What's happening on
JOIDES Resolution Expedition 374

Sedimentology!

We're sedimentologists!
We study sediment, which is mud, sand and stones from hundreds of metres below the sea floor. We use it to figure out more about the history of the Earth!

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

Australian and New Zealand
International Ocean Discovery Program Consortium

R. Hughes-Currie

Sedimentologists use the clues they find in the sediment to understand what the ocean was like in the distant past.

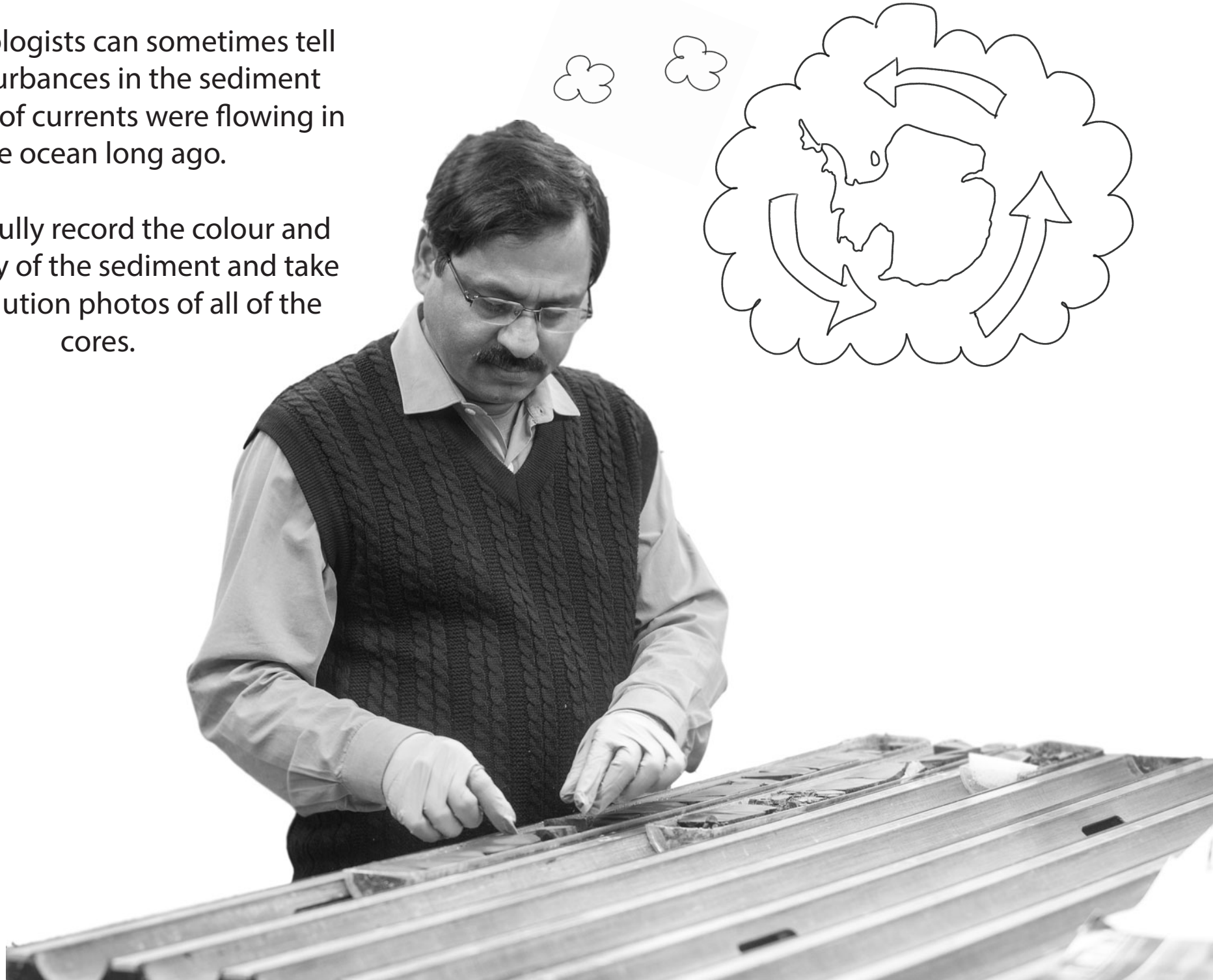
For instance, if they find shells in the sediment, they can tell that the water must have been shallow and warm at some point in the past, so that shell-fish could live on the sea floor.

