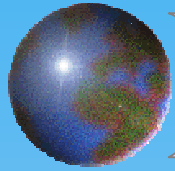


17<sup>th</sup> June 2008

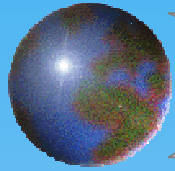
# Climate Change future emissions scenarios

Frank McGovern  
Climate Change Unit,  
Environmental Protection Agency



# Contents

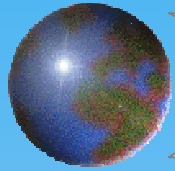
1. The IPCC 4<sup>th</sup> Assessment Report (AR4)
2. International Policy and the EU target
3. Recent findings and developments
4. Next steps: global to regional and local analyses



# The IPCC 4<sup>th</sup> Assessment Report (AR4)

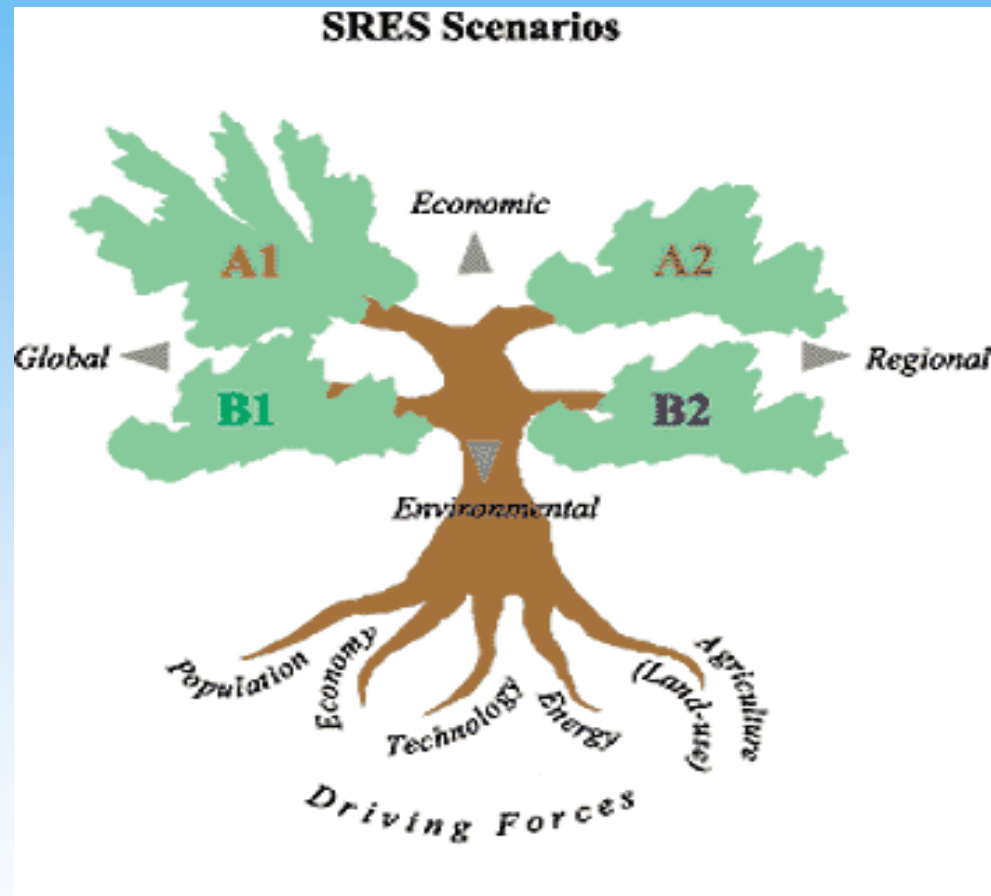
## Climate projections

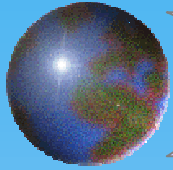
- Based on special report on emissions scenarios (SRES)
- Scenarios based on different development options
  - Environmental/sustainable
  - Resource reliant
  - Intermediate use of resources
- **Do not include policy actions** to address climate change
- Some criticisms: dated, simplistic, etc
- New scenarios are currently being developed



