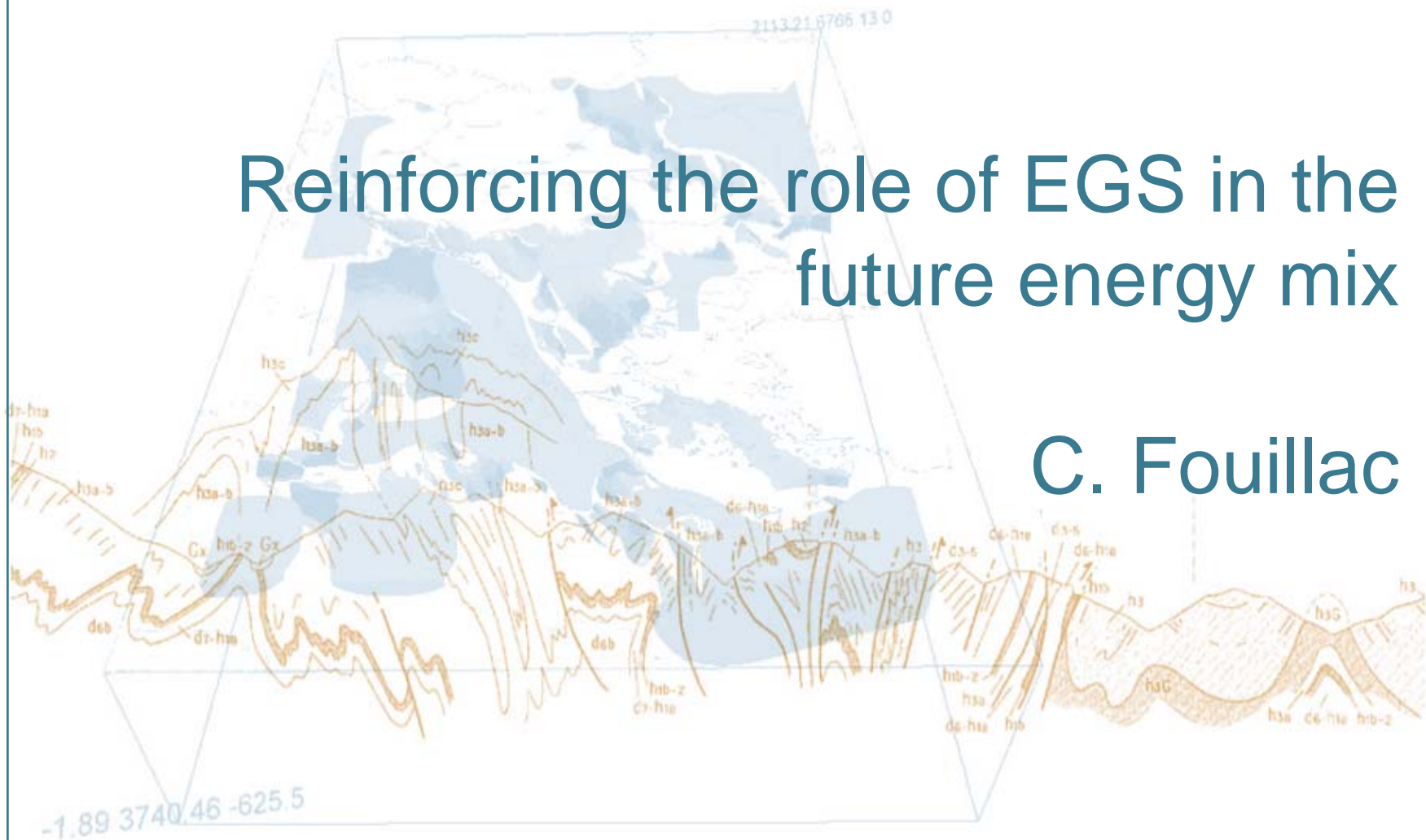




Reinforcing the role of EGS in the future energy mix

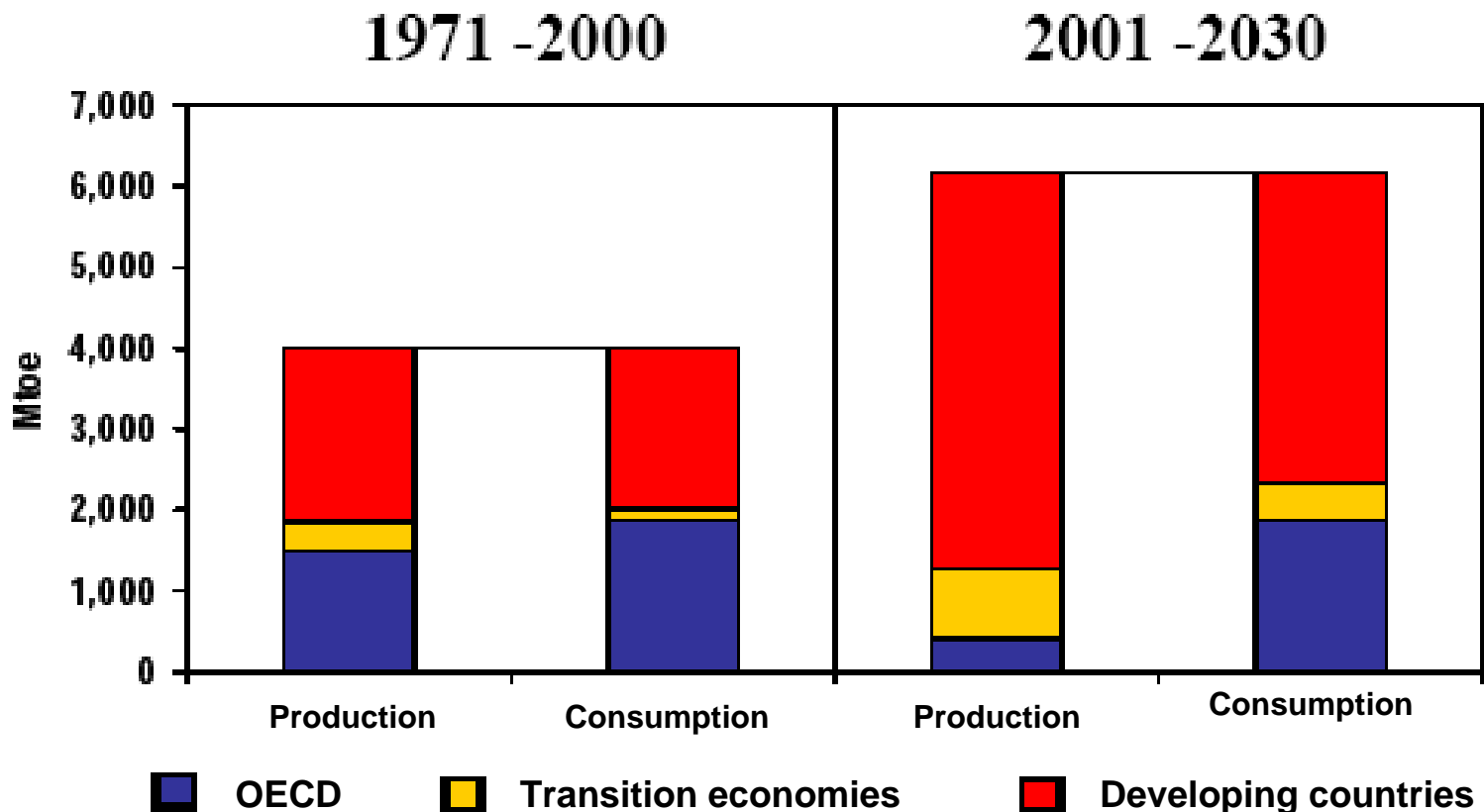
C. Fouillac



Research Direction



Future growth of world energy production and use until 2030



« Between 2000 et 2030, Energy production and consumption growth will mostly take place in developing countries »

