to, during and after environmental clean-up actions**
- **Potential remediation methods for rivers and coastal waters**
  - Remove Dissolved radionuclides by filters and chemicals
  - Dredge contaminated bottom sediment
  - Cap contaminated bottom sediment
  - Remove contaminated soil in floodplain
  - Block off contaminated river/floodplain areas from river flows
  - Bypass/Divert contaminated water from critical areas
  - Self purification of rivers
- **Presented four remediation assessment examples**
  - Ukedo River; Ogaki Dam Reservoir
  - James River Estuary
  - Buzzards Bay
  - Pripyat River at Chernobyl Plant
- **Local participation on remediation decision making is very important**

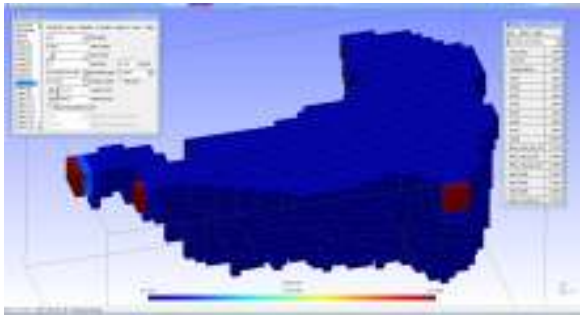
Velocity



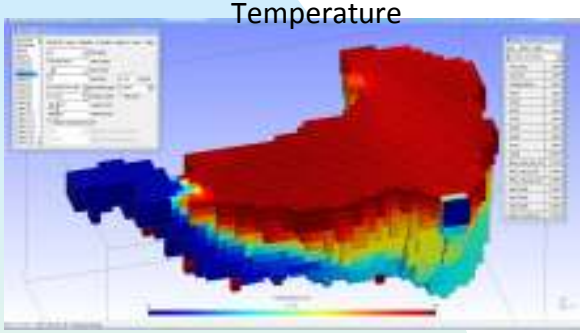
Sand



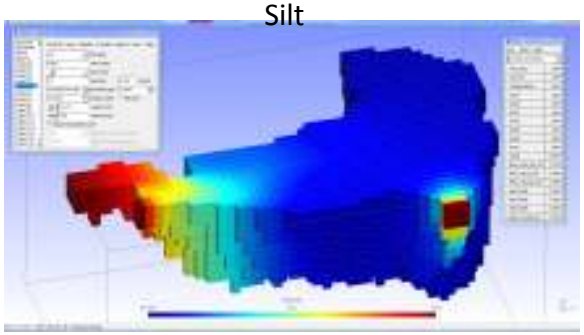
Sand-sorbed cesium



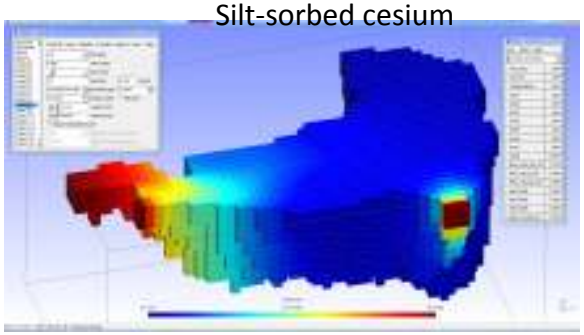
Temperature



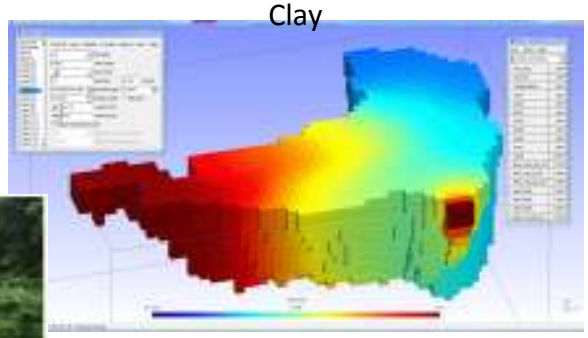
Silt



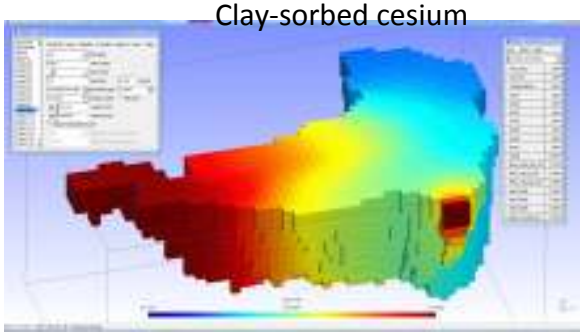
