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Plankton: the fly in the climate change ointment

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Weather forecasters may be less than reliable guides to what is heading our way, but their views on what has already happened are often worth taking seriously.

At the end of a particularly dank day last week, the Man from the Met Office was on television giving a cheery account of what the nation had just endured. He pointed to the huge swathe of cloud that had blanketed all but the south east of Britain – and then to Bognor Regis on the south coast, which had somehow wangled a full eight hours of sunshine. Yet it transpired that Bognor had not been the warmest part of Britain; that distinction had gone to Aberdeen, sitting under the huge bank of clouds.

No surprises there, I thought as I sat slumped on the sofa with my beer and the dog. Obviously the clouds acted like a duvet, trapping the feeble heat of the sun. No sooner had I begun thinking this meteorology lark was a bit of a doddle than the weather man said that Aberdeen had benefited from the "Fern Effect".

What could this be ? Heat generated around the Granite City by burning bracken, perhaps? I then dimly remembered something about a wind called the "Föhn", and some web-based research quickly revealed what an astonishing phenomenon it is.

Named after the wind that sweeps over the Alps during the late winter, the Föhn Effect involves warm, moist air being drawn up mountains, which cools it and dries it out. As it drops down the other side, the air warms up again, but because dry air changes temperature faster than the damp variety, it ends up being far warmer than it was on the other side. The effect is dramatic: temperature rises of 30°F in an hour are not unknown.

So Aberdeen's warm spell was caused by the Grampians and not my "clouds-as-duvet" effect. Well, it seemed plausible enough, but in matters meteorological, a little knowledge is patently a dangerous thing.

For some reason, this isn't true in climatology – or at least, so those scientists working on global warming seem to believe. They cheerfully produce a steady stream of doom-laden predictions of what the future holds, clearly convinced they know all the possible factors that could be involved.

Given the appalling complexity of atmospheric physics, this seems unlikely – a suspicion confirmed by a paper published last month in the journal *Nature*. It centres on specks of organic matter that float up into the air over the world's oceans. This might seem the kind of topic for which the phrase "purely academic" could have been invented. Yet as Dr Colin O'Dowd, of the National University of Ireland, and his colleagues point out in their paper, such aerosols can act as the seeds around which clouds can form. These, in turn, affect how much of the sun's heat is reflected back into space, and how much ends up trapped within the atmosphere and warming our planet.

Most aerosols produce a cooling effect, but some do not. Either way, it would seem obvious that those seeking to predict the future climate of our planet should have a thorough understanding of aerosol effects. It has been clear for some years, however, that this is far from the case. The known sources of aerosol simply do not account for the amount of the stuff in the air.

Dr O'Dowd and his colleagues suspected that plankton may be one of these overlooked sources, and carried out air sampling from a research station on the Atlantic coast of Ireland. They found the plankton produced huge seasonal releases of aerosols, and estimate that they can double the amount of cloud droplet formation during the summer.

Given the amount of plankton in the oceans, and the fact that the oceans cover over 70 per cent of the Earth's surface, this is clearly an important finding. The fact that plankton are living organisms makes it doubly important, as they will almost certainly adapt their aerosol-producing activities as the Earth's temperature changes. It is entirely possible that they will produce more of the stuff, increasing cloud cover – and thus reducing global warming.

The fact is, though, that we do not know, and none of the much-vaunted supercomputer models used to predict the future climate take any account of the "plankton factor". Until they do, we should take all those doom-laden predictions about global warming with a hefty dose of sea salt.