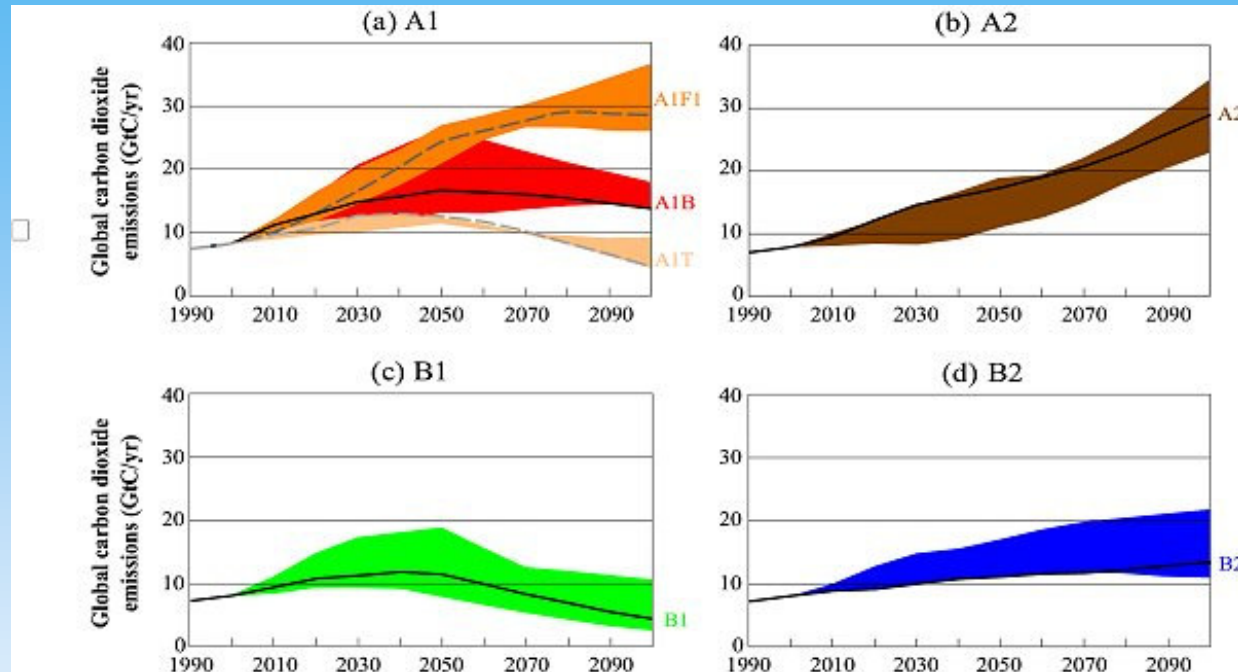
# The IPCC 4<sup>th</sup> Assessment Report (AR4)

