

Fukushima Nuclear Accident and Environmental Remediation



Site Emergency Response Room



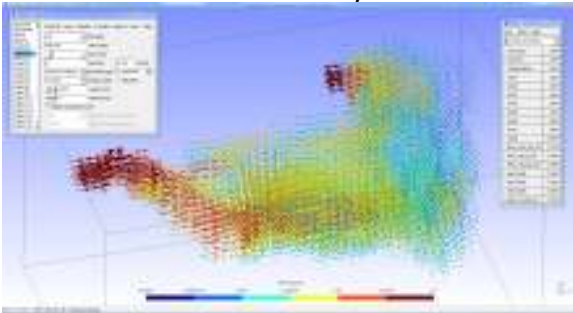
Key Points on Aquatic Environment Remediation

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

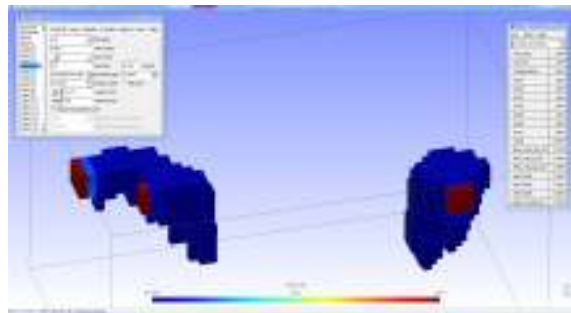
Once water is contaminated:

- **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
 - Pripjat River at Chernobyl Plant
- **Local participation on remediation decision making is very important**