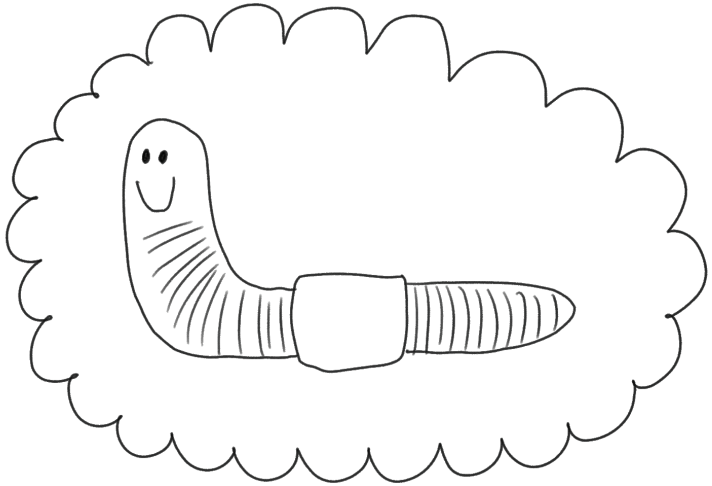
Sedimentologists don't need big clues like shells though. They can tell a lot of things about the ocean from the colour and texture of the mud.

The scientists know that if you look close enough at anything -- even mud -- it can tell you amazing things about the world.

Sedimentologists can sometimes tell from disturbances in the sediment what kinds of currents were flowing in the ocean long ago.

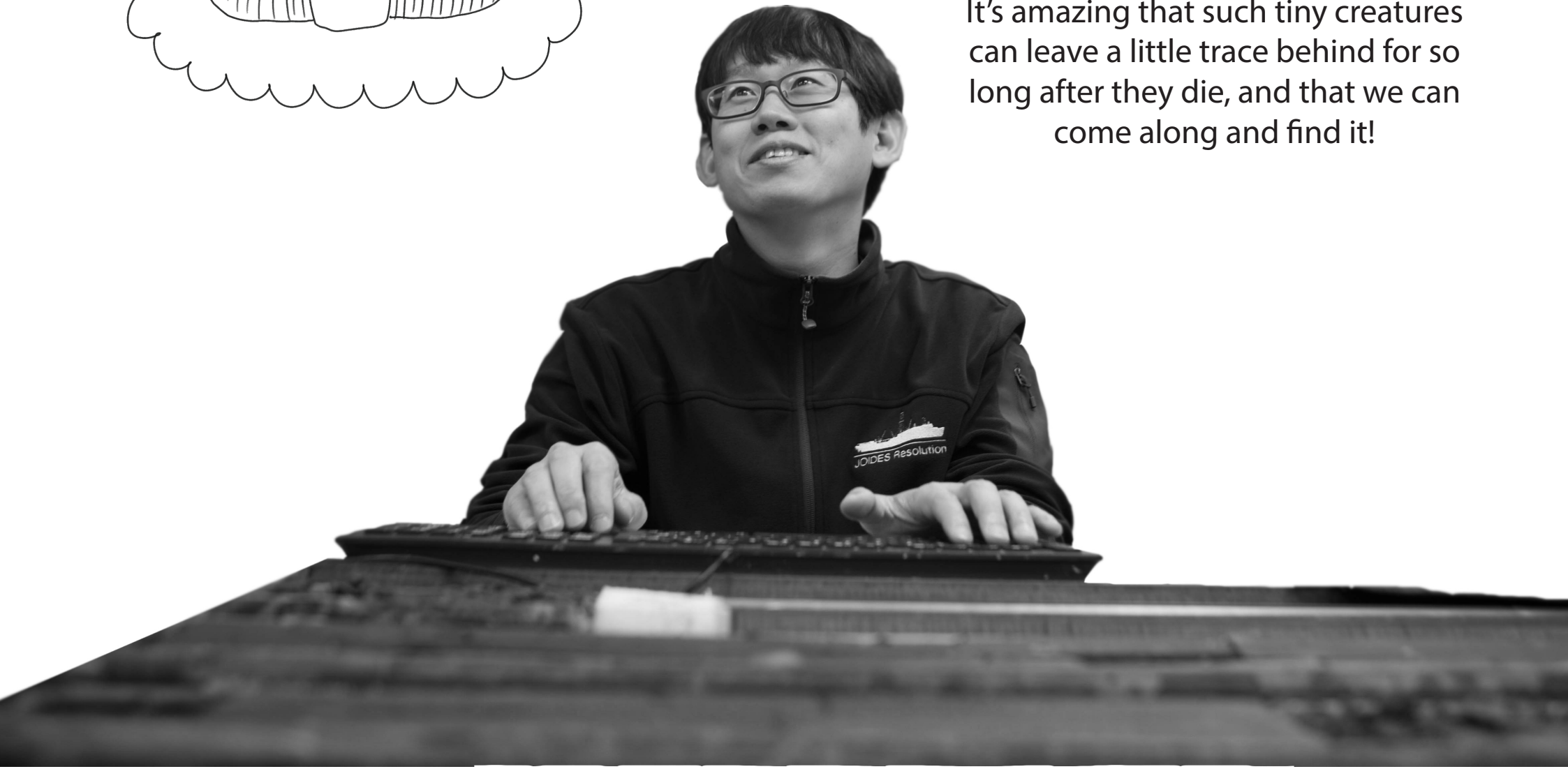
They carefully record the colour and consistency of the sediment and take high resolution photos of all of the cores.

