



RMetS

Royal Meteorological Society

Promoting meteorology as a
science, profession and interest

One atmosphere

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Society

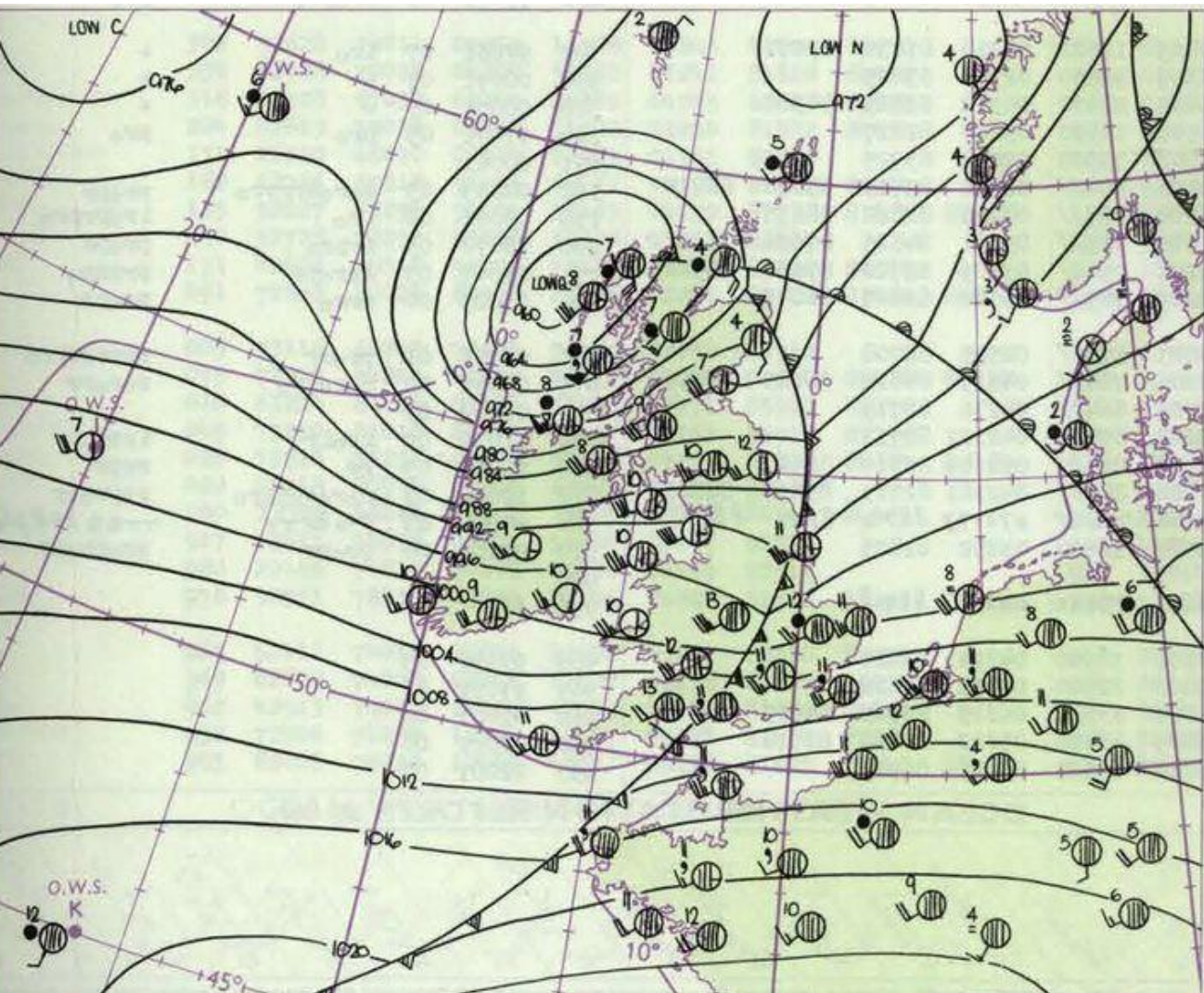
Annual General Meeting
London, 15 May 2019



Weather – of interest to all



Glasgow Storm January 1968



from U.K. Met Office Daily Weather Report)

