



TOTAL

**NEW HORIZONS IN GAS EXPLORATION
AND ASSOCIATED TECHNICAL CHALLENGES**

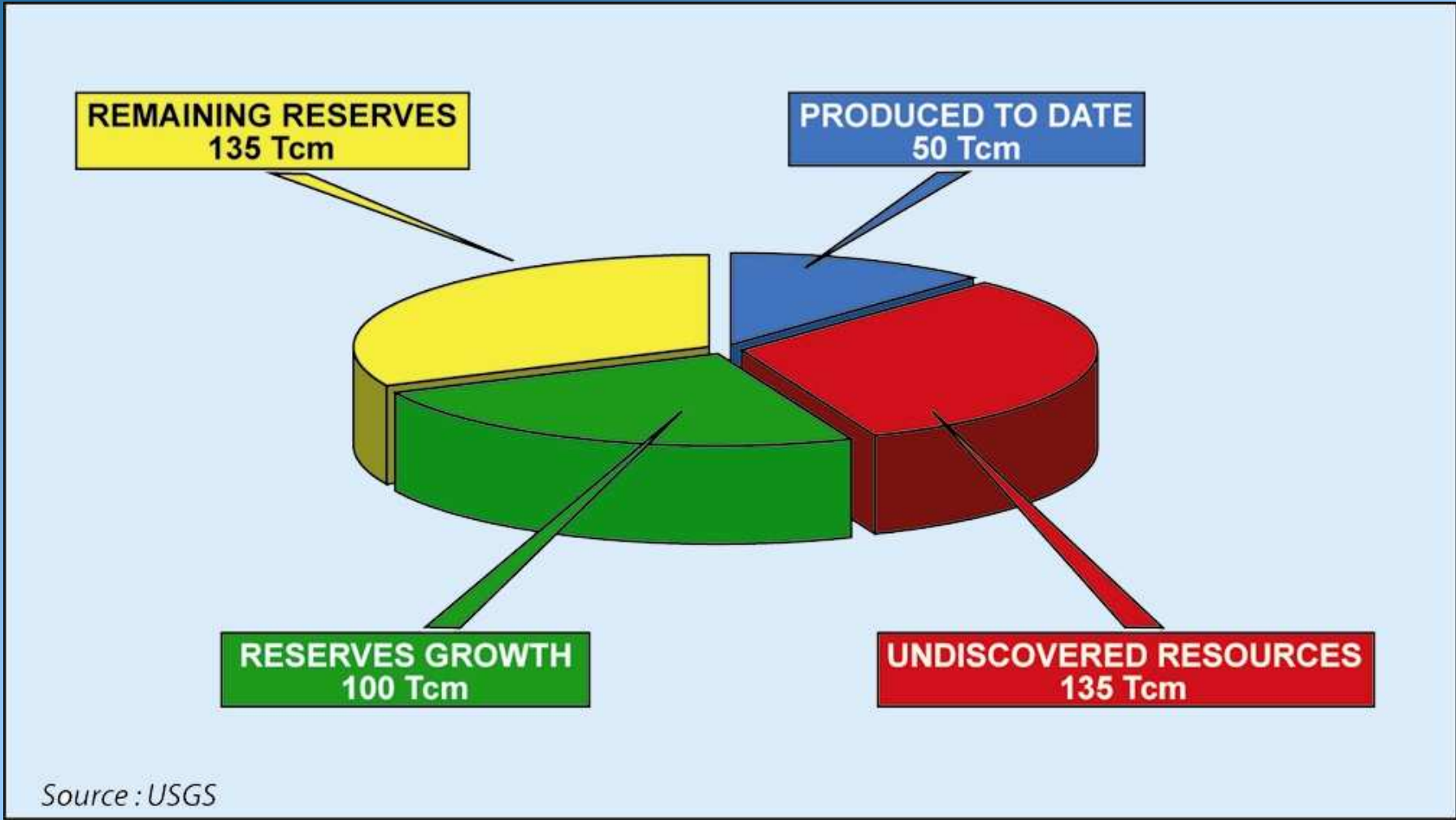
**J.P. Monjarret , Total E&P, Paris, France
Amsterdam, 23rd World Gas Conference, 7 June 2006**

- **GAS EXPLORATION RESULTS**

- **NEW HORIZONS IN GAS EXPLORATION**
 - Arctic Areas
 - Fold Belts
 - Deep Basins

