



Some years ago I lived in Comox, Vancouver Island and I remember many a day standing by the cliffs and gazing in awe at the powerful

movement of the Burrard Inlet as it surged north towards the Arctic Ocean. Have you ever stood at the edge of the ocean and wondered what keeps it moving? There is constant motion in the ocean in the form of deep currents which flow through all the world's oceans. These currents are driven by the contrast between different masses of warm salty water and cold salty water and by changes in the density of water as a result of both temperature and salinity.

The main Atlantic current is called the Atlantic Meridional Overturning Circulation, (AMOC), and is referred to as the global conveyor belt. AMOC brings warmth to various parts of the globe and also carries nutrients necessary to sustain ocean life. This current consists of a northward flow of warm, salty water in the upper layers of the Atlantic Ocean and a southward flow of colder, deep waters. This current is also driven by changes in the atmospheric weather and the planet's rotation. This current is part of the circulation in the oceans and it is the zonally integrated component of surface and deep currents in the Atlantic Ocean following a pattern of north to south and from south to north.¹

This constant overturning movement of ocean water plays a crucial role in redistributing heat, nutrients and marine life across the planet, influencing climate and ecosystems.

These currents provide for the circulation and the over-turning of ocean waters. and are as essential to the ocean as our own bodily circulation is essential to us. This complete over- turning is a very slow process and takes about 1000 years to do a complete circle.

Research studies by oceanographers from many different universities are affirming that this circulation system is heading toward a tipping point² in that it is slowing down. Some of the consequences of this slow-

down and possible collapsing of the AMOC will include freezing temperatures in Europe, scorching heat in the tropics and increased sea level rise in the North Atlantic. And some researchers are now saying that the tipping point may be closer than was earlier predicted. Due mainly to human created global warming, the increasing fresh water inflow from melting ice sheets and swollen rivers are reducing the salinity and density of the water and disrupting the normal current flow causing huge sea level rises, extreme heat waves and more intense storms and rainfall.



Map showing part of AMOC (National Oceanic Atmospheric Admin)

And this is changing the pattern of global ocean circulation, reducing the required "overturning" of the cold waters from below to the warmer waters above. We are certainly seeing evidence of

floods from rising sea levels and extreme heat in different areas of our planet. Most of the heating from global warming is accumulating in the oceans. Analysis over the past ten years is showing that ocean heat content is rising year over year and communities on land are being threatened by this.

As you read this, what part of this critical situation concerns you the most? Is there one concrete action you might take to raise your own consciousness of this disturbing reality.

An excellent 13 minute [YouTube video](#) from PBS explains how the currents interact and the critical importance of AMOC.

¹ Wikipedia

² Inside Climate News, Bob Berwyn, Feb. 9/24