Imperial College London

Grantham Institute

Climate Change and the Environment An Institute of Imperial College London

Each year, a distinguished speaker is invited to deliver the Grantham Annual Lecture to businessleaders, policymakers, entrepreneurs, academics, students and the public.

Read how some of these past speakers reflect on ten years of environmental and climate action achievements, and catch up with their lectures at imperial.ac.uk/grantham



Congratulations to the Grantham Institute on its tenth year in pursuit of a worthy goal of sustainable, resilient, zero carbon society.

AL GORE, FORMER VICE PRESIDENT OF THE UNITED STATES

I was honoured to give the 8th Grantham Lecture, I loved that so many students attended as they are our hope to motivate future generations to challenge climate change and injustice.

MARY ROBINSON, FORMER PRESIDENT OF IRELAND 2015 ANNUAL LECTURER



Grantham Institute's

Celebrating the past and looking to the future

tenth anniversary year

It was an honour and pleasure to address the Grantham Institute due to its significance and all the people that contribute to its greatness.

HIS SERENE HIGHNESS PRINCE ALBERT II OF MONACO **2018 ANNUAL LECTURER**

The work that is being done by the Grantham Institute is absolutely key because it will keep countries moving forward understanding that decarbonisation is actually a huge opportunity.





The Grantham Institute's vision is for a sustainable, resilient, zero-carbon society

The Institute seeks to achieve its vision by working in the following ways:



The Grantham Institute promotes inter-disciplinary

by society. Over ten years, the Institute has built up successful programmes that drive forward discovery,

working to meet some of the greatest challenges faced

convert innovations into applications, train future leaders

and communicate academic knowledge to businesses, industry and policymakers to help shape their decisions.

Train

Empower future leaders through postgraduate training programmes



187

PhD students on the NERC Science and Solutions for a Changing Planet **Doctoral Training** Partnership

27

Nationalities represented

60:40

86

22

51:49

Ratio of male and female students

Master's students

Change, Management

studying Climate

and Finance

Nationalities

represented

Ratio of male and female students



80

New Cleantech businesses created

Innovate

Accelerate Cleantech

innovation and low-carbon

business start-ups



\$140 million

Value of investment secured



500

Number of new jobs created in Cleantech businesses



Grantham Annual Lectures

Inform



44

Public lectures delivered by a distinguished expert



35

Briefing Papers summarising evidence for non-scientific audiences



5,889 **Twitter followers**

13,295

Average monthly website views



Research

Initiate, develop and support multidisciplinary research on climate change and environment



205

Seminars presenting cutting-edge research



610

Publications in peerreviewed journals



£o.5m

Average value of grants received per year to fund research



Connect

Foster new collaborations and networks at Imperial and beyond







programme



108

Nationalities in Grantham Institute network



Organisations in Grantham Institute network



268

1,895

LinkedIn connections for Grantham Institute showcase page



460+

Coffee mornings for students and staff



Lead

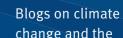
Generate thought leadership on key research and societal issues





Discussion Papers presenting thoughtprovoking reflections on topical issues





change and the environment by Imperial experts



Average monthly blog page views

4,744







A decade of difference

Grantham Institute

Climate Change and the Environment An Institute of Imperial College London

2018

His Serene Highness

Prince Albert II of Monaco

delivered the Grantham

Annual Lecture 2018 on

how climate change is

a threat to our oceans

Four new Grantham

Lecturers appointed

in chemistry, physics,

environmental policy

Greener Futures Zone

introduces the public to the latest inventions

from Imperial's labs and

at Imperial Festival

start-ups

and earth science

In 2007, the Grantham Foundation for the Protection of the Environment made the visionary decision to support an Institute at Imperial College London to provide a centre of excellence for research and education on climate change. Today, the Grantham Institute is established as a leading authority on climate and environmental science.

Over the next decade, as the international community strives to reduce greenhouse gas emissions and promote economic growth, environmental health and a decent standard of living for all, we will contribute to, and lead on the efforts needed to meet these ambitions.