## SRES Development



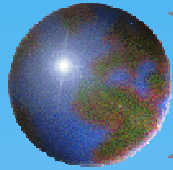


# The IPCC 4<sup>th</sup> Assessment Report (AR4)



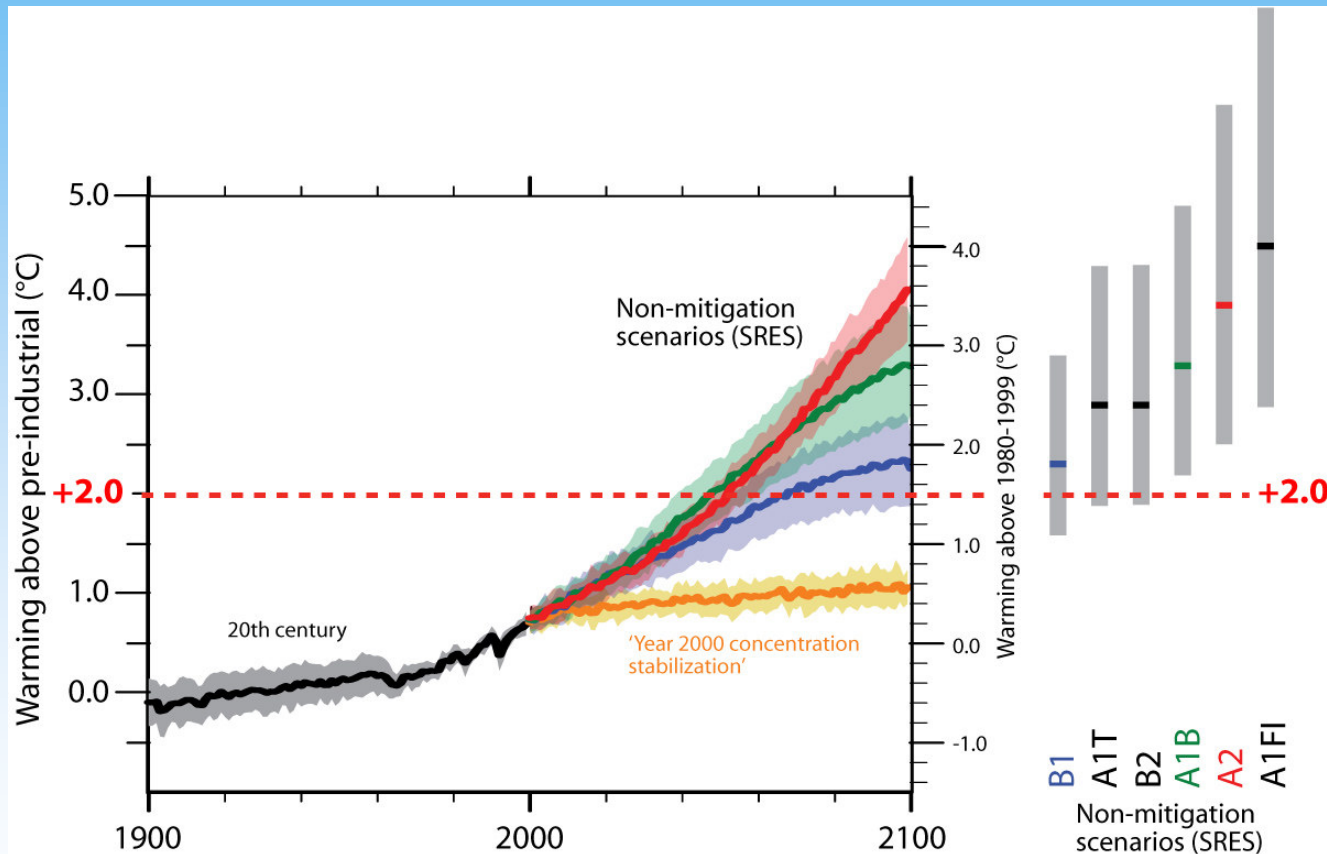
Total Global annual CO<sub>2</sub> emissions 1990 to 2100 (GtC/yr). Forty SRES scenarios are presented by the four families (A1, A2, B1, and B2) and six scenario groups:

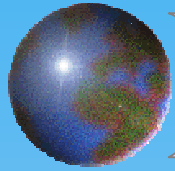




# Science and Action

## Future temperature increases from AR4





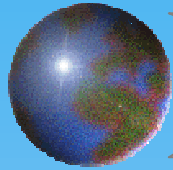
# Policy context

## Objective of UNFCCC

- **To stabilise atmospheric GHG concentrations** at a level that would **prevent dangerous human** interference with the climate system.
- Kyoto Protocol(KP) is first step in reducing emissions from developed (Annex 1) countries.
- Future actions under UNFCCC and KP to be agreed by 2010