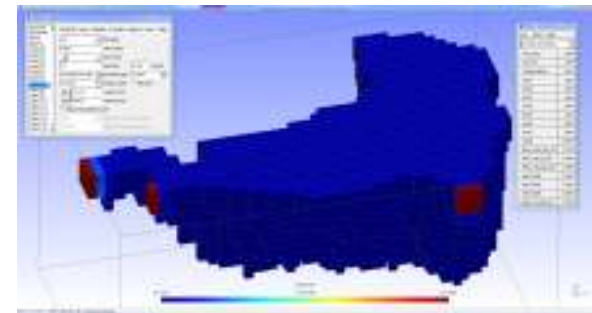
Velocity



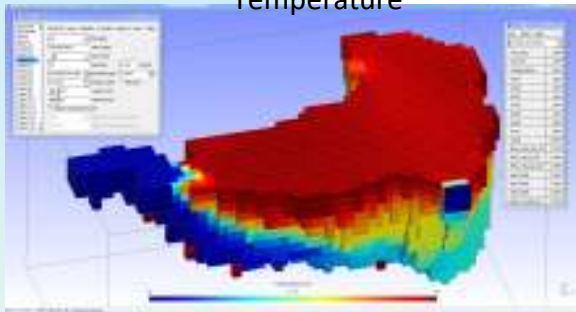
Sand



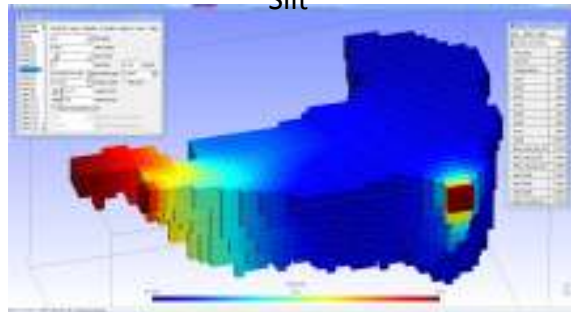
Sand-sorbed cesium



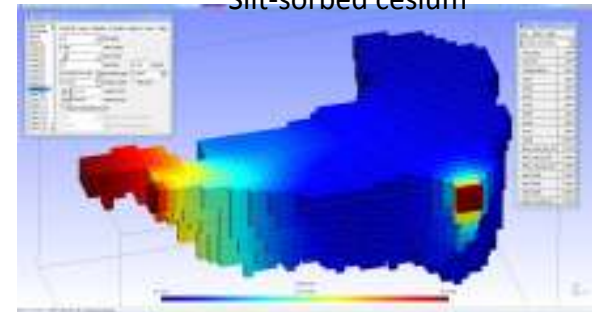
Temperature



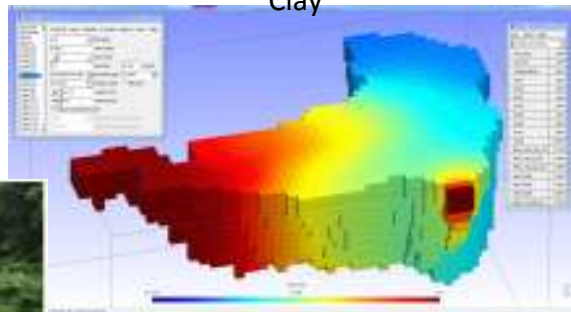
Silt



Silt-sorbed cesium



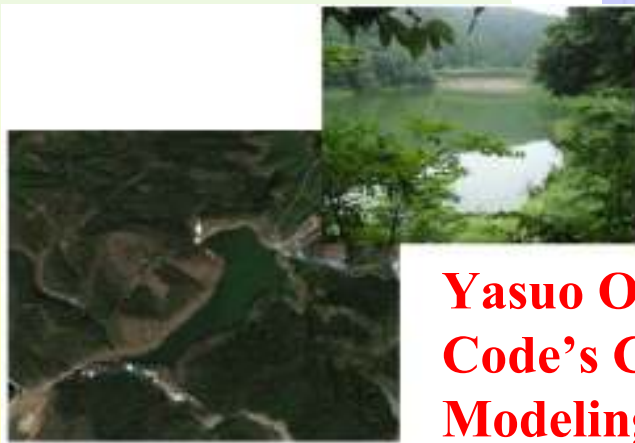
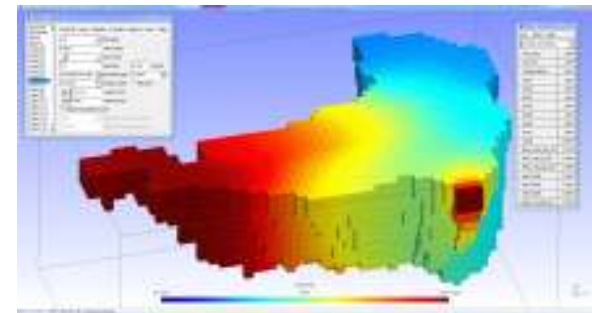
Clay



Clay-sorbed cesium

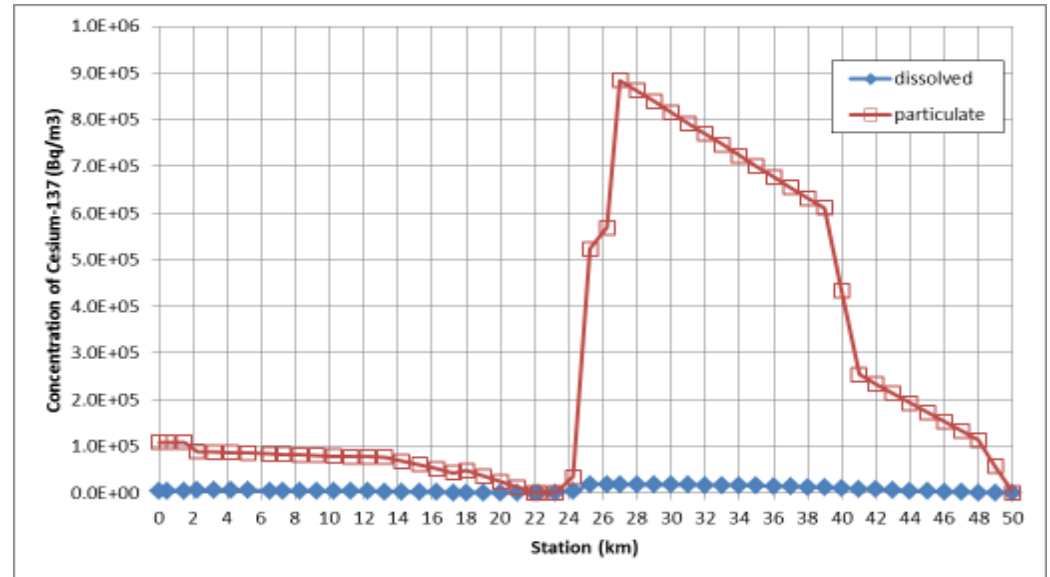
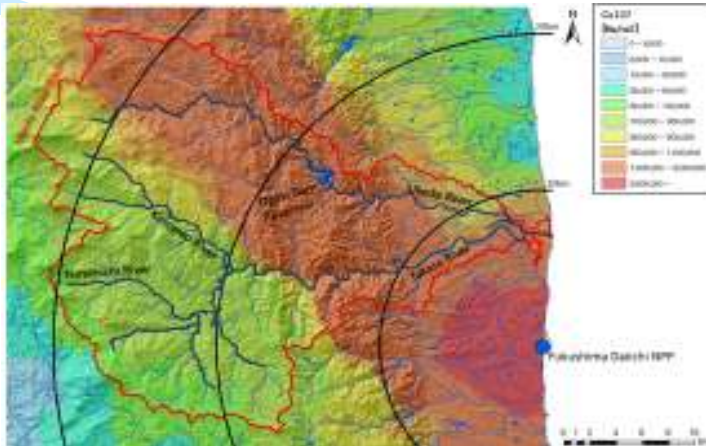