Learning about Meteorology

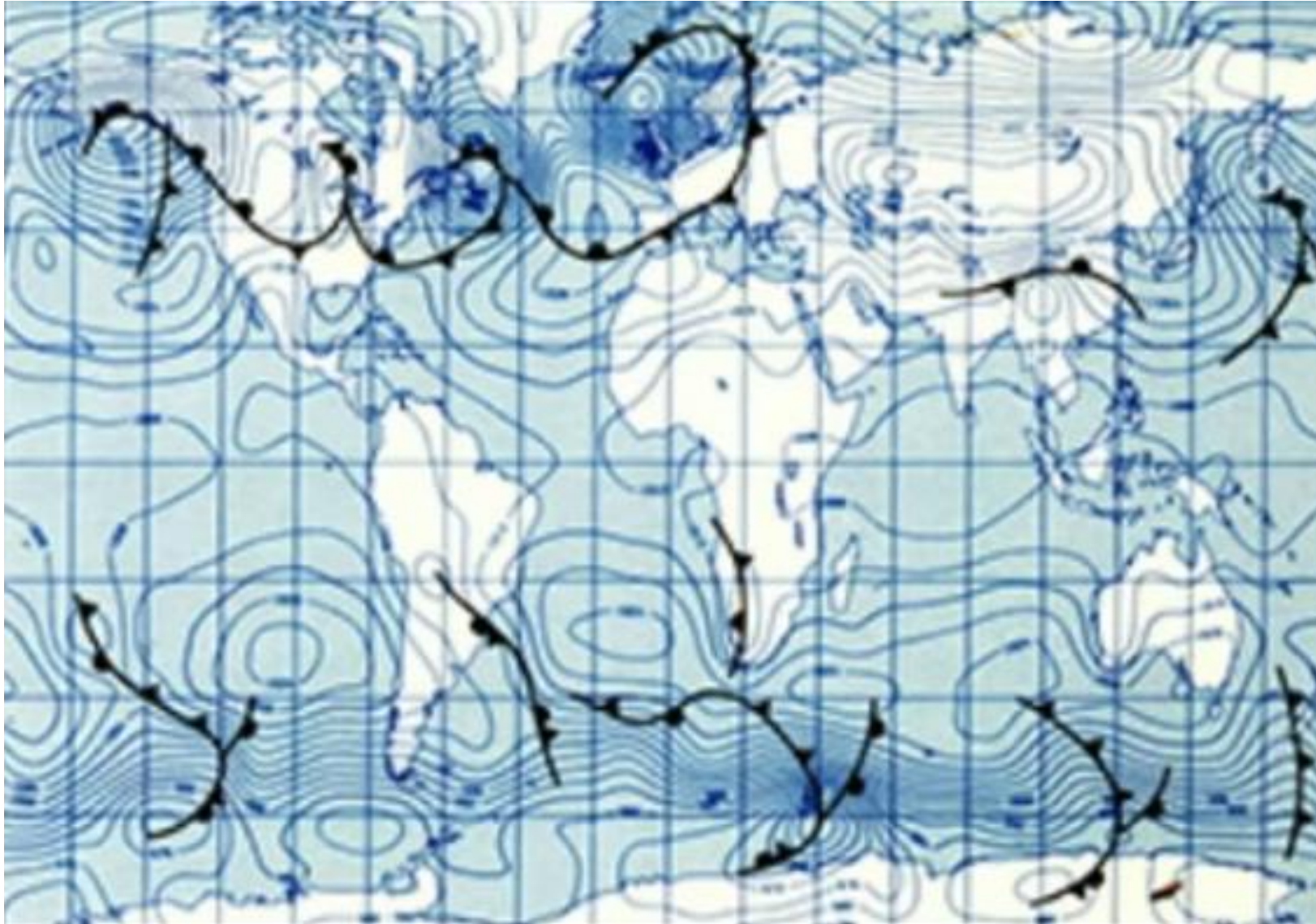


Weather
Life Science Library
Time Inc 1966

The interconnected global atmosphere



Global forecasting



<https://www.metoffice.gov.uk/weather/learn-about/how-forecasts-are-made/computer-models/history-of-numerical-weather-prediction>

