

A rare glimpse of the cave of crystals

Mexico's Cave of Crystals stunned geologists when it was first discovered in 2000. The underground chamber contains some of the largest natural crystals ever found - some of the selenite structures have grown to more than 10m long. Professor Iain Stewart got a rare glimpse of the subterranean spectacle while filming for the new BBC series How the Earth Made Us.

We kept on being told how difficult it was going to be to film in the Naica Cave, but nothing really prepares you for the extremes of that cavern. It's about 50C in there, but it's the virtually 100% humidity added on top that makes it a potential killer.

That combination means that when you breathe air into your body, the surface of your lungs is actually the coolest surface the air encounters. That means the fluid starts to condense inside your lungs - and that's really not good news.

When the cave was first discovered it was just an accident.

Miners working in the Naica silver mine broke through the walls of the cavern and were astounded to discover these enormous crystals - the biggest anywhere on Earth.

But when the first people went in to explore, they were almost overcome by the conditions - and there's some pretty hairy video footage of them coming out of the cave on the verge of losing consciousness. So we knew the dangers were real. When you first look at the kit your first thought is: "Is that it?"

There's a special cooling suit - which is basically like a suit of chain mail but filled with ice cubes.

Then there's a breathing system which feeds cool, dry air into your mask.

It's OK to take the mask off for a short while, but do without it for more than about 10 minutes, and it's likely that you're going to start keeling over.

I was lucky of course. All I had to do was stand there and talk, but the cameraman and all the others helping set out the lights were having to work in these conditions, wearing these cumbersome suits, and they really struggled.



To enter the cave, special gear needs to be worn

We had a doctor outside the cave to monitor our vital signs, and we were coming out of the cavern with our heart rates up at 180.

The biggest danger was falling over; rescuing someone inside would have been very tricky.



The cave is at risk of being closed

Despite all the dangers, my overwhelming memory is the sheer beauty of the place. Whenever people around me were faffing around with equipment, I'd just stop and look around at the crystals.

It's such a glorious place, it's like being in a modern art exhibit.

I kept reminding myself: "You're in the Naica Cave", because there's only a handful of geologists that have ever been in there, and so I was aware of how incredibly privileged I was.

Yet remarkably, for the people who own and run the Naica mine, the crystal cave is a side-show, a distraction.

They don't make any money out of it and sooner or later, when the economics of the mine change, it will close.

The pumps will be taken out, the mine and the cave will flood, and the crystals will once more be out of our reach.

But perhaps we should console ourselves with the thought that there are certainly lots more crystal caves waiting to be discovered.

For starters, the geology of the area around the cave suggests that there could be more crystal caves in the area around Naica.

But more broadly, the Earth's crust must be riddled with wonders like this.

We know more about the outer edges of the Solar System than we do about the first kilometre of the Earth's crust.

As we learn more about the crust, we can be sure that there will be discoveries even more spectacular than Naica. I just hope I'm around to see them.



“ We can be sure that there will be discoveries even more spectacular than Naica ”

Professor Iain Stewart