- **CONCLUSION**

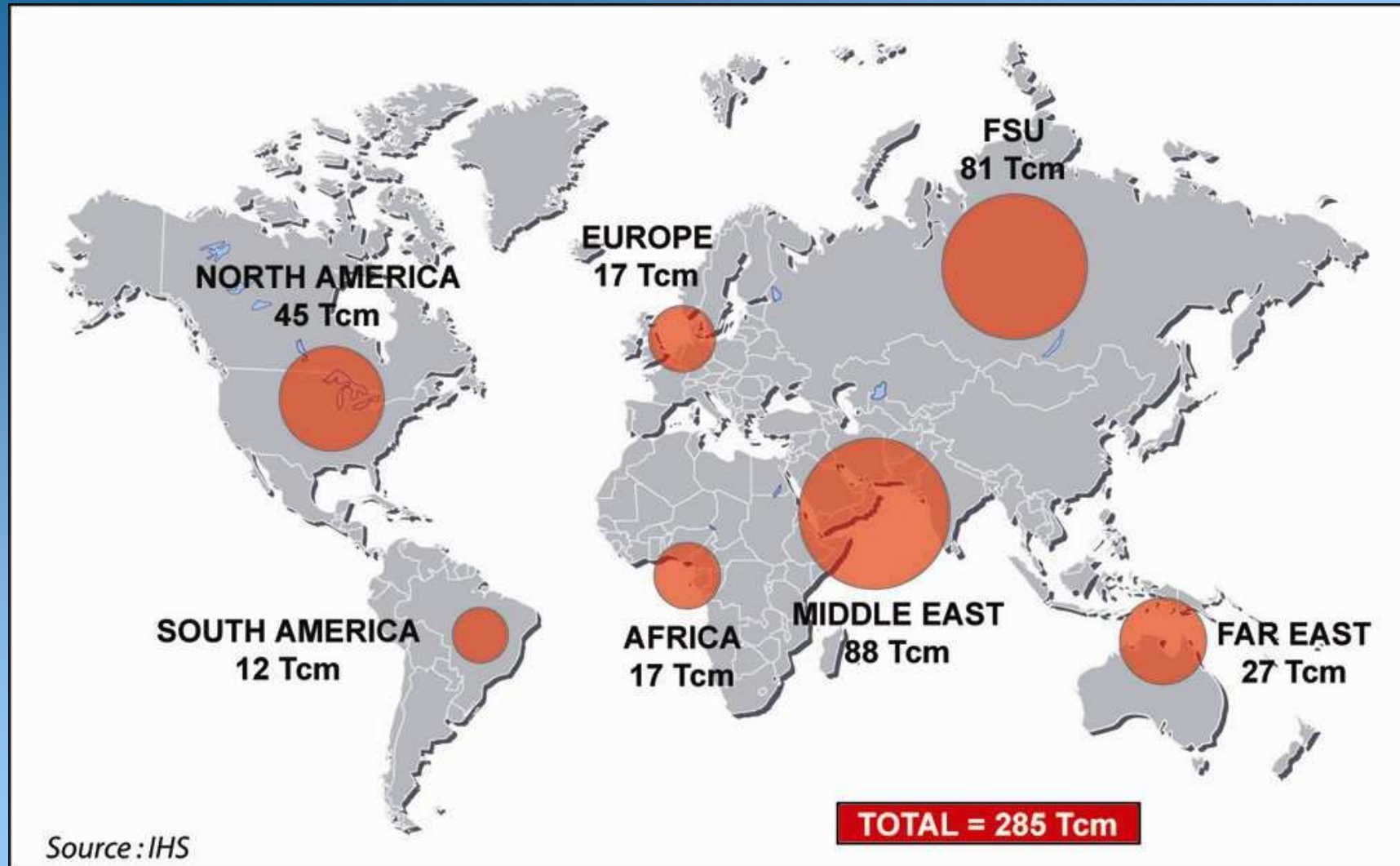
GAS ULTIMATE RESOURCES



GLOBAL DISCOVERED CONVENTIONAL GAS DISTRIBUTION



TOTAL

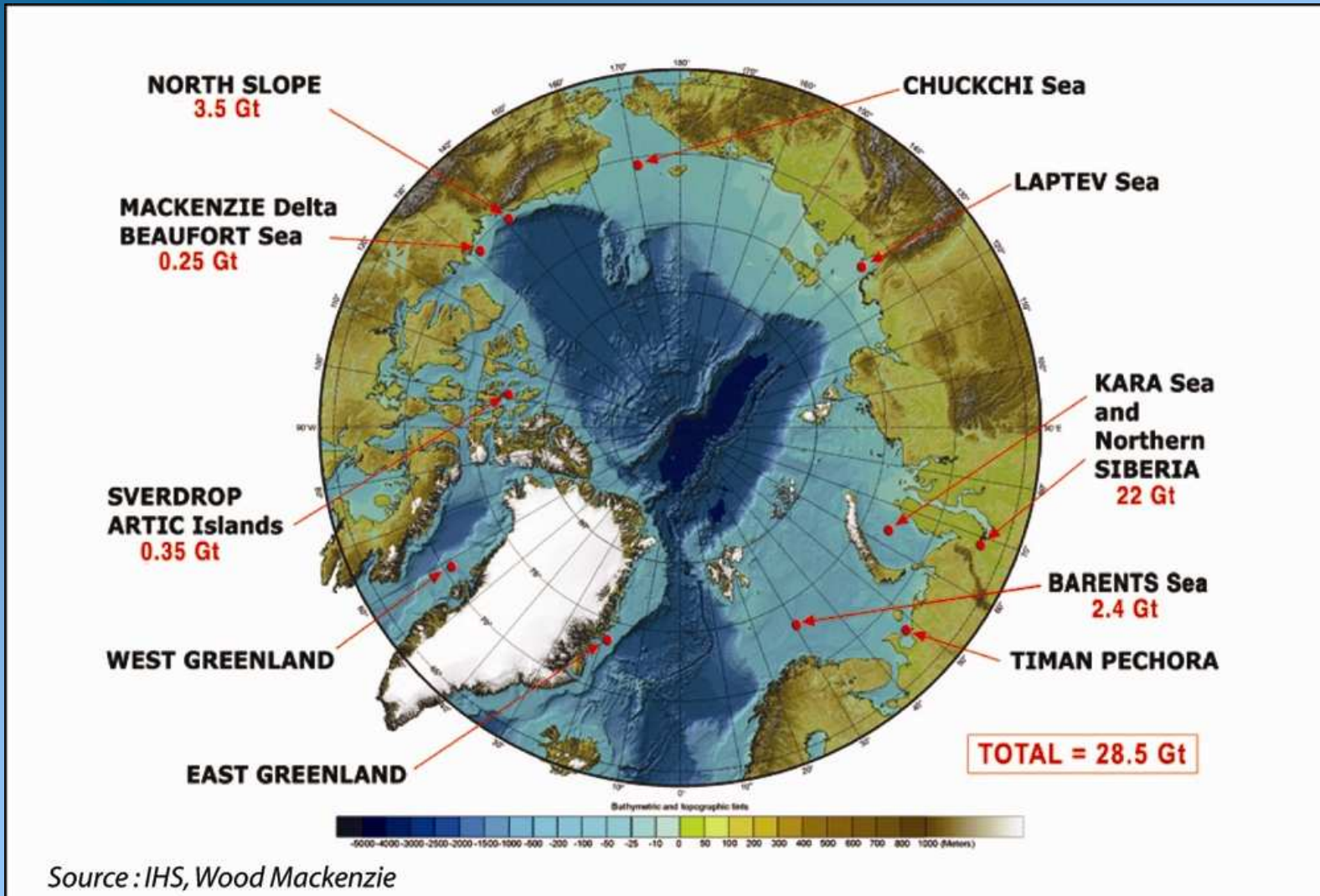


EXPLORATION FOR GAS IN THE ARCTIC (1)

MAIN ARCTIC BASINS AND HYDROCARBON RESOURCES DISTRIBUTION



TOTAL



EXPLORATION FOR GAS IN THE ARCTIC (2)

