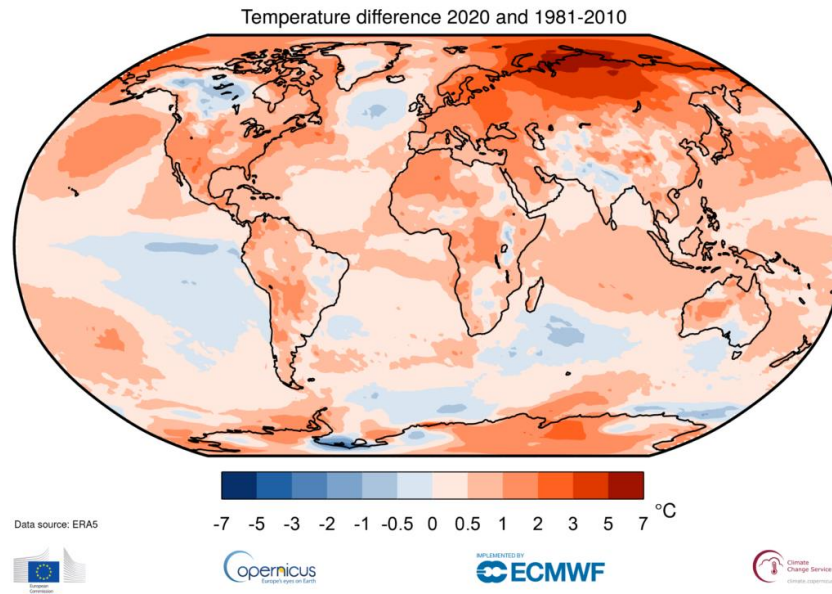




COURSE & OPTIONS IN ENVIRONMENTAL STUDIES



General Introduction

We live in what is now universally agreed is a Global Climate & Biosphere Emergency. International Governmental and public concern has finally understood the impact of the unprecedented consumption of space and resources on Earth's climate, other environmental systems and human societies. They are generated by our rapidly increasing technological capability, reorganisation of international political and economic systems such as the rapid industrio-economic emergence of China, India, Brazil and other developing nations, global demographic trends and a failure of market economics and the global banking system.

The 2005 Kyoto Protocol was not enforced by global action, despite recognising the changing fabric of society and reorganisation of socio-economic systems progressively degrading physical and social environments. The 2015 Paris Climate Agreement of the Intergovernmental Panel on Climate Change 2015 Summit (CoP 21), was insufficient to avoid Dangerous Climate Change exceeding 1.5° C global warming since the Industrial Revolution, evidenced by unprecedented global extreme weather in 2020 and already in 2021. CoP 26 in Scotland, on which the future depends, was postponed to November 2021

Past environmental changes and human-environment impacts offer important 'proxy' clues to those we now experience and how our ancestors perceived and reacted, amounting to a major change in the recognition of human-forced global climate and environmental change. We will have to manage rather than prevent its consequences in the new geological epoch, the Anthropocene, which has now begun.

An Opportunity for Interdisciplinary Study

Participation in this interdisciplinary Course is encouraged, irrespective of the student's principal academic background. The Course options in Environmental Studies explore the character and implications of these changes through multi- and inter-disciplinary studies, since solutions for our socio-economic and environmental future can be found no longer in a single discipline. Participants from a wide range of relevant academic backgrounds can expect to bring their particular expertise to the Course and to appreciate the significance of adjacent disciplines through the Oxford Tutorial system of study.

Historical evidence of the impact of physical and human forces shaping the landscape is important to our themes. This is evident in the use made during the Summer School of the rich and diverse nature of British Landscapes in illustrating the impact of past as well as contemporary environmental, socio-economic, cultural and technological systems and using them as models on which to forecast the future.

As a result, the Course is likely to appeal to majors in Archaeology, Earth & Environmental Sciences, Ecology, European Studies, Geography, History, Humanities, International Studies, Life Sciences, Medieval Studies, Policy, Political, Social & Economic Studies and Urban Studies.