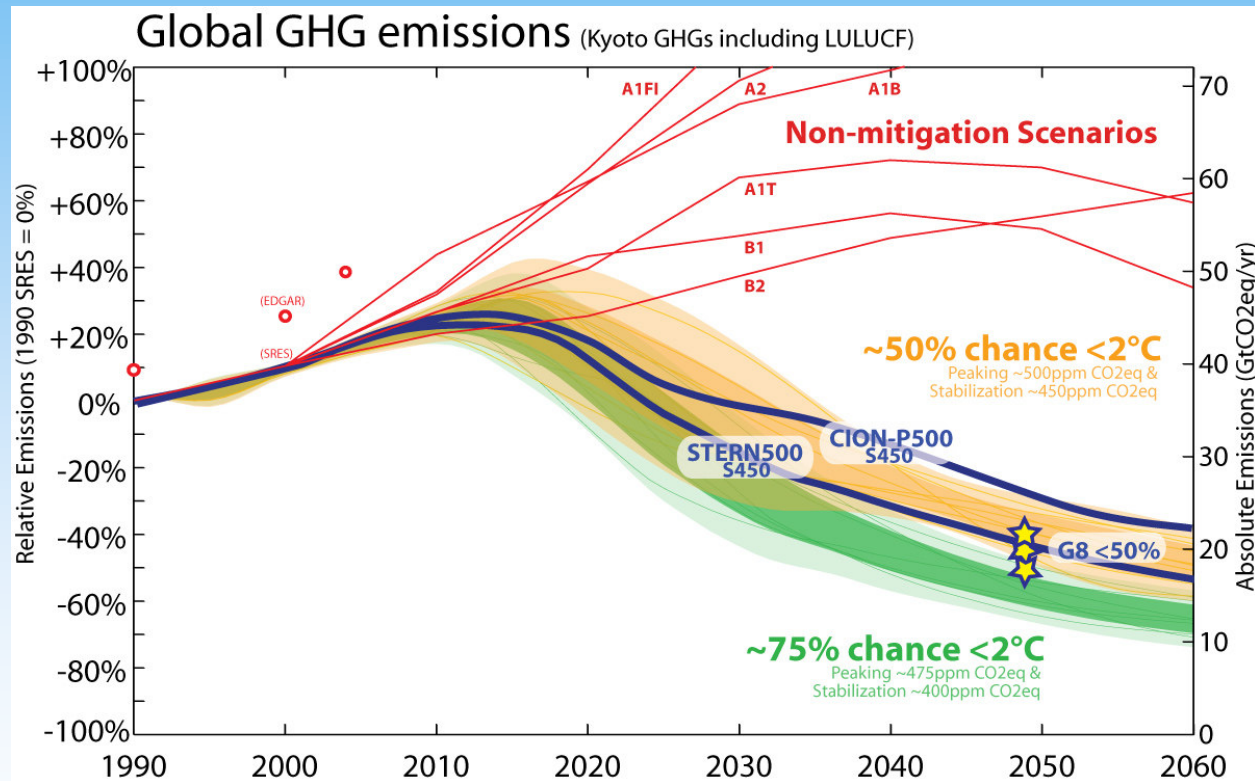
## Key questions

- What is dangerous human interference with the climate system?
- How should this be reflected in future actions post 2012?
- What level of climate impacts should be considered in adaptation planning?