One atmosphere: climate at the Society



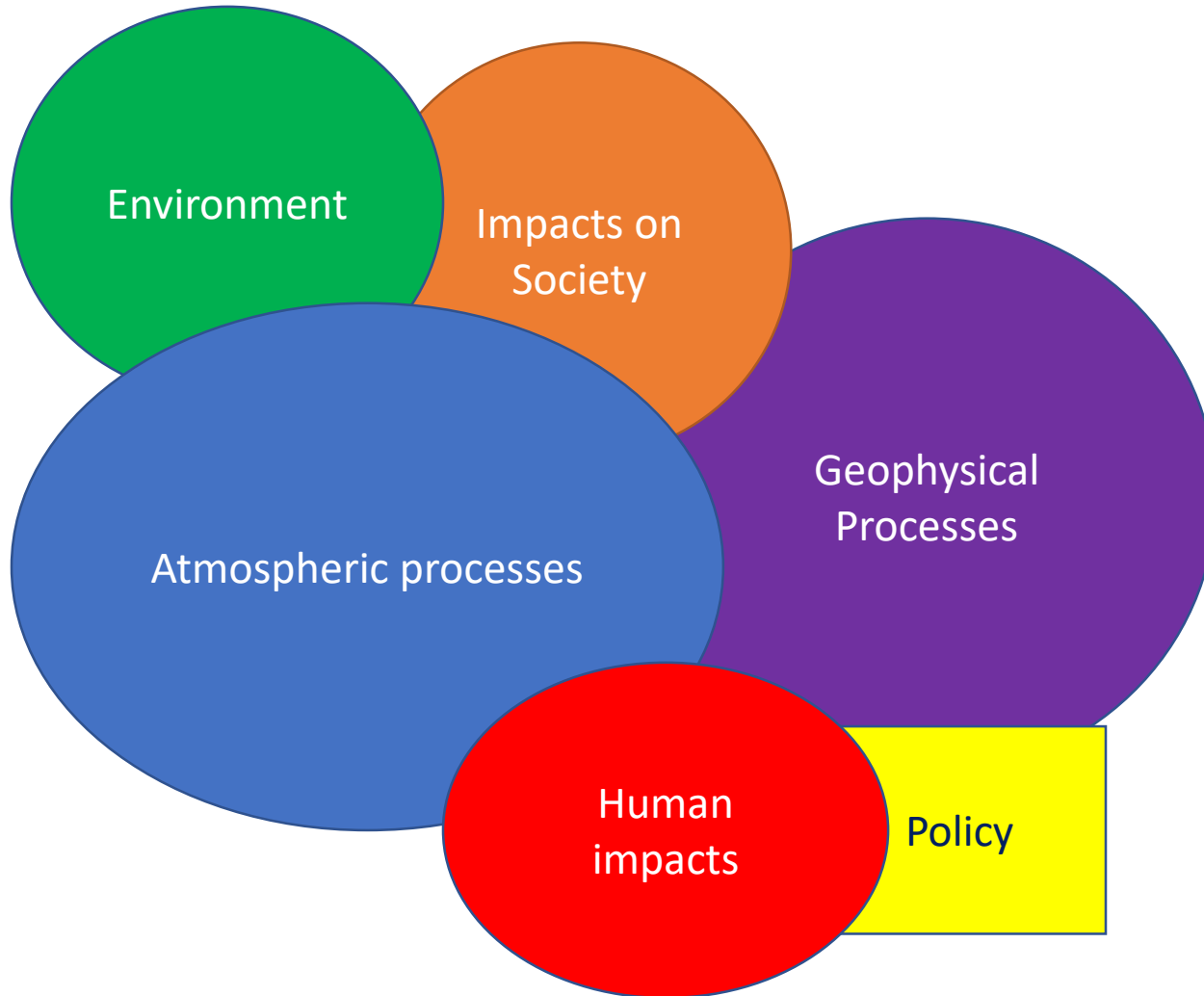
“to form a society the objects of which should be the advancement and extension of meteorological science by determining the laws of climate and of meteorological phenomena in general”

Climate at the Society

The Society's **vision** is to be a world-leading learned and professional society for weather and climate, exemplifying its Royal Charter and charitable status and to engage, enthuse and educate all.

- Briefing papers
- Statements
- Presentations
- Meetings
- Publications
- Advice
- Communications Group
- Special Interest Group
- Education and Outreach

