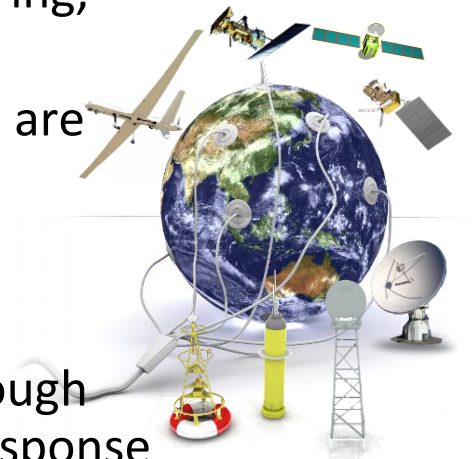


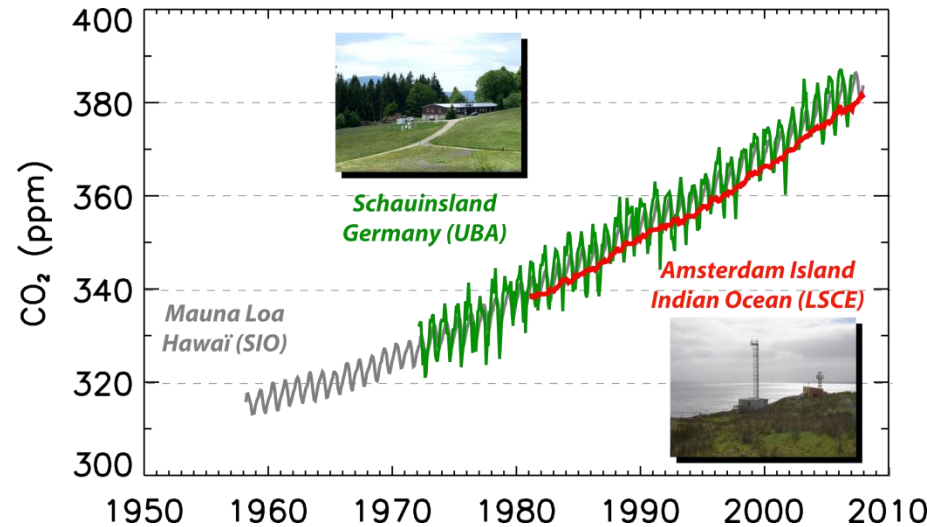
# Overview of the two sessions

- ***Exploratory Facilities and Platforms***
  - Large facilities/platforms (mostly “single sited”: research vessels, large ground-based observatories) are available for multidisciplinary environmental studies and monitoring, enabled through international cooperation.
  - International funding mechanisms for large facilities are required.
- ***Global Observing Systems, Data Governance***
  - International networks collecting greenhouse gases, aerosols, ecosystem data will benefit the public through monitoring of global change – and Earth system’s response to this change.
  - Such networks face needs for global harmonization, better coverage, enhanced data sharing and data interoperability.



# Why climate change is an urgent issue (and why this session)

- The primary cause of climate change and ocean acidification is the increase of greenhouse gases (GHGs) in the atmosphere, **predominantly carbon dioxide**
- Three reasons for having more and better information
  - Climate feedbacks
  - Success of GHG management
  - Ocean Acidification



Courtesy J. Butler, NOAA

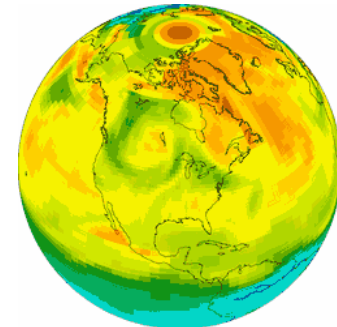
# Exploratory Facilities and Platforms

- Ocean & Arctic are particularly **vulnerable areas** (but unfortunately of little direct interest to the general public)
- Science case need to be made by scientists, on the basis of existing research capacity
- **International funding mechanisms** are key eg. Belmont forum
- Prioritization is difficult if you take scientists across environmental disciplines, input from policy is relevant
- Governance requires **global collaboration** and strong MoU
- **Data repositories** are needed, that are **sustained** beyond the lifetime of single research programmes.
- Creative **outreach** needed, try to engage the public. Need to be based on the credibility of scientists
- Tech development and transfer enable the RI to match science proposals and society's needs



# Global Observing Systems, Data Governance

- Atmospheric, ecosystems **monitoring** crucial. But scientists are also interested by **feedbacks**, Earth system's unknowns
- Current **governance of these networks** should be sharply strengthened, with strong **commitments** from players
  - Strong international coordination with centralized, long term funding
- Networks rely on international **capacity building**, but we need to change the model to a true “**partnership**” approach
- **Data management, data quality** is critical. *“Bad data is worse than no data”*
- Importance of proper planning for data handling
- GEO offers architecture for global, cross-cutting, user-driven data sharing
- Data collection on a project basis is not sustainable
- Good to build on top of existing networks
- More human networking is needed



# Moving ahead

## Distributed measurements and monitoring

- observatories, sensors, radars, human eyes . . .
- physical, chemical and biological parameters

## Laboratories and experimental facilities

- in fixed monitoring stations
- on research vehicles, ships, floats and buoys, aircraft, satellites

## A variety of data

- complex and sometimes fuzzy
- heterogeneous and distributed
- primary and processed data

## New objectives

- Implement harmonised solutions for common needs.
- Special focus on data architectures, metadata frameworks, data discovery in scattered repositories, visualisation and data curation.

