

SAMPLE

Fiona's Red Kite

Climate change and ecosystems glossary

2008



interpreting weather and climate for your needs

Fiona's Red Kite

A sample glossary is free to download at www.fionasredkite.co.uk.

Enquiries about a full glossary of climate change and ecosystem terms should be made to:

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aerosols		Particles in the atmosphere that reflect sunlight and help clouds to form. Sources: dust storms, fossil fuel burning. The net effect of aerosols in the atmosphere is a cooling of	
anthropogenic greenhouse warming	2005	About half the warming so far has been caused by carbon dioxide emissions from burning fossil fuels; about 37% from other greenhouse gases emitted by humans and 15% from the changes we have made to the land, mainly deforestation.	IPCC 2007, WG1
carbon dioxide		CO ₂ . The most important anthropogenic (human induced) greenhouse gas. Anthropogenic sources include burning fossil fuels, cement production and deforestation. Natural sources include . Natural sinks include aforestation, absorption into the ocean.	
carbon footprint climate change		UK average per person per year is about 4.5 tonnes CO ₂ the change in the average weather conditions or extreme weather events due to natural or human causes	Act on CO ₂ web site 30/11/2007.
climate sensitivity		the equilibrium global average surface warming following a doubling of the atmospheric carbon dioxide concentration	IPCC, eg 2007 WG1 SPM p12 para 2
Climate Change Bill	2007	Proposes parliamentary frameworks for setting and monitoring regular UK emissions, and managing adaptation to climate change. 60% reduction in carbon dioxide emissions over 1990 levels by 2050.	available from defra website
cryosphere		Systems by which ice is formed and maintained near the earth's surface including sea-ice, glaciers and lying snow.	
deforestation		Destruction of forests and woodland. Causes: logging for building materials, wild fires, collection of wood for fuel, clearance for agriculture, poverty. Consequences: degeneration of soil, loss of an ecosystem that stores carbon and generates oxygen (see photosynthesis), loss of a habitat and homeland of	

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		indigenous peoples, employment for logging workers, wealth. UK (Forest Research)	
ecosystem approach		Identifying the environment as an integrated system of interacting living (eg plants and animals) and non-living (eg rocks and rivers) entities needed to support life.	
ensemble climate prediction		Projecting future climate by running a computer model of climate, or several models, many times with different but plausible configurations. The range and distribution of climate solutions, if the ensemble is well designed, will indicate the probability that a climate feature will actually occur.	Murphy et al. 2004, <i>Quantification of modelling uncertainties in a large ensemble of climate change simulations</i> Nature 430, 768-772 climateprediction.net
greenhouse gases		The atmospheric gases contributing to the greenhouse effect, in order of abundance are: water vapour (H ₂ O), carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), CFCs?, HCFCs?, tropospheric ozone? (O ₃). Carbon dioxide is the most important greenhouse gas because once emitted it stays in the atmosphere for a long time, and of those long-lived gases that humans create directly, it produces the largest total warming effect.	WMO Greenhouse Gas Bulletin 2007. WMO No. 3, 23 November 2007.
GtC		one Giga tonne of Carbon, 10 ⁹ tonnes of carbon equals 3.67 GtCO ₂ . See also CO ₂ equivalent.	
Gulf Stream		Ocean current that transports warm water from the Gulf of Mexico to north-western Europe. A part of the thermo-haline circulation.	
IPCC	1992	Intergovernmental Panel on Climate Change. An organisation of 2000 or so scientists established by the United Nations in 1992 to provide advice to policy-makers on climate change.	see www.ipcc.ch
iso-static tilt		Vertical movement of the land over long periods of time. In the UK, the south-east is sinking and the north-west is rising (its still springing back from the retreat of the ice sheet). Isostatic tilt in the south-east is causing a sea-level rise of about 1mm per year (Sherman 2005). Sea-level rise is	

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ozone	also caused by warming (see sea-level rise). A form of oxygen O ₃ that is a greenhouse gas in the troposphere, but higher up in the stratosphere it reflects ultraviolet rays that would be harmful to humans and other animals. Stratospheric ozone is destroyed by chemical reactions with some halocarbons.	
photosynthesis	the process by which plants convert sunlight and carbon dioxide into energy	
radiative forcing	The change in the amount of energy per square metre (watts per square metre, Wm ⁻²) measured from the top of the atmosphere. Positive radiative forcing increases the height from which outgoing radiation is emitted. Av. temp decrease with height and is proportional to outgoing radiation. reducing radiative losses and increasing temperatures at the surface and in the lower atmosphere.	IPCC AR4 2007, FAQ 2.1

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