Silt-sorbed cesium

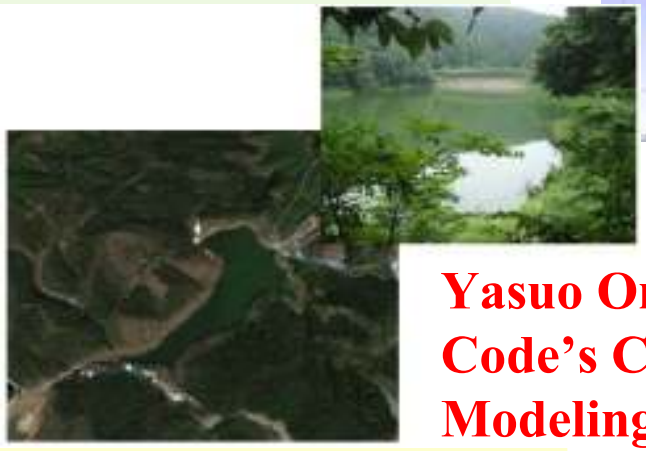


Clay

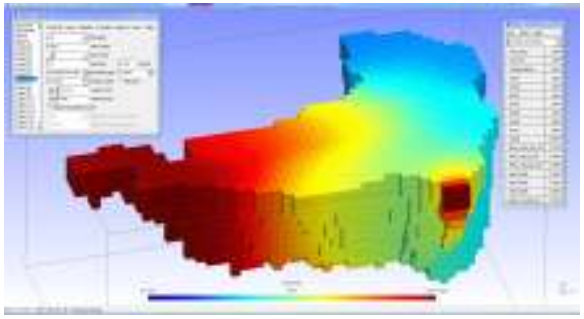


Clay-sorbed cesium



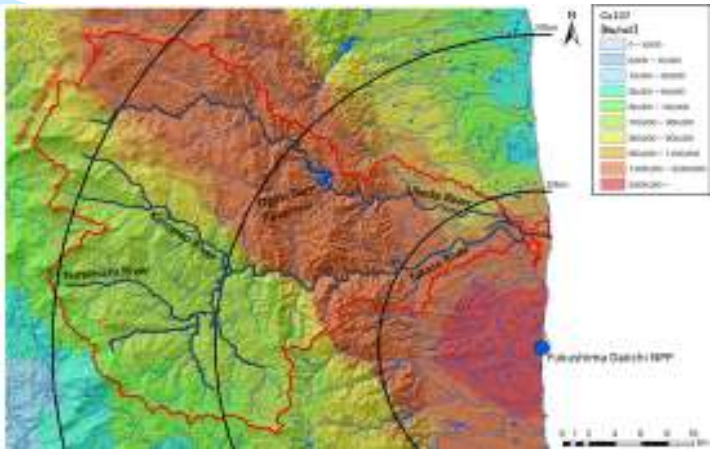


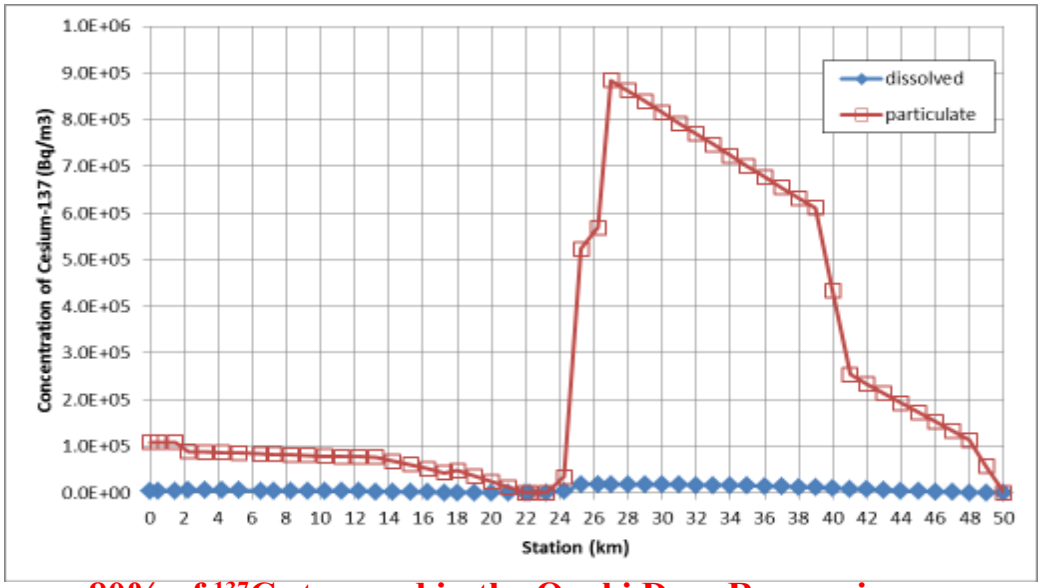
Dissolved cesium

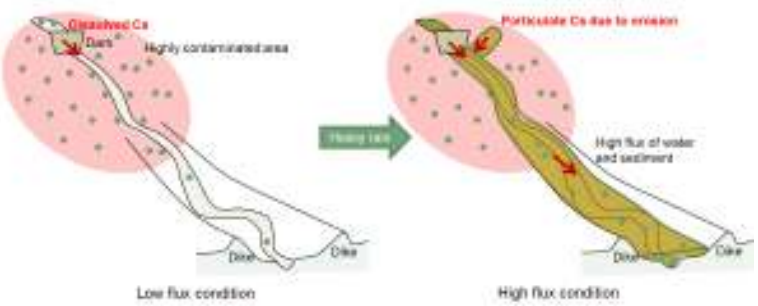


Yasuo Onishi's 3-D FLESCOT Code's Cesium Transport Modeling in the Ogi Dam Reservoir

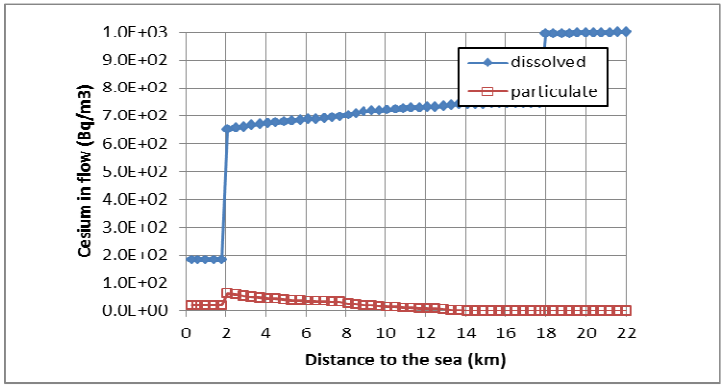
^{137}Cs Movement in the Ukedo and Takase Rivers with Yasuo Onishi's 1-Dimensional TODAM Model