Dissolved cesium

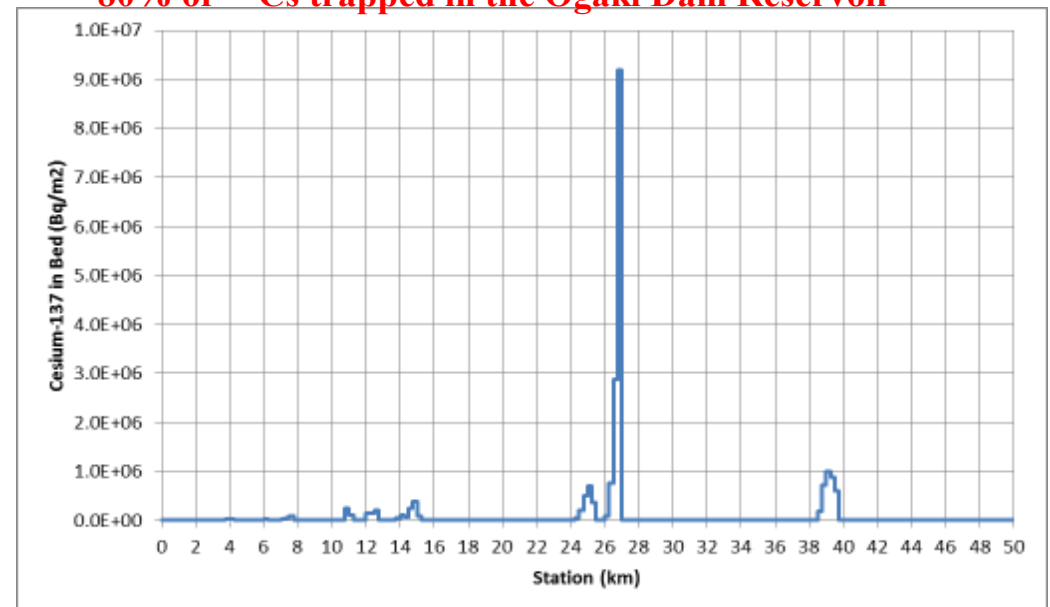
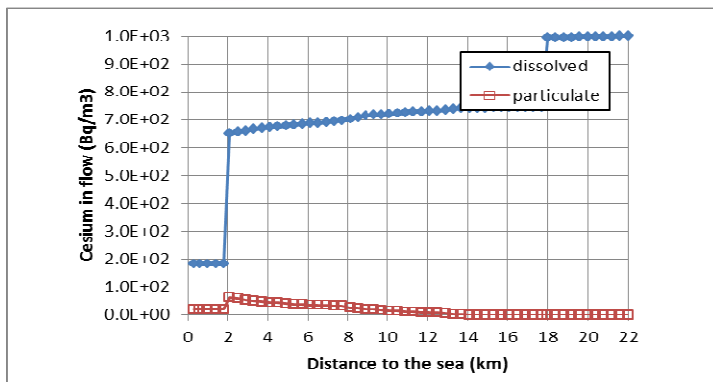
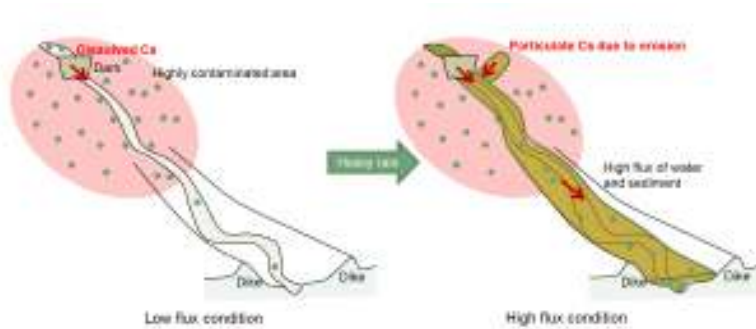