Field Excursions

A popular, 4-Day Field Excursion *The Development of British Landscapes* is held half-way through the Summer School and is a **co-requisite part of the academic programme of study** as well as being **open to other participants of the Summer School**. This is in addition to the general, 1-Day Excursions which form an integral part of the Summer School-wide Programme (see main brochure). Many parts of the British Isles record almost continuous human settlement from the end of the last global episode of the Ice Age 11,700 years ago, embracing *inter alia* periods of Neolithic (upper Stone Age), Bronze & Iron Age, Roman and Anglo-Saxon settlement prior to the Norman Conquest, the High Middle Ages, Industrial Revolution and Modern periods. They provide a magnificent opportunity for direct study of a full range of environmental changes in an enjoyable academic and social atmosphere.

Selection of the Programme of Study

Choice of Course Options allows participants to construct their own individual Summer School programmes, enabling them to concentrate on areas of prime interest or to extend their range of study by sampling related disciplines. Two Options, each one described individually and accompanying this brochure, are available as follows:

OPTION 1

**CLIMATE CHANGE IN THE ANTHROPOCENE : GLOBAL CATASTROPHIC RISK
& RESILIENCE**

OPTION 2

**ENVIRONMENTAL CHANGE & BRITISH LANDSCAPE DEVELOPMENT
11,700 BP ~ 1700 AD/CE**

Students study **ONE** Option (worth 6 credits) and co-requisite 4-Day Field Excursion (worth 2 Credits) to form a Full, 8-Credit Programme.

Other students not studying the Environmental Studies Course are welcome to attend this Field Excursion if places are available.

On application, participants are asked to nominate **both** Options in order of preference. First preferences will be allocated as far as possible (and are the normal rule) but it may be necessary to vary this occasionally in order to obtain balanced Tutorial groups. The College reserves the right to do this.

Each Option will involve an average of 4-5 hours specialist formal contact with tutors each week, including interdisciplinary sessions with the other Option in the Environmental Studies Course. Students are required to submit a Tutorial Essay or present a Seminar Paper/PowerPoint in the 2nd, 3rd & 4th weeks of the Programme with a concluding Essay and PowerPoint Presentation in the final week.



Environmental Studies: Option 1

CLIMATE CHANGE IN THE ANTHROPOCENE : GLOBAL CATASTROPHIC RISK & RESILIENCE



Dr Ken Addison

Introduction

Unprecedented rates of human-forced rapid climate & environmental change and extreme weather events are beyond doubt and greatly concern the international community, corporations and governments. Virtually all human activities disturb Earth's environmental systems, increasing with the size and technical prowess of human populations since later prehistory 11,700 years ago. We are now redefining the present geological epoch as the Anthropocene as a consequence of our impact on Earth's boundary layer ~ the instable envelope embracing the landsurface, atmosphere and oceans on which we and all other biological systems depend.

Global economic and political security depend on accurate scientific predictions of global environmental change, technological capacity to respond and political will to mitigate and/or adapt to impacts. The latest, 6th Assessment Report of the Intergovernmental Panel on Climate Change in 2021 emphasises options for reducing environmental impacts, or facing consequences. Global financial crises from 2008, lack of a post-Kyoto accord (2012), excitement over natural gas fracking, tar-sand oil and Arctic Basin marine resources (made accessible by global warming !) threaten progress on carbon reduction and renewable energy, pushing us towards Dangerous Climate Change above 1.5° C of warming. Will the 2021 CoP26 Climate Conference lead to substantial, binding targets in time ?

Why have global environmental crises arisen so rapidly ? What triggers dramatic increases in environmental awareness, placing environmental issues on international agendas? How can we avoid, mitigate or adapt to their effects. What happens if we cannot? Answers concern students and practitioners across socio-economic, political and natural sciences. Successful Earth Systems management and socio-economic and political stability demand we understand our environmental impact. Failure by wealthy industrialised and industrialising nations to respond to environmental impacts of sustained development raises international tension, especially amongst disadvantaged and marginalised nations.

Academic Aims

The Option's prime aim is to extend awareness and understanding of key global environmental crises facing the international community to students **irrespective of their academic backgrounds**. We identify the principal components and dynamics of natural environmental systems and the context of

rapid natural climate and environmental changes of the continuing Quaternary 'Ice Age'. We examine how industrial, agricultural and other activities of human societies disrupt their operation, generating environmental disturbance. Impacts leave tell-tale environmental signatures so an important early step is to evaluate the nature of surviving evidence for environmental impacts and changes.