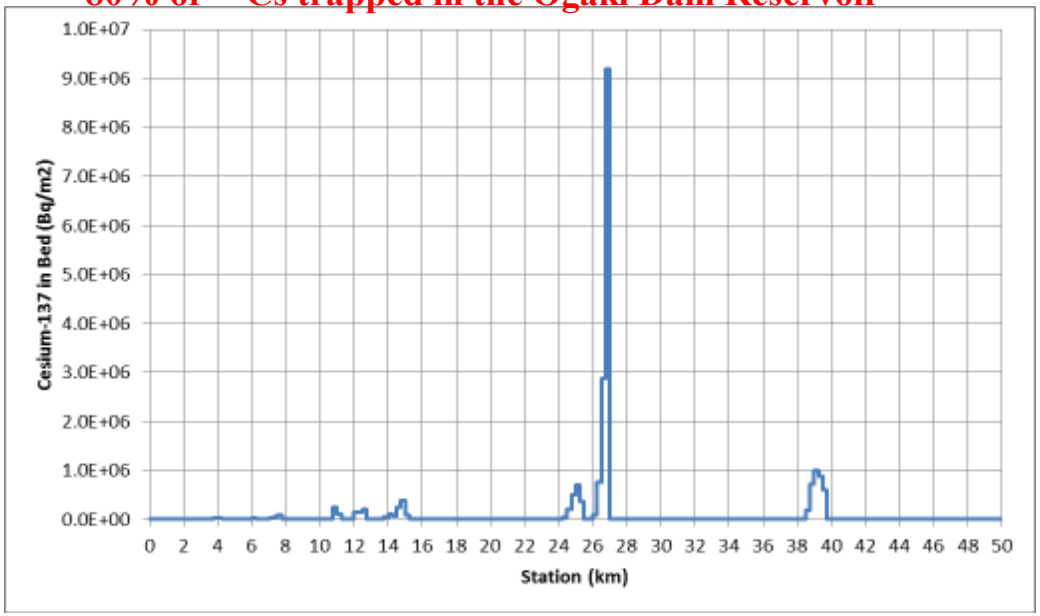






80% of ^{137}Cs trapped in the Ogaki Dam Reservoir

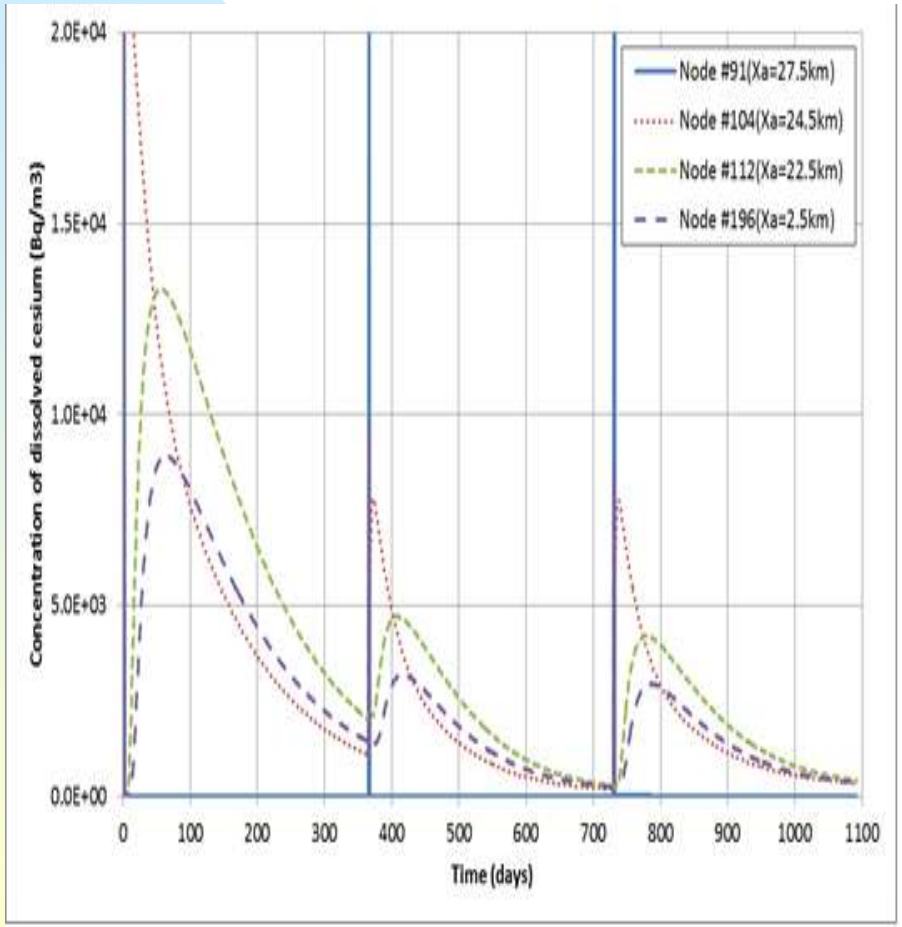




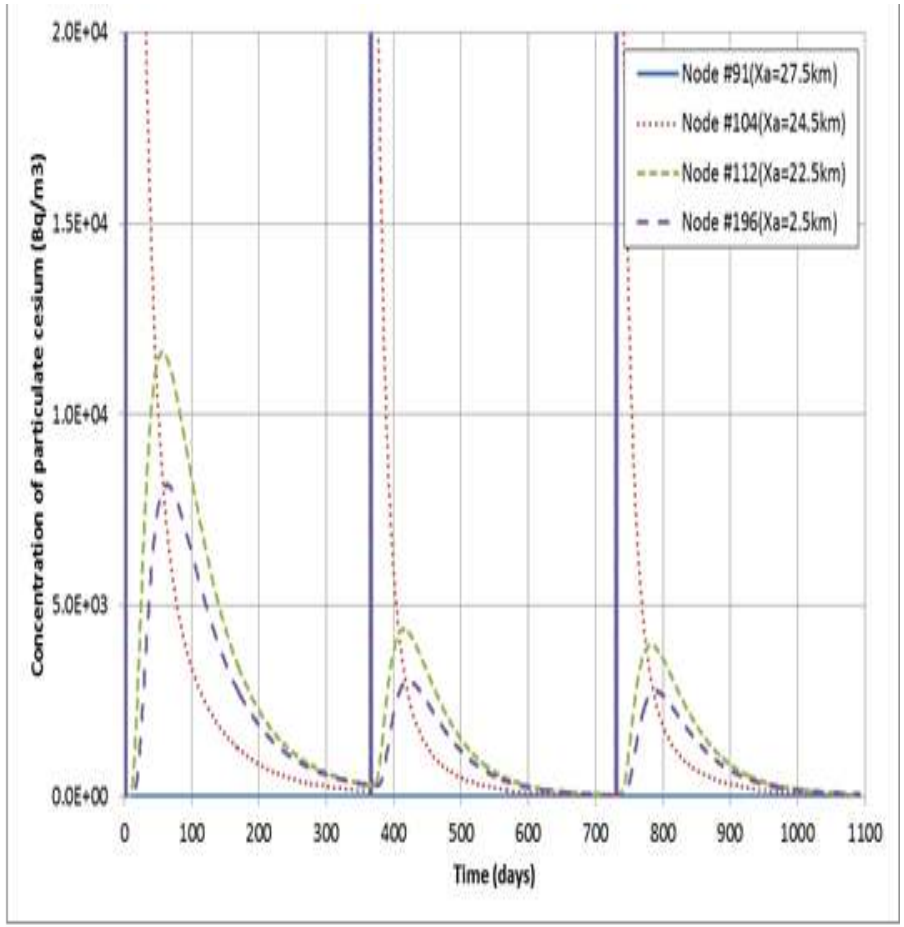
One of Possible Remediation Approaches for Ogaki Dam Reservoir

Inject Zeolite to the reservoir to adsorb and settle ^{137}Cs in the reservoir

Dissolved ^{137}Cs



Sediment-sorbed 137Cs



(c) Concentrations of Dissolved and Particulate Cesium for the Case of Sorbent Injection