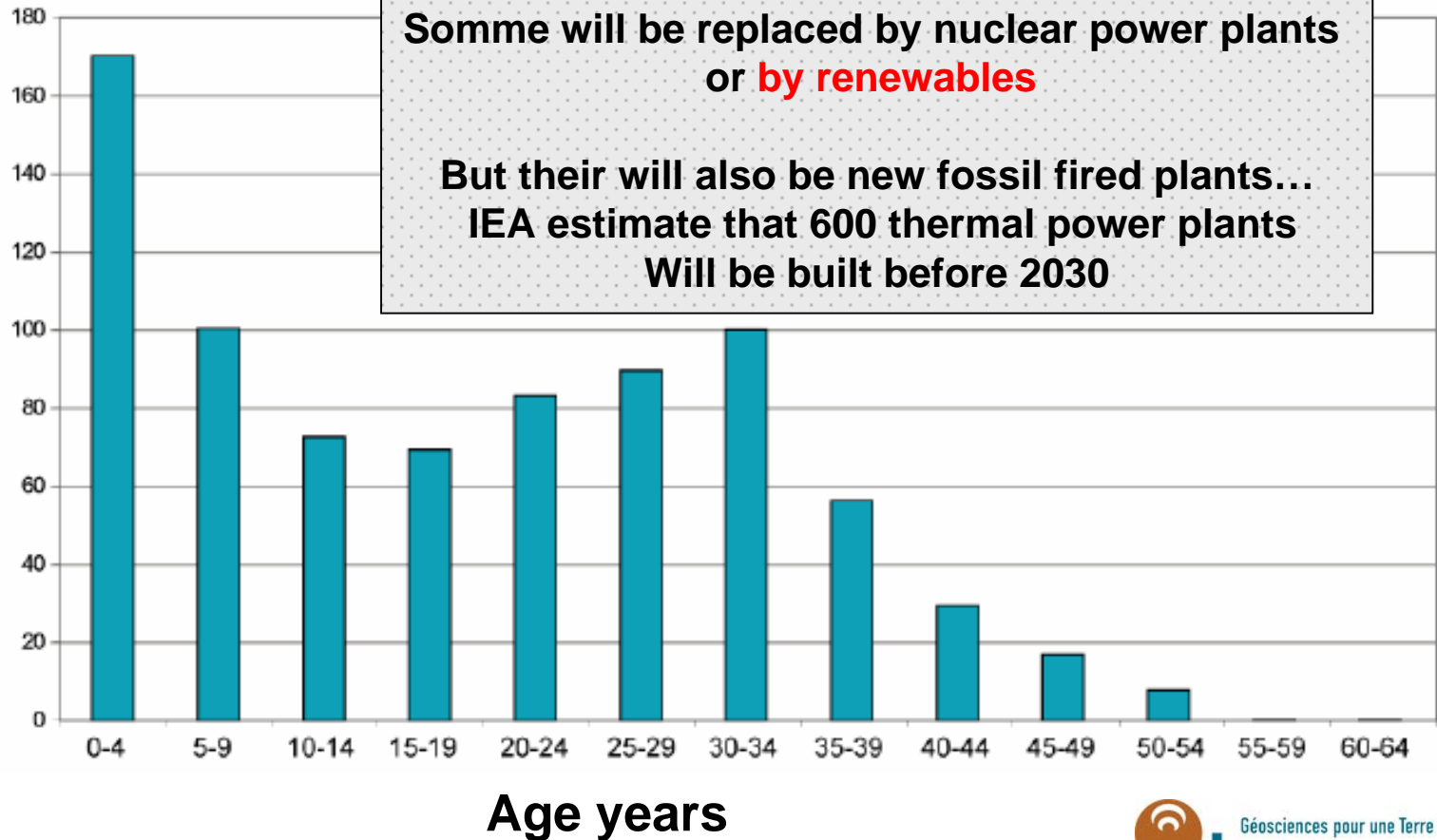
Research Direction

Marianne Haug IAE 7th GHG Conf.
Vancouver 2004



Age of installed thermal (Fossil fuelled) power plants

Installed Capacity GW