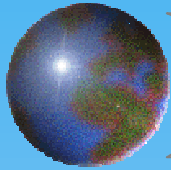


# Policy context

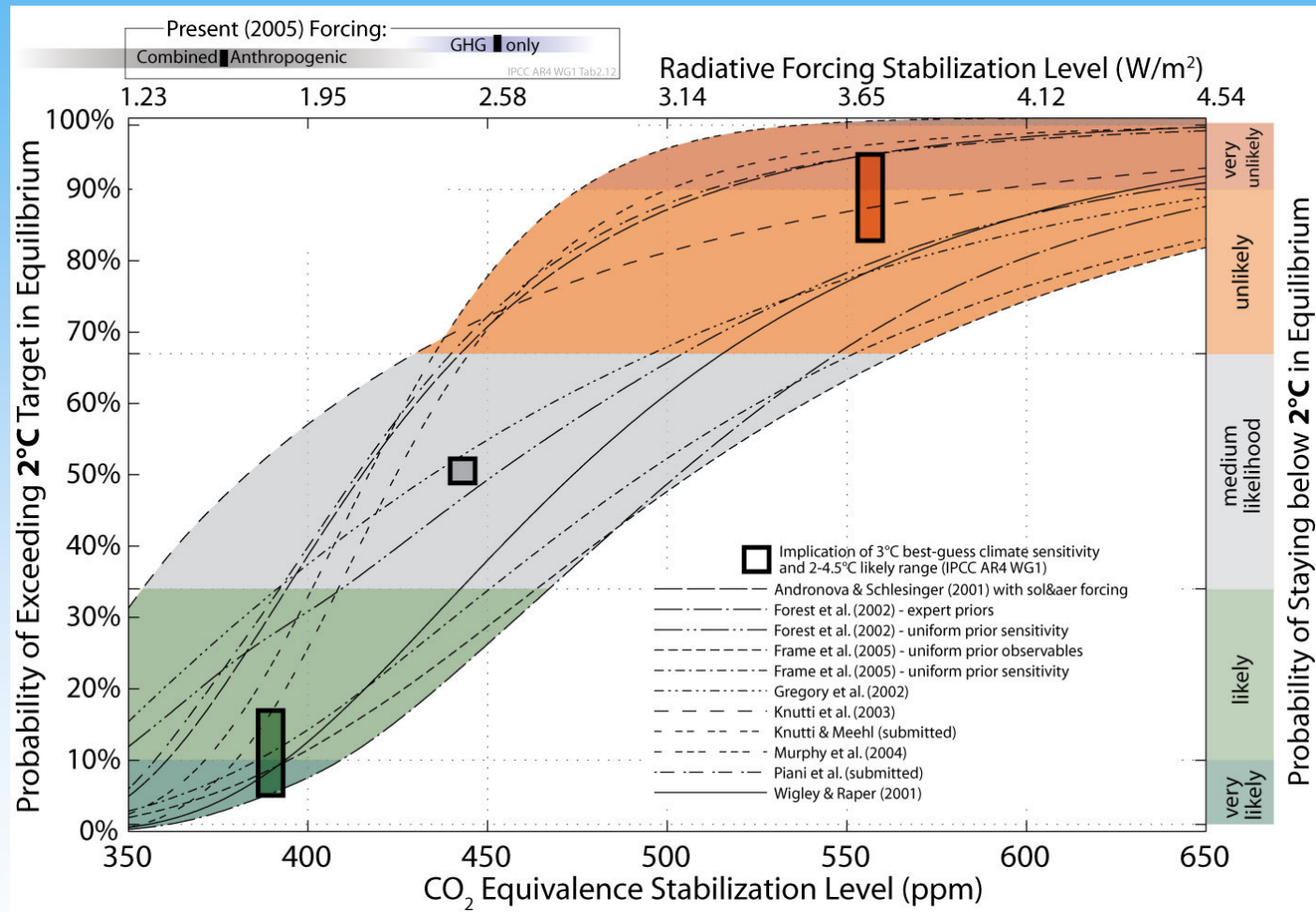
**EU Position:** Dangerous climate change avoided if global temperature increase is less than 2°C above preindustrial levels, implies significant and immediate GHG emissions reductions

