



# Understand Antarctica

## **ANTARCTICA TODAY** ..... 138

Cutting-edge science, climate change, a worldwide treaty and a protected continent. Where do things stand for Antarctica in the 21st century?

## **HISTORY** ..... 140

Amundsen, Scott, Shackleton, Mawson, Ross, d'Urville – just a few of those who starred in Antarctica's thrilling tales of discovery and survival.

## **ENVIRONMENT** ..... 158

Learn about the highest, driest, coldest and most remote continent, and the enormous challenges it faces.

## **WILDLIFE** ..... 168

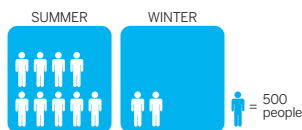
From whales, penguins, seals and seabirds to microscopic algae that feed the world's oceans: the Antarctic harbors a magnificent wealth of species.

## **ANTARCTIC SCIENCE** ..... 193

The only continent dedicated to research – scientists drill into the past with ice and sediment cores, and unravel the astrophysical mysteries of the universe.



## scientists in Antarctica



# Antarctica Today

## Antarctica & Climate Change

With global climate change melting its vast ice sheets, Antarctica, despite its remoteness, sits at the forefront of climate-change research.

In October 2011, NASA scientists discovered a rift in the Pine Island Glacier in West Antarctica that will ultimately yield a 900-sq-km iceberg. Such events interlock with other complex systems (eg ocean salinity and acidity), and there is a major push to better monitor and analyze these changes.

Local developments to combat climate change include the first zero-emission polar station: Belgium's Princess Elisabeth Antarctica Station, opened in 2009. Some other stations use wind turbines for power.

## Scientific Research

Antarctic science generates some of the world's most cutting-edge research. New technologies are allowing previously inaccessible areas of Antarctica to be studied. Sensors attached to animals gather data from deep below the sea and beam it to satellites; the Polar Earth Observing Network seismic array, completed in 2012, has sensors over one third of Antarctica.

Antarctica is uniquely placed for research in astronomy and physics. The IceCube neutrino detector, buried one cubic km below the Pole, made observations in 2012 that refute long-held understandings of Gamma Ray Bursts.

## Antarctic Treaty & Political Governance

In 2012 Pakistan became the 50th country to join the Antarctic Treaty, which governs Antarctica. Treaty countries agree that Antarctica is a

- » Area: 14.2 million sq km
- » Highest elevation: 4900m
- » Lowest elevation: 2540m below sea level (but ice-covered)
- » Highest temperature: 14.6°C
- » Lowest temperature: -89.6°C
- » Oldest ice core: c 800,000 years at bottom

## Top Books

*Endurance: Shackleton's Incredible Voyage* (Alfred Lansing)

Page-turner survival story.

*The South Pole* (Roald Amundsen)

Triumph at 90° South. *Scott's Last Expedition* (Robert F Scott) Firsthand (posthumous) account.

*The Worst Journey in the World* (Apsley Cherry-Garrard) Midwinter manhaul to Cape Crozier.

*South* (Ernest Shackleton)

*Endurance* expedition from the leader's perspective.

*At the Mountains of Madness* (HP Lovecraft) Sci-fi on the Ice.

## Top Albums

*Antarctic Symphony* Sir Peter Maxwell Davies' Symphony No 8

*Sinfonia Antartica* Ralph

Vaughan Williams' Symphony No 7

*Scott's Music Box: Music from Terra Nova* Songs played on the expedition