



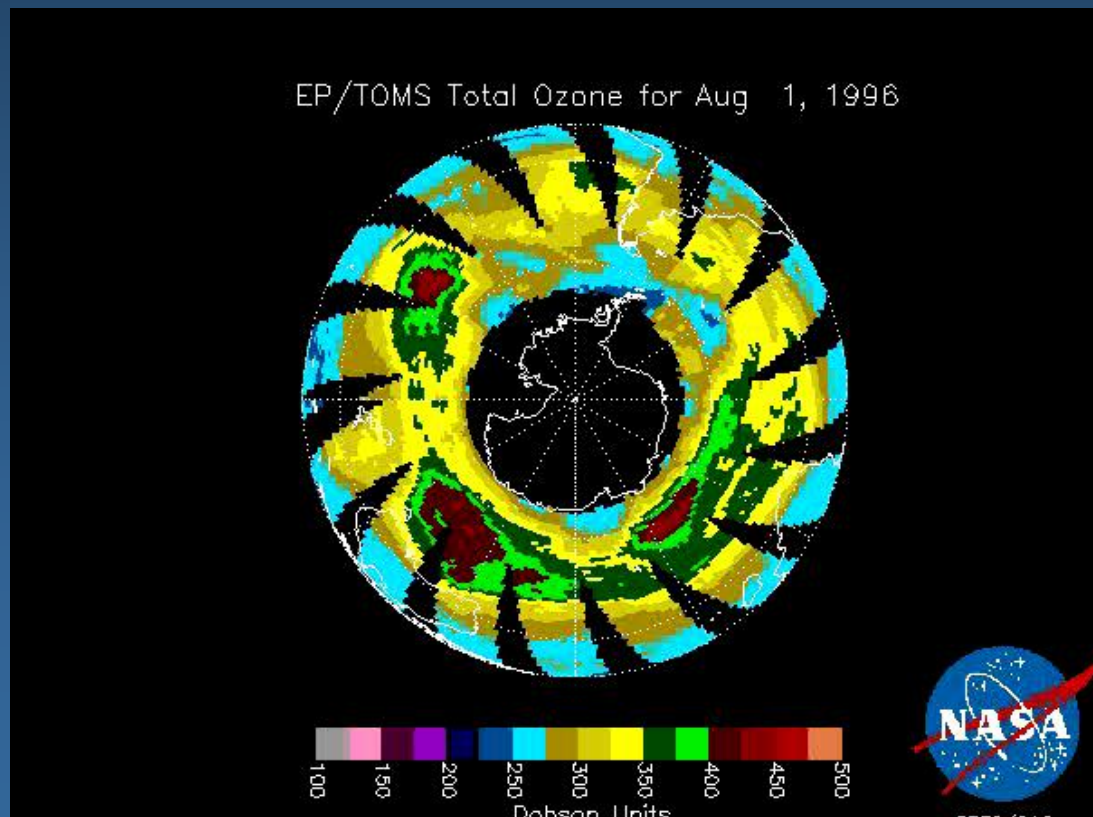
Antarctic Climate Change and the Environment: Key Findings

ATME, Svolvær, 6-9 April 2010



Key Findings

- For the last 30 years the ozone hole has shielded the bulk of the Antarctic from the effects of global warming

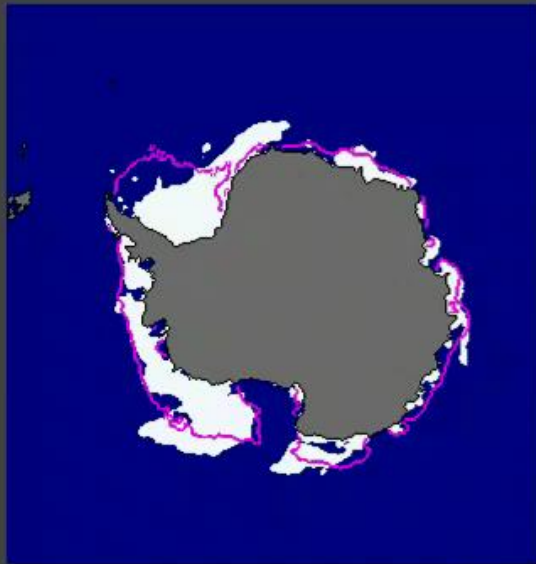




Key Findings

- Sea ice has increased in extent around the Antarctic over the last 30 years as a result of the ozone hole

