

Antarctic and Southern Ocean Science Horizon Scan





The 1st SCAR Antarctic and Southern Ocean Science Horizon Scan

The international Antarctic community came together to “scan the horizon” to identify the highest priority scientific questions that researchers should aspire to answer in the next two decades and beyond.

Queenstown, NZ

20-23 April 2014



An enthusiastic community effort!

SCAR ANTARCTIC & SOUTHERN OCEAN SCIENCE HORIZON SCAN

COMMENT

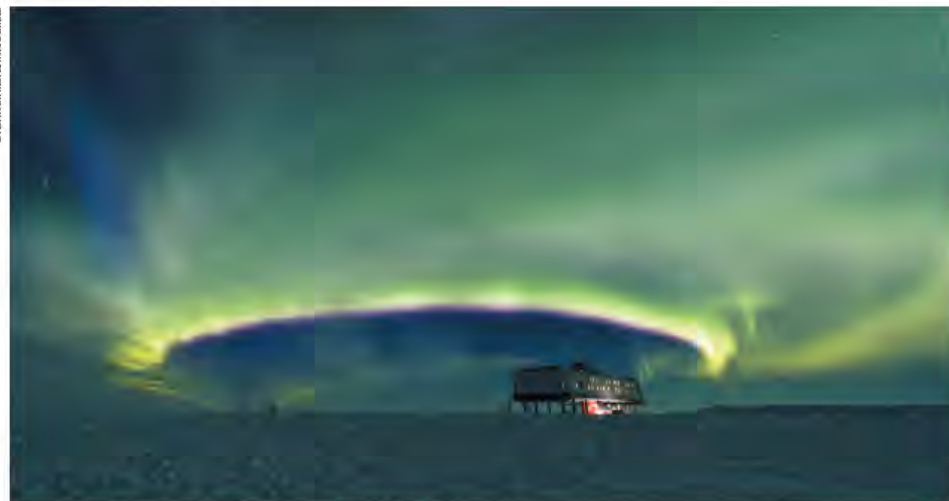
ART Albrecht Dürer's 16th century depiction of melancholy **p.26**



MENTAL HEALTH Back evidence-based therapies for treating depression **p.27**

EDUCATION University admissions policies should champion diversity **p.28**

RESEARCH ETHICS Developing rules for assessing pain in lab animals **p.28**



The aurora australis over the German Antarctic research base, Neumayer-Station III.

Six priorities for Antarctic science

Mahlon C. Kennicutt II, Steven L. Chown and colleagues outline the most pressing questions in southern polar research, and call for greater collaboration and environmental protection in the region.

Antarctica. The word conjures up images of mountains draped with glaciers, ferocious seas dotted with icebergs and iconic species found nowhere else. The continent includes about one-tenth of the planet's land surface, nearly 90% of Earth's ice and about 70% of its fresh water. Its encircling ocean supports Patagonian toothfish and krill fisheries, and is crucial for regulating climate and the uptake of carbon dioxide by sea water.

Antarctic scientists are unlocking the

secrets of Earth's climate, revealing lakes and mountains beneath the ice, exploring the deep sea and contemplating the origins of life and the Universe. Once seen as a desolate place frozen in time, Antarctica is now known to be experiencing relentless change. Local transformations such as the loss of ice, changes in ocean circulation and recovery of atmospheric ozone have global consequences — for climate, sea level, biodiversity and society.

In April 2014, the Scientific Committee on Antarctic Research (SCAR) convened

75 scientists and policy-makers from 22 countries to agree on the priorities for Antarctic research for the next two decades and beyond. This is the first time that the international Antarctic community has formulated a collective vision, through discussions, debate and voting. The SCAR Antarctic and Southern Ocean Science Horizon Scan narrowed a list of hundreds of scientific questions to the 80 most pressing ones (see Supplementary Information; go.nature.com/iilh5a). A full report will be published in August.

Scientific Committee
on Antarctic Research

<http://www.scar.org/>



Nature 512, 23–25,
2014

QR Code

SCIENCE PRIORITIES FOR...

