



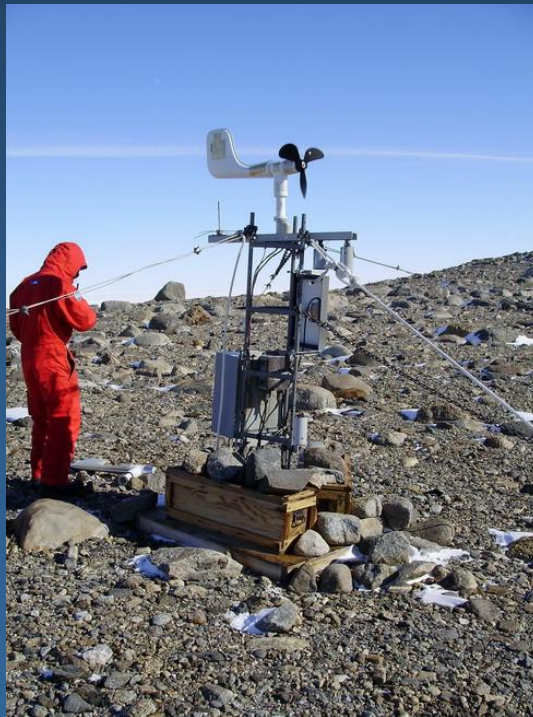
Antarctic Climate Change and the Environment: Recommendations

ATME, Svolvær, 6-9 April 2010



Key Recommendations

- **Antarctic Continent:** Need for collection of more data (e.g. AWS, radiosondes), particularly long-term observing programmes (e.g. CryOS) and monitoring of biologically relevant variables.



AWS (Lorenzo De Silvestri)

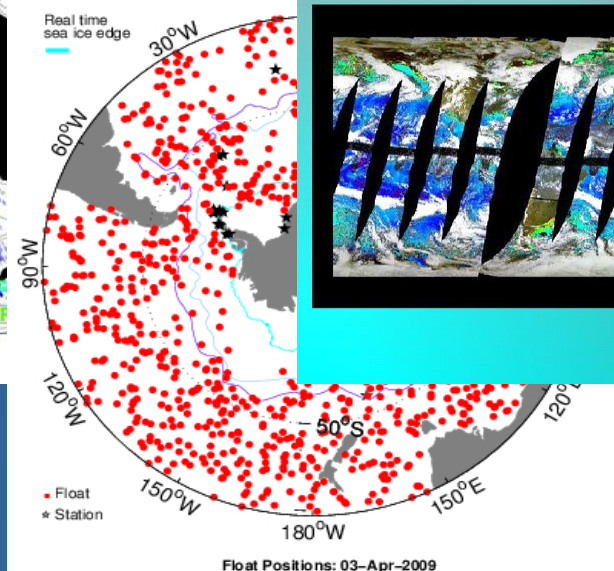
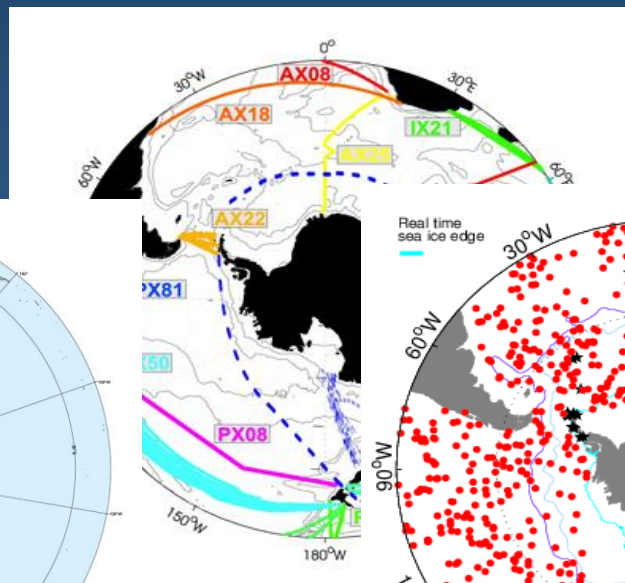
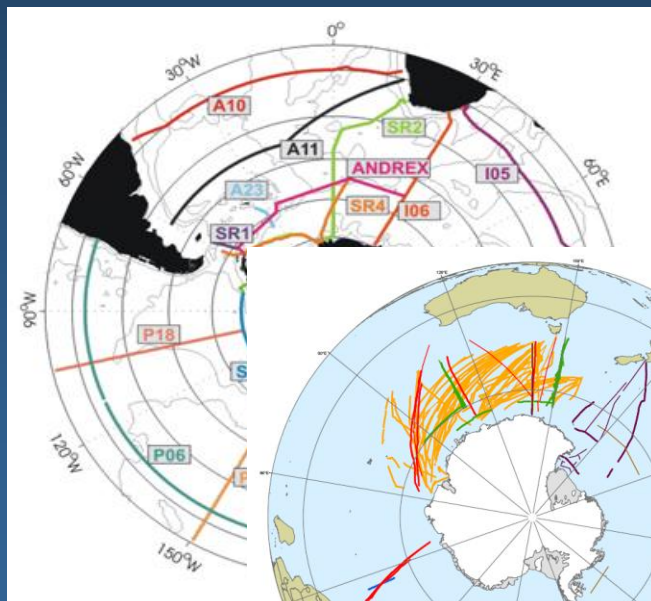