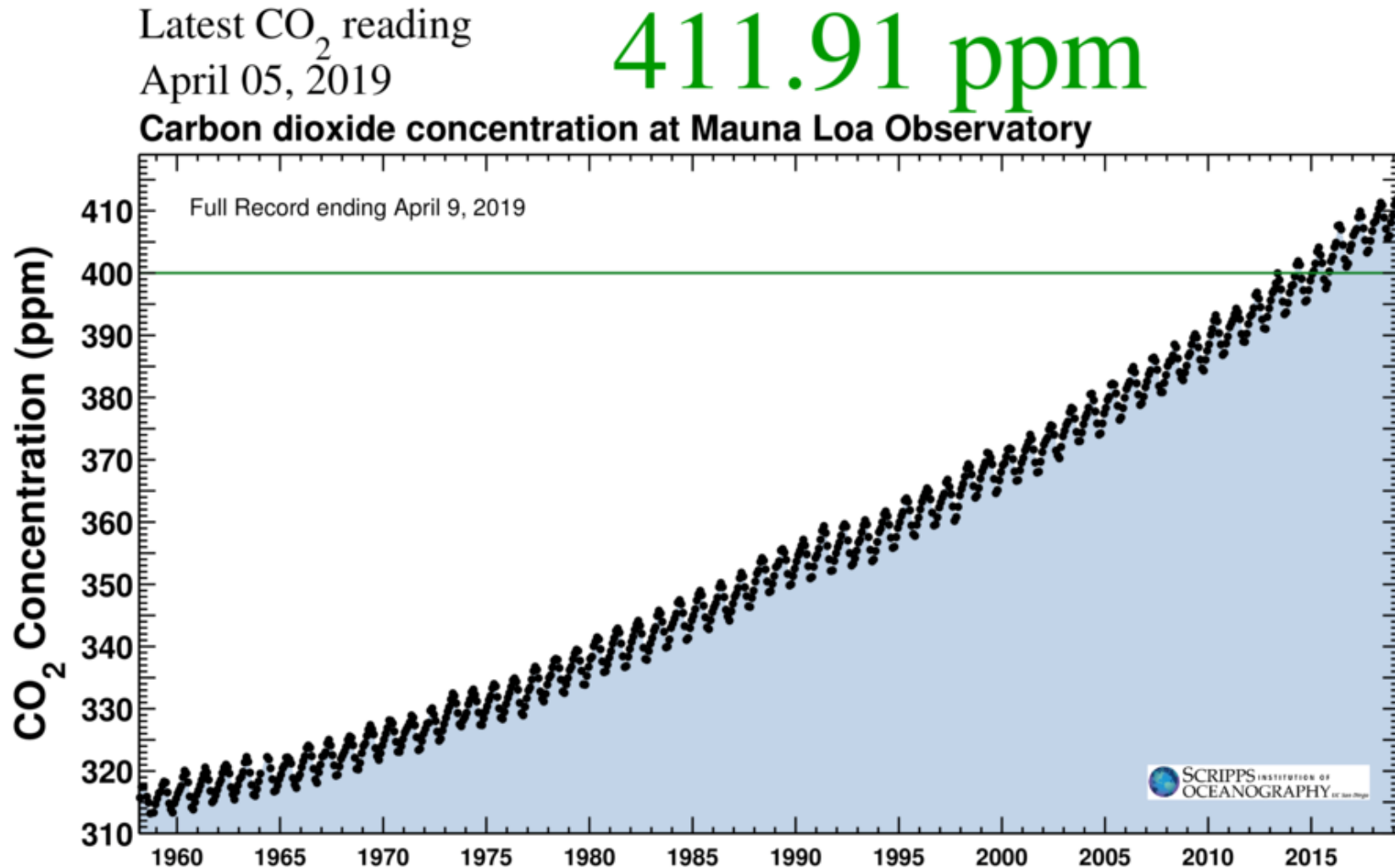
Challenge of Climate for the Society



Where are our boundaries?

- Atmospheric aspects of climate
- Climate system - interdisciplinary science
- Interaction with the environment and society – Impacts and adaptation
- Managing the impact of humanity – informing policy
- Mitigation options