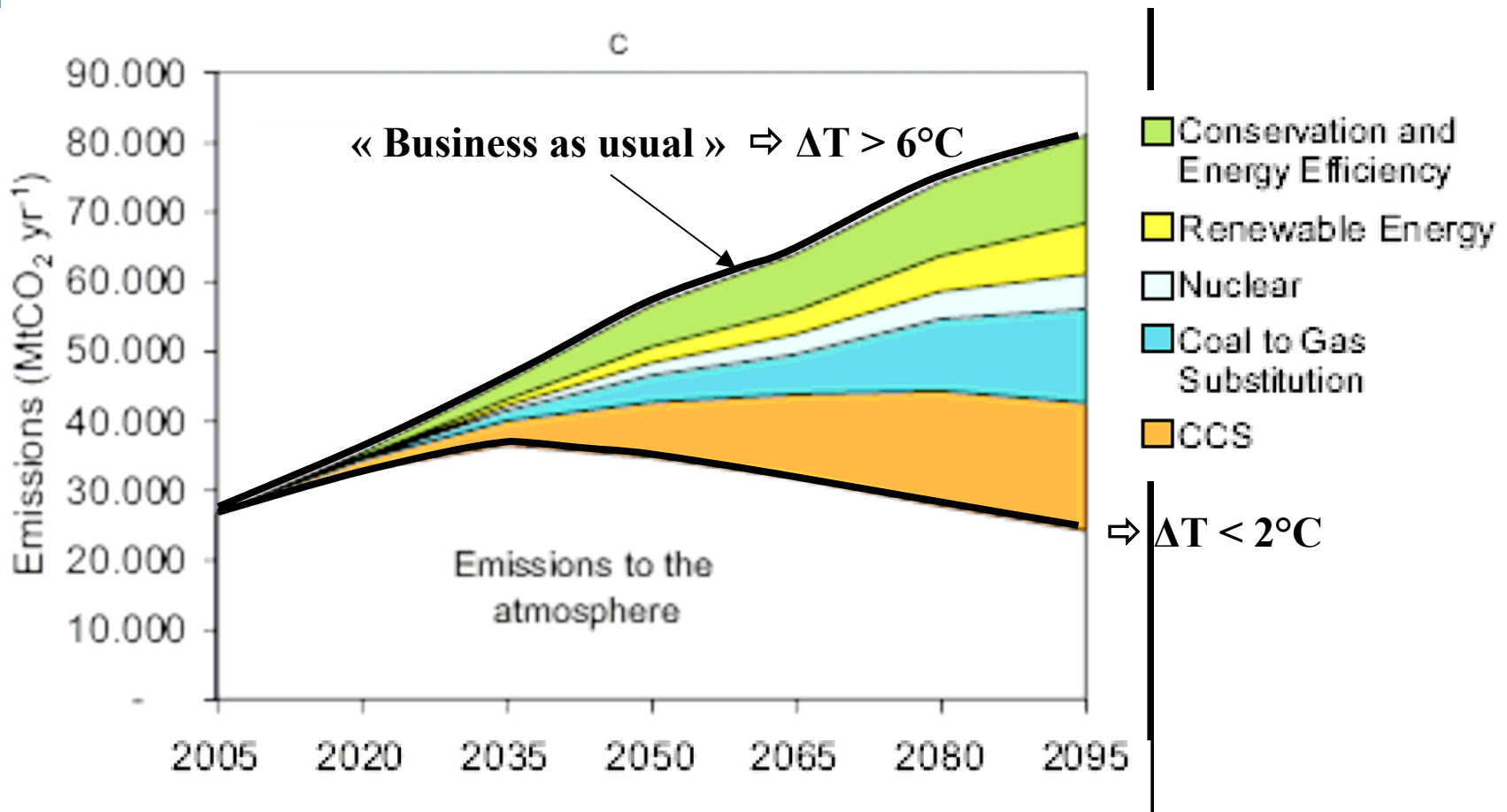


In the next 50 years, 800 fossil fired power plants
Will come to their end

Somme will be replaced by nuclear power plants