Radiosonde (AWI)



Key Recommendations

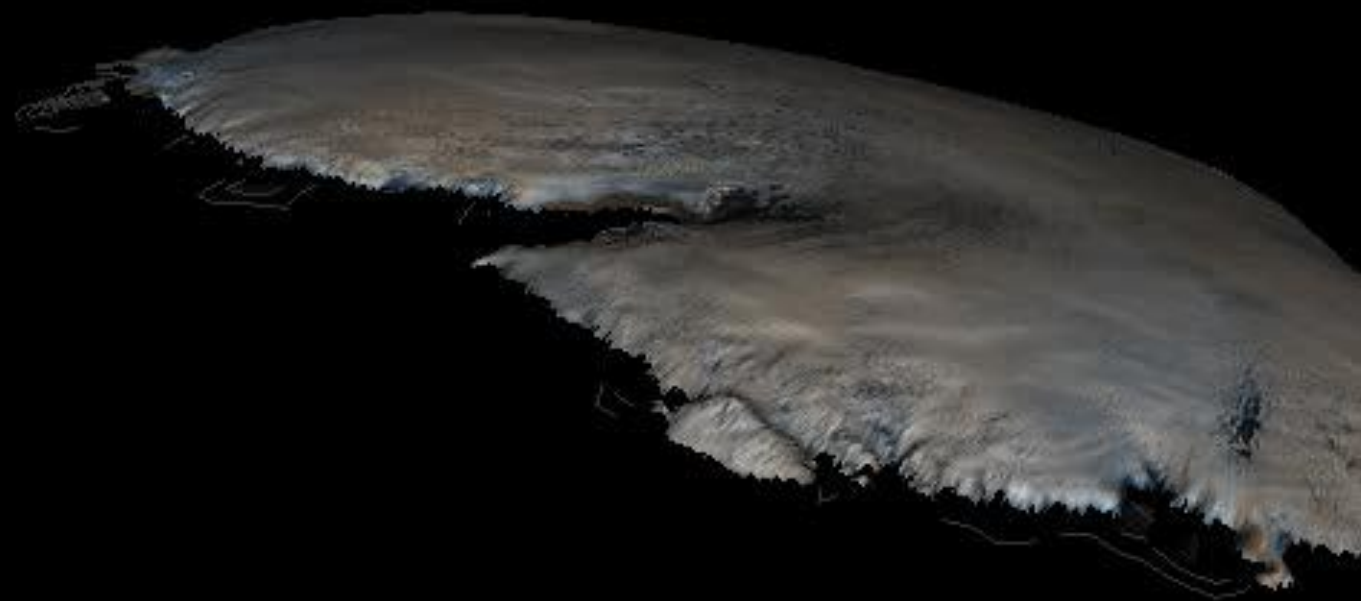
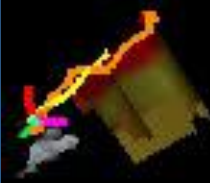
- Southern Ocean: Interdisciplinary (ecological, physical, chemical, sea ice...) observations are required as part of a Southern Ocean Observing System (SOOS)