Increasing greenhouse gases

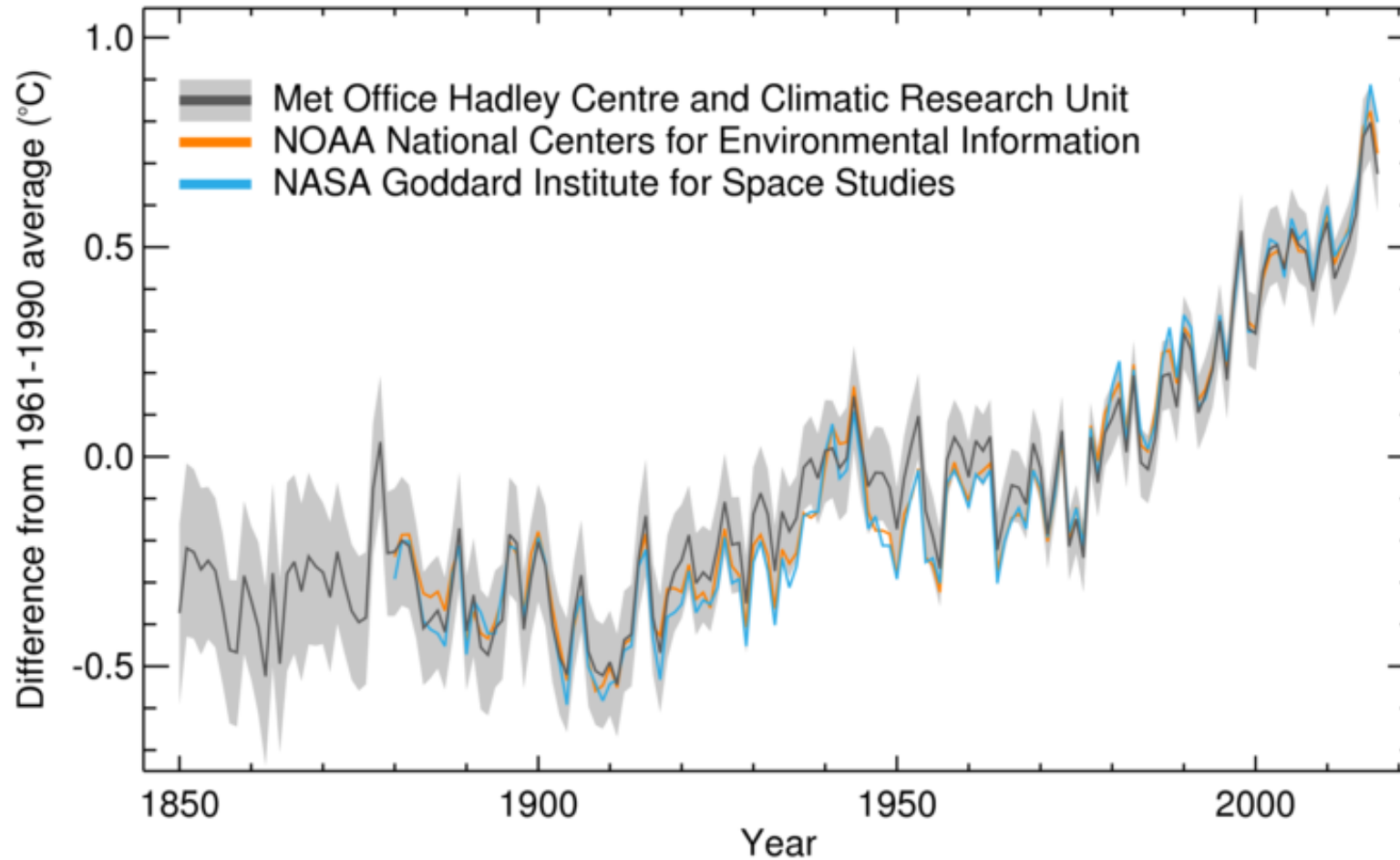


- 1957/8 International Geophysical Year
- Keeling Curve

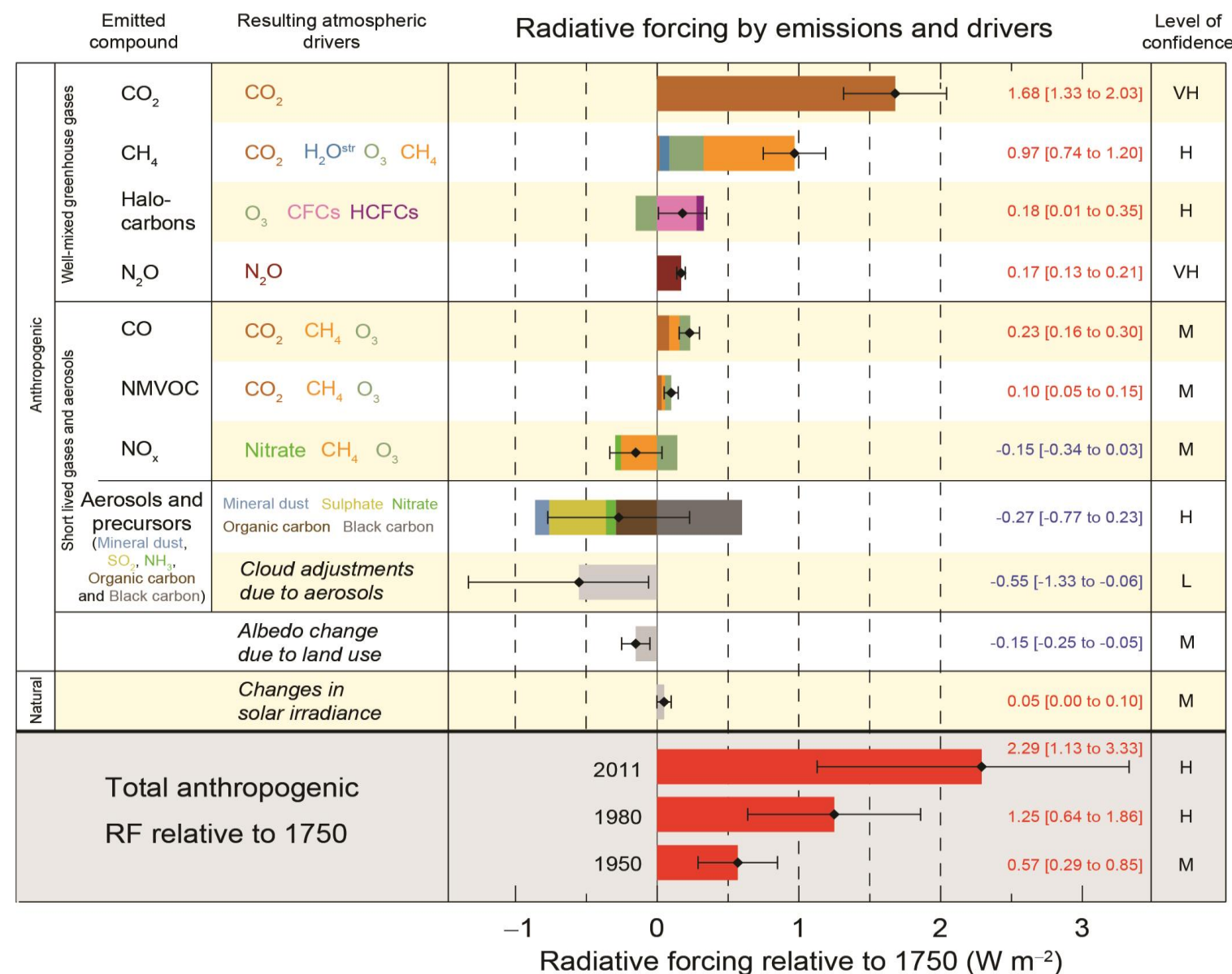
Climate warming



Global average temperature anomaly
(1850-2017)



Human impacts: radiative forcing



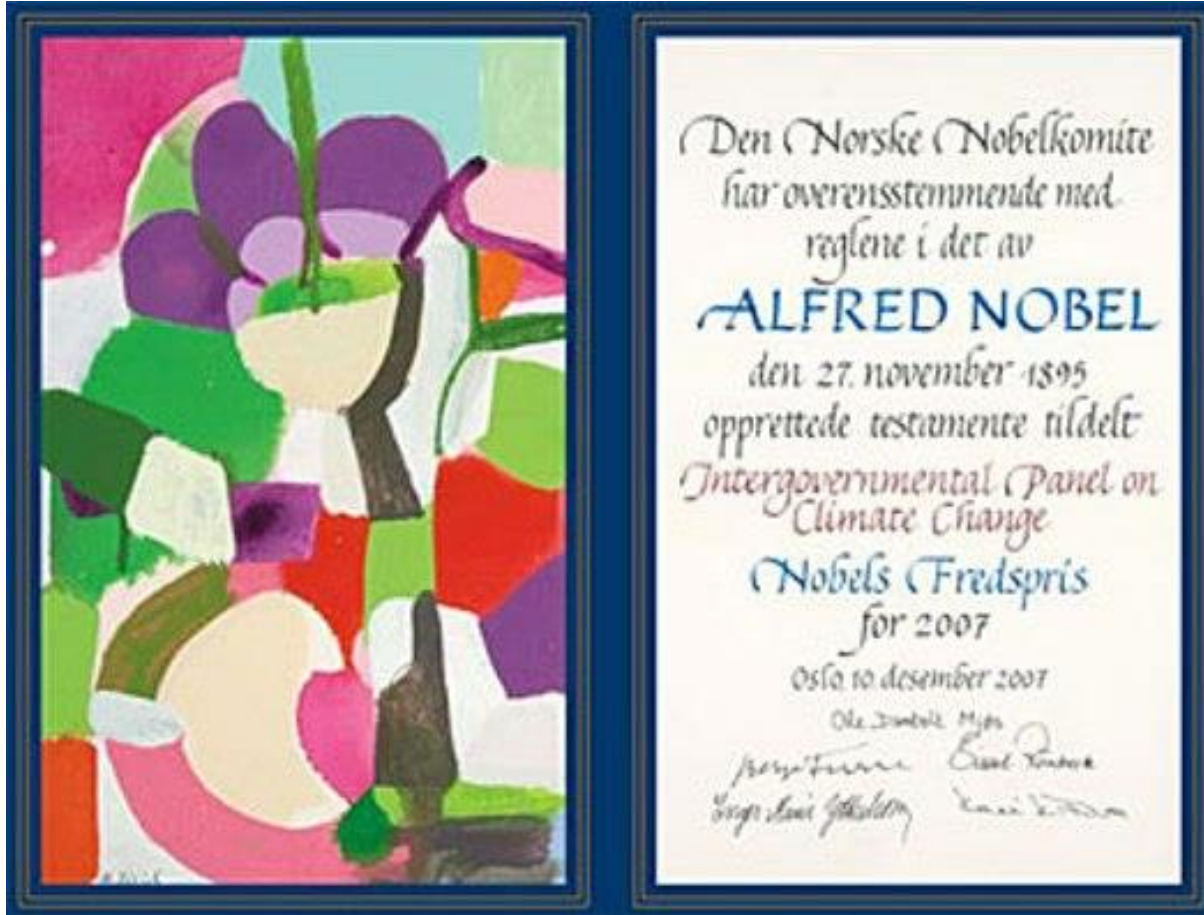
From IPCC 5th
Assessment Report
2013

Limiting the impact of climate change

The Aim of the UN Framework Convention on Climate Change

The ultimate objective of this Convention is to achieve....
stabilization of greenhouse gas concentrations in the
atmosphere at a level that would prevent dangerous
anthropogenic interference with the climate system.