or **by renewables**

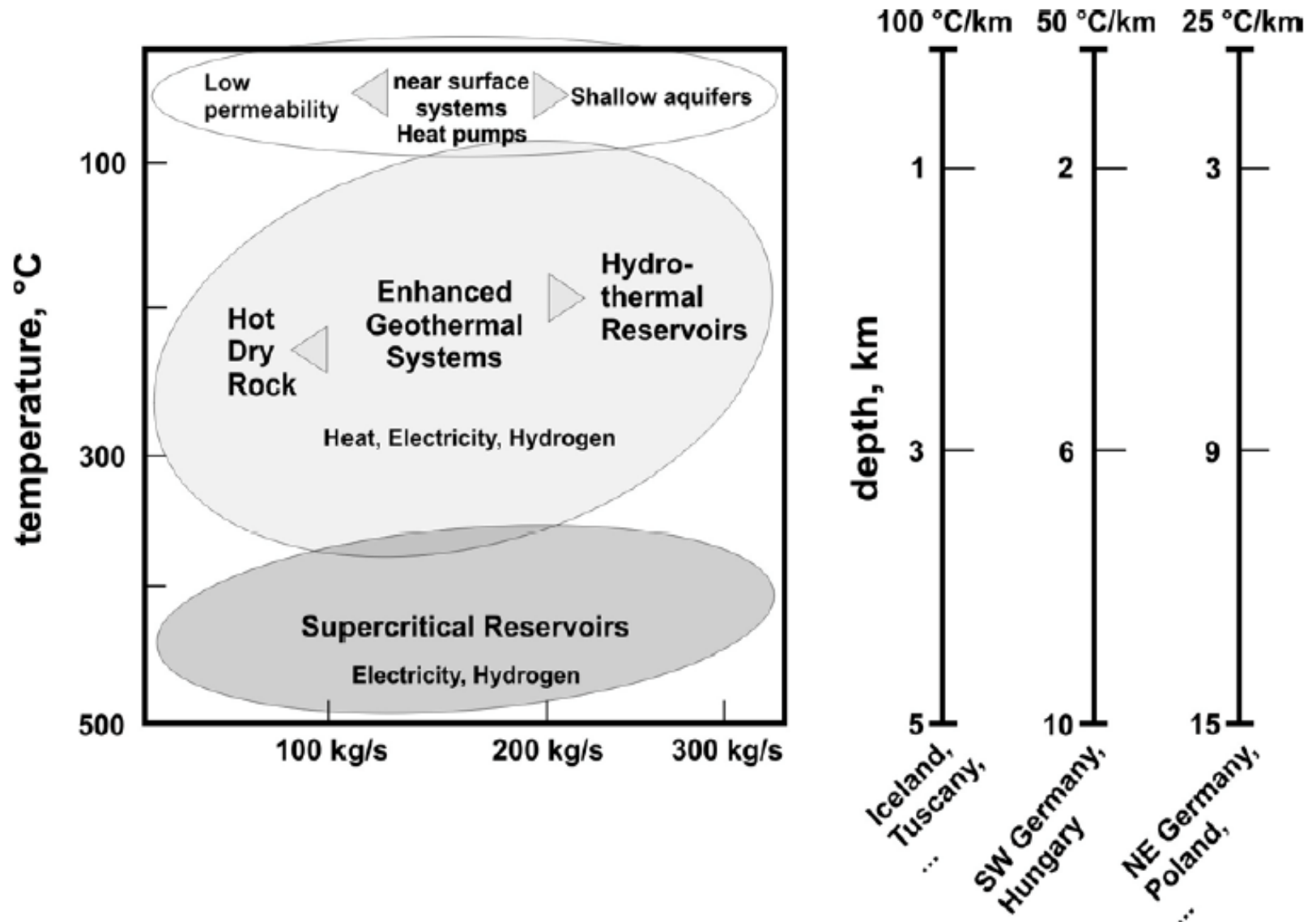
But there will also be new fossil fired plants...
IEA estimate that 600 thermal power plants
Will be built before 2030