Establishing cause-and-effect relationships, we examine crucial aspects of global environmental crises, with particular perspectives from Europe. This most heavily industrialized and populated zone on Earth, with the longest continuous records of human occupation since the most recent world-wide Ice Age means that many origins and consequences of rapid environmental change are found here.

Academic Programme

Key Lectures and Seminars provide a general review of the principal themes, which students then explore in more detail in Tutorial essays or seminar papers, choosing a weekly topic from the list below:

Week 1: Nature & Context of Earth's Climate & Environmental Systems

Key Illustrated Lecture : *The Global Landscape history and legacy of the Quaternary Era (the Ice Age).*

Seminar/Tutorial : *Archaeology & Geology ~ environmental detectives. Scientific & documentary evidence of environmental change. Last Glacial Maximum in north-west Europe.*

Week 2: Climate Change : past & present

Key Illustrated Lecture : *Intergovernmental Panel on Climate Change : Science, Impacts & Mitigations*

Seminar/Tutorial : *Quaternary cold & temperate stages. Holocene climate ~ the past 11,700 yrs.*

The Medieval Warm Epoch (c. 800-1300 CE) & Little Ice Age (c. 1350- 1850 CE).

Week 3: Global Climate Forecast to 2100 CE

Key Illustrated Lecture : *IPCC Global climate change forecasts to 2100 CE. The Anthropocene.*

Seminar/Tutorial : *"Greenhouse"enhancement. Ocean-Icesheet response. Atmosphere-Ocean circulation.*

Week 4: Landsurface Impacts of Global Climate Change

Seminar : *Earth-Atmosphere interactive systems ~ thermal, hydrologic & biospheric regimes & responses.*

Tutorial : *Sea level change & Coastline Management. Water Resources. Agriculture & the Biosphere. River Management & Slope Instability.*

Week 5: Global Risk : Securing Earth's Environmental Future in the Anthropocene

Seminar : *Environmental governance in the Anthropocene. Dangerous Climate Change at + 1.5 – 2.0 °C*

Tutorial : *International environmental treaties & protocols. Greenhouse emissions. Environmental protection, conservation & management. Sustainable Development.*

Preliminary Reading

Students undoubtedly benefit from referencing some/all of these general texts reading prior to arrival in Oxford, when more detailed lists accompany Tutorial essay titles are distributed.

Smithson, P., Addison, K. & Atkinson, K., 2008, *Fundamentals of the Physical Environment*, (4th Edtn.)
London: Routledge (ISBN 10 0-415-39514-3)

IPCC, 2021: *Climate Change 2021: 6th Assessment Report. Working Group II ~ Impacts, Adaptation & Vulnerability Intergovernmental Panel on Climate Change*, Cambridge (UK) & New York:
Cambridge University Press. Summary for Policy makers & Technical Summary (ISBN to be announced)

Dessier, A.E. & Parson, E.A., 2020, *The Science and Politics of Global Climate Change : A Guide to the Debate* (3rd Edtn).
Cambridge: Cambridge University Press. (ISBN 978-1-316-63132-4)

Ellis, E.C., 2018, *The Anthropocene : A Very Short Introduction*, : Oxford University Press. (ISBN 978-0-19-879298-7)

Richardson, K., Steffen, W. & Liverman, D., 2011, *Climate Change : Global Risks, Challenges & Decisions*, Cambridge:
Cambridge University Press. (ISBN 978-0-521-19836-3)



Environmental Studies : Option 2

***ENVIRONMENTAL CHANGE:
BRITISH LANDSCAPE DEVELOPMENT FROM 11,500 BCE to 1700 CE***



Dr Ken Addison

Introduction

Confronted by bewildering evidence of rapid environmental changes, we often find it difficult to distinguish natural from anthropogenic causes. Fortunately, opportunities exist for understanding the complexities of human and natural environmental interaction in Earth's existing landscapes. The Anglo-Saxon *landscape* referred to an unspecified area with a common character ~ perhaps just the observer's familiar neighbourhood. Objects, artefacts and other landscape features provide reference points, readily appreciated from the sixteenth century by the Dutch school of landscape artists.

Landscape therefore acts as to document its own evolution and its inhabitants; landscape elements represent signatures of past and present events and actions. Depending on their clarity and the interpretations we make of them, landscape analysis provides not only a record of the interaction of human societies with each other and Earth's natural systems but also empirical evidence from which to derive an understanding of the mechanics of interaction and the basis for future predictions.