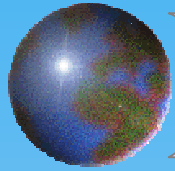




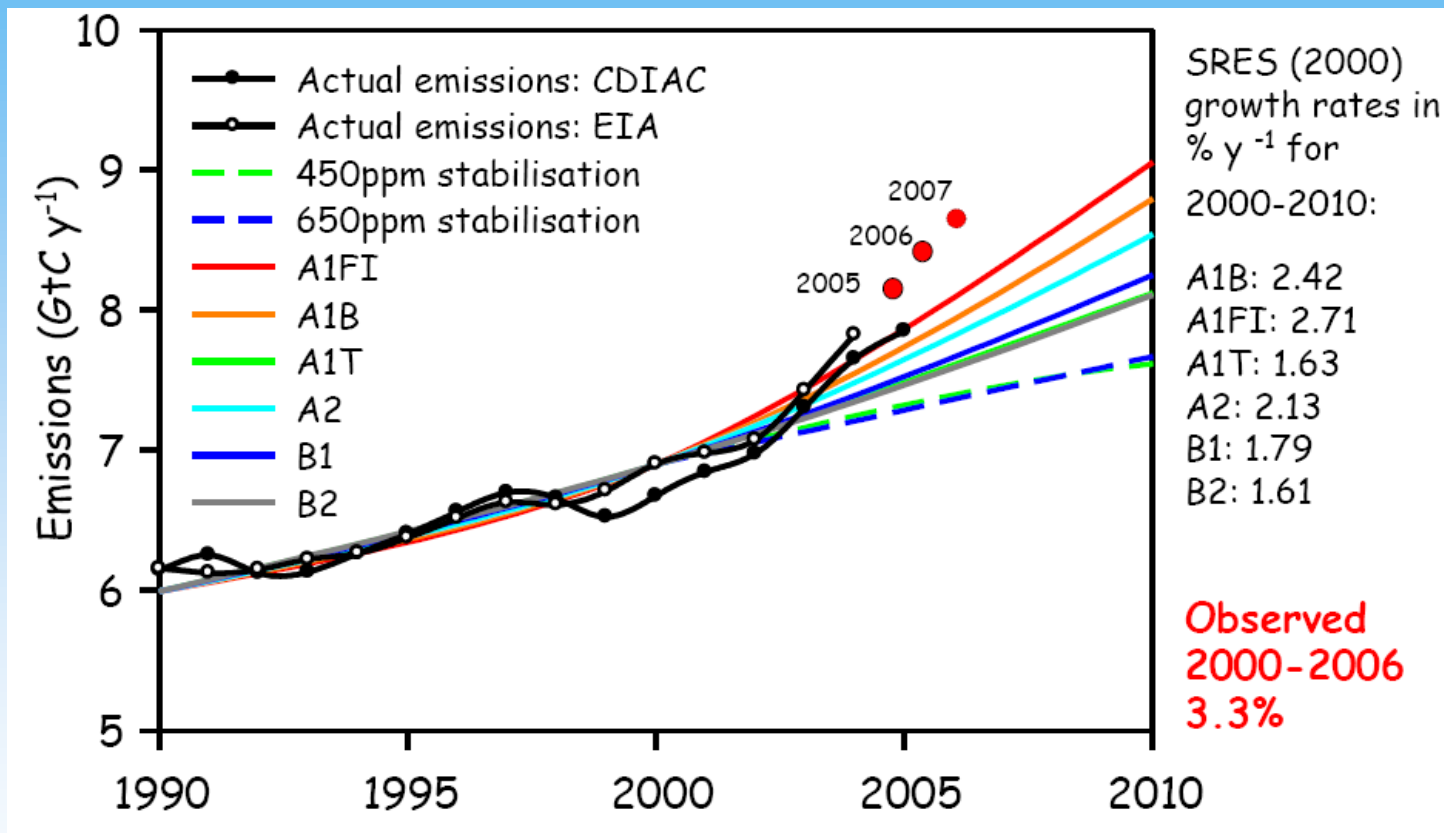


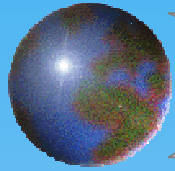
# Policy context





# Recent findings and developments

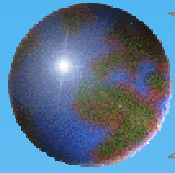




# Recent findings and developments

## New Scenarios for the AR5

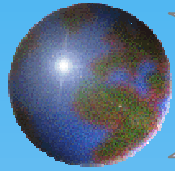
- IPCC to play a ‘catalytic’ role in scenarios
- New approach compared to SRES
  - Reference concentration pathways (RCPs)
- Parallel development of climate and emission projections
  - New generation climate models,
- Objective better integration socio-economics, vulnerability, impacts, adaptation and mitigation



# Recent findings and developments

## New Scenarios for the AR5

- Reference Concentration Pathways (low medium and high)
- High resolution climate model ensembles and pattern scaling
- New integrated assessment scenarios
- Global storylines and integration scenarios

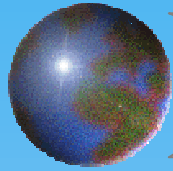


# Recent findings and developments

## Timelines for the AR5

- 2008 :Preparatory phase New IPCC structures and supports
- 2010: Parallel modelling phase
- 2012: Integration phase
- 2013: Publication and review
- 2013-2014: Feed into AR5, working group 1 report 2013





## Next steps: global to regional and local analyses

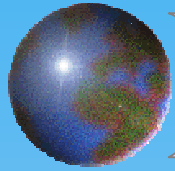
Key uncertainties exist

Policy:

GHG stabilisation level & effectiveness of policies

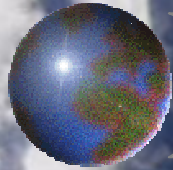
Scientific

- Climate sensitivity
- Rate and extent of sea-level rise
- Changes in precipitation
- Extreme events and surprises
- Options probability and risk analysis



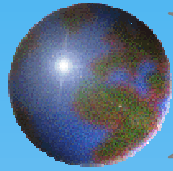
# Conclusions

- Uncertainties are significant
  - Further climate impacts are unavoidable
  - Decisions will be required on infrastructure investments
  - Analysis and tools to address these are required
- analysis of vulnerabilities &  
probabilistic and risk analyses of impacts



Thank you





# Science and Action

## Radiative Forcing Components