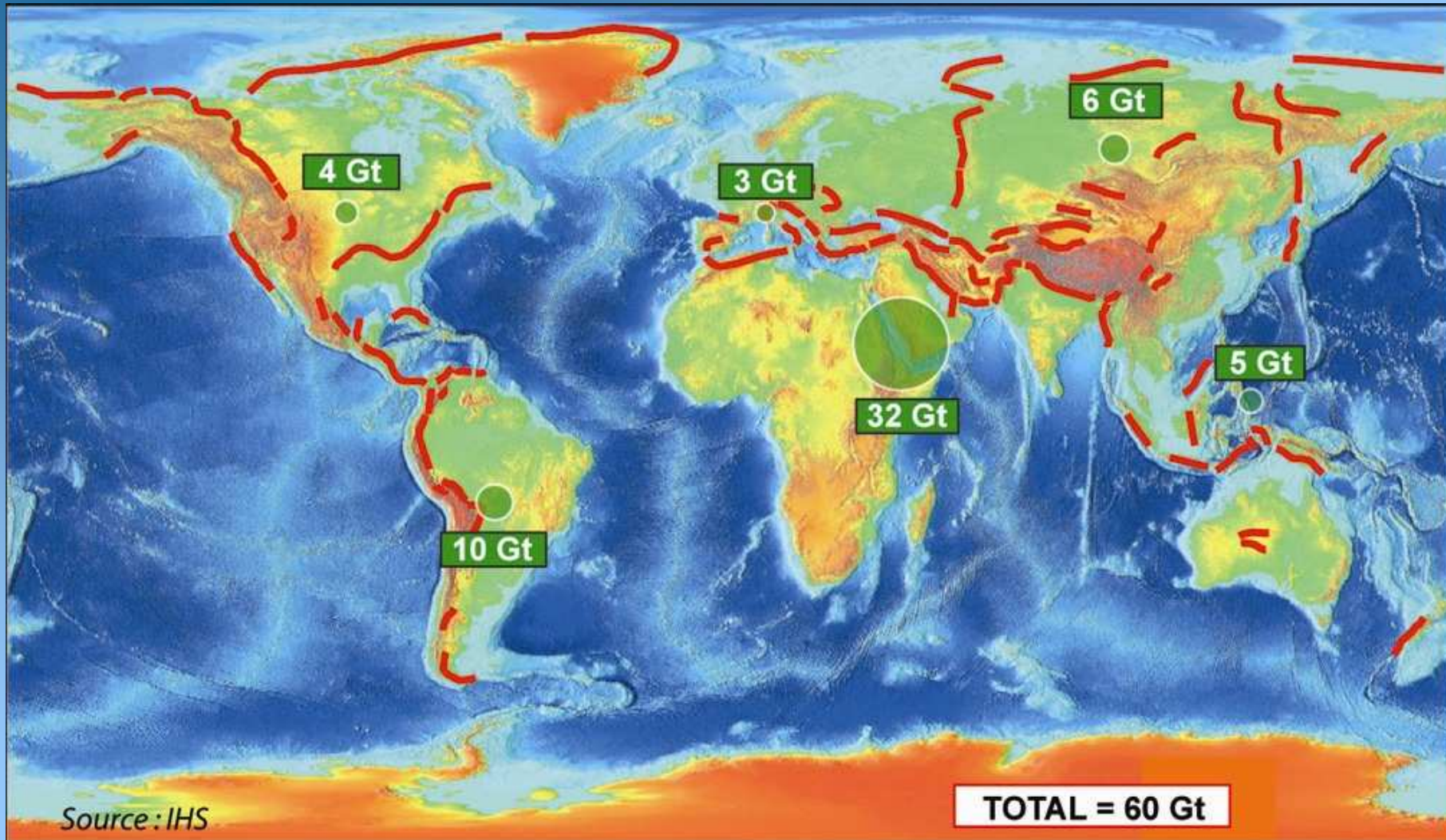


- The Arctic basins present a very high potential for hydrocarbons, particularly gas.
 - The Offshore is very under-explored.
 - Onshore, even though more mature, also presents significant potential.
- The remaining exploration potential could be, in a favourable scenario, the same order as that already discovered.

EXPLORATION FOR GAS IN FOLD BELTS (1) GLOBAL HYDROCARBON RESOURCES DISTRIBUTION IN FOLDBELTS



TOTAL



EXPLORATION FOR GAS IN FOLDBELTS (2)