British Landscapes are amongst the richest and most diverse of any on Earth's surface and the compact size of the British Isles ensures dramatic contrasts, over short distances, in ways in which human and physical forces shape the land. Within a land area of only 150,000 km² lies a physical landscape evolved over the past 2.39 billion years of geological time and increasingly modified by human agency for the past 30,000 years. Many parts of the British Isles record almost continuous human settlement from the end of the last Ice Age ~ embracing *inter alia* the Neolithic (uppermost Stone Age), Iron & Bronze Ages, Roman and Anglo-Saxon settlement prior to the Norman Conquest and Medieval and Modern periods.

Academic Aims

This Option examines forces creating Landscape, the extent to which their signature is represented in British landscapes and the way in which these may be discovered and interpreted by the informed student. We draw on principles of investigation familiar to the student's home landscape, from which we can make sense of less familiar elements in the "alien" British landscape. The meaning of *Landscape* and our individual impressions and definitions will inform initial discussions.

We examine British landscapes through representative time "slices" of the past 11,700 years, marking the *Post-Glacial* period in which interrelated developments occurred after landscape burial under a major Ice

Sheet. Emphasis will be placed on the mechanics of landscape development and the recognition that this implies a state of *dynamic equilibrium*, with forces constantly at work capable of transforming its condition.

Change may occur imperceptibly, swiftly or catastrophically in human timescales. Landscapes may be damaged or obliterated; survival of evidence of their former existence is partial or absent. Disturbance, opening new spaces and opportunities, is a vital agent for development.

All of this makes the task of understanding the evolution of our modern landscapes difficult but challenging and we should also be aware that we are in the midst of contemporary processes whose outcomes are yet unknown. The evidence itself influences our interpretation and students are encouraged to evaluate critically its nature and sources.

Academic Programme

Keynote Lectures and Seminars provide a general review of the principal themes. Students will explore their more detailed aspects in tutorial essays, choosing one topic per week according to individual interests from options identified below.

Week 1: Landscapes of the Post-Glacial period and early Human Settlement

Illustrated Lecture : *The Landscape legacy of the Late Quaternary Ice Age in Britain*

Seminar : Our perceptions of *Landscape*

Tutorial : *Climatic change & biophysical landscapes. Landscapes in & since the LGM Palaeolithic Food Strategy.*

Week 2: Landscapes of Change

Seminar/Tutorial : *The Mesolithic. Neolithic Revolution. Bronze and Iron Age landscapes*

Week 3: Landscapes of Conquest, Conflict & Cultural Assimilation

Seminar/Tutorial : *Roman Britain & Romano-British landscapes. Anglo-Saxon Britain. Castles & fortifications.*

Week 4: Late Medieval - Early Modern Rural and Agricultural Landscapes

Seminar/Tutorial : *Landscape impacts of Feudalism. Medieval Warm Epoch & Little Ice Age. Deserted Medieval Settlements. Agricultural Revolution.*

Week 5: Landscapes of Industrialisation

Seminar/Tutorial : *Early Modern Towns. British Landscapes of Production. Industrial Archaeology. Development of the Oxford Landscape.*

Preliminary Reading List

The following list identifies some general texts, intended as useful introductions and background. It is not exhaustive but students will benefit undoubtedly from some reading prior to arrival in Oxford. More detailed reading lists accompany the Tutorial essay titles distributed during the Summer School.

Bell, M. & Walker, M.J.C, 2005 (2nd Edtn.), *Late Quaternary Environmental Change : Physical & Human Perspectives*, Harlow: Pearson (ISBN 0-13-033344-1)

Behringer, W, 2010, *The Cultural History of Climate*, translated by P. Camiller, Cambridge : Polity Press (ISBN 978-0-7556-4529-2)

Cunliffe, B., 2013, *Britain Begins*, Oxford: Oxford University Press. (ISBN 978-0-19-960993-8)

Hetherington, R. & Reid, R.G.B., 2010, *The Climate Connection : Climate Change and Modern Human Evolution*. Cambridge: Cambridge University Press. (ISBN 13 978-0-521-14723-1)

Pryor, F., 2010, *The Making of the British Landscape : How we have transformed the land , from Prehistory to the Today*, London : Penguin Books. (ISBN 978-0-141-04059-2)