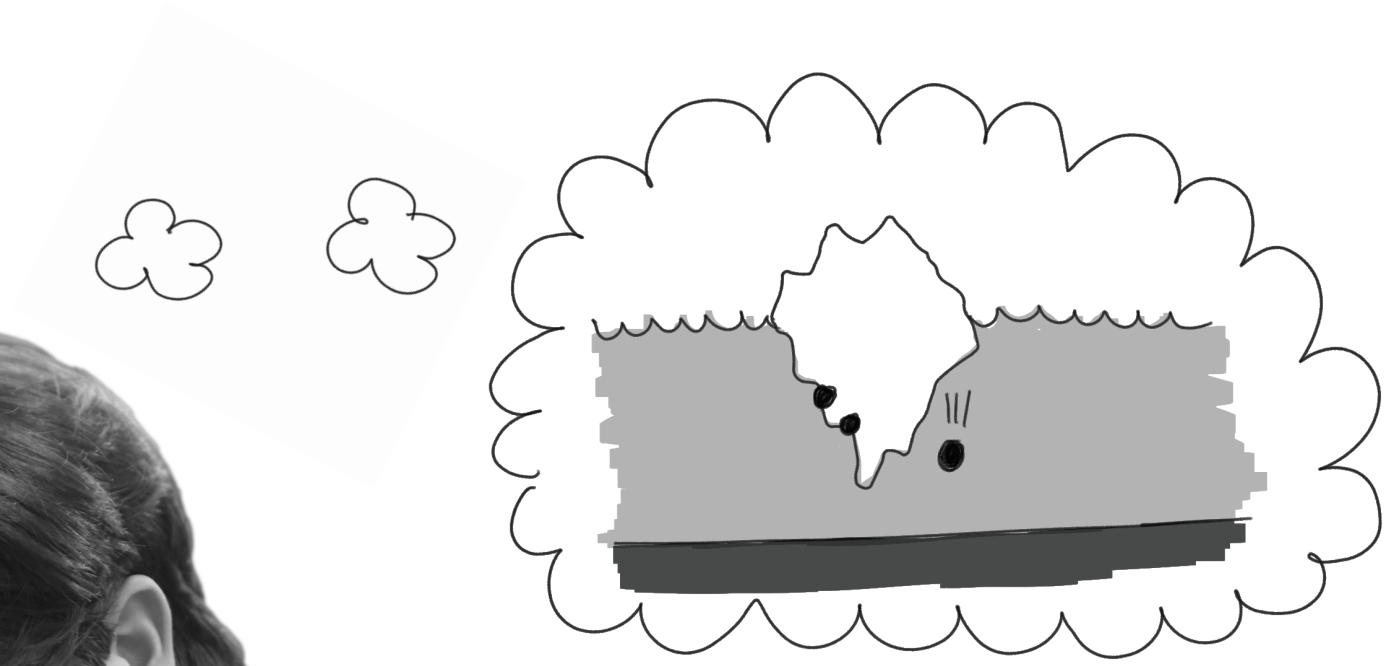




They sometimes see the tracks of worms that have burrowed through the sediment millions of years ago. They call it "bioturbation."

It's amazing that such tiny creatures can leave a little trace behind for so long after they die, and that we can come along and find it!