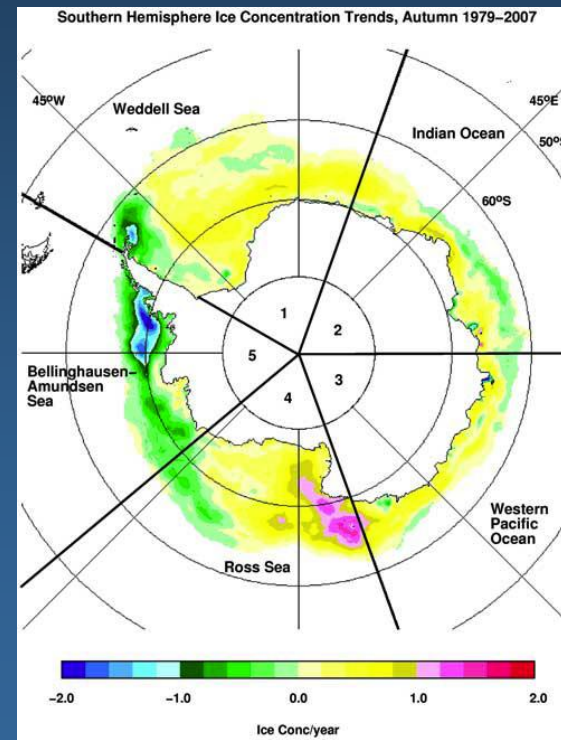
Sea Ice Extent
Jan 2002



median
ice edge

Total extent = 4.7 million sq km

National Snow and Ice Data Center

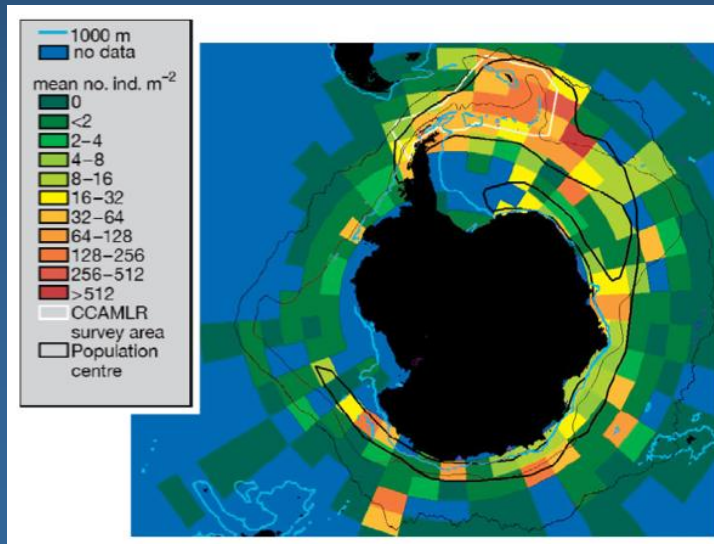


Turner et al., 2009

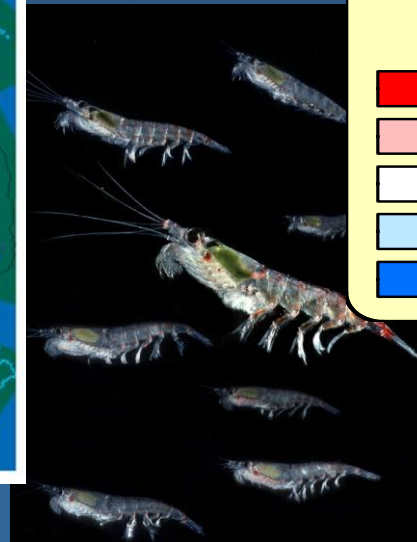


Key Findings

- The Southern Ocean is warming – the ecosystem will change
- Marine ecosystem components, such as krill and penguins, linked to the sea ice show a clear response to climate change