To find out more and get involved with our work, visit imperial.ac.uk/grantham

2011

Grantham Institute

The 2011 Annual

researchers publish over

100 peer-reviewed papers

Lecture, given by Martin

Financial Times, London,

Wolf, Associate Editor

and Chief Economics

Commentator at the

looks at the limits on

growth and resources

under climate change

Dr Fatih Birol, Chief

of the International **Energy Agency**,

presents findings from the influential World

Energy Outlook report

at Imperial, discussing

implications for the

global energy sector

Television naturalist

isits the Grantham

nstitute to meet and

inspire PhD students

Secretary of state for

Energy and Climate

Change, Rt Hon Chris

Huhne, sets out UK

to reduce carbon

College Business

Government's intention

emissions at Imperial

School and Grantham

Institute conference,

Changing Gear on

Carbon Reduction

Sir David Attenborough

Economist (now Director)

2012

Imperial and Climate-

KIC launch Cleantech

Accelerator programme

to fund low-carbon start-

America tens of billions of

dollars' worth of damage

to property during super

<mark>John P. H</mark>oldren, Assistant

Science and Technology,

Director of the White

Imperial researchers

that plants on land may

be able to absorb more

carbon dioxide emissions

from human activity than

previously thought

House Office of Science

and Technology Policy at the 2012 Annual Lecture

storm Sandy," says Dr

to the President for

ups and business ideas

"Good weather

forecasting saved

Grantham Institute milestones

500

2014

2013

The 2013 Annual

Lecture is given by

Professor Thomas

Stocker, University of

Bern, Switzerland and

Co-chair of IPCC WGI,

chance to keep global

level of 2°C is rapidly

disappearing

The Grantham

Institute hosts the

inaugural meeting of

the Earth League, a

voluntary alliance of

scientists addressing

sustainability challenges

The Grantham Institute

signs Climate Week

Declaration, urging

efficiency and carbon

emissions for the UK

action on energy

earth science and

warming below the safe

who warns that the

Grantham Institute is part of a new research programme to inform **UK Government** policymakers about climate change, AVOID 2

"It is within our power to eradicate poverty, eliminate disease and create a fairer world. But all that depends on our ability to respond to climate change," says Paul Polman, CEO of Unilever Plc, at the 2014

Annual Lecture

Natural Environment Research Council awards Imperial £8 million to train 75 PhD students over five years in Science and Solutions for a **Changing Planet Doctoral Training Partnership**

Atmospheric physicist Professor Joanna Haigh and glaciologist **Professor Martin Siegert** succeed Brian Hoskins as Co-Directors of the **Grantham Institute**

Deprived and ethnic minority areas are the worst affected by air pollution within the UK. according to a new study by Imperial researchers

2015

"Now is the time for climate justice," says Mary Robinson, President of the Mary Robinson Foundation - Climate Justice and former Irish president at the 2015 Grantham Annual Lecture

Imperial appoints three new Grantham Lecturers to strengthen links in economics, physics and public health research

Academics at Imperial establish multidisciplinary networks to solve challenges of ocean plastics and air pollution

for Cleantech Innovation, led by Grantham Institute **Innovation Director** Professor Richard Templei

Imperial launches Centre

Imperial researchers contribute to UK Government analysis of ways to reduce the greenhouse gas emissions from heavy industries

2016

Christiana Figueres,

Executive Secretary

of the UN Framework

Convention on Climate

Change (UNFCCC), calls

for investors to take

risks that benefit the

Annual Lecture 2016

Imperial Festival gets

environmental science

in a zone curated by the

the public involved

Grantham Institute

with energy and

environment and global

poverty, at the Granthan

2017

Al Gore, former Vice President of the United States, delivered the Grantham Annual Lecture 2017, saying "I believe we will solve the climate crisis. but we must act with

The disruptive technology, a **Grantham Institute** and Carbon Tracker, was featured in over

500 stories in media

outlets worldwide

Grantham Institute launches science in the City series, which deliver talks by Imperial

"Optimism and strong leadership are needed to tackle climate change," say experts at the Imperial College Business **School and Grantham** Institute conference, **Mobilising Business,**

engages visitors to help solve the ocean plastic problem at the **Royal Society Summer** Science Exhibition with 'Plastic's not fantastic in our ocean'

greater urgency"

Expect the unexpected: power of low-carbon collaboration between

academics at London city firms

(ftrillion)

First graduates from joint Master's programme with Imperial College Business School in Climate Change, Management and Finance

Acting on Climate

Key

This graph illustrates how economic growth is no longer bound to increasing greenhouse gas emissions, as it had been throughout most of the 20th Century.

It plots UK Gross Domestic Product (pale line) alongside **UK carbon dioxide emissions** (darker line) since 2007.

