Government Actuary's Department

The Government's Climate Challenge and How Risk Management Can Help

17-18 November 2020 – Day 1

Today's agenda

Tuesday 17 November	
10am	**Understanding climate uncertainty** • **Dr Tamsin Edwards**, a climate scientist from King's College London • **Willemijn Verdegaal**, Co-Head Climate & ESG Solutions at Ortec Finance
11am	**Reflecting climate uncertainty** • **Chris Paterson**, an actuary at GAD • **Cathy Ansell** from the World Bank's Disaster Risk Financing and Insurance Program • **Paul Wyse**, an Environment Agency secondee to DFE • **Richard Daniels** (DFE) and **Professor Dejan Mumovic** (University College London)
12pm	**Upskilling – why and how** • Two of CSEN's co-chairs, **Dexter Lee**, and **Charlie Speller** • **John Bayliss**, an actuary at GAD and member of the Institute and Faculty of Actuaries' (IFoA) sustainability board

Government Actuary's Department

Understanding climate uncertainty

Dr Tamsin Edwards, King's College London
Willemijn Verdegaal, Ortec Finance

House keeping

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Ask questions via the Q&A function

Ortec Finance Climate and ESG Solutions

Is your investment strategy robust across different global warming pathways?

What are your risk and return trade-offs between a disorderly transition to a 1.5°C world versus a rapidly warming world beyond 4°C?

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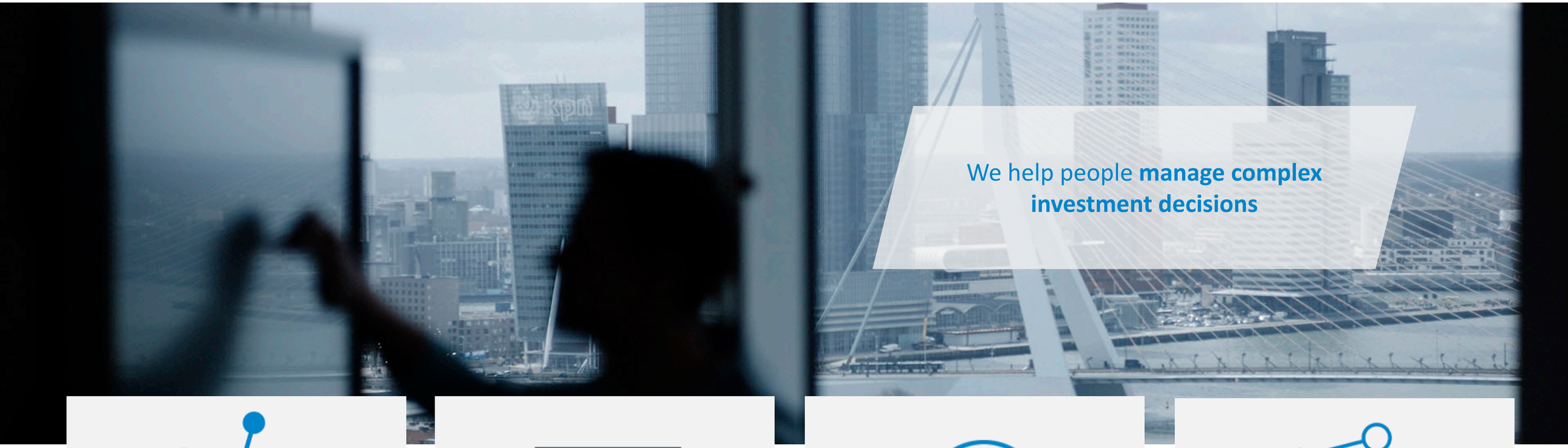

We help people **manage complex investment decisions**

Founded in 1981 (Independent)

Combining mathematical ability, business awareness and practical application

c.€ 3 Trillion

of assets managed by our clients. (10 of the largest 100 pension funds globally use us)

Global client base and offices

Over 500 clients in Northern Europe, North America, UK, Southeast Asia and Australia

Dedicated team

300 business specialists guarantees practical solutions and a client centric approach

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Our approach to climate-related risk modelling

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Introducing our TOP-DOWN scenario approach

… in partnership with…

Developed in R&D project with 5 institutional investors…

… and supported by leading academic institutions…