Atkinson et al, 2004, Nature



Change per decade

- over twofold decrease
- up to twofold decrease
- less than 5% change
- up to twofold increase
- over twofold increase



Key Findings

- There has been rapid expansion of plant communities across the Antarctic Peninsula

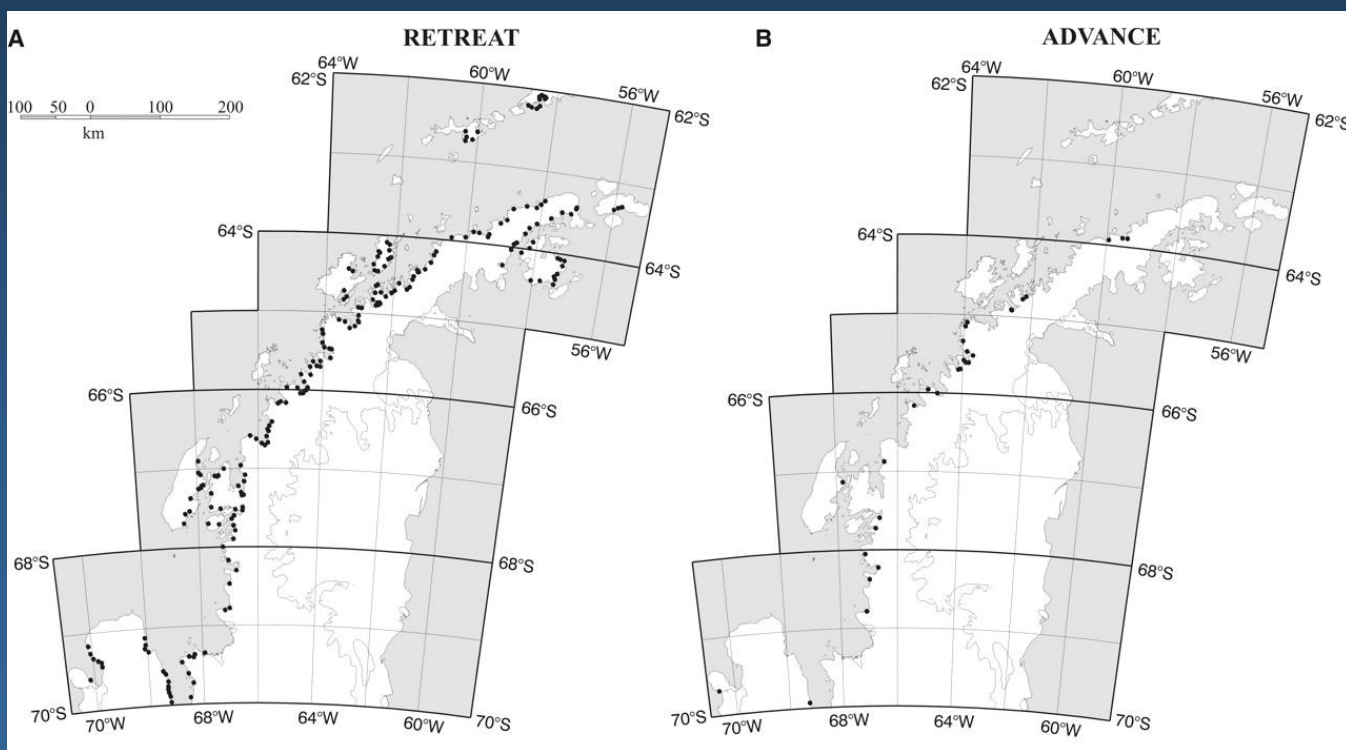


Photo- D.Bergstrom



Key Findings

- Parts of the Antarctic are losing ice at a rapid rate



Cooke et al., 2005



Key Findings

- Palaeoclimate studies in Antarctica show the current shock to global climate is unusual
- Assuming a doubling of greenhouse gas concentrations over the next century, Antarctica is expected to warm by around 3° C
- West Antarctica could make a major contribution to sea level rise over the next century
 - Vermeer and Rahmstorf (2009) now predict 0.75-*1.9m* by 2100
 - See SCAR ACCE update paper submitted to ATCM



Key Findings