CO₂ emissions (megatonnes per year)

GDP

(£trillions)

Global milestones

2007

human cause

400

2007

Donation agreed by

for the Protection of

the **Environment**

Grantham Foundation

The United Nations Intergovernmental Panel on Climate Change (IPCC) publishes its **Fourth Assessment** Report having concluded that global climate change is "very likely" to have a predominantly

Nobel Peace Prize goes to Albert Gore, Jr, and the United Nations Intergovernmental Panel on Climate Change (IPCC)

UN Climate Change Conference in Bali mandates "deep cuts in global emissions" by 189 signatory countries

2008

2008

Renowned meteorologist

2009

Climate Knowledge

Communities (Climate-

KIC) is established at

following a successful

proposal led by the

Grantham Institute

the European Institute of

Innovation & Technology

The 2009 Annual Lecture

Wally Broecker, Columbia

First Grantham Institute

briefing paper explains

technologies for a non-

the future potential for solar energy

technical audience

is given by Professor

University, who warns about shifting rainfall

patterns under a

changing climate

and Innovation

and climate scientist

Hoskins becomes the

first Director of the

Grantham Institute

Professor Sir Brian

Hoskins and Imperial

professors Jim Skea,

Michael Grubb and

Lord Robert May are

members of the

on Climate Change

established under the

Climate Change Act

appointed as founding

independent Committee

Professor Sir Brian

UK Parliament passes Climate Change Act, mandating 80% cut in overall greenhouse gases compared to 1990 levels by 2015

Keeling project at the Mauna Loa Observatory in Hawaii shows that CO₂ concentrations have risen from 315 parts per million (ppm) in 1958 to 380ppm in 2008

The EU's Emissions Trading System (ETS), the largest emissions trading scheme in the world, enters Phase II, expanding the number of countries and sectors it covers

2009

192 governments convene for the UN Climate Change Conference in Copenhagen, but fail to negotiate binding agreements

China overtakes the US as the world's biggest greenhouse gas emitter - although the US remains well ahead on a per-capita basis

2010

2010

Professor Chris Rapley,

Science Museum, calls

respond to evidence

Annual Lecture

that climate change is

happening, at the 2010

Imperial partners with

supermarket stores

A major new study led

Haigh dispels the theory that global warming is

linked to solar activity, by showing that a decline

in the Sun's activity does

not always mean that the

Earth becomes cooler

by Professor Joanna

Sainsbury's to reduce the

carbon footprint of future

for humankind to urgently

then Director of the

contributing \$30bn to help developing countries "green" their economies and adapt to the impacts of climate change. Developed 2012 countries pledge to contribute \$100bn per year by 2020 to address the pressing mitigation

and adaptation needs of

developing countries

2011

Developed countries begin Global population reaches seven billion people

Scientists record the greatest summertime shrinking of Arctic sea ice since measurements began in 1979. Coverage is just 3.41 million sq km (1.32 million sq mi)

2014

2013

The IPCC's Fifth Daily average concentration of CO₂ in the Assessment Report says atmosphere at the Mauna Loa Observatory surpasses that humans are the 400 ppm for the first time since measurements began warming since the 1950s

Researchers find collapse of the West Antarctic ice sheet is irreversible and will bring meters of sea-level rise

since 1990, meeting the target of the ETS six years earlier than planned

2015

scientists are 95% certain "dominant cause" of global

over future centuries

targeting a broad range EU emissions fall 20% of social and economic development issues

Global average temperatures have risen 1°C since before industrialisation

196 countries sign the Paris Agreement aimed to limit global warming to less than 2°C

The UN publishes 15 Sustainable **Development Goals**

2017

in renewable energy in 2016 doubles that in fossil fuels

2016

Global investment

Sea levels have risen on average 3.3mm per year since 1993, according to a 2016 study

Earth Day 2016 sees 170 countries officially sign up to the Paris Agreement, "A great moment - one to be savoured!" says Professor Sir Brian Hoskins

UK grid is powered without Renewable sources of energy generate coal for a for a recordmore electricity than breaking three days coal and gas in Great

2018

Britain for the first time Energy Agency (IRENA) China launches its national reports that renewable carbon trading scheme, the largest in the world, where emitters can buy and by 2020

sell emission credits

energy will be consistently cheaper than fossil fuels CO, levels in Earth's

International Renewable

atmosphere reach highest level in 800,000 years

2007

2008 2009 2010 2011 2012 2013 2016 2018 2015