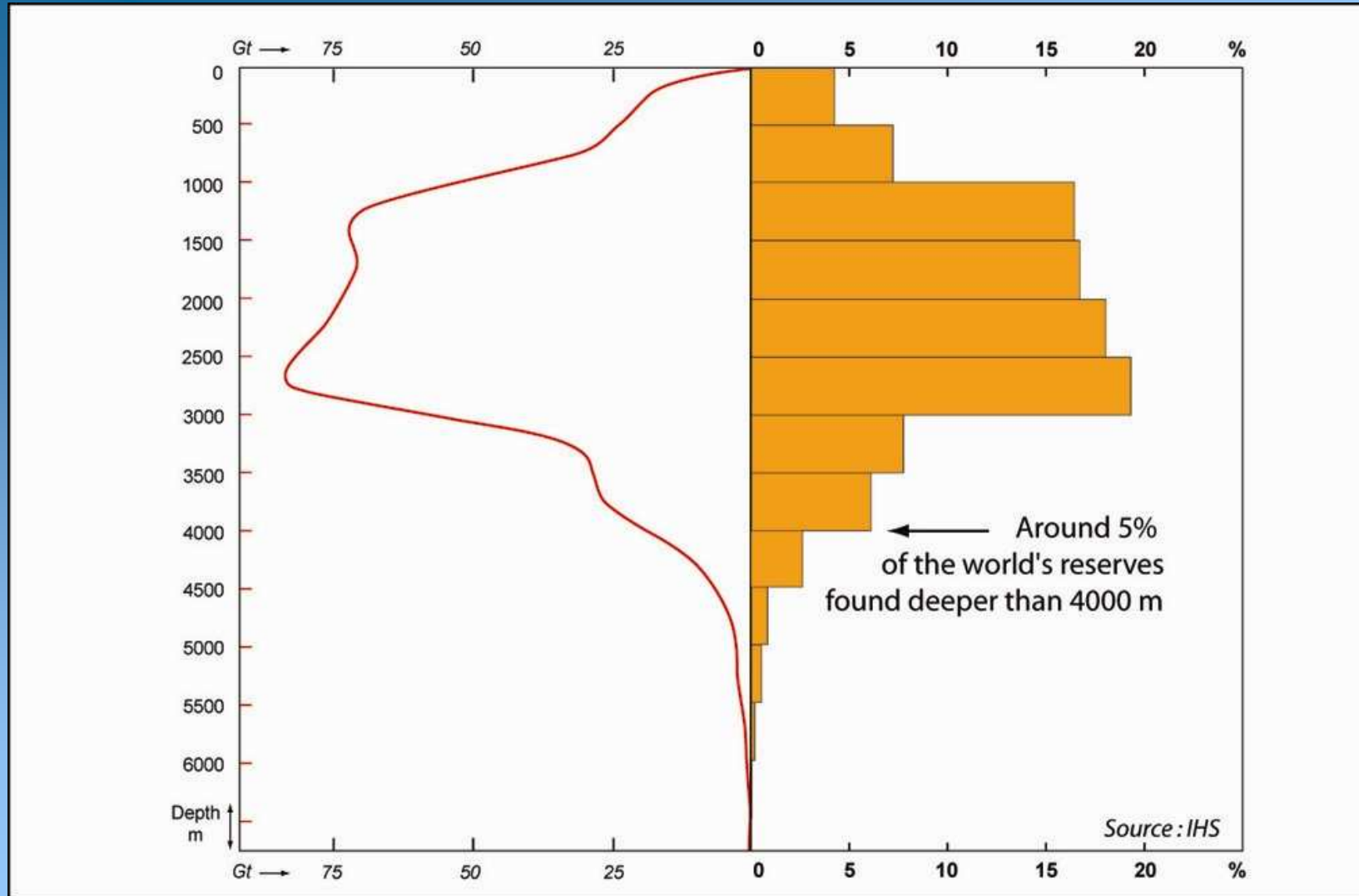


- Even though exploration in fold belts has contributed to past success, it has been focussed on the shallowest objectives that are the easiest to identify.
- Deep exploration in fold belts has been little undertaken, leaving the hope of future major discoveries, particularly of gas in this geological theme.

