

## Scientists identify twelve atmospheric services that should be protected by a law of the atmosphere

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Twelve services provided by the Earth's atmosphere that are vital to human well-being and existence, have been identified by meteorologists and scientists at the University of Birmingham. The scientists claim that only by appreciating the value of the atmosphere to society can we understand how best to communicate the sustainable management of the atmosphere and treat it as a 'global commons'.

According to calculations by the research team the atmosphere is worth at least between 100 and 1000 times the Gross World Product. (The Gross World Product is currently about £50 trillion so the atmosphere is valued at between £5,000 trillion and £50,000 trillion)

The twelve free services provided by the atmosphere are:

- The air that we breath
- Protection from radiation, plasma and meteors
- Natural global warming of 33 degrees C
- The cleansing capacity of the atmosphere and the dispersion of air pollution
- The redistribution of water services: clouds and the hydrological cycle
- Direct use of the atmosphere for ecosystems and agriculture
- Combustion of fuel
- Direct use of the atmosphere for sound, communications and transport
- Direct use of the atmosphere for power
- The extraction of atmospheric gases
- Atmospheric reaction and climate tourism
- Aesthetic, spiritual and sensual properties of the atmosphere

In their paper, the Royal Meteorological Society's journal 'Meteorological Applications', the scientists state that careful management of the atmosphere is crucial as atmospheric services are currently under threat and that geo-engineering of the climate could lead to them being compromised. They say that a unified 'Law of the Atmosphere' should be seriously considered as it is imperative to consider how the atmosphere is owned and managed.

The twelve services that the scientists have come up with could be drastically affected if for example the climate were to be geo-engineered by sulphate aerosols injected into the stratosphere. The atmosphere is so precious that we would only survive for about 3 minutes without the oxygen we need for life.

Professor John Thornes, lead author on the study from the University of Birmingham's School of Geography, Earth and Environmental Sciences, said, 'The research is about describing, appreciating, managing and communicating the value of atmospheric services. The atmosphere is a vital component of the Earth system and yet its immense social and economic value to society is largely ignored and taken for granted.'

He continues, 'The atmosphere is often seen as a hazard bringing climate change, floods, snow, heat waves droughts, and tornadoes, but is rarely seen as a resource or service, and this should be communicated to governments and the general public. Society might then realise, at a time of poor air quality, ozone depletion, enhanced global warming and potential geo-engineering of the climate, that there is a need to treat more carefully the free services which the atmosphere is providing society.'

'We think that a Law of the Atmosphere would protect this valuable resource and prevent individual countries from taking it upon themselves to engineer the climate, as whatever is put into the atmosphere affects the global community'.