

# Ancient deep sea rivers of sand and mud tell climate story

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Planet Earth is now due for another ice age when glaciers will form and sea levels drop up to 120m. But don't get your woollies out just yet. "Any moment now" in geological speak means give or take a few hundreds of years or more.

To find out more about Earth's natural climate variability and the cycle of ice age and warm phases that are on a 100,000-year turnaround, sedimentologist Dr Craig Sloss, from Queensland University of Technology's Science and Engineering Faculty, joined an international expedition of 35 scientists from 14 nations in the latest Integrated [Ocean Drilling](#) Expedition.

Dr Sloss, the expedition's only Australian scientist, said the research vessel JOIDES Resolution went to the Straits of Gibraltar where the ocean floor's [sediment layers](#) hold a record of [climate change](#) and tectonic activity stretching back five million years.

"We drilled more than 990 metres into the seafloor in seven different sites and collected more than five kilometres of [core samples](#) of sediment for analysis," said Dr Sloss, who will concentrate on studying the dramatic fluctuations in currents and tectonic activity from the last 270,000 years.

"The Straits of Gibraltar are a fascinating area for [geoscientists](#). Not only are they the gateway between the Mediterranean and Atlantic oceans, they are also on a junction of the African and European tectonic plates.

"The expedition discovered the 'heartbeat of the earth' - a tectonic pulse at the junction. This pulsing caused a series of subsidence and uplift which squeezed [mud volcanoes](#) onto the seafloor.

"All this activity contributed to a deep, powerful outflow of water from the Mediterranean into the Atlantic which began more than 4.5 million years ago. This outflow deposited massive layers of mud and sand.

"The core samples are made up of this mud and sand. They hold a record of the waxing and waning of the strong currents over time. [Ocean currents](#) and climate are inextricably linked and it is these that can tell us what to expect in the future."

Dr Sloss will analyse the core samples in Germany where they are stored and archived. The expedition's scientific findings will be published in journals over the year and presented at the [34th International Geological Conference](#) at QUT in August.

Provided by Queensland University of Technology

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