DEEP EXPLORATION (1) HYDROCARBON RESERVES WITH DEPTH



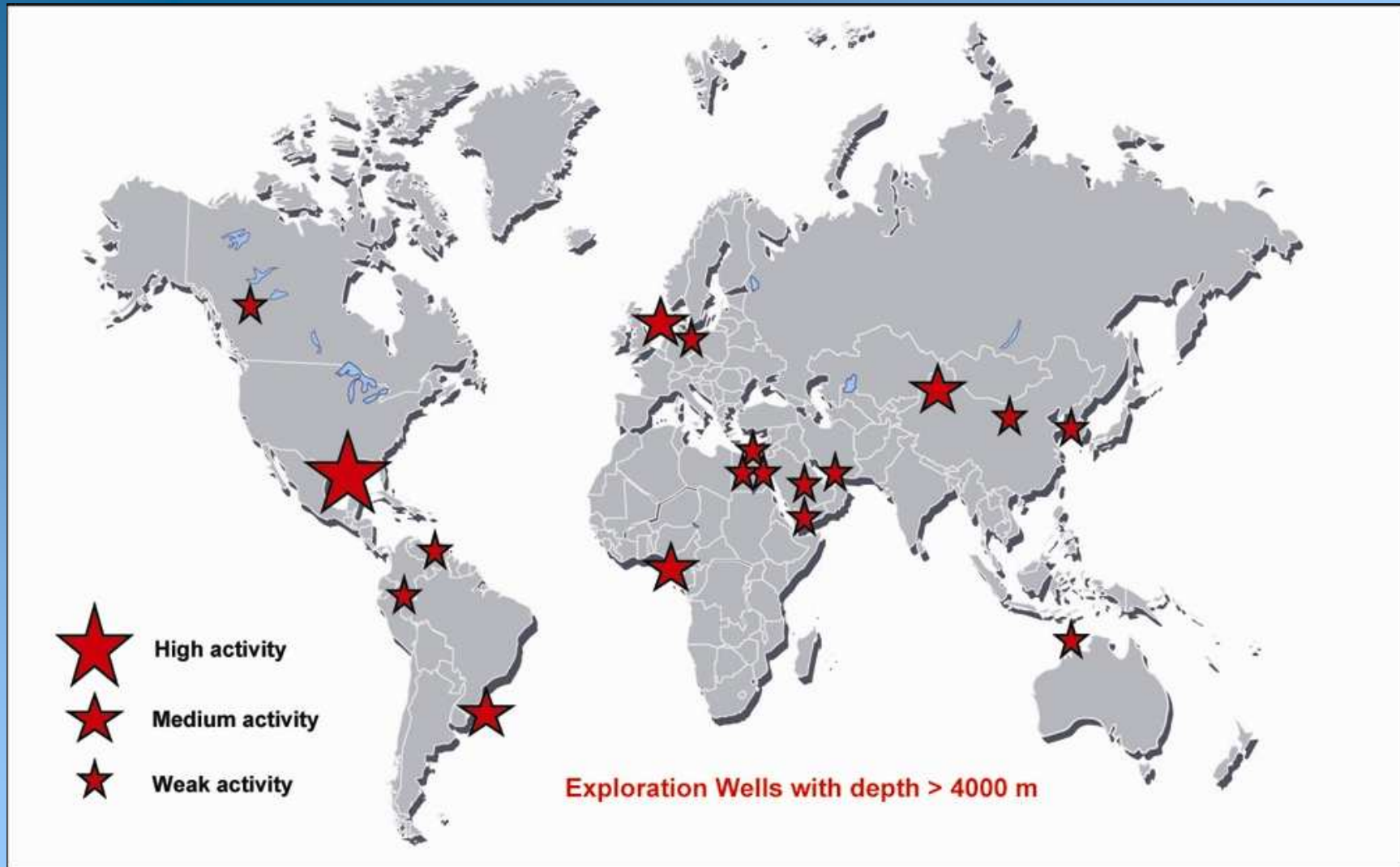
TOTAL



DEEP EXPLORATION ACTIVITY IN 2003-2004 (2)



TOTAL

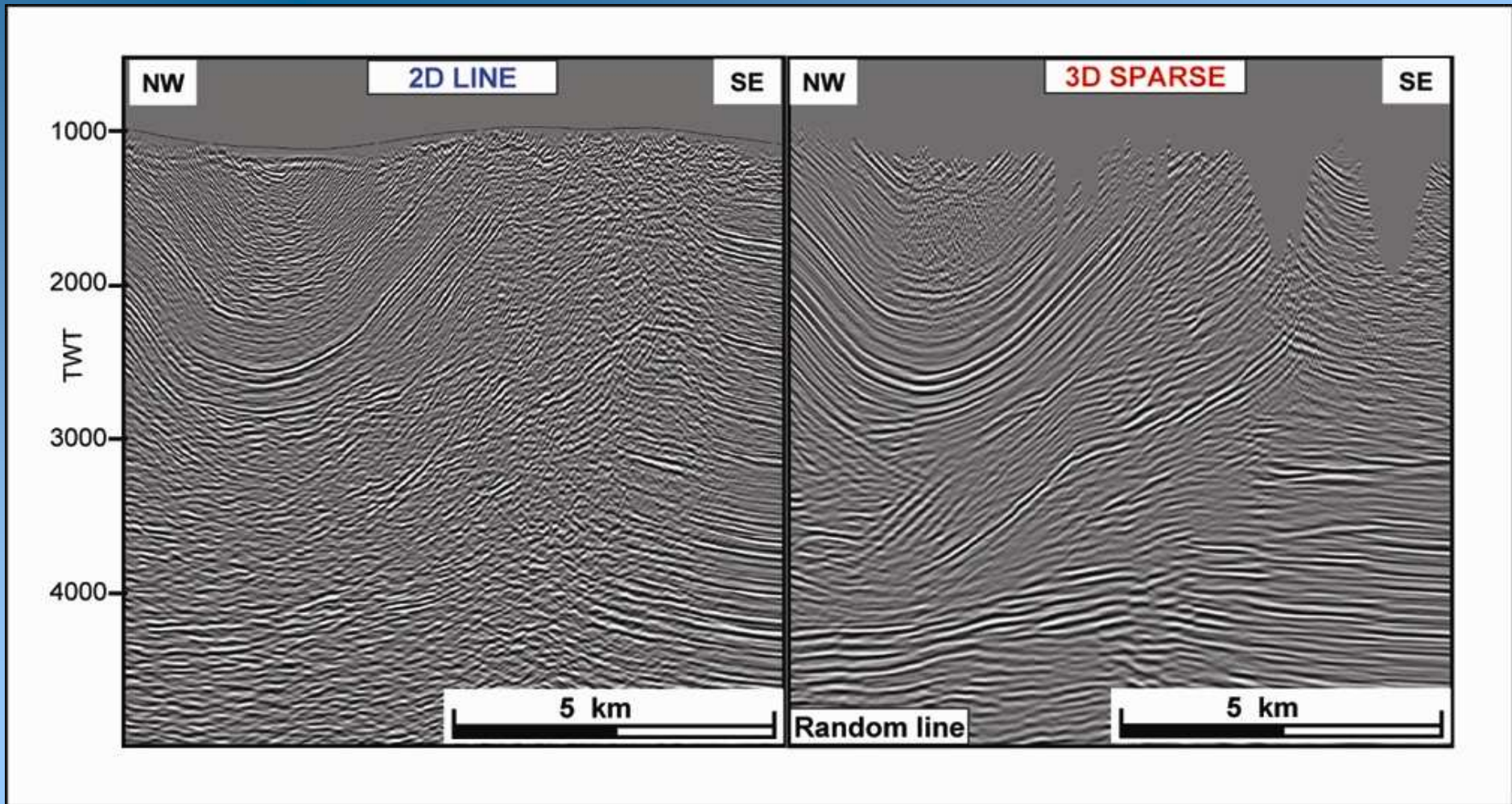


DEEP EXPLORATION (3)