The climate challenge for the 21st century

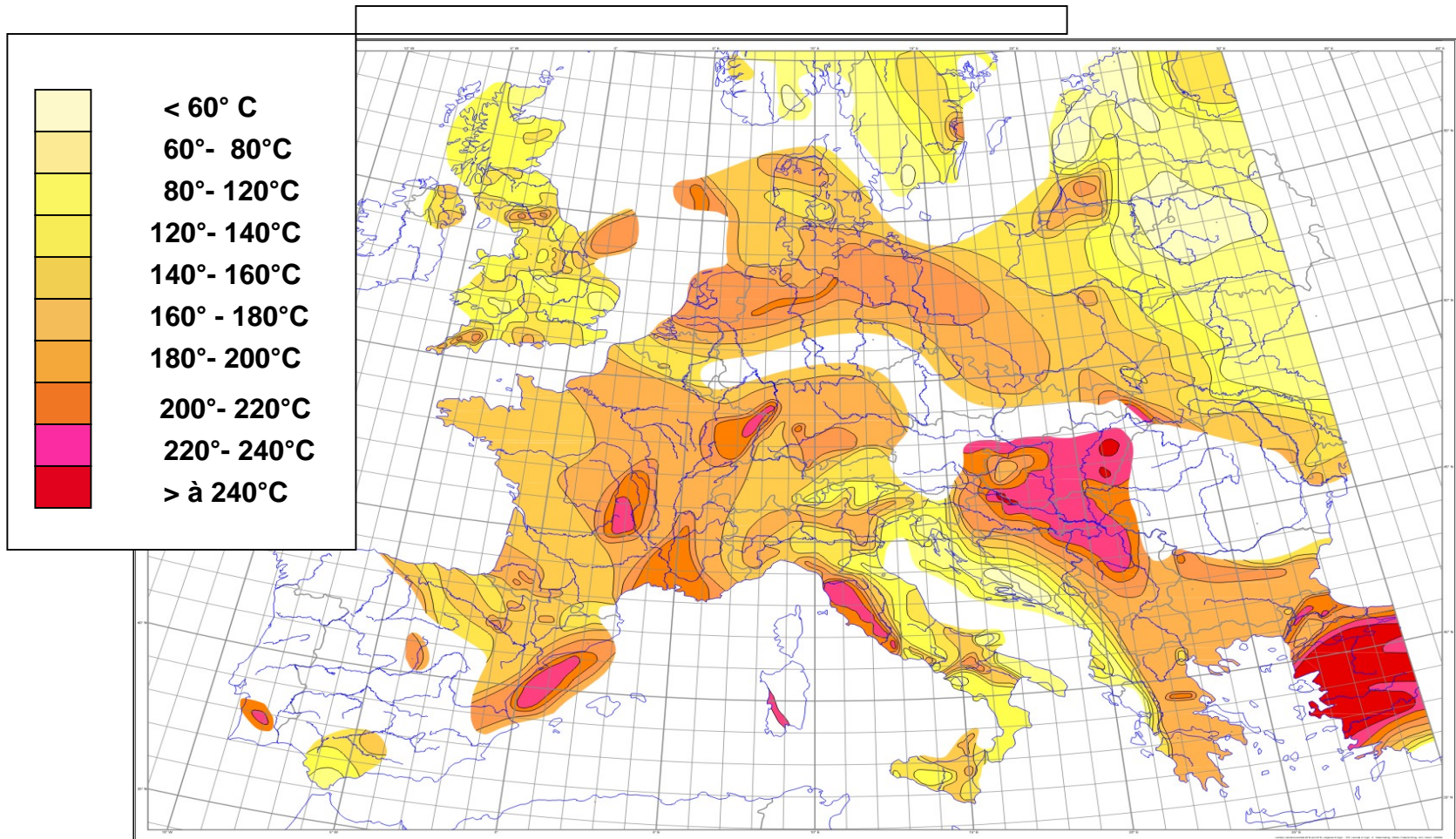


Special report «Carbon Dioxide Capture and Storage »
IPCC, September 2005

Geothermal energy: Heat and power generation



Extrapolated temperatures at 5km depth in Europe



Research Direction

Future for EGS in Europe

> **Vision (2030? 2050?)**

