# 平成 20 年度（第 17 回）ブループラネット賞
# 受賞者記念講演会

# 2008 Blue Planet Prize
# Commemorative Lectures

クロード・ロリウス 博士
講演スライド集
「気候と環境―半世紀にわたる南極大陸での探検と調査―」

ジョゼ・ゴールデンベルク 教授
講演スライド集
「持続可能なエネルギーの未来」

Dr. Claude Lorius
Slides for the Lecture
“Climate and Environment
–50 years of adventures and research in Antarctica–”
Professor José Goldemberg
Slides for the Lecture
“A sustainable energy future”

財団法人 旭硝子財団

THE ASAHI GLASS FOUNDATION

クロード・ロリウス博士

# 講演スライド集

「気候と環境―半世紀にわたる南極大陸での探検と調査―」

Dr. Claude Lorius

# Slides for the Lecture

“Climate and Environment
–50 years of adventures and research in Antarctica–”

# 50 years of adventures and research in Antarctica

The ice poles, north and south, are the records and sentinels of the environment and climate of our planet.

Claude Lorius

slide 1

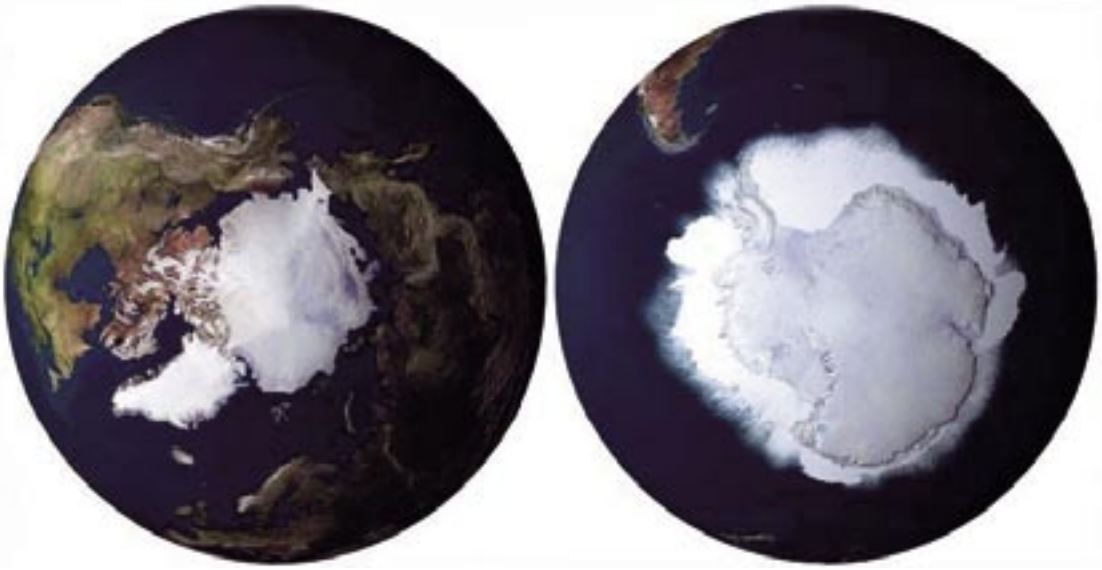
50 years of adventures and research in Antarctica