SeaWiFS: *Daily Coverage*

2004-02-29 09:38:31Z

Tail 300 days



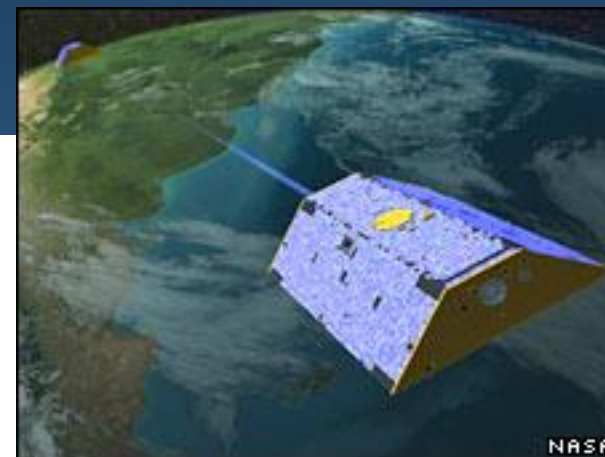
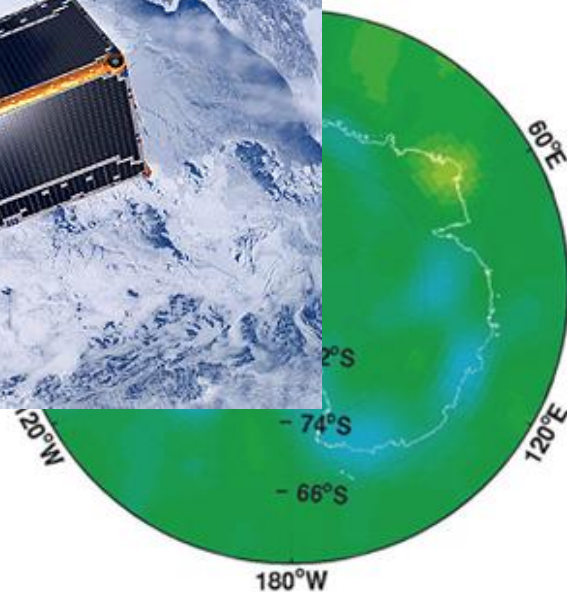


Key Recommendations

- **Satellite Measurements:**
 - Both for continent and Southern Ocean (time series, mass balance...)