The IPCC

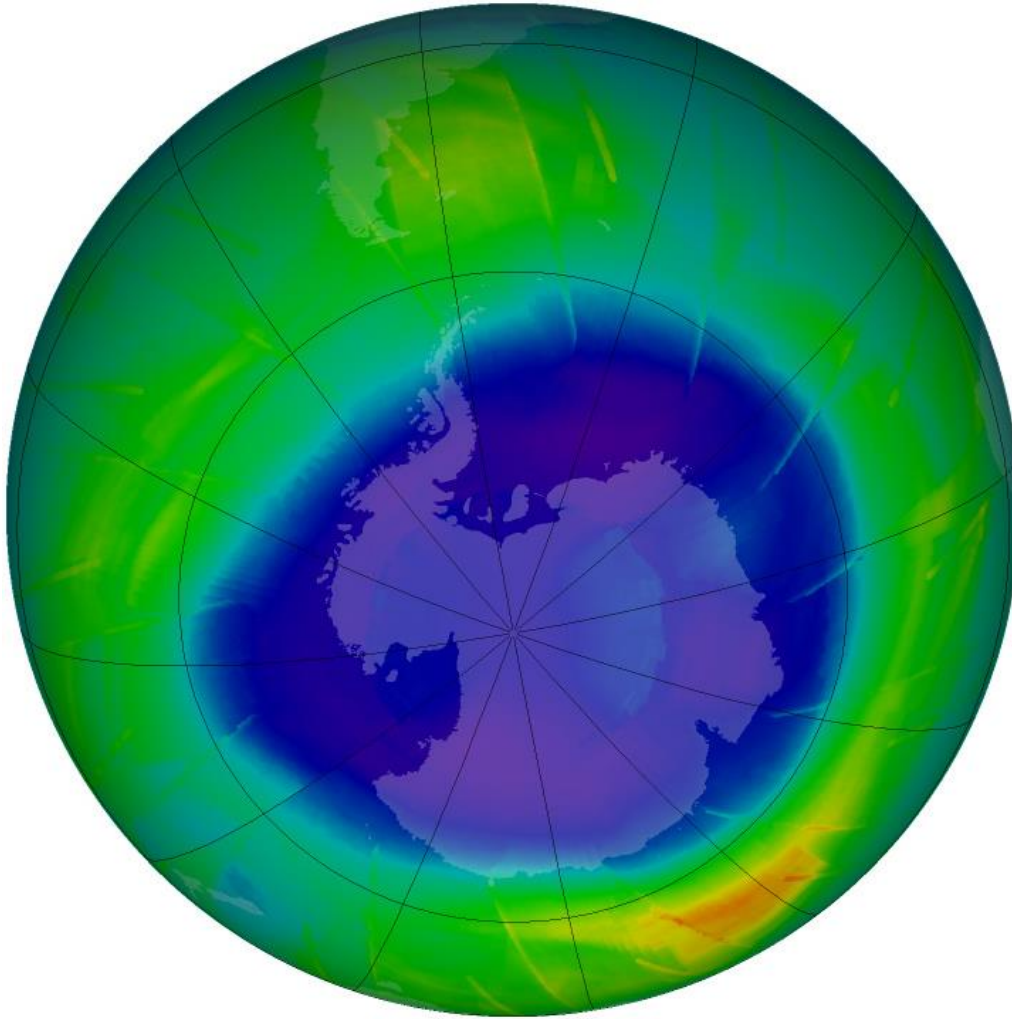


- 1988 IPCC formed
- 1990 1st Assessment Report
- 1995 2nd Assessment Report
- 2001 3rd Assessment Report
- 2007 4th Assessment Report
- 2007 Nobel Peace Prize
- 2014 5th Assessment Report
- 2018 Special Report on 1.5 goal

What was agreed in Paris in 2015

- Global temperatures should stay **below 2 degrees** (above pre-industrial) – and we should pursue efforts to limit the temperature rise to 1.5 degrees.
- Sets a collective **long term goal for near net zero emissions in the second half of the century** which all countries will work together to achieve.