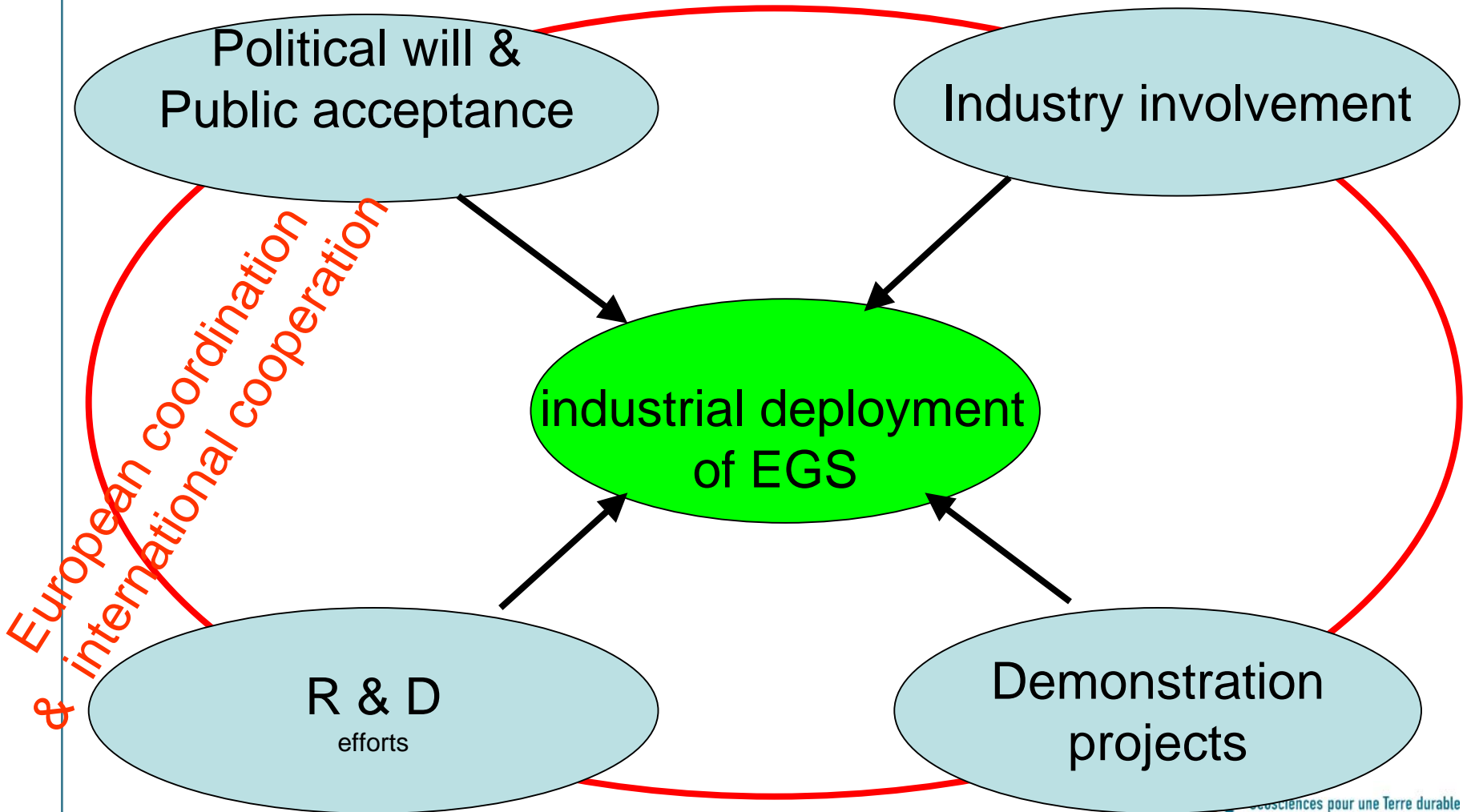
- Geothermal energy is the preferred renewable baseload energy option in Europe

> **Necessity for an European programme with an ambitious strategic objective**

- To improve EGS technology performance and reduce production costs, hence making the huge geothermal resource available to Europe