cm/yr
-6
-8

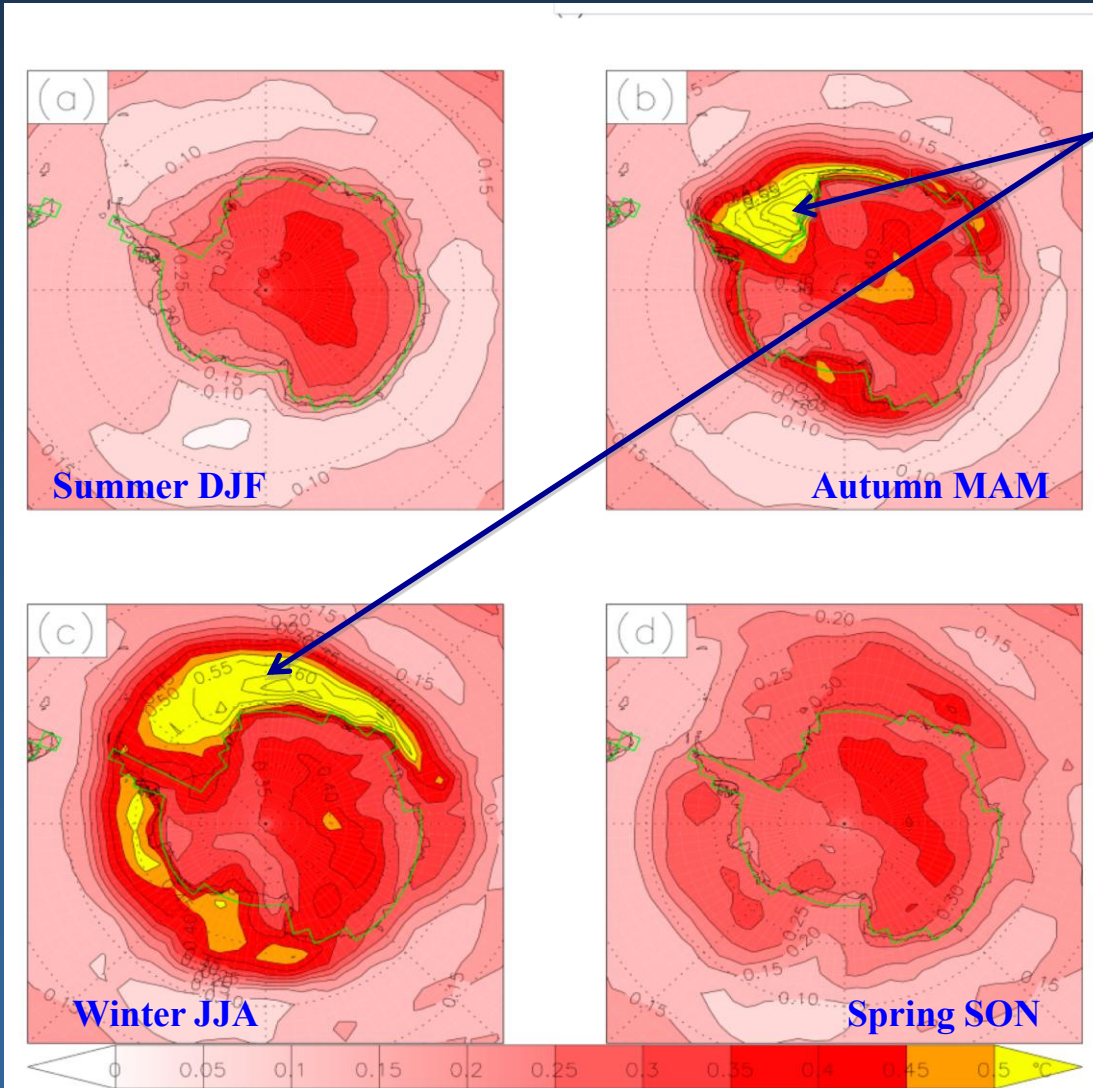




Projected Antarctic warming by 2100

3.4°C by 2100

from weighted average of 19 IPCC models based on 2 x CO₂
(the IPCC A1B scenario).



Most warming is over sea ice, due to retreat of sea ice edge in winter; otherwise, little seasonal trend (av. 0.34°C/decade).



Key Recommendations

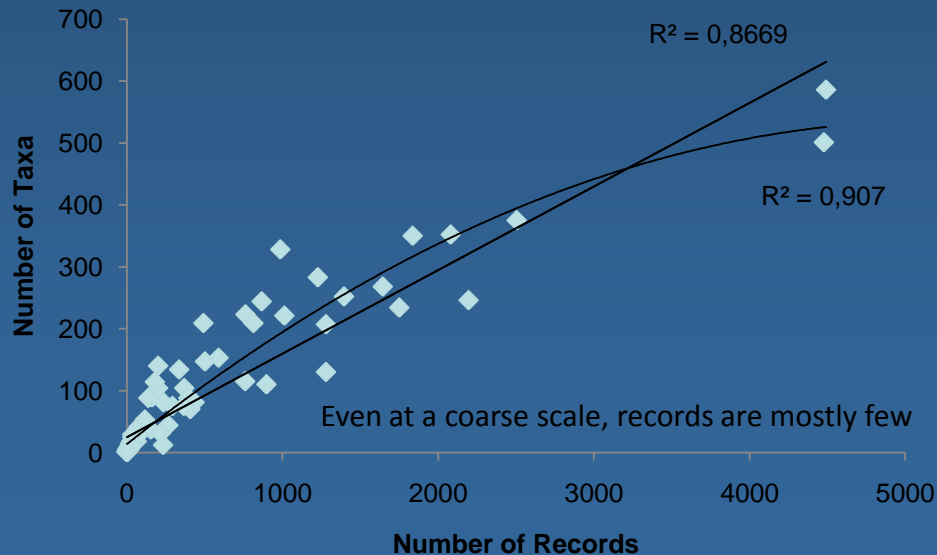
- Climate Model requirements:
 - Higher horizontal and vertical resolution
 - better simulation of polar-specific processes, such as sea ice and the very stable atmospheric boundary layer, stratospheric clouds
 - Improved atmospheric chemistry (for e.g. ozone hole)
 - integrative and spatially explicit ecosystem modelling (for e.g. response to acidification)
 - the next generation of ice sheet models must be able to account for rapid dynamical changes to the flow of glaciers and ice streams (link to sea level rise)



Key Recommendations

- Biological research requirements:
 - Explicit modelling of species responses to climate change in a community context
 - Better understanding of species distributions and variation in response to the environment

Species richness vs. number records in 200 km cells





Key Recommendations

- Biological research requirements:
 - Quantification of colonisation routes and processes including the relative importance of natural and human mediated contributions to the latter, especially in hot spots of change
 - Development of continental-scale monitoring programmes based upon a network of carefully selected flagship sites.

Propagule vectors
and pathways





Key Recommendations

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 - Development of continental-scale monitoring programmes based upon a network of carefully selected flagship sites.

“A review of conservation practice for Antarctica in the 21st century”



Key Recommendations

