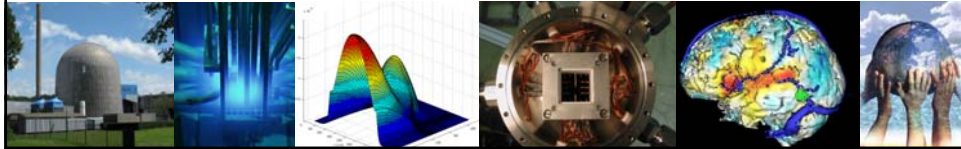


# Dutch research into MSR

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# 1114

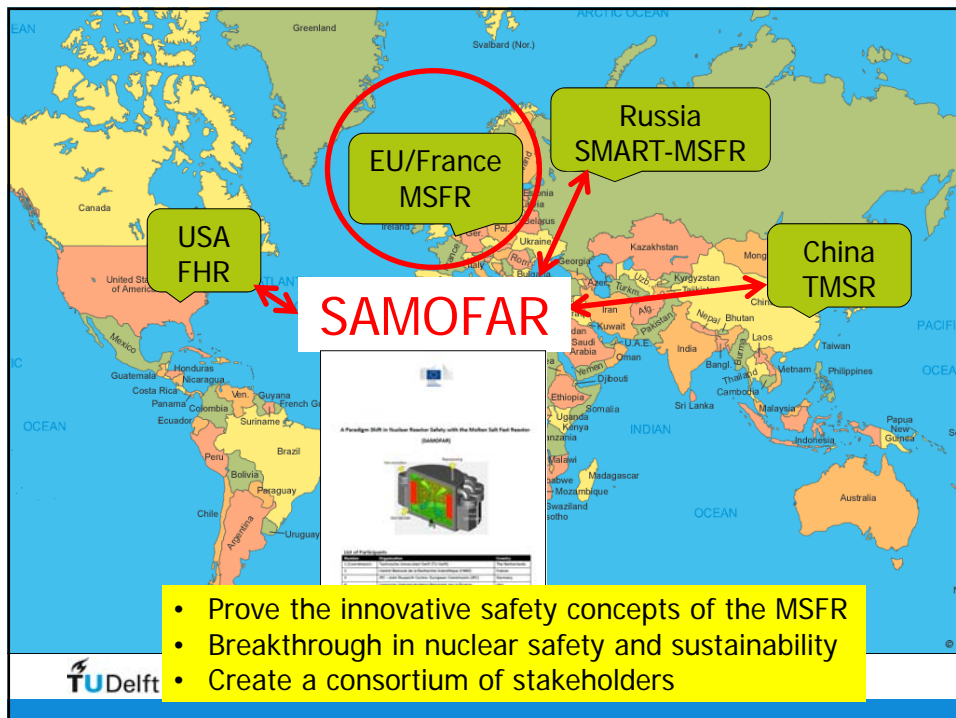
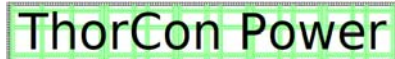
# 1145

## Thorium abundantly present



On some beaches the energy contents of one kilogram of sand corresponds to one hundred thousand (100.000) liters of gasoline

## Start ups



## SAMOFAR

### Experimental

- Salt conditions at walls of piping and freeze plug
- Optimal geometry of the freeze plug
- Natural circulation dynamics of salt
- Demonstrate extraction processes

### Safety assessment

- Measuring safety related data of salts
- New integral safety approach
- Software simulator (start-up, load-following, ...)
- Transient scenarios (multi-physics, uncertainty,...)
- Safety of chemical processes

### Roadmap

## Research needed three main areas

- Control of salt chemistry (fluorine potential)
- Optimize physical and chemical properties of the salts
- Modelling and demonstration of (chemical) clean up

- Development of durable structural materials, coatings, and moderator materials

- Numerical modelling and experimental validation for licensing

## What should we do?

- Join forces and expertise
- Budget for:
  - Research on chemistry, materials, licensing
  - Education of young engineers and scientists
- Budget for:
  - Design, construction and operation of a demonstration reactor
  - Conceptual design of first power reactor



## Conclusions

- Thorium Molten Salt Reactors are safe and sustainable
- Thorium Molten Salt Reactors can produce all electricity consumed world-wide for tens of thousands of years
- It is a big dream, but not impossible, nor unrealistic