Other human impacts on the atmosphere



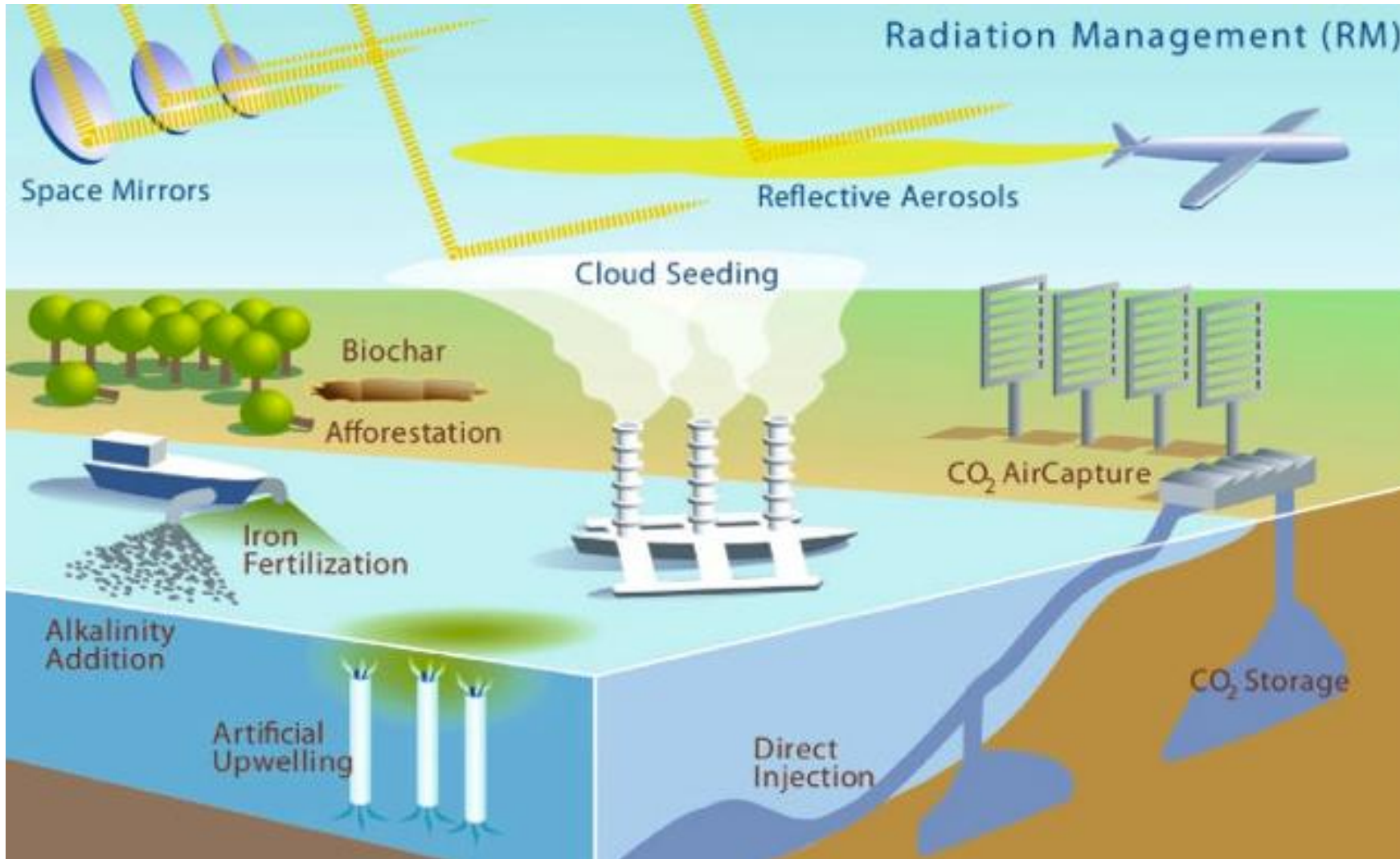
NASA

- Smoke pollution
- Photochemical smog
- Trans-boundary air pollution
- Acid rain
- Stratospheric ozone depletion and the Antarctic “ozone hole”

Protection of the atmosphere

- Global Climate - UNFCCC/ Kyoto /Paris 1992/1997/2015
- Stratospheric ozone - Vienna Convention/ Montreal Protocol 1985/87
- Regional air pollution – e.g. UNECE Long-range transboundary air pollution; (1979) + 8 Protocols covering Europe and N America
+ Climate and Clean Air Coalition for Asia
- Local air pollution – country level/EU/
WHO health standards
- Impact of aircraft – ICAO
- Impact of shipping – IMO
- Weather modification - *ENMOD Treaty* of 1977
- Stockholm Convention on Persistent Organic Pollutants 2001
- Geo-engineering?

Geo-engineering?



A law of the atmosphere?

- In 2011 Shinya Murase proposed that the UN should look into the need for a Law for the Protection of the Atmosphere.
- International Law Commission began a review in 2013 but
- Limited remit –avoiding questions of liability, the polluter-pays principle, and the principle of precaution and not to interfere with on going political negotiations in for example the UNFCCC.
- Work going on – draft guidelines in 2018
- Will not replace existing multilateral agreements but provide a legal framework which would look at the atmosphere in a holistic way.

One Atmosphere Conclusions



By NASA/ GSFC/ NOAA/ USGS

- Understanding and predicting the weather
- Understanding climate and human influence
- Protecting the atmosphere