

North Atlantic is the big cheese of global climate

IF EVER there was a superpower of the oceans, the North Atlantic, with its ability to control global weather systems, is it. The bad news is that this region also happens to be especially sensitive to the effects of climate change, so what is happening there could affect the world.

The planet's climate goes through periodic convulsions that affect every

region simultaneously. The most recent were in the early 1940s and mid-1970s. The latter coincided with the start of more frequent El Niño events in the Pacific and a strong global warming trend.

In past studies, Anastasios Tsonis and colleagues at the University of Wisconsin-Milwaukee have shown statistically that climate features like El Niño and the North Atlantic Oscillation (NAO), which drives weather across Europe, become synchronised for a few decades, before the links abruptly break down and a new pattern emerges.

They call it "synchronised chaos".

Now their modelling studies have shown the action is always driven from the North Atlantic. Tsonis says the NAO is "without exception the common ingredient... the pacemaker of major climate shifts" (*Geophysical Research Letters*, DOI: 10.1029/2008GL036874).

The findings may be seized on by deniers of man-made climate change as evidence of the scale of natural

"If the climate's tipping point resides in these waters, there could be severe consequences"

climate variability. Tsonis argued two years ago that accelerated global warming since the 1970s could be due partly to a natural climate shift (*Geophysical Research Letters*, DOI: 10.1029/2007GL030288).

But the findings will leave most climate scientists more worried. Today's climate is changing most dramatically in the far North Atlantic, with record warming and ice loss in recent years. If the climate's "tipping point" resides in these waters, then nature's synchronised chaos could unleash unexpectedly sudden and severe consequences. Fred Pearce ■