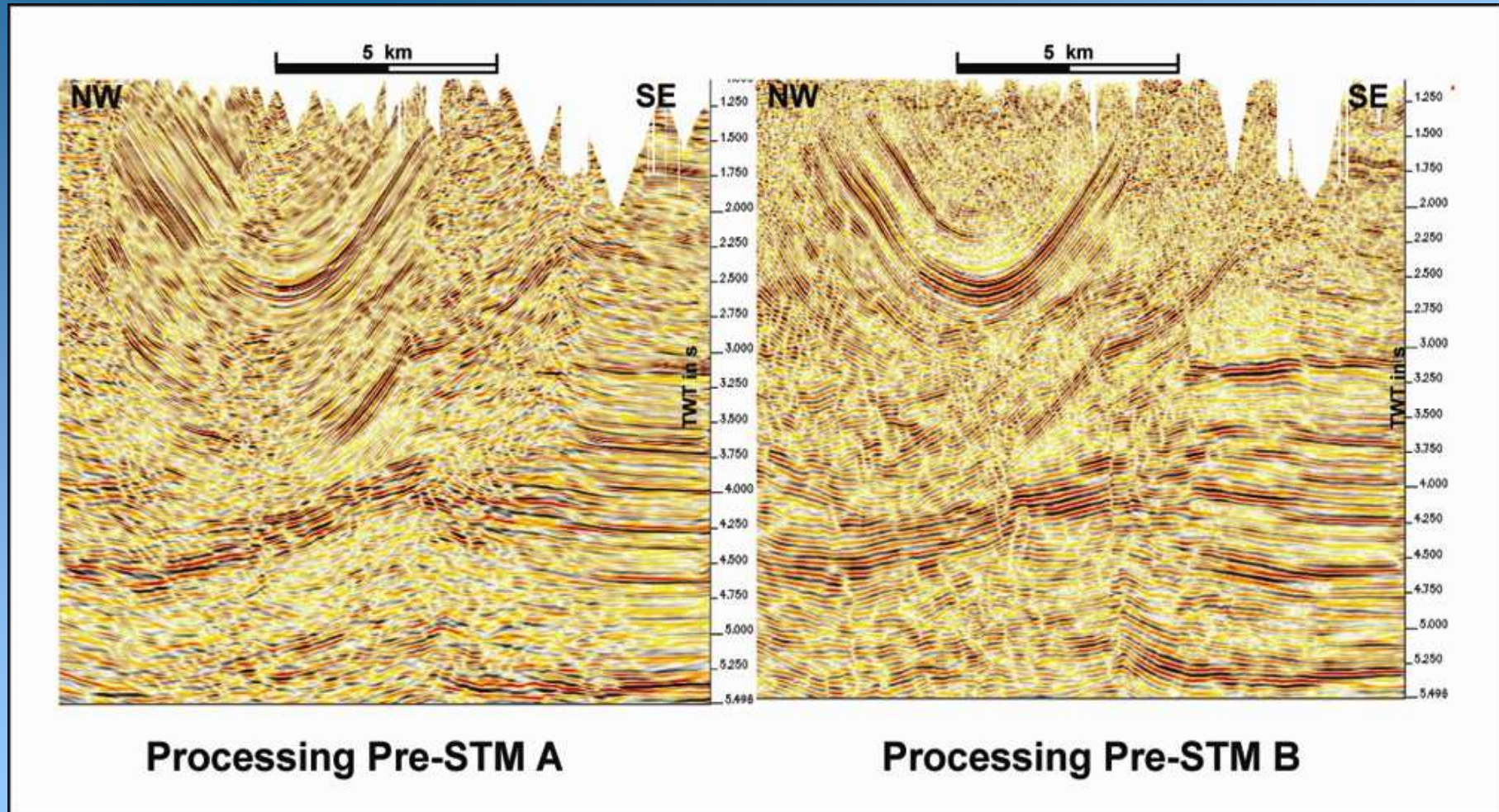


- All the recent petroleum exploration results suggests a significant potential for future hydrocarbon discoveries, particularly of gas, in the deep portions of sedimentary basins.
- It is possible to think that between a third and a half of the potential yet to find reserves could come from these objectives.