> **Some research gaps still need to be filled**

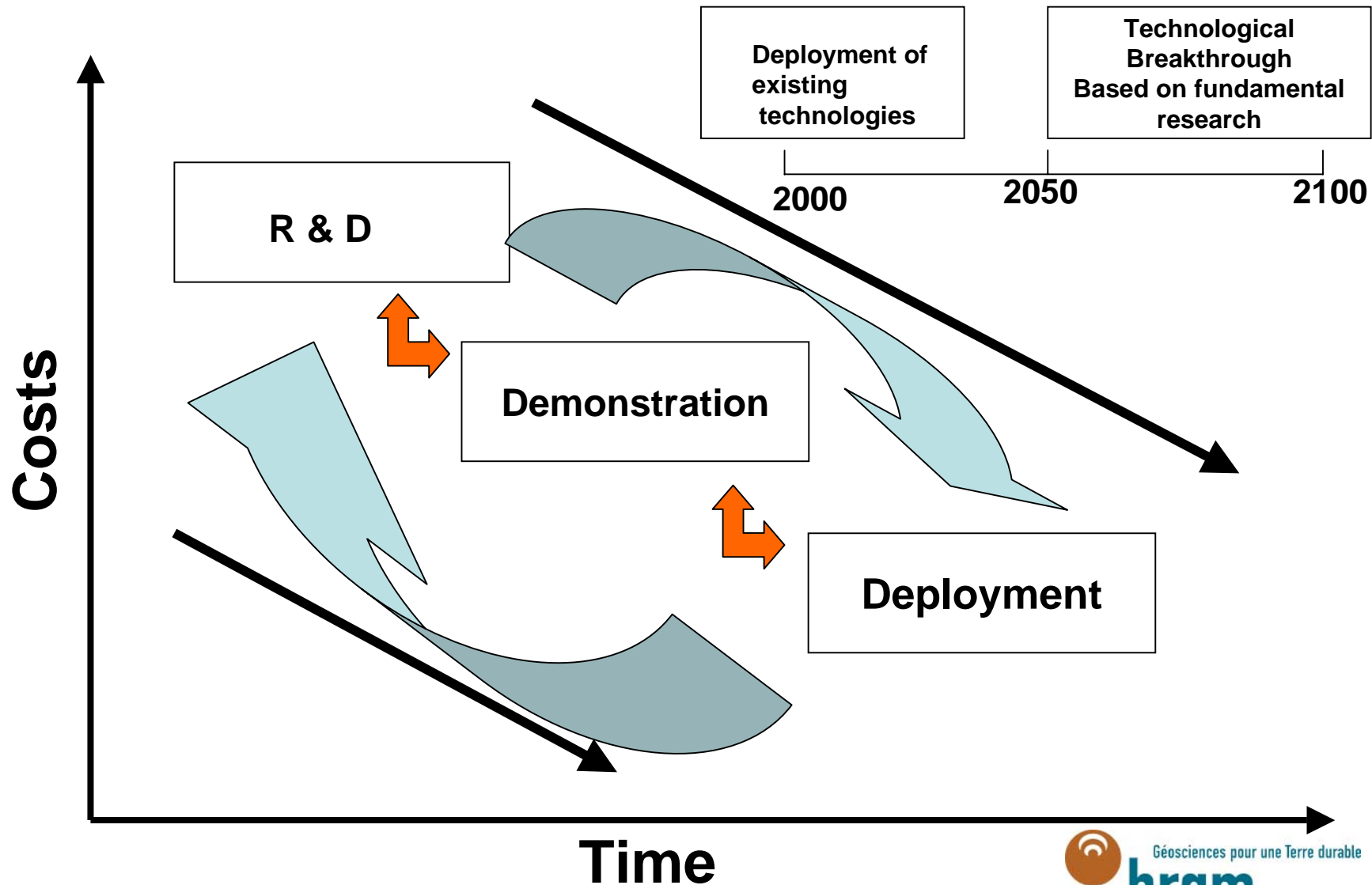
A complex situation



Research Direction

A continuous evolution....

Agenda



Research Direction

Necessary Technology improvements

> Identified needs, four years ago

- Ability to predict the geothermal resource at the appropriate scale
- Reduce the cost of geothermal wells
- Cost effective methodology for reservoir stimulation
- Efficient Heat extraction and conversion processes

> What is the view today?

- Engine Mid term conference will be very informative

Conclusions

- > Geothermal energy can play a very significant role among the CO₂ reduction strategies.**
- > Today ,many geothermal direct uses provide very efficient ways for CO₂ reduction but, only hydrothermal reservoirs of high grade resources are used for power production**
- > EGS technology has the highest potential in continental Europe to increase the contribution of geothermal energy to the reduction of CO₂ emissions**
- > Engine Coordination Action allows a development of European research efforts and support international cooperation**