- **Climate: Past and Future**
- Global Environment
- Mankind and Anthropocene

slide 2

## The White Planet: from pole to pole

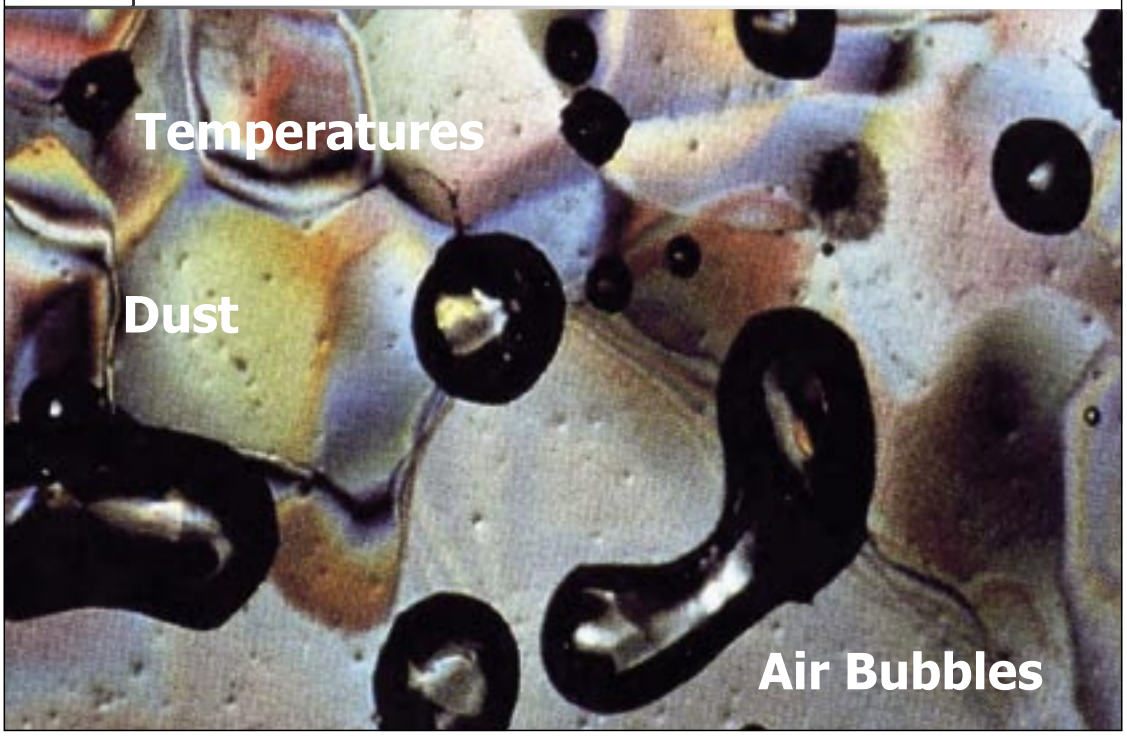
**Ice: Climate and Environment**



**Ice pack and Ice sheets**

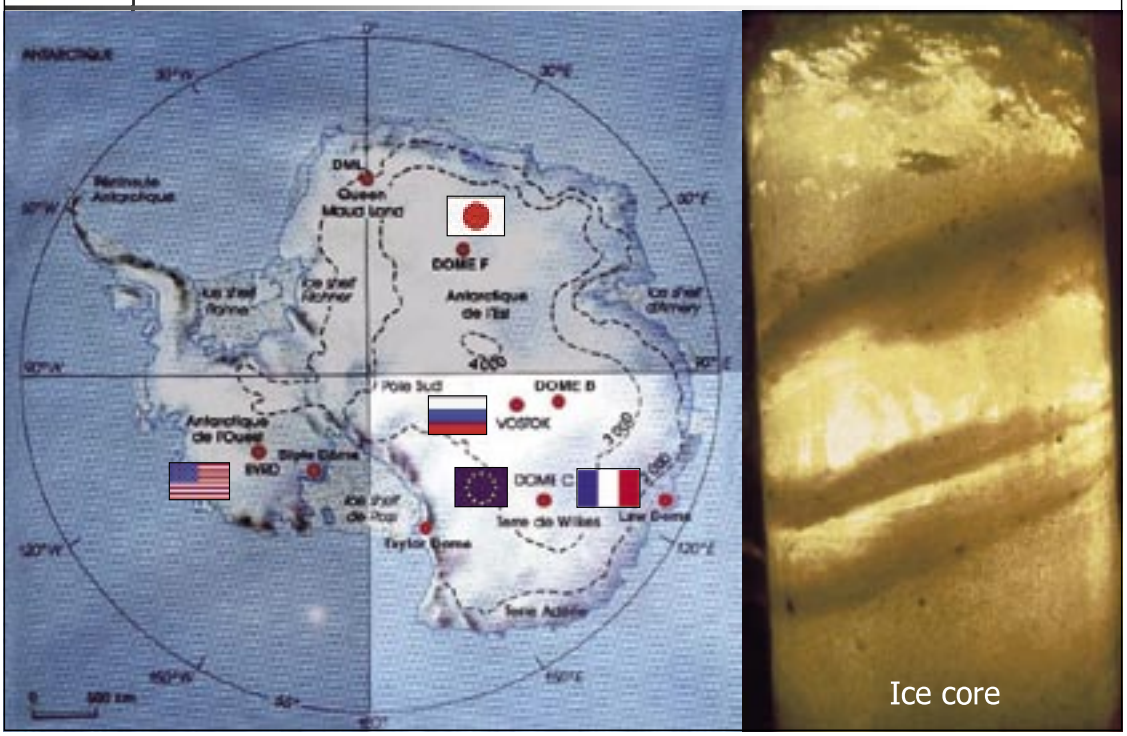
slide 3

## Polar ice "archives"



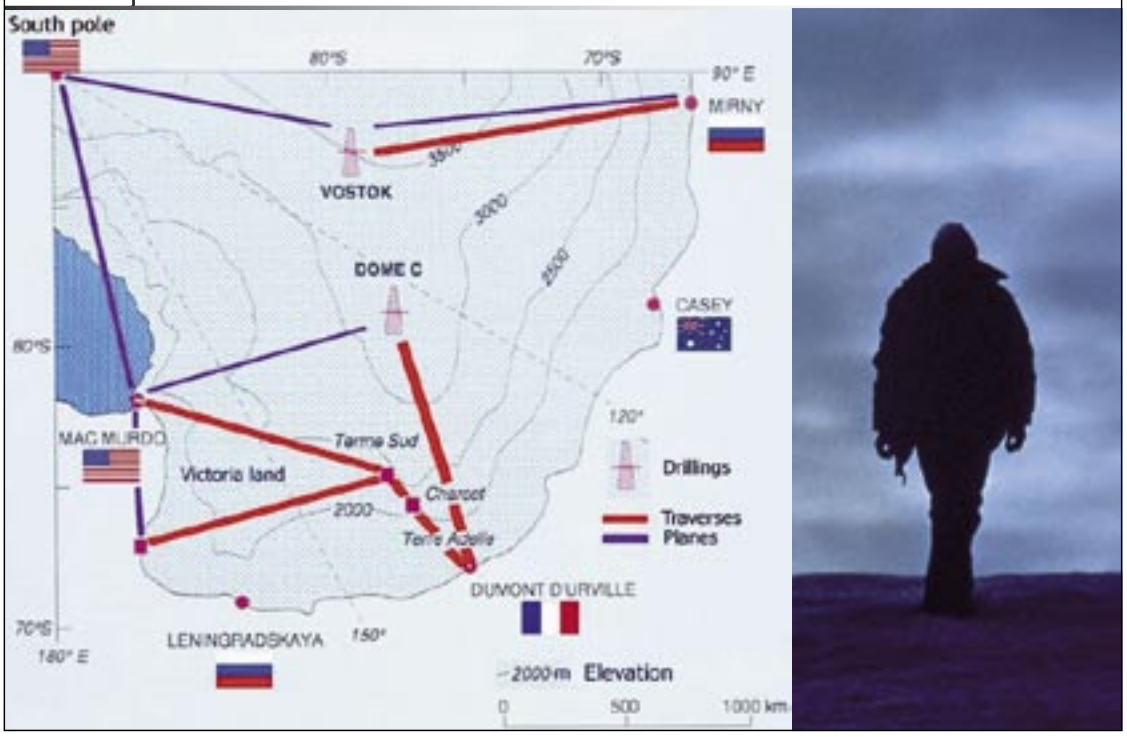

slide 4

## Antarctica: 50 years of ice drilling




slide 5

## Eastern Antarctica: 50 years of missions

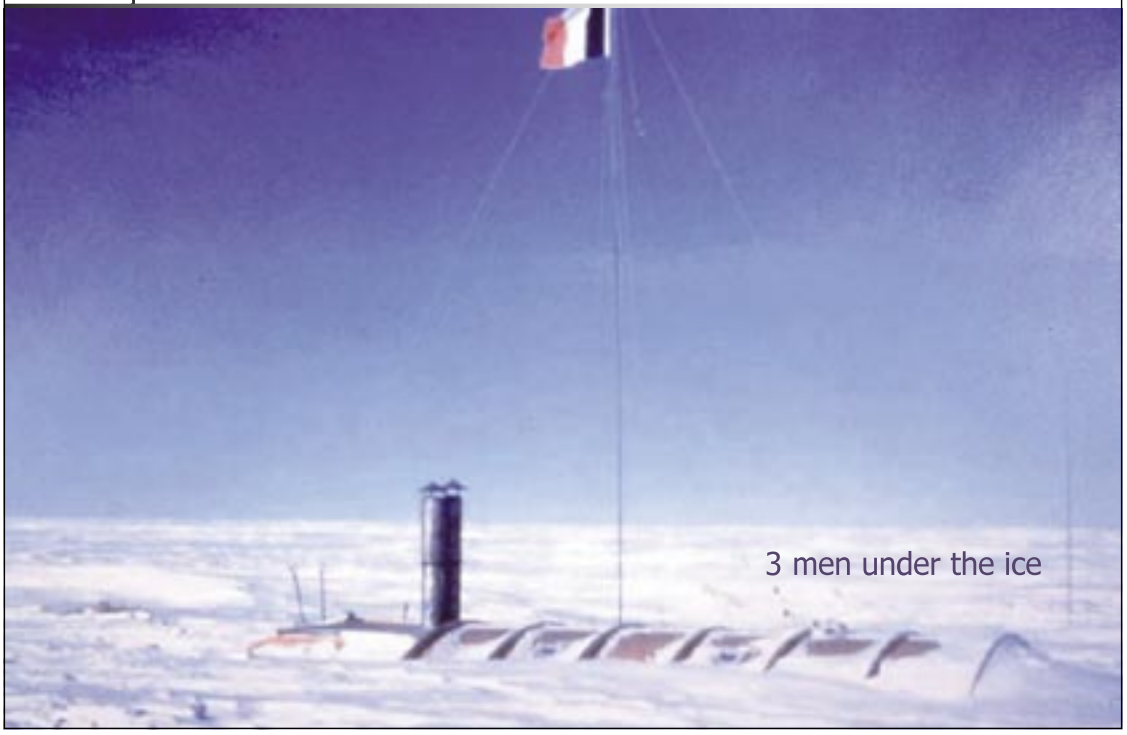



slide 6

## 1956 : Towards « Terra Incognita »


slide 7

## 1957 : Overwintering at Charcot station




slide 8

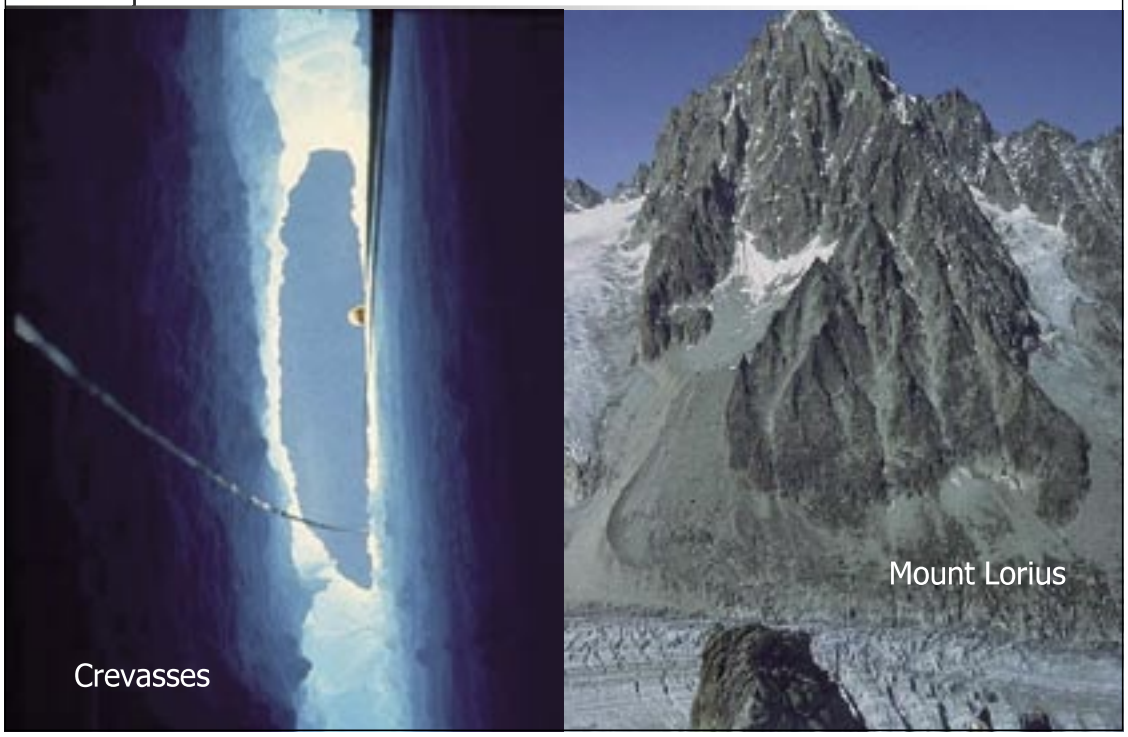
## 1957 : Overwintering at Charcot station