SEISMIC IMAGING – ACQUISITION CHALLENGES (1)



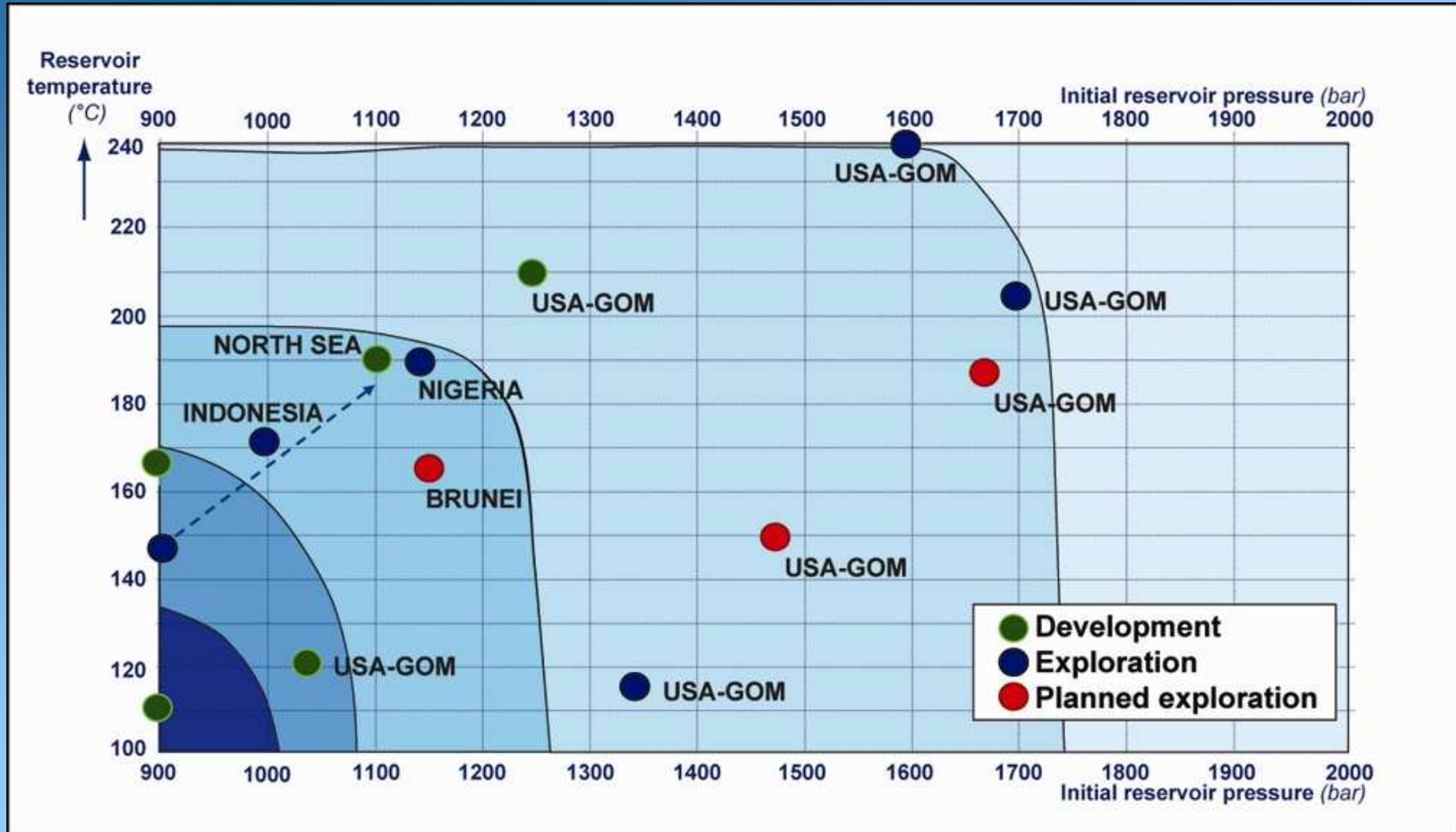
SEISMIC IMAGING – PROCESSING AND INTERPRETATION CHALLENGES (2)



CHALLENGES FOR DEEP DRILLING (3)



TOTAL



CONCLUSION



- The exploration for gas is currently at a degree of maturity significantly lower than for oil, with the exception of certain regions such as North America. It can thus be stated that a not insignificant portion of the world's conventional gas resources is yet to be discovered. This future gas exploration has been illustrated in the Arctic domains, in fold belt provinces and deep sedimentary basin.
- Recent hydrocarbon exploration results combined with new technical and technological progress suggest a high potential for future discoveries and thus a significant part of yet to find gas reserves will come from these areas.