DEFINE

*the global reach of the Antarctic
atmosphere and Southern Ocean*

**RECOGNIZE
AND MITIGATE**
human influences



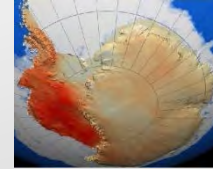
OBSERVE
space and the Universe



Antarctic and Southern Ocean Science

LEARN

*how Antarctic life
evolved and
survived*



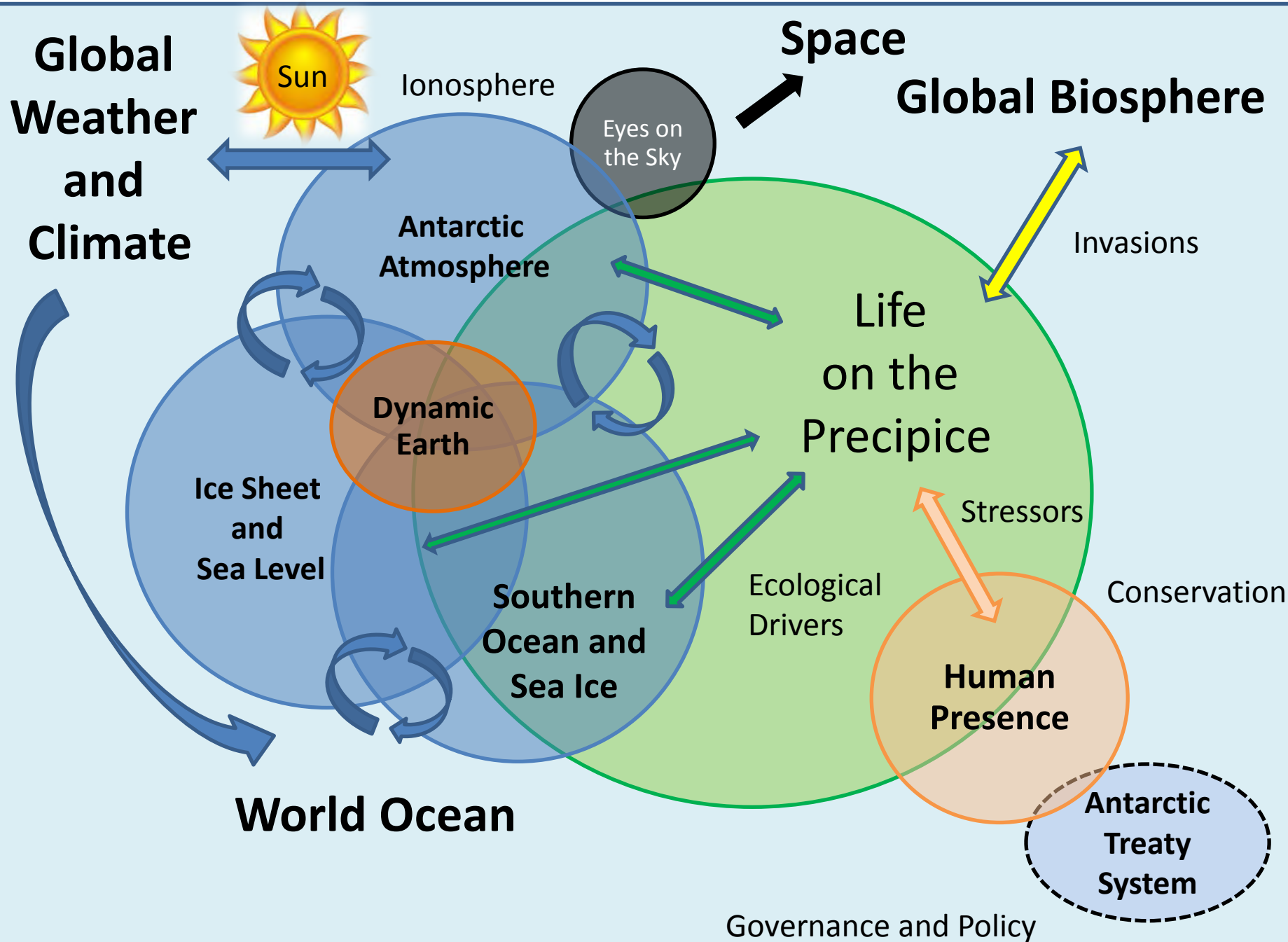
Stieg et al 2009

UNDERSTAND
*how, where and why ice
sheets lose mass*



REVEAL
*Antarctica's
history*





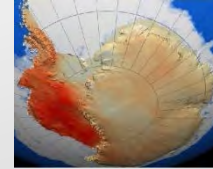
THE CHALLENGE...

**SUSTAIN
STABLE FUNDING**

COMMUNICATE
with all stakeholders



**ENHANCE
INTERNATIONAL
COOPERATION**



Stieg et al 2009

PROVIDE ACCESS
*Region-wide
Year-round*



**APPLY EMERGING
TECHNOLOGIES**



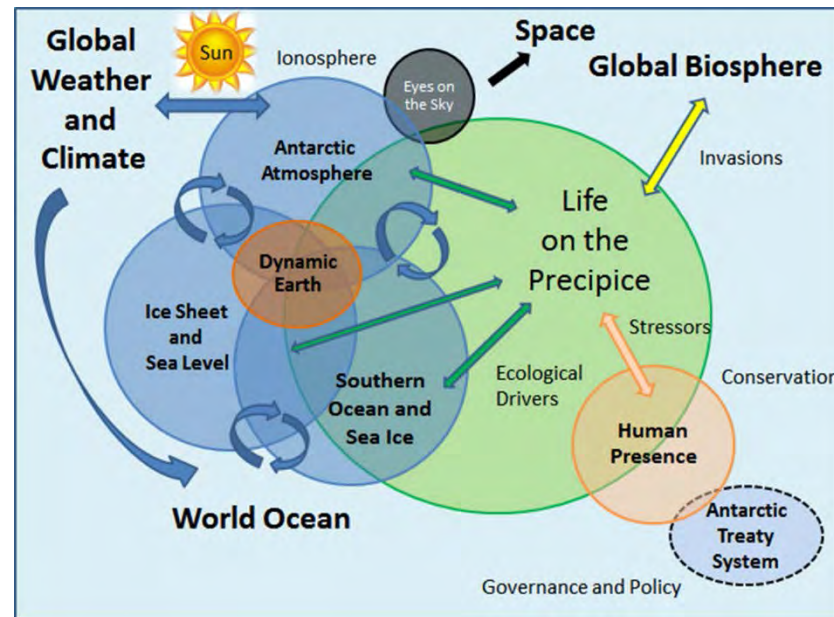
**STRENGTHEN
ENVIRONMENTAL
PROTECTION**

**Realizing
the Promise of
Antarctic
Science**

To Reach for the Horizon:

“A coordinated, portfolio of interdisciplinary science, based on enhanced international collaboration as no one scientist, program or nation can realize these aspirations alone.”

"The best way to predict the future is to invent it." A. Kay



**"Tomorrow belongs to those who prepare for it today"
paraphrase of an African proverb**

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