

THE BEACONS GUIDES TO CLIMATE CHANGE

INTRODUCTION TO THE SERIES





*Big ball of iron with
some rock on the outside
and a very very thin coating
of moisture and oxygen and
dangerous creatures.*

A Description of Earth, Wikipedia. Quoted in Here
on Earth by Tim Flannery.

INTRODUCTION TO THE SERIES

THE GUIDES

There are three parts to the series of BEACONS Guides to Climate Change.

Guide One:

Climate Change - the Facts

Guide Two:

Climate Change – Politics Science and the Future of Humanity

Guide Three:

UK Climate Change and Energy Policy

They can be read, or downloaded, for personal or educational use, free of charge, on the BEACONS website <http://beaconsdec.com>

We welcome comments, corrections and criticisms. Please send them to the Editor, David Terry, at terrydroit@aol.com

Each guide is self-contained and it is desirable, but not essential, to have read the preceding Guide or Guides. This means there is some overlap between the Guides.

UPDATING

The Guides are continuously revised and updated. New material is often put in an Appendix pending inclusion in the main text.

NEWSFLASHES announce recent updates or especially relevant or interesting sections and are put on our Facebook page www.facebook.com/BeaconsDECMalvern/ and also emailed (blind-copied for privacy) on request to the Editor. Please email him at terrydroit@aol.com if you would like them emailed to you.

STEM

STEM stands for Science, Technology, Engineering, Mathematics. It is a government sponsored scheme in partnership with leading employers and charities to promote the teaching and learning of STEM subjects in schools and colleges.

STEM AMBASSADORS

These are volunteers from STEM related jobs and disciplines, usually supported by their employers, who offer their time and enthusiasm to help bring STEM subjects to life and demonstrate their value in life and careers. They are an important and exciting free resource for teachers and others engaging with young people in and outside of the classroom.

Each STEM Ambassador is registered, trained, and checked with the Disclosure and Barring Service (DBS).



STEM Ambassadors

For the organisation of STEM ambassadors, the country is divided into 19 hubs. The University of Worcester is the hub for the West Midlands (Birmingham, Coventry, Dudley, Herefordshire, Sandwell, Solihull, Walsall, Warwickshire, Wolverhampton, Worcestershire) Please contact ambassadors@worc.ac.uk or www.worcester.ac.uk/discover/stem-support for more information or to book an ambassador.

STEM and BEACONS

The West Midland STEM recommends the BEACONS Guides to Climate Change as a highly relevant resource in promoting the teaching of STEM subjects. The Guides are on-line, free, and frequently up-dated. They are designed so that teachers can download particular pages for class use or as notes for teachers.

As you can see from the following team list, many of the Guides team are also STEM ambassadors.

THE TEAM

Production

David Terry, MA (Oxon), Mathematics, PGCE (London). - *Joint Editor and principal author*. Former headmaster and college principal.



Ashleigh Chester, *Joint Editor (January 2019)* - BSc (Hons) in Chemistry, first class (University of Warwick, 2018)-Associate consultant for a financial consulting firm in Birmingham.



Patricia Fenner, *Assistant Editor*. - Former teacher and a supporter of Beacons for many years. She also formats the text and puts it on the BEACONS website, working in conjunction with Tristan Cousteau.



Tristan Cousteau, LLB (Swansea), *BEACONS Website Manager*. - A law graduate currently developing a career in applications of computing and website management.

Catherine Fitzsimons BA (Oxon), Physics - *Copy Editor*. A former physics teacher who now works for the National Centre for Earth Observation creating resources for the EO Detective project, as well as being an independent editor and proof reader who regularly reviews publications for a development charity. *STEM Ambassador*



Research and Writing

Deborah Harris, MEng, first class (University of Birmingham) 2016. - Materials engineer, Rolls Royce. *STEM Ambassador*



Elena Lengthorn, BSc, MSc, PGCE, CGeog. - Senior lecturer Teacher Education, University of Worcester where the Guides are a recommended source. *STEM Ambassador*



Dr Cattleya Petchsingh, DPhil (Oxon), MSc (Heriot Watt), BSc (Bristol). - Former university physics lecturer and researcher. *STEM Ambassador*

Chair, Progress Network, Midlands.

David Terry (See p4)



Carmen Zaragoza
MEng MSc - Engineer in the Energy industry.
STEM Ambassador

Members of Beacons and Staff and Students at the University of Worcester.



BEWARE OF PROPAGANDA

As the political battle over climate change has heated up, so has the propaganda campaign. On one side, green activists sometimes exaggerate claims about the possible consequences of global warming. On the other, sceptics seize upon anything that appears to suggest that climate change is not happening, is not due to human emissions, or will not be a problem. The sceptics, often called climate change deniers, are very much in the minority as far as scientific opinion is concerned, but that, of course, does not automatically make them wrong.

AUTHOR'S NOTE: WHERE FACTS COME FROM

Details of sources are given on the website, but there are three that are particularly important.

The first is FREE at www.withouthotair.com

Last updated in August 2015, it is *Sustainable Energy without the hot air* by Sir David J C Mackay, FRS. Sir David died of cancer in April 2016 at the age of only 48.

Originally published in 2009, the book is like no other. Using only GCSE maths (except for the appendix) this brilliant mathematical physicist replaces adjectives with numbers so that, for example, his response to an assertion that we could get a huge amount of energy from wind is to put numbers into it and calculate how much. Data will change over time, but the basic physics will not.

Second, Carbon Brief is a free UK website www.carbonbrief.org covering the latest developments in climate science, climate policy and energy policy in clear, factual articles. Their excellent daily bulletin, also free, includes a round-up of press reports for the day.

The third is *Energy for Future Presidents* (Norton paperback, 2013) by Richard A Muller, a world ranking astrophysicist.

After Climategate (see page 24 of Guide One), he set up his own research project and website:

<http://berkeleyearth.org/>

Wikipedia is the fourth. I believe that used intelligently it is a wonderful source of information.

REVISIONS AND UPDATES

Each Guide is updated as developments occur. This can lead to inconsistencies if we fail to update similar information elsewhere. If you spot any inconsistencies, please contact terrydroit@aol.com.

Disclaimer

While every effort is made to provide accurate information on the subject matters of the guides, neither the editor nor any member of his team makes any representation, express or implied, about the accuracy of the information in the guides nor do they accept any legal responsibility or liability for any errors or omissions.

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Research CRU IPCC accurate readings uncertainty oC observed
Environment International Development energy
measurements steam engine Newton AIR BREATHE Nitrogen component
sunlight cold absorbed heating object infra-red Solar frequencies visible light
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