**Yasuo Onishi's 3-D FLESCOT
Code's Cesium Transport
Modeling in the Ogi Dam
Reservoir**

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



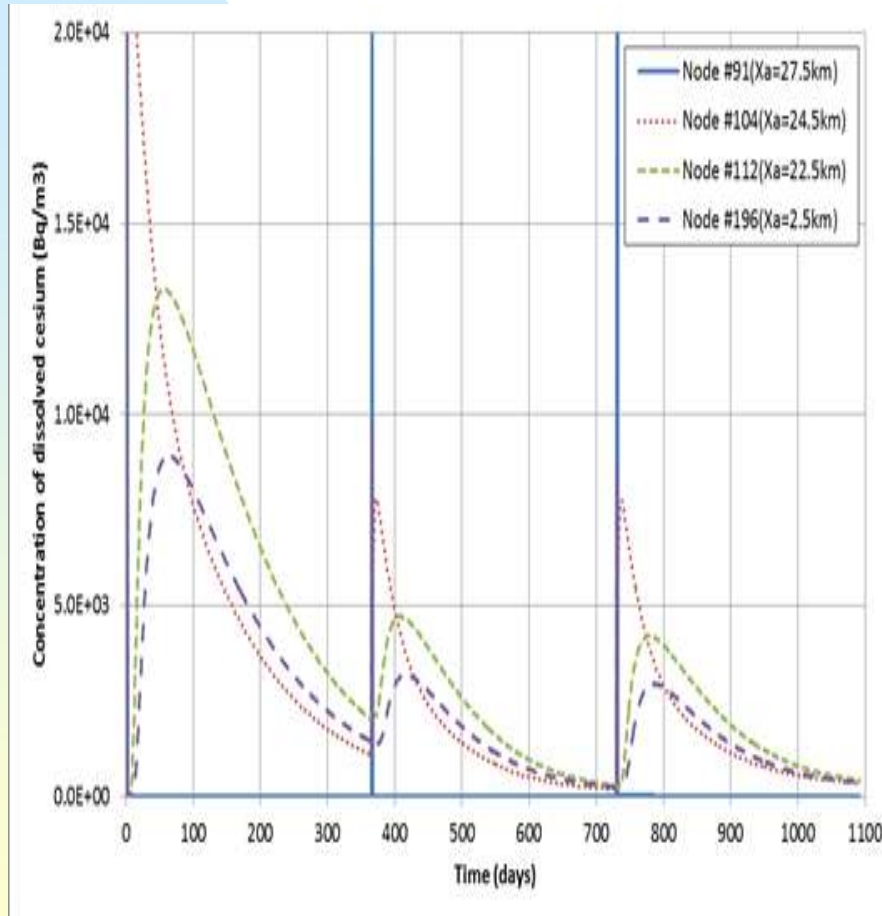
80% of ^{137}Cs trapped in the Ogaki Dam Reservoir



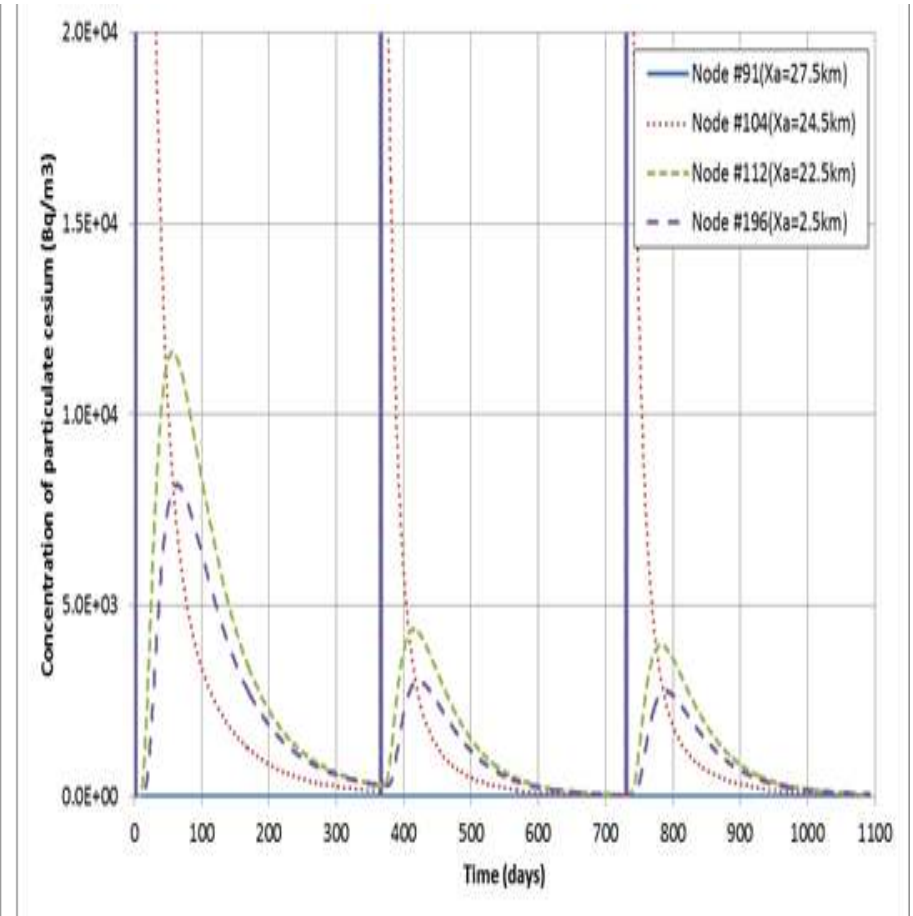
One of Possible Remediation Approaches for Ogaki Dam Reservoir

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

Dissolved ^{137}Cs



Sediment-sorbed ^{137}Cs



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