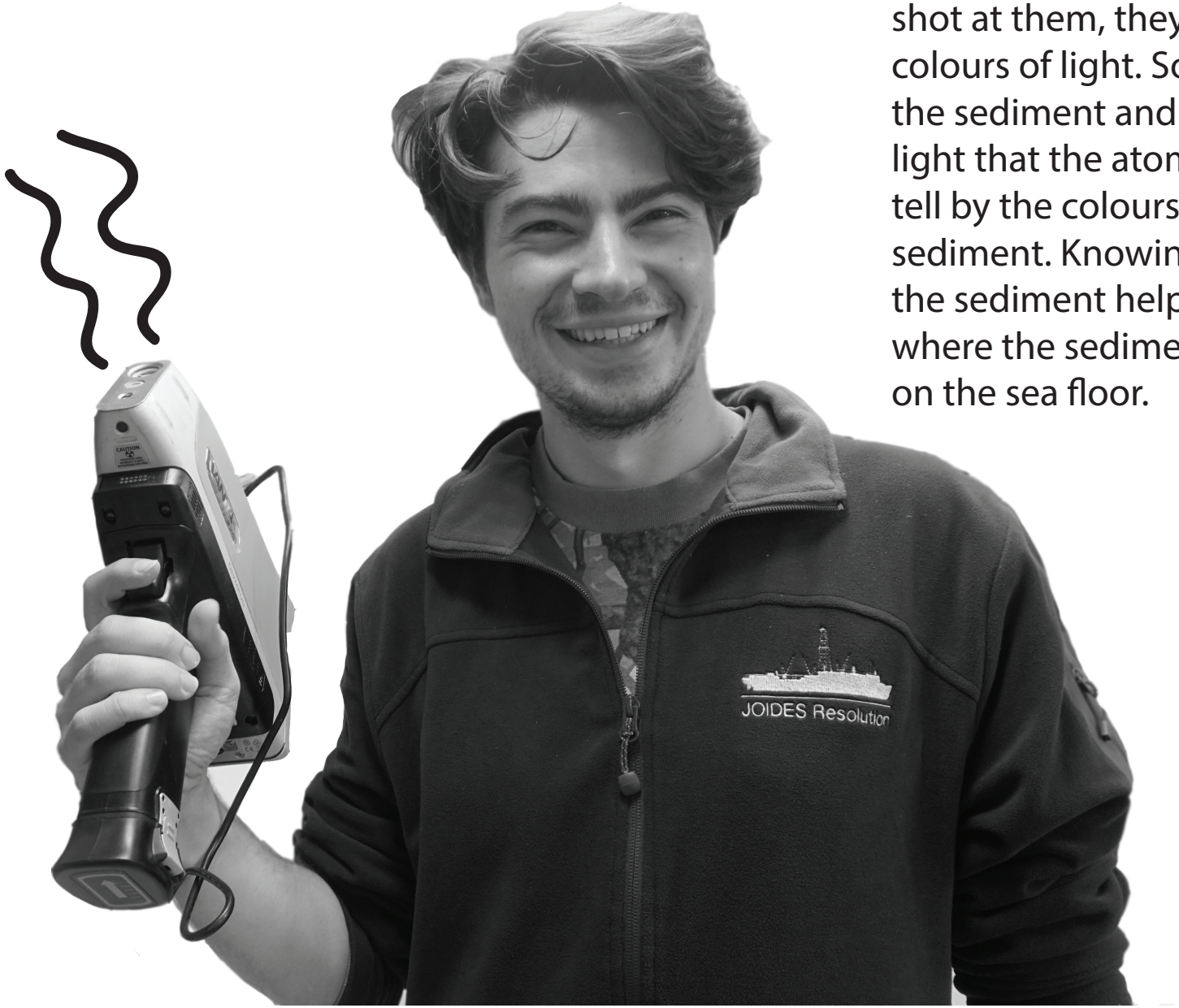




Sedimentologists find "drop stones" in the cores which have fallen off icebergs as they melt.

These stones can tell the scientists about the amount of icebergs around Antarctica in the past.

Isabela and Saki work together to look at the sediment under a microscope. Saki is an expert in microfossils, so she shows Isabela what kind of living things were in the sediment millions of years ago. Isabela is a mineralogist, and tells Saki how to tell what kind of minerals are in the sediment.



Ben uses an x-ray gun to figure out what kind of atoms and ions are in the sediment.

When different kinds of atoms have x-rays shot at them, they shine back different colours of light. So Ben shoots x-rays onto the sediment and measures the colours of light that the atoms shine back out. He can tell by the colours what atoms are in the sediment. Knowing the types of atoms in the sediment help the scientists know where the sediment was before it ended up on the sea floor.

The best part about our work is that we get to do it in a team. By combining our skills and using many ways to study the sediment, we can solve puzzles of the history of the Earth together!