

# Opinion & Analysis

## Arctic ice not infinite, but human stupidity is

**Y**OU WOULDN'T expect to find robins as far north as the Arctic Circle. Neither would the Inuit, who have lived there for thousands of years. There is no word for robin in their language, Inuktitut, although this bird has now become a regular visitor to this once-frozen terrain.

The global warming debate can at times seem a little abstract, but in the Arctic, it is a very real presence that is bearing relentlessly on all living organisms and systems in the region.

Put simply, the Arctic is melting. In early September 2007, an area of Arctic sea ice twice the size of Ireland disappeared – in just six days.

The overall rate of ice retreat has stunned scientific observers. Just two years earlier, in 2005, a record melt had seen the Arctic summer ice shelf contract to 2.03 million square miles. By 2007, the overall mass of Arctic ice had shrunk by more than 20 per cent to 1.59 million square miles.

"If you had asked me a few years ago how fast the Arctic would be ice free in the summer, I'd have said between 2070 and the end of the century," says polar ice expert Dr Mark Serreze. "My view has changed. I think that an ice-free Arctic as early as 2030 is not unreasonable."

He is probably an optimist. Other analyses predict that the entire Arctic sea will be free of ice in the summer within the next five or six years. To have the top of our planet entirely ice free will be the most powerful, visible signal yet that we have entered a new climatic era.

It has happened before, but not recently. The last time this region was ice free was about 55 million years ago, during an exceptionally hot era known as the Palaeocene/Eocene thermal maximum, or PETM.

The good news, such as it is, about Arctic melting, is that it doesn't directly lead to rises in sea levels. This is because the ice is already floating on open water, so, like an ice cube melting in a glass, the overall level remains the same.

The bad news is that the Arctic region is now heating up at two to three times the global average, with some areas already more than three degrees warmer than they were 30 years ago. It is driven by a self-reinforcing process known as ice-albedo feedback.

Ice reflects 80-90 per cent of sunlight directly back into space, thus keeping temperatures low.

As Arctic ice starts to melt, it exposes the dark sea water below. This water absorbs the great bulk of incoming solar energy, causing it to heat further, which in turn speeds up ice melt, which in turn exposes more sea water, and so on.

Melting sea ice "takes a small nudge to the climate system and amplifies it into a big change", says Dr Donald Perovich of the US Cold Regions Research and Engineering Laboratory.

The disappearing Arctic ice mass is both a symptom of the inexorable rise in global temperatures and a powerful contributor to the ongoing



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heating of the planet. It is akin to switching off a massive air conditioning unit.

You would imagine that the disappearance of the Arctic sea ice would trigger a concerted international response. And, after a fashion, it has: the US, Russia, Canada, Denmark and others are now involved in an unseemly scramble for the huge fossil fuel reserves that lie beneath the Arctic sea and which are now, thanks to the ice melt, capable of being exploited for the first time.

If you're wondering how fossil fuels came to end up under the Arctic, they were produced as a result of that other ultra-warm ice-free PETM era 55 million years ago. The irony is breathtaking.

Another unexpected "dividend" of the Arctic collapse is the opening up of the fabled North West Passage as a short cut for shipping between Europe and Asia. It is indeed an ill Arctic wind that blows no good.

The forces that are consuming the Arctic are also gnawing away at the Greenland ice pack. Since it sits on a land mass, a full collapse would add seven metres to global sea levels. To us, that would mean the inundation and loss of Dublin, Belfast, Cork and much besides.

At the other end of the world, Antarctica is also starting to feel the heat, though it is not thought to be in imminent danger.

Just as well too, since its disappearance would transform Ireland into an archipelago of tiny hilltop islands.

Of more immediate danger is the fact that the world's glaciers are in headlong retreat. Almost half of China's total water supply, for example, emanates from the Qinghai-Tibet plateau. Here, the glaciers are melting at a calamitous 7 per cent a year.

The Arctic region itself faces a literal ecological meltdown and the changes now in train may spell doom for the iconic polar bear and a host of other unique wildlife, as well as an end to the Inuit's ancient way of life.

What can be done? Tough, no-excuses international agreements to move us quickly into the post-carbon era would be a start. Technologies exist to reduce our carbon intensity by up to 90 per cent. There are ways, but is there the will?

Politicians and corporations who choose to view the disappearing Arctic ice sheets as a commercial opportunity rather than a red-flag catastrophe bring to mind Albert Einstein's observation: "Only two things are infinite, the universe and human stupidity; and I'm not sure about the former."

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