slide 9

## 1959 : Victoria Land Traverse


slide 10

## 1959 : Victoria Land Traverse

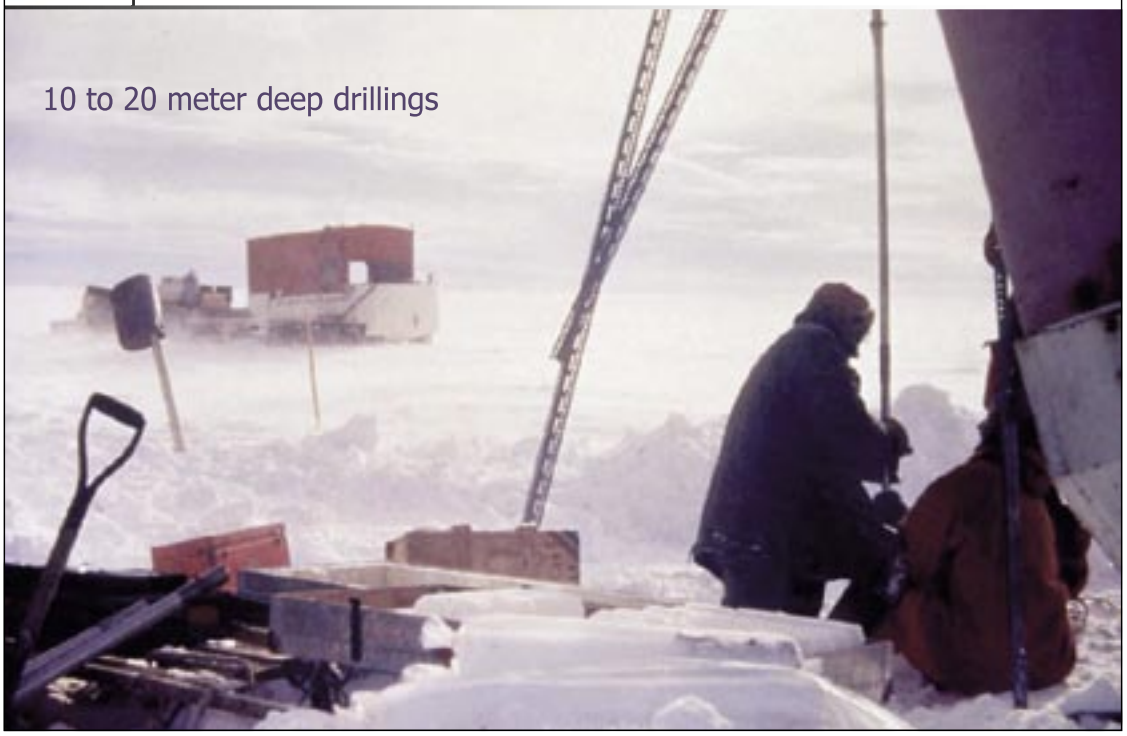



slide 11

## 1957-59 : Records from decades to centuries

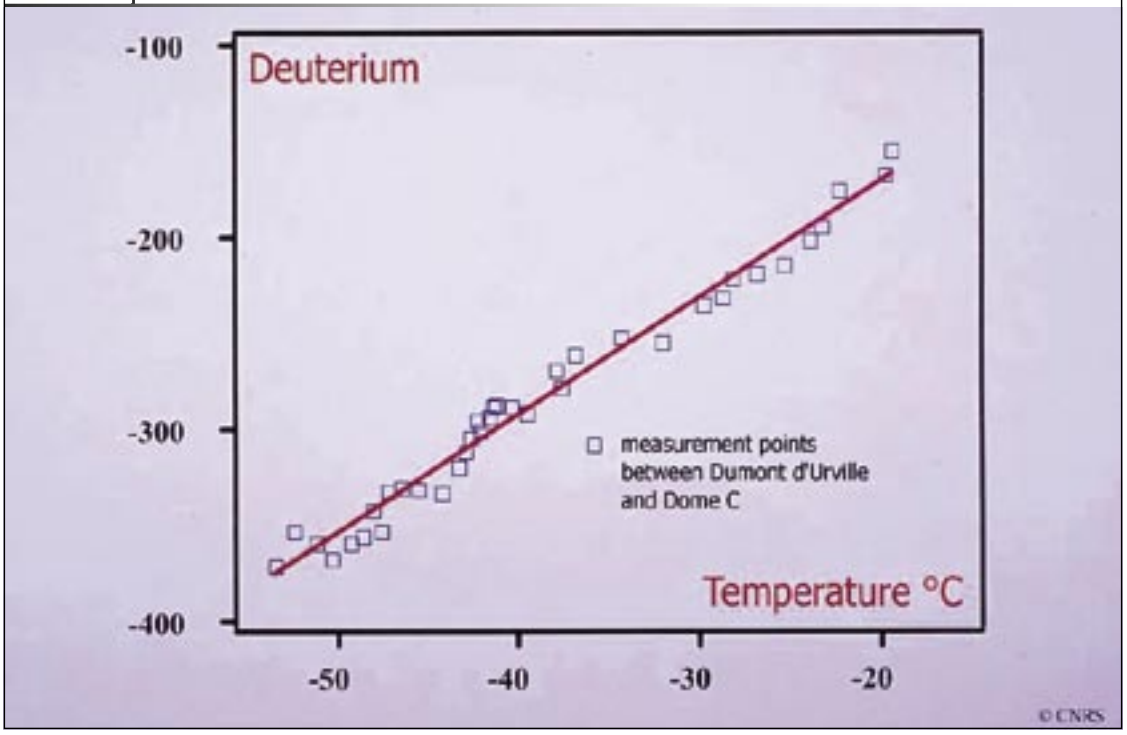

slide 12

## Hand drillings: towards the millennium



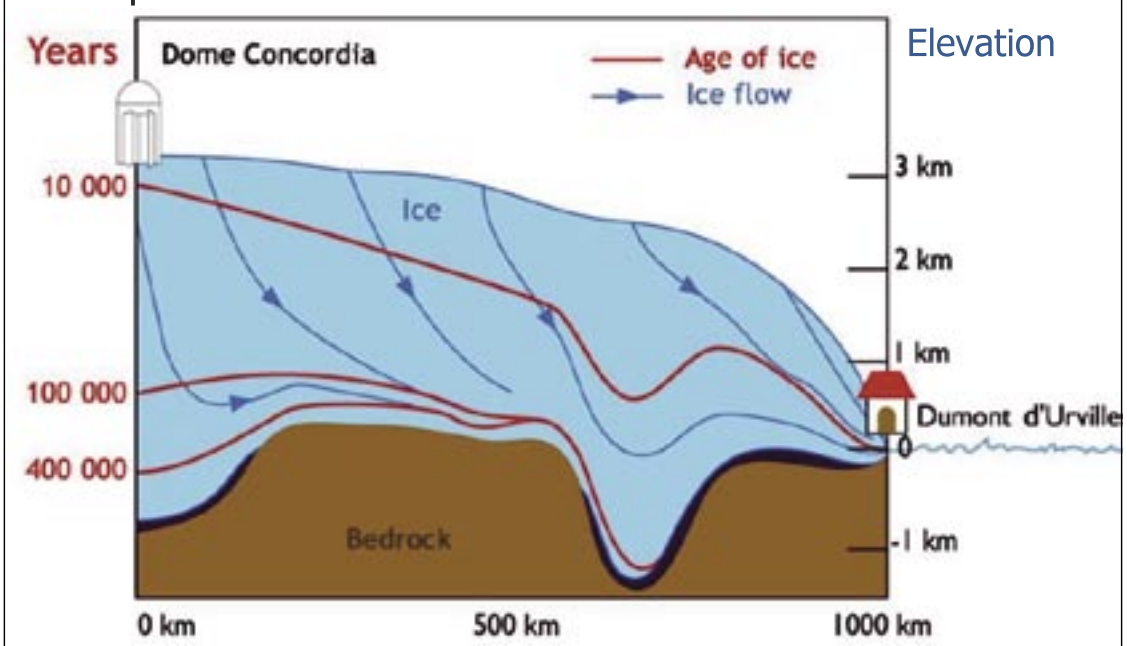

slide 13

## The "isotopic thermometer"



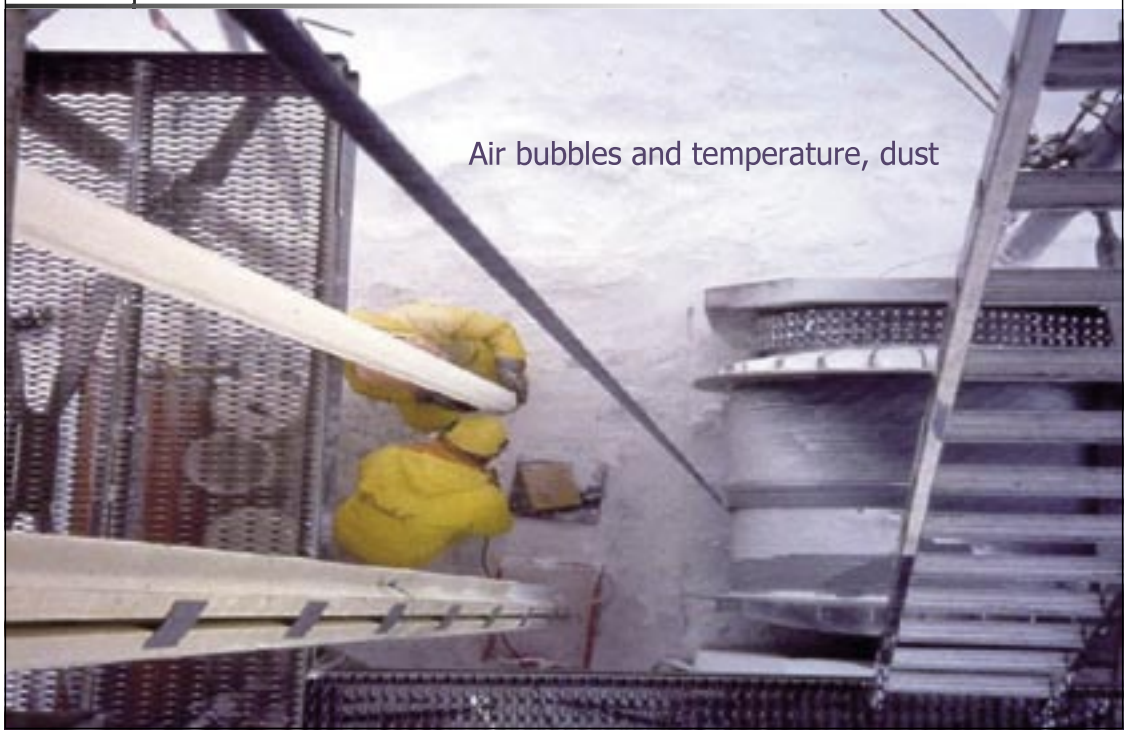

slide 14

## At the core of polar ice: depths and ages



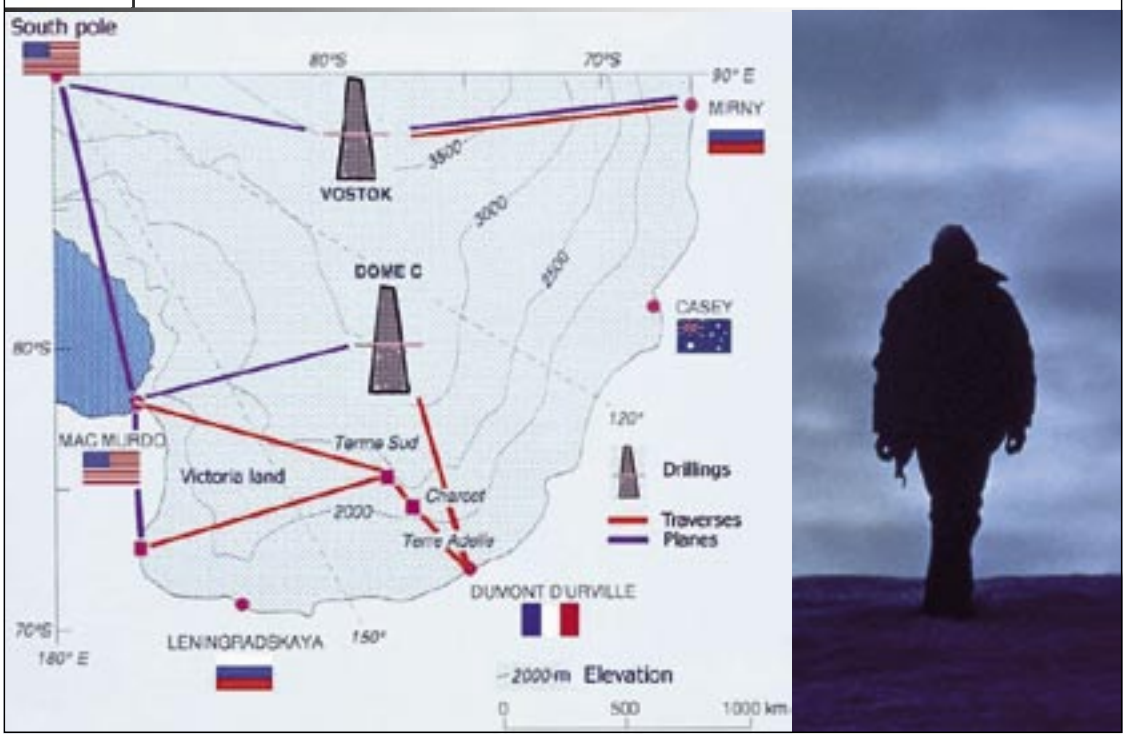

slide 15

## Deep ice drillings




slide 16

## In the last 30 years, deep ice drillings




slide 17

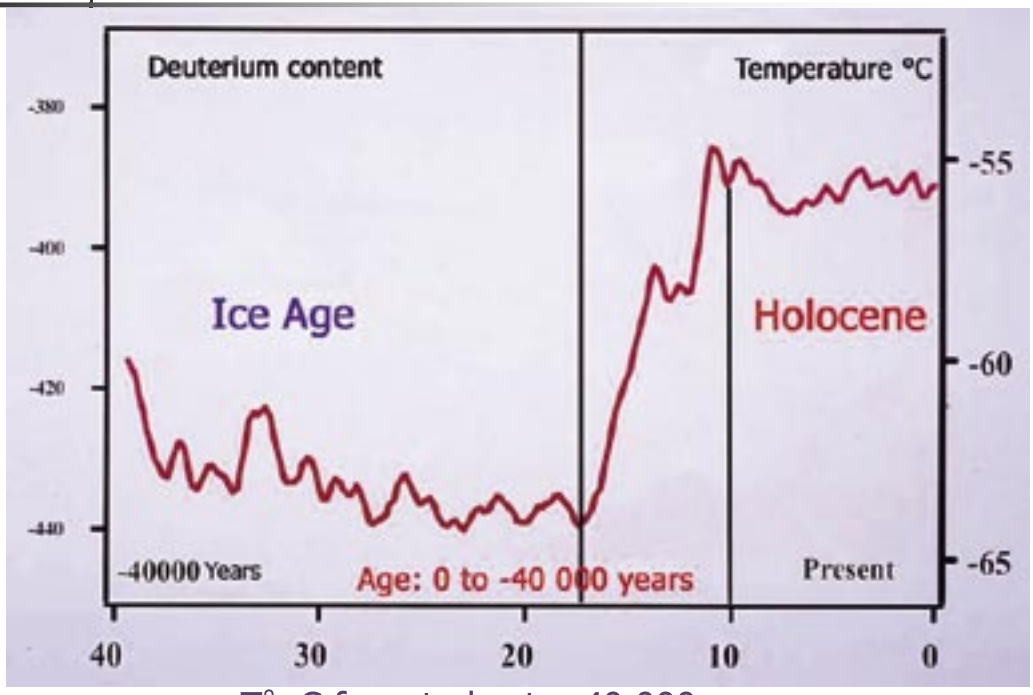
## 1974 – 1978: Ice drilling at Dome C


slide 18


slide 19


slide 20

## 1977: 900 m deep ice drilling at Dome C

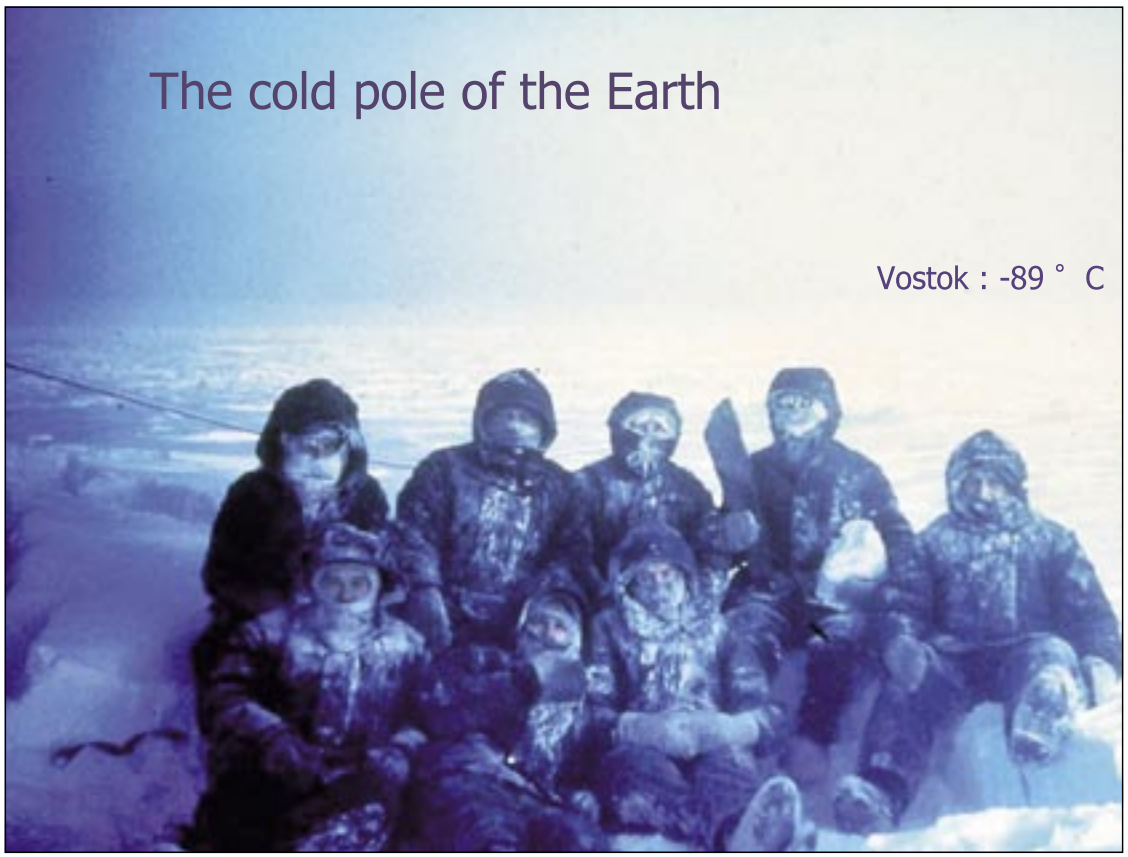



T° C from today to -40 000 years

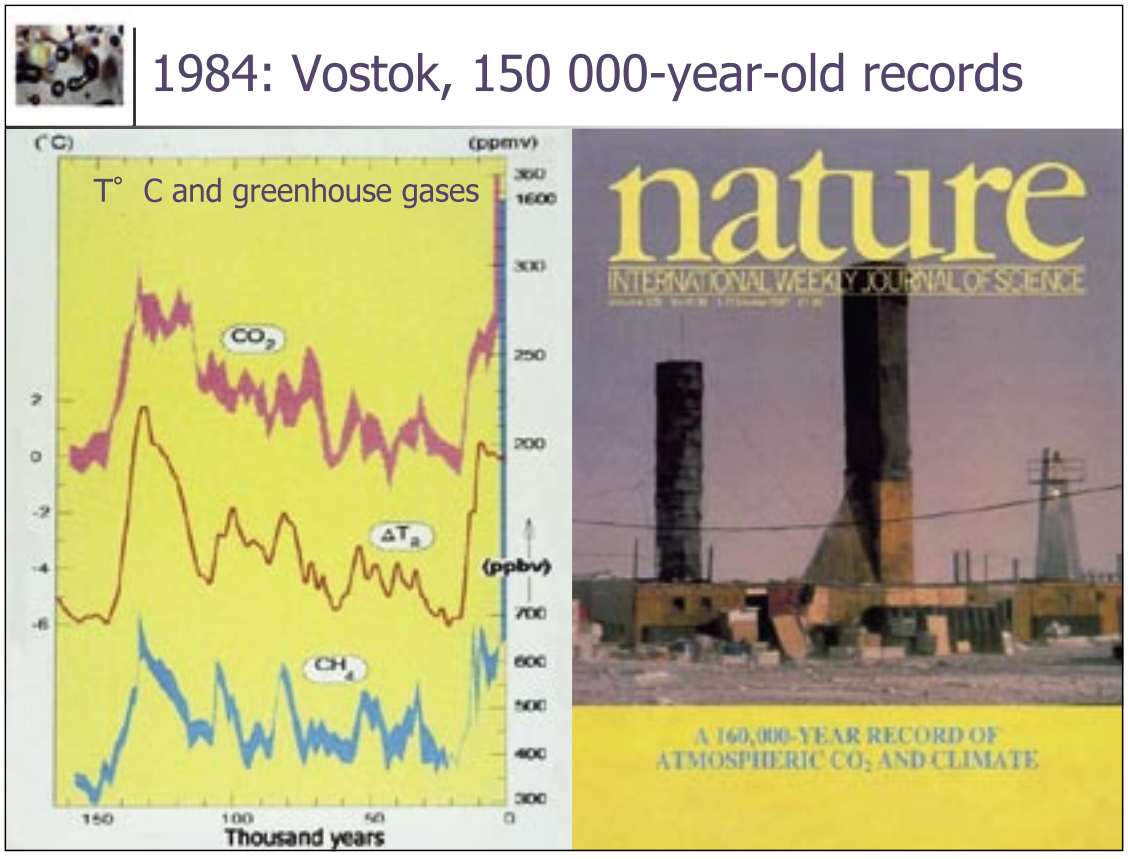
slide 21

## Vostok: the 1980's and 1990's


slide 22

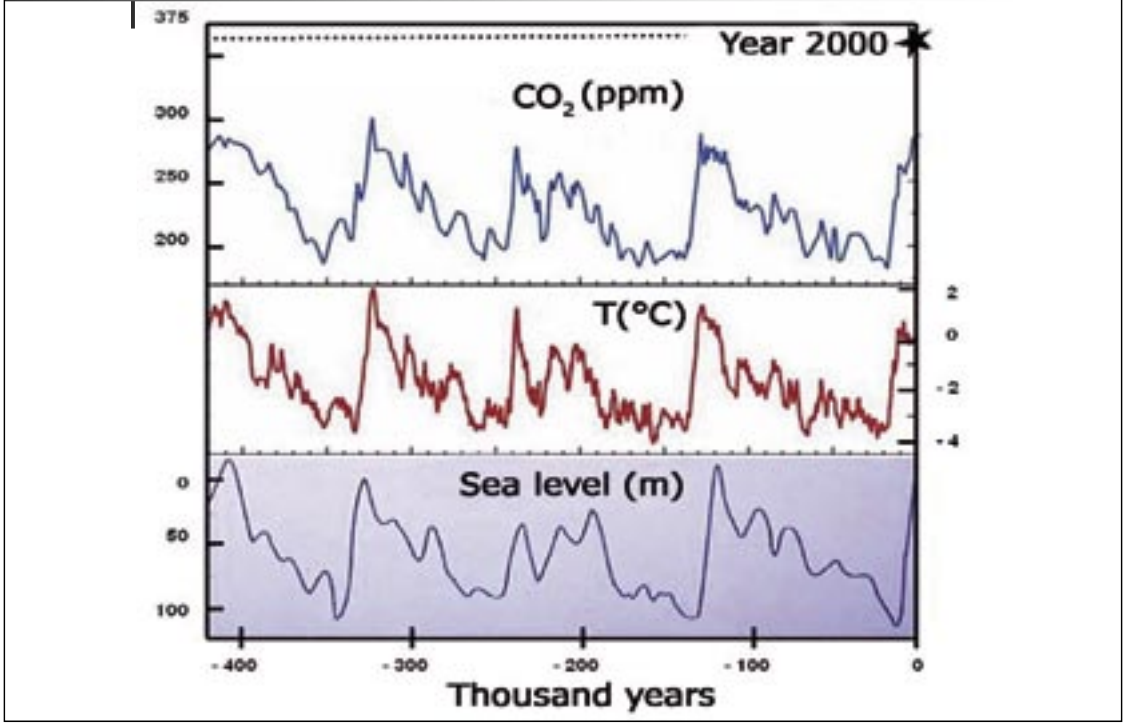



slide 23



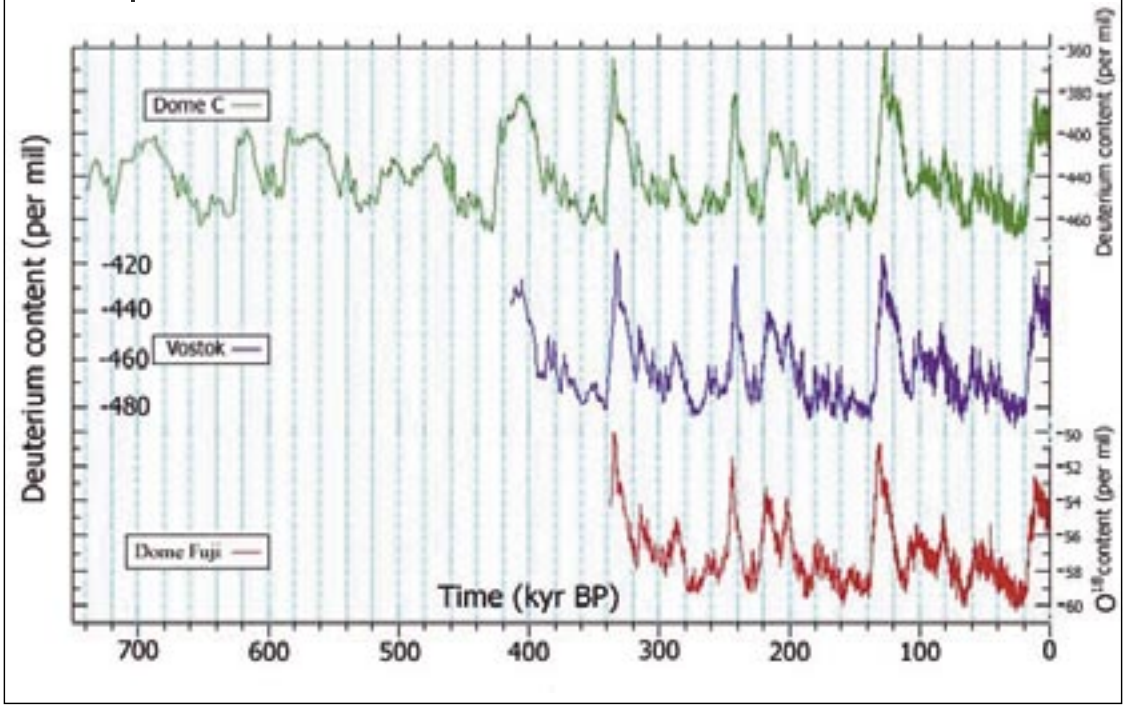

slide 24

## 1998: Vostok, 420 000-year-old records



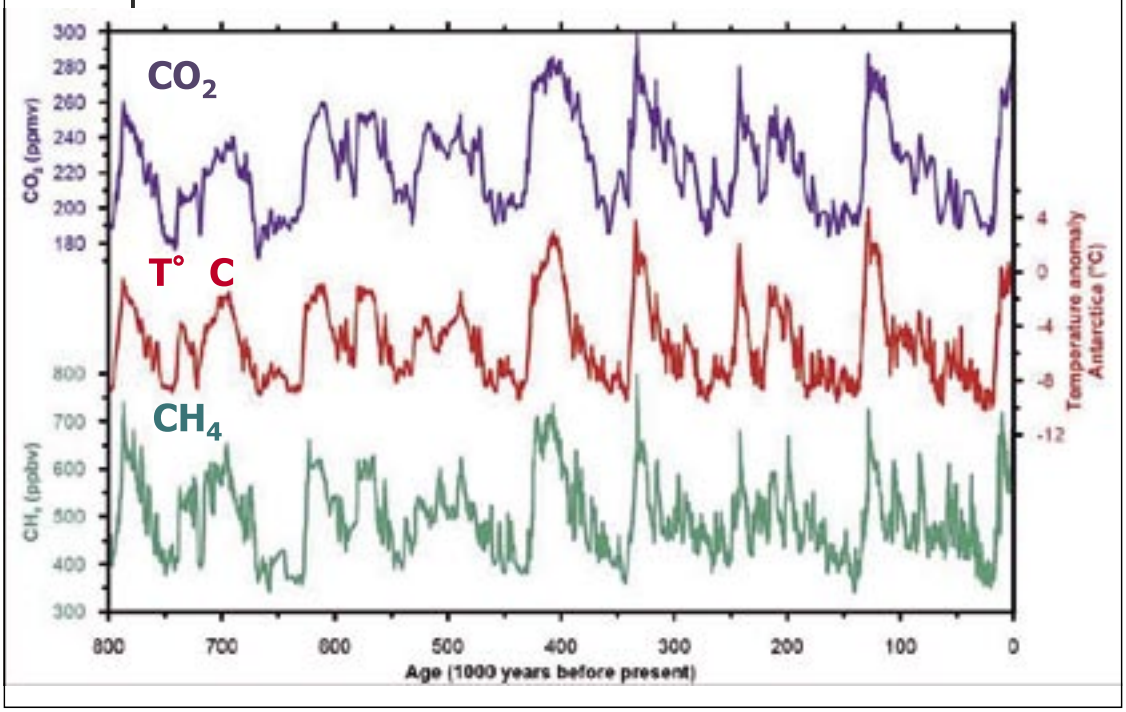

slide 25

## Dome C, Vostok, Fuji: climate variability




slide 26

## Dome C, Epica: 800 000-year-old records



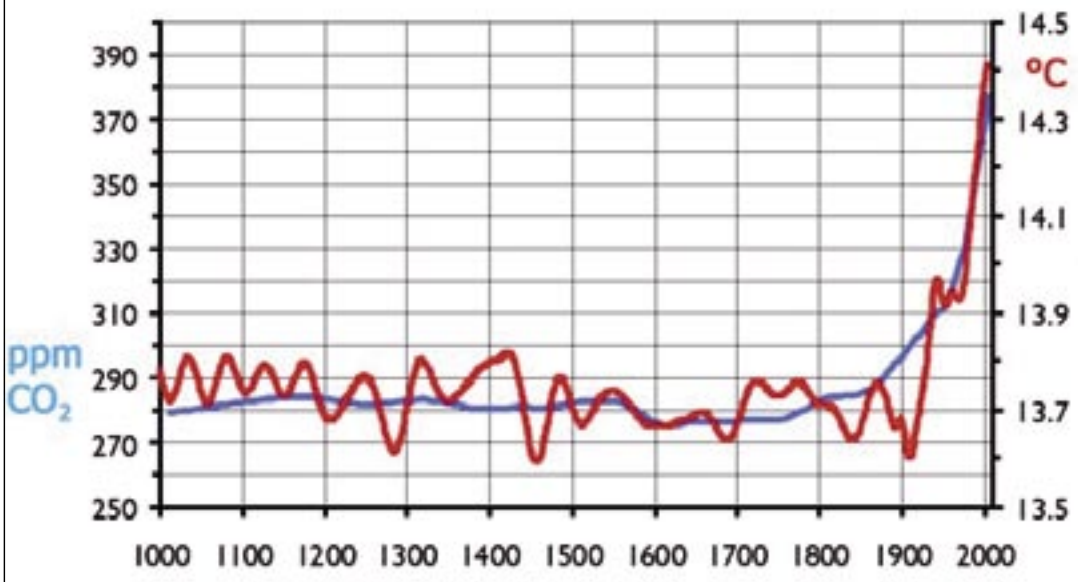

slide 27

## From 1974 to 2004: Dome C



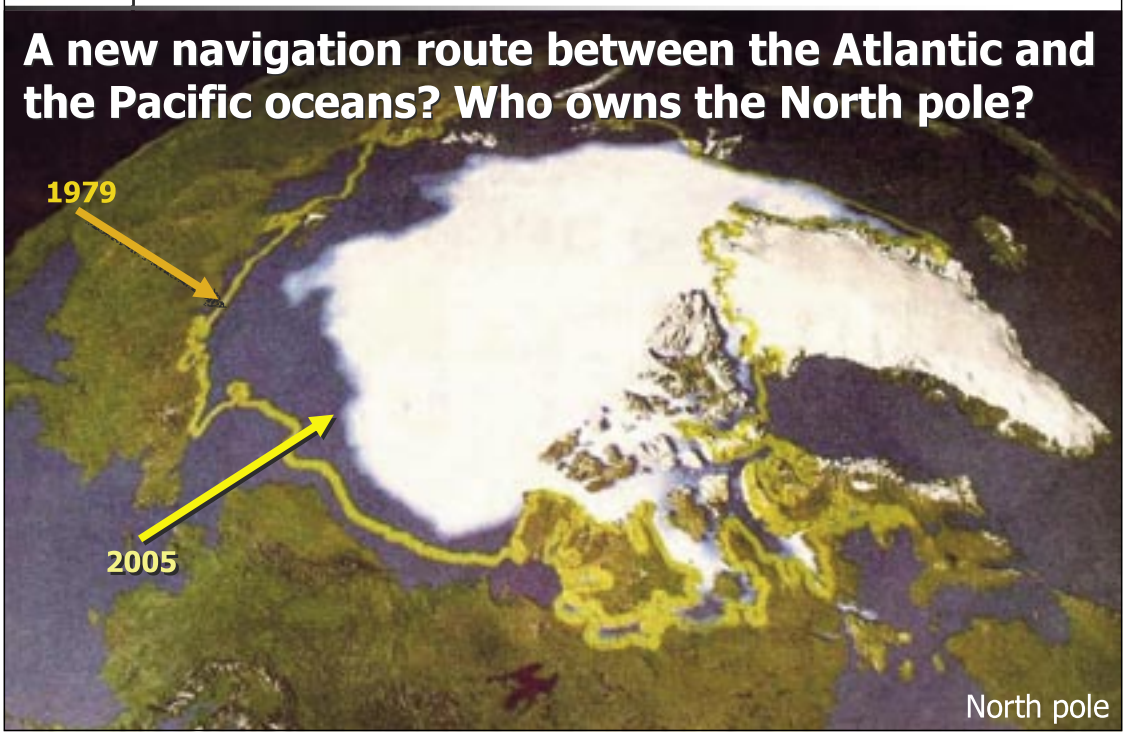
slide 28

## 1000 years: $CO_2$ and global warming



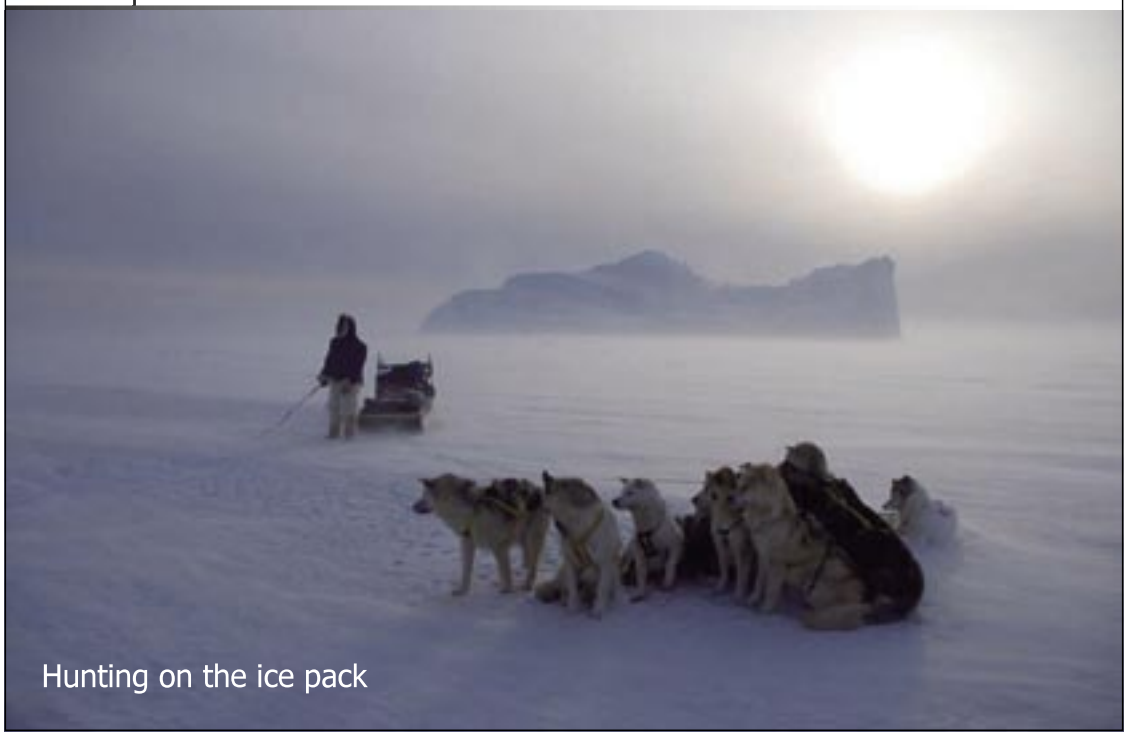

slide 29

## Climatic warming and ice pack




slide 30

## Climatic warming and Inuit populations



Hunting on the ice pack

slide 31

## Climatic warming and polar bears

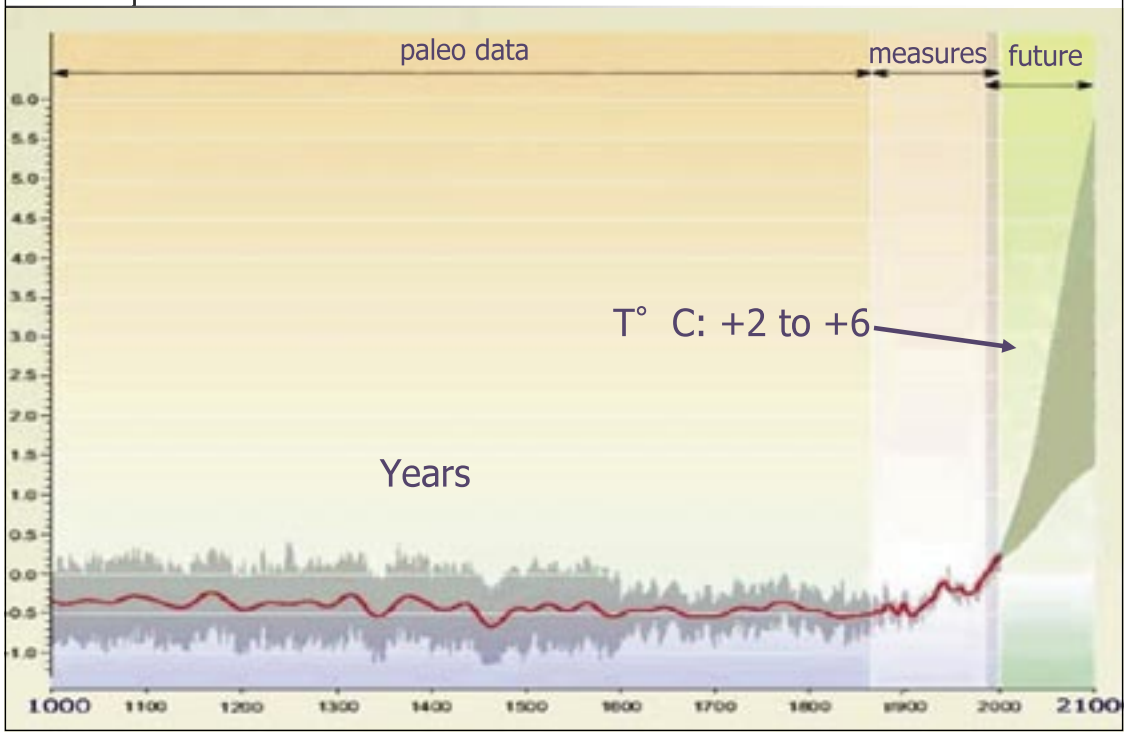
Polar bears

slide 32

## Climatic warming and Emperor penguins

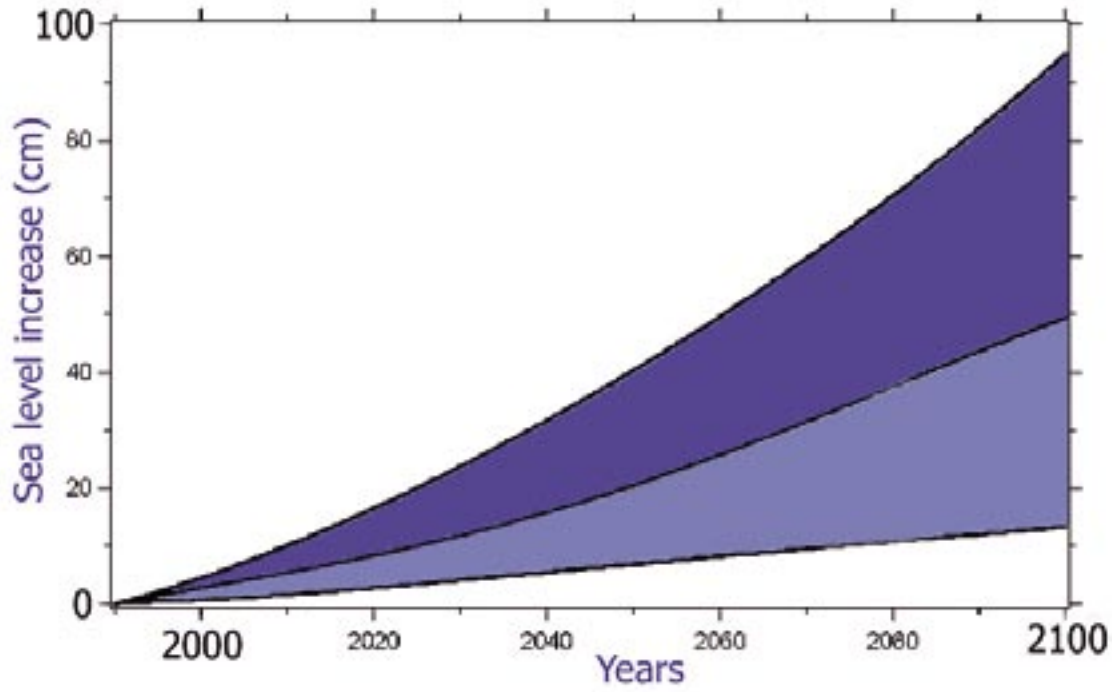

slide 33

## Temperature: past and future



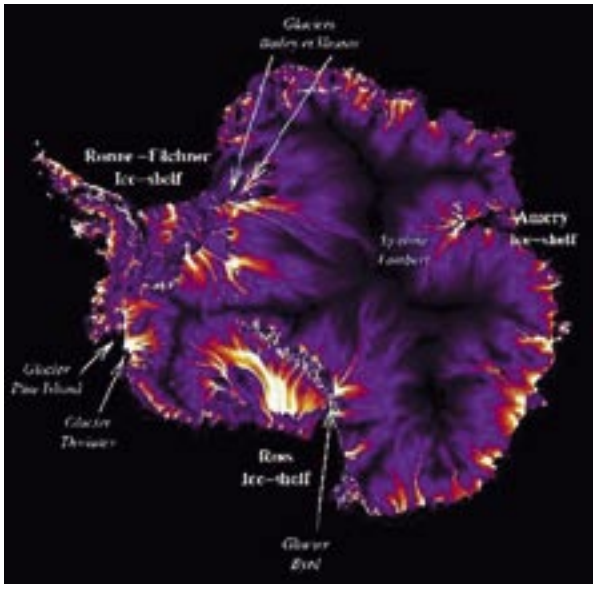

slide 34

## Climatic warming and sea level

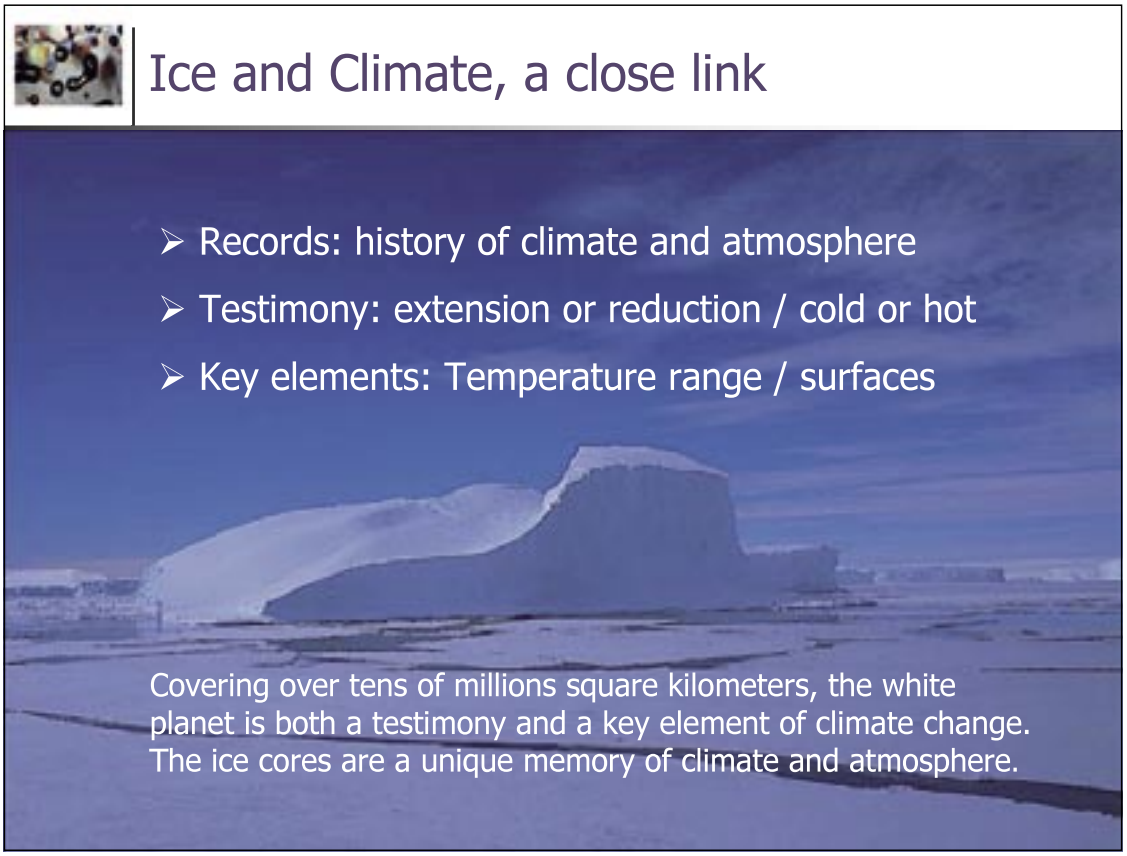



slide 35

## Antarctica: glaciers and mass balance




slide 36




slide 37


slide 38

## North pole-South pole: only one planet

The magnetic field protects us from solar particles


Aurora polaris

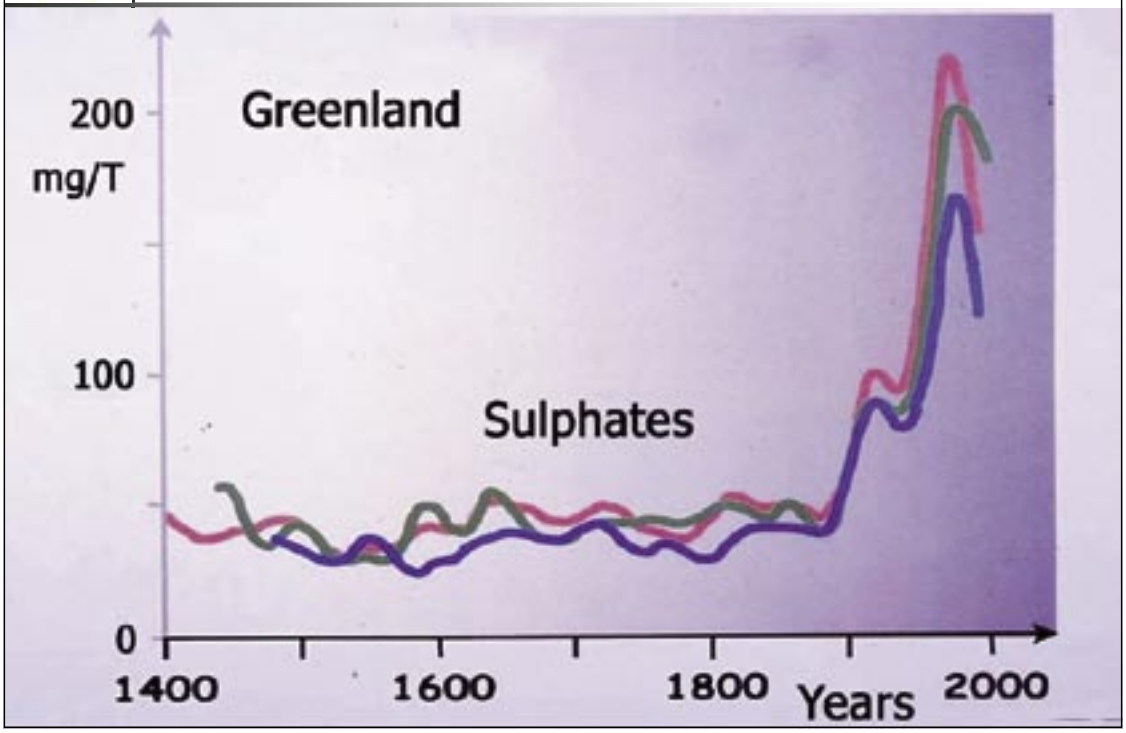

slide 39

## North pole-South pole: only one atmosphere

Arctic stern

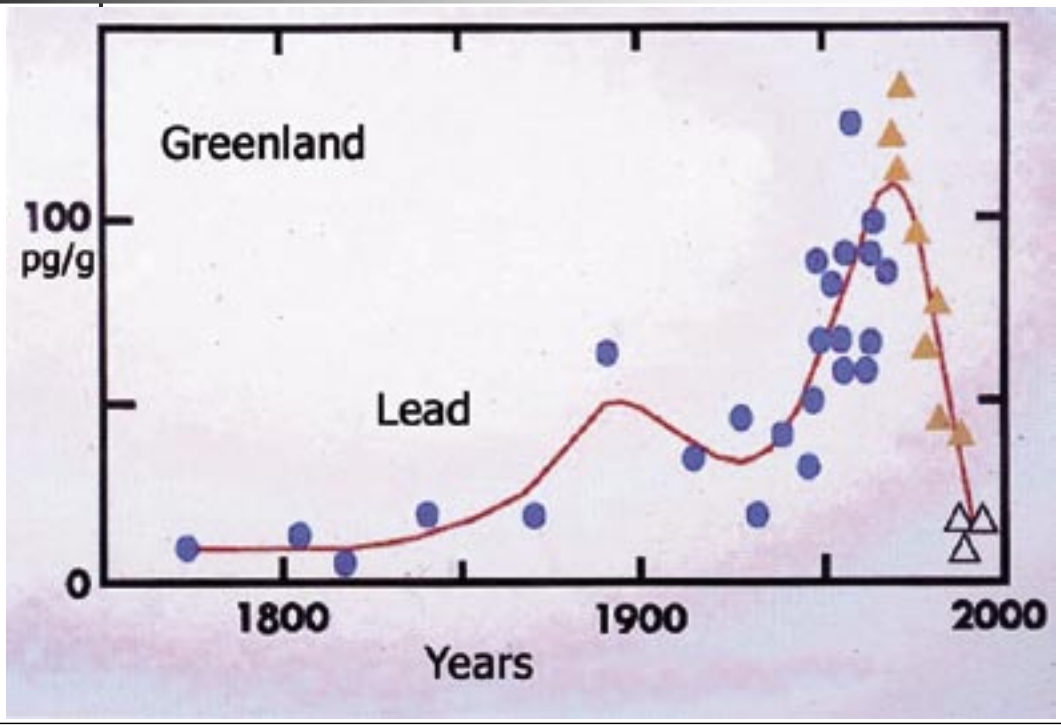
slide 40

## Hemisphere pollution: Greenland




slide 41

## Hemisphere pollution: Greenland




slide 42

## Global pollution: radioactivity

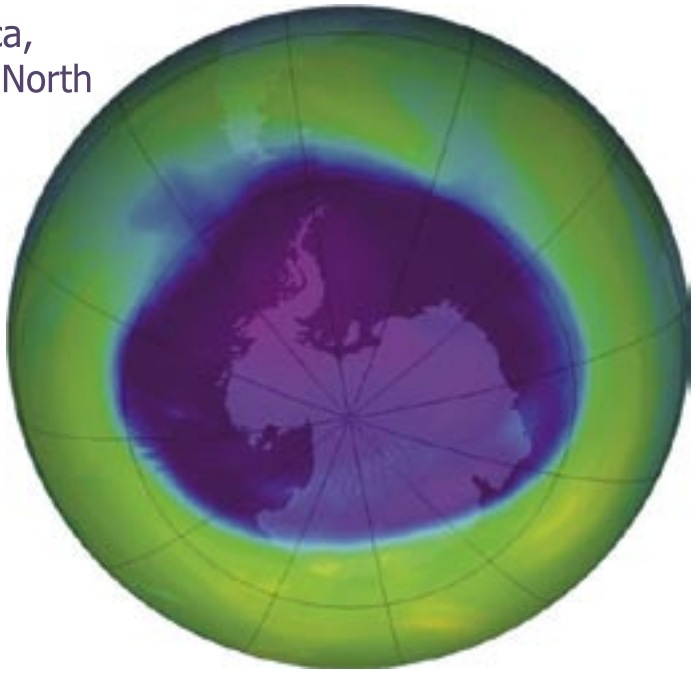
In Antarctica,
fallout from nuclear explosions launched in the North.

Nuclear test

slide 43

## Global pollution: "the ozone hole"

In Antarctica,
CFC's from North



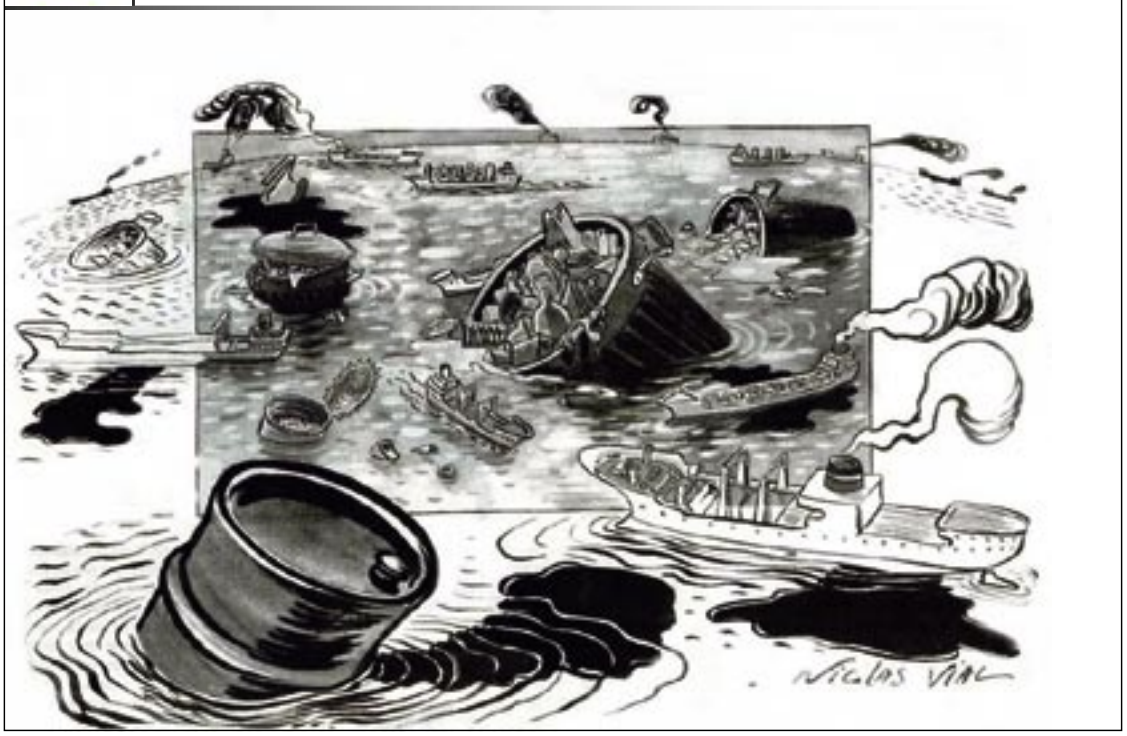
2005 "ozone hole" : 27 millions km²

slide 44

## North pole-South pole: only one ocean

slide 45

## Global pollution: sea as a dust-bin



slide 46


slide 47


slide 48

## Climatic warming: what can be done ?

- Energy
- Way of life
- Research:
  - Fundamental: climate
  - Applied: energy
- Solidarity


slide 49

## Climate and Environment: reactions


The response of politicians, policy makers and citizens…

slide 50

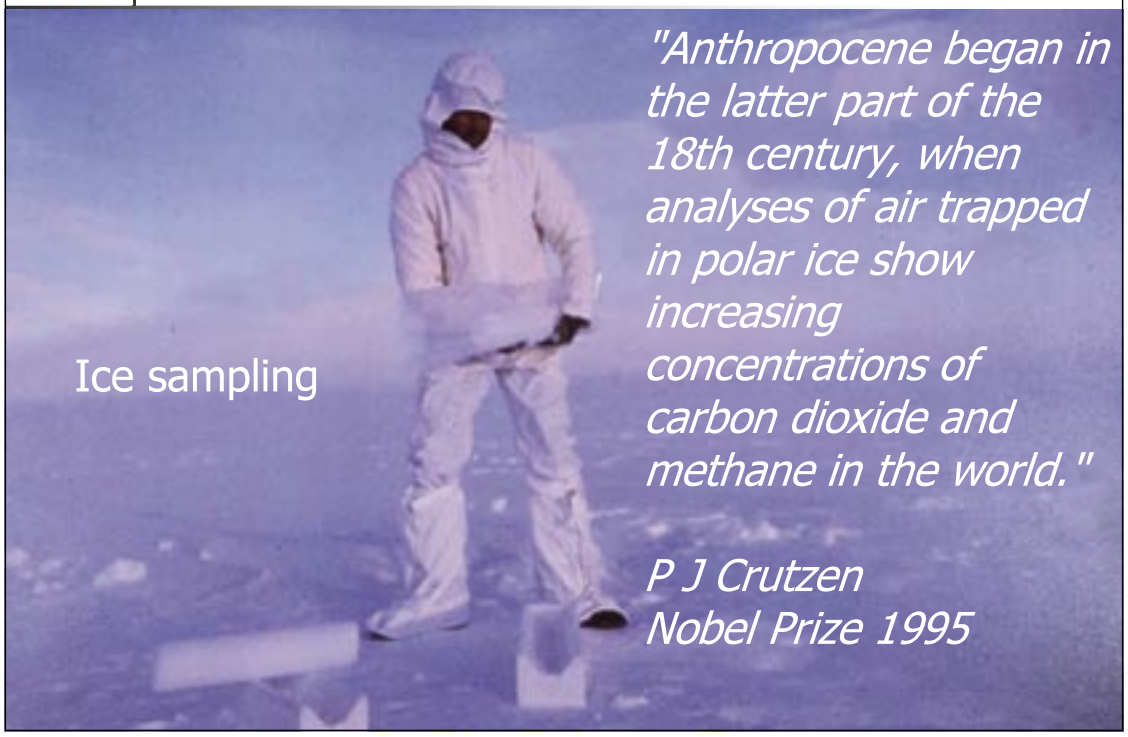
## Environment: Mankind facing the challenge

- Other issues: health, AIDS, famine…
- Technology / consumption…

- People motivation: wealth, power, comfort…
- Policy makers / elections…
- Emergency / awareness…

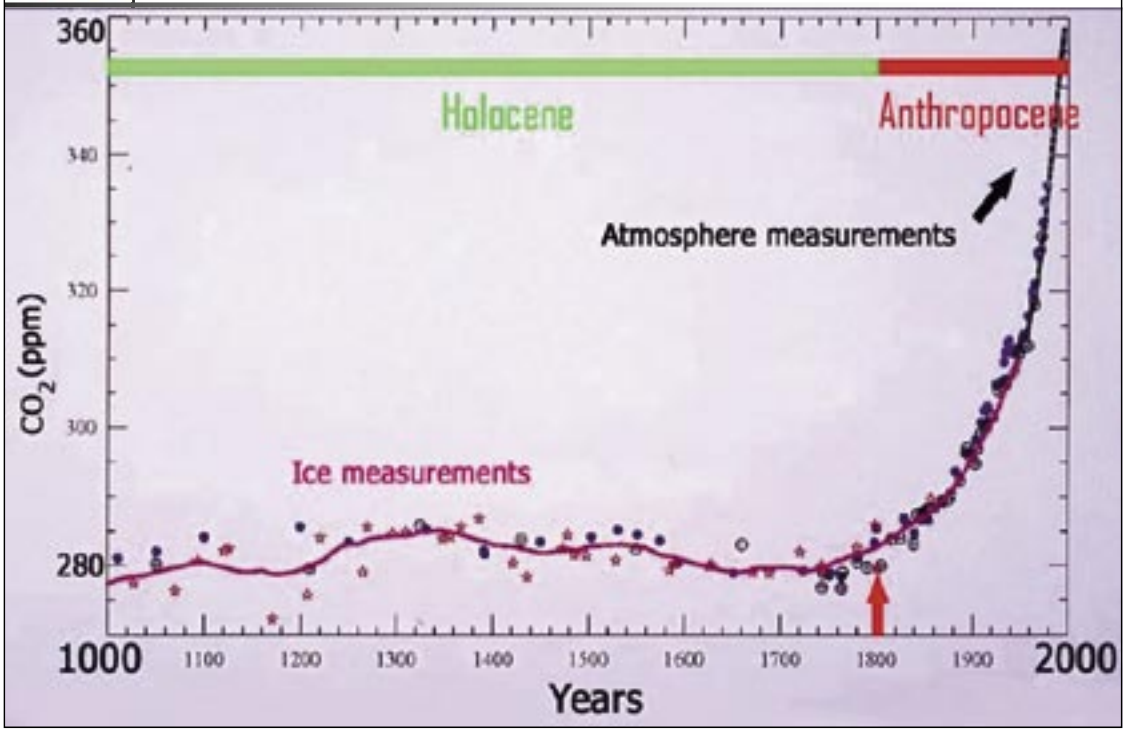
slide 51

## Anthropocene: our tracks in the ice




slide 52

## $CO_2$: the birth of Anthropocene




slide 53

## Environment and International Governance

- Solidarity / national interests: developed Vs emerging countries
- Right for environment and conflicts of interest and cultures


slide 54


slide 55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