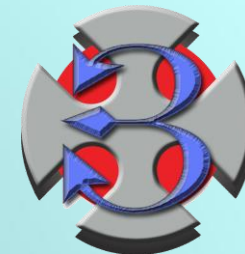


FROM RESEARCH TO INDUSTRY

cea



**Welcome to the
27th CATHARE
Users' CLUB,
Massy, June
12th to 13th 2018**

Ms MARTIN CEA/DEN/DISN
Mr GAVOILLE CEA/DEN/DM2S/STMF

www.cea.fr

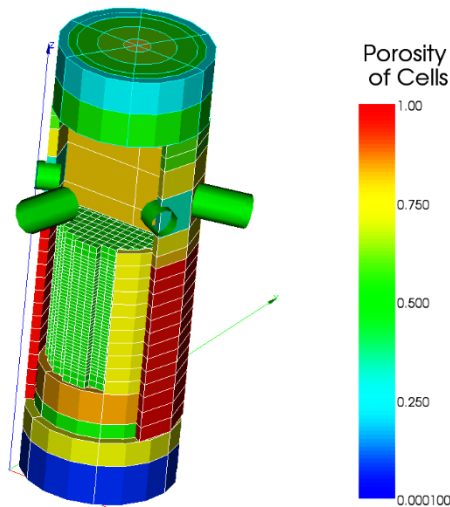


THE CUC IS THE OPPORTUNITY

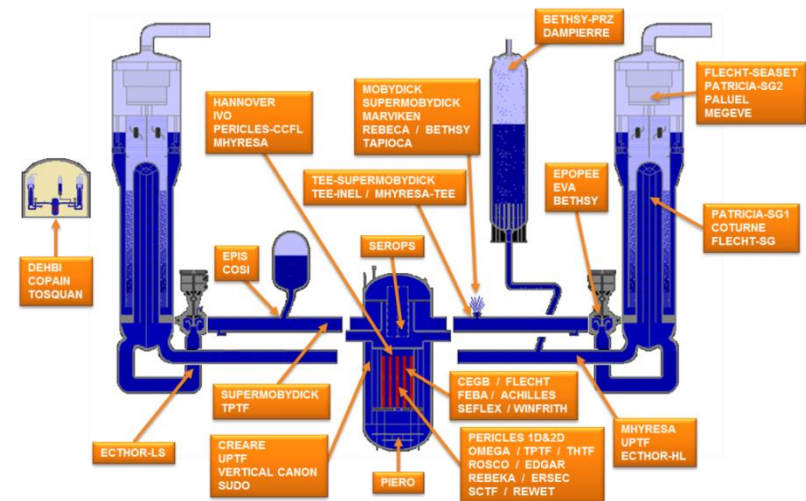
For all users, to show their works on various applications, to share experience on the CATHARE nuclear reactor safety code and to meet the CATHARE team

For the CATHARE team, to present the features and the functionalities of the versions of the code and to better know the overall range of applications with CATHARE

cathare-maintenance@cea.fr

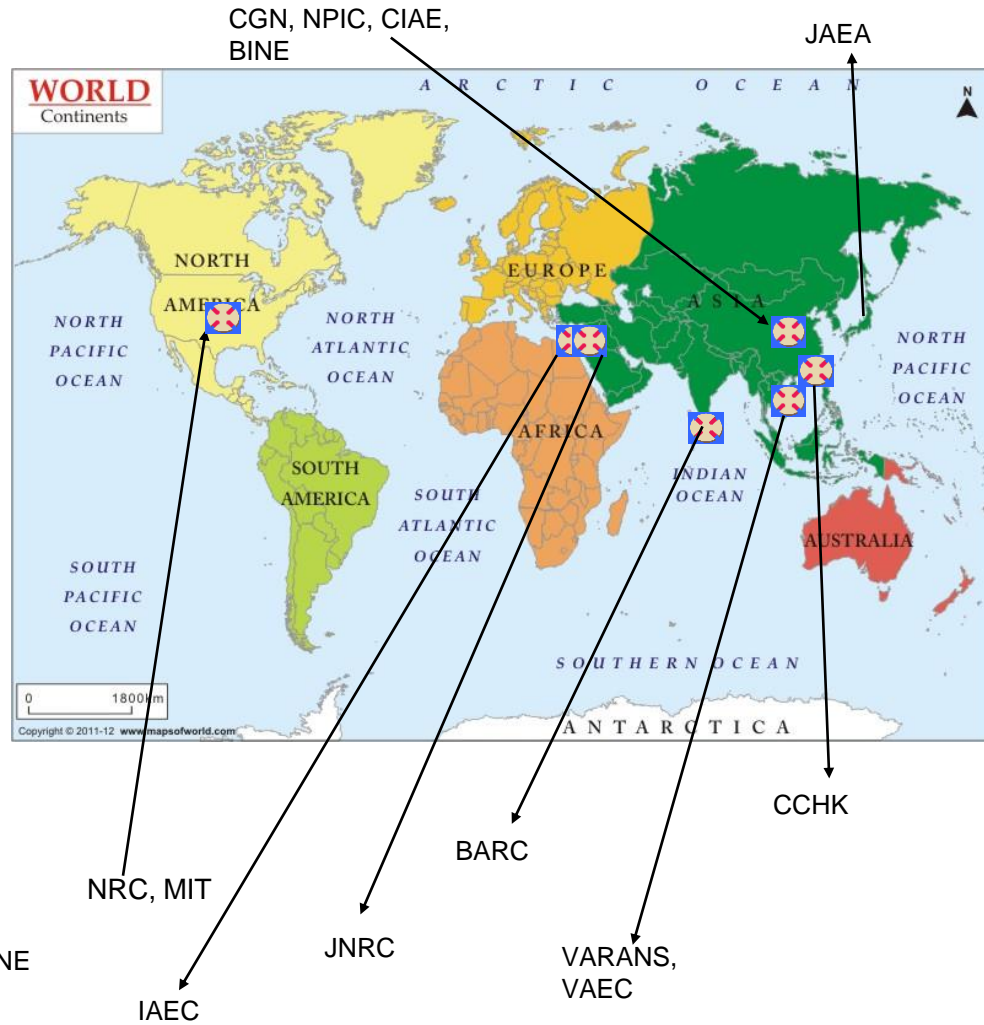
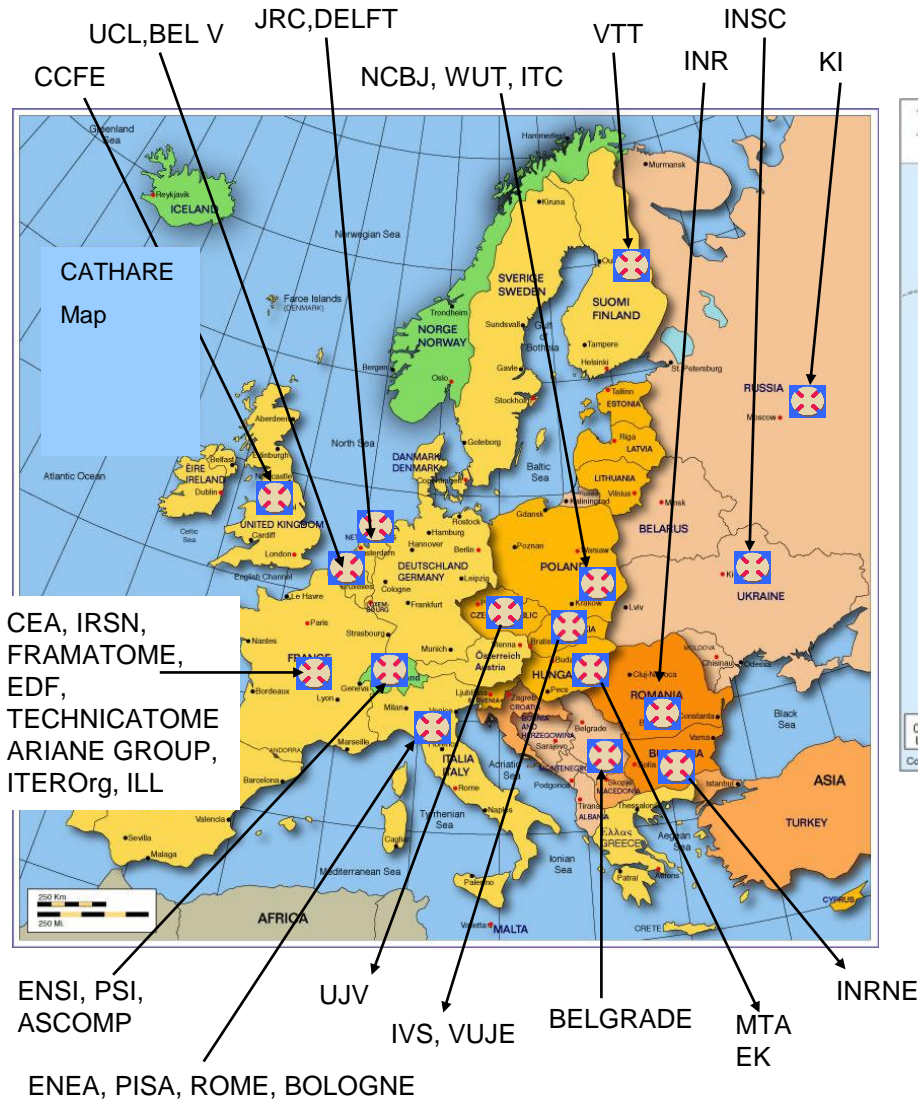


GUI : 3D Gultnare



CATHARE V&V process

CATHARE DISTRIBUTION WORLDWIDE : ~ 25 COUNTRIES AND 45 ORGANISATIONS



CATHARE, 35 years of development

- Developed initially for PWRs
 - Now used for nuclear propulsion, gen IV reactors (lead and sodium fast reactors, gas cooled reactors), research reactors (OSIRIS, ORPHEE, JHR, ILL-HFR), BWR, VVER
- For designing, safety studies, training and design simulators
- Other applications : cryogenic fluids (ex Ariane engine, fusion : cooling with supercritical helium), solar power plant

with rigorous V&V process

- Based on 35 years of experimental results analysis
- 2000 automatic tests

Partners

- Financed by CEA/EDF/FRAMATOME/IRSN
- International programs : PKL, ATLAS, NURISP, NURES SAFE, ESFR, ALLEGRO, ...

Major issue : from CATHARE2 to CATHARE3

- End of 2016 : CATHARE3 V2.0 delivery to co-owners and some partners
- **2018 : last developments inside CATHARE2**
- **2019 : - CATHARE3 v2.1 first industrial version** for PWR & other applications
 - roadmap for v2.2

- **CATHARE 3** = reference computing code for ASTRID project (RNR-Na prototype)
- Improvements :
 - ❖ 3D modules for vessel modelisation (METERO facility in progress for extended validation)
 - ❖ revision of physical models

Coupling with other codes (through ICoCo & SALOME)

- multi-scale simulations : local (CFD) / component / system
- multiphysical simulations : neutronic / fuel / TH

Thank you for your attention

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