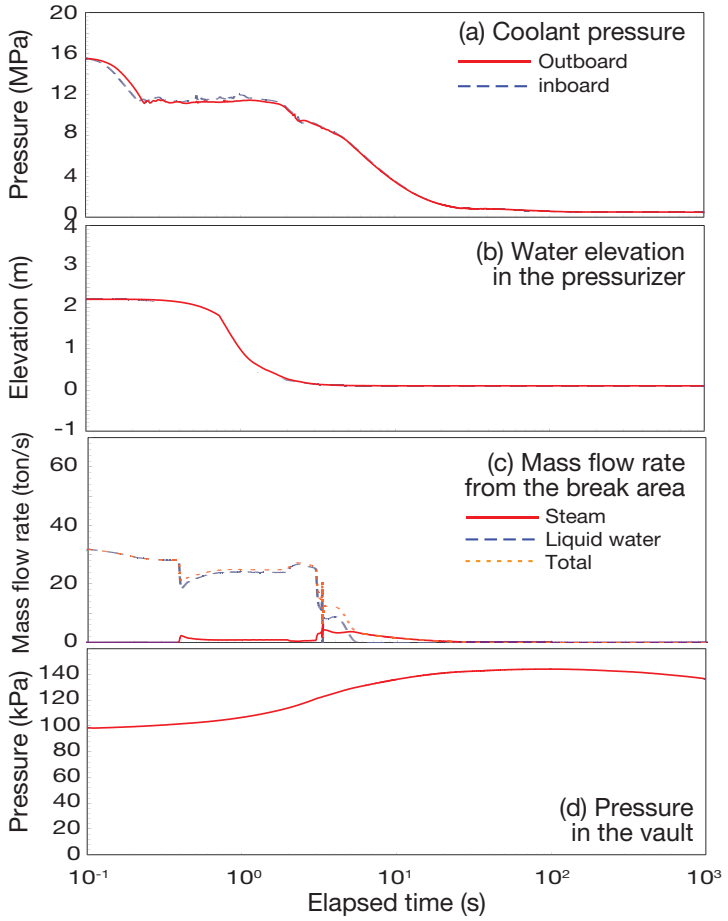
Summary slide of “Analysis of Accident Scenarios of a Water-Cooled Tokamak DEMO”

Large in-vessel and ex-vessel loss-of-coolant accidents of a water-cooled tokamak DEMO have been analyzed.



Ex-VV LOCA analysis

- We have identified the event sequences following an ex-VV large (double-ended) pipe break of the primary cooling system.
- The load onto the confinement area covering the broken primary cooling loop was found to be so large that it is difficult make a large volume, such as the tokamak building, pressure-tight.
- The analysis result suggests that measures to protect the confinement area will be needed.
  - ✓ A possible way is to implement a small vault of pressure-tightness or with a pressure suppression system, covering the primary cooling pipes.

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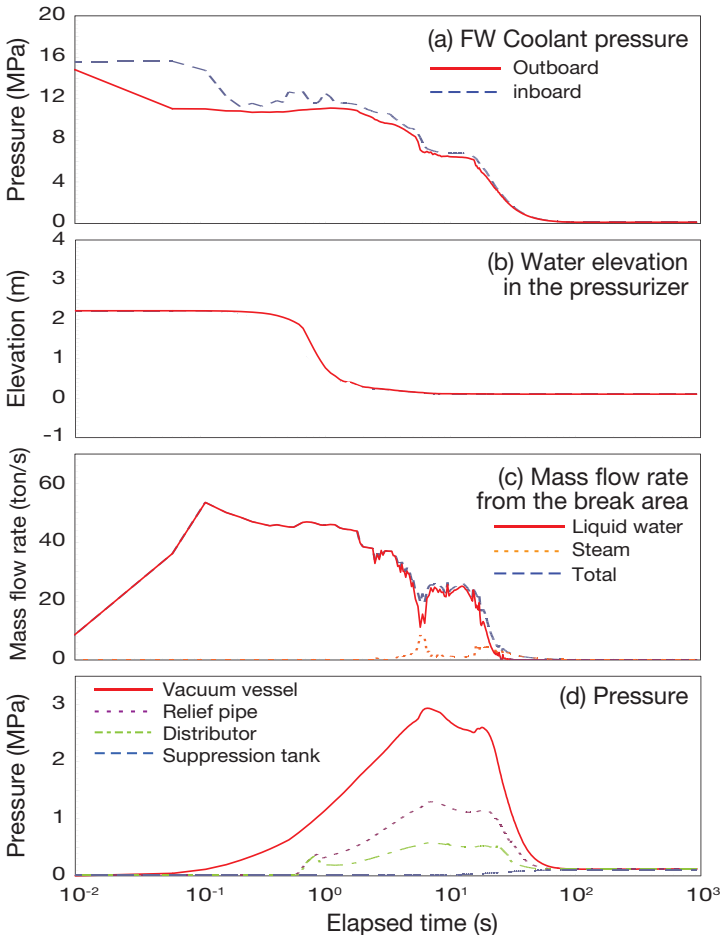

In-VV LOCA analysis

- We have identified the event sequences following an in-VV multiple break of all the outboard first wall cooling pipes.
- The load onto the VV was found to be several times larger than the VV design pressure.
- The analysis result suggests that measures to reduce the total FW break area will be needed.
  - ✓ A possible way is to arrange the pipes along with the toroidal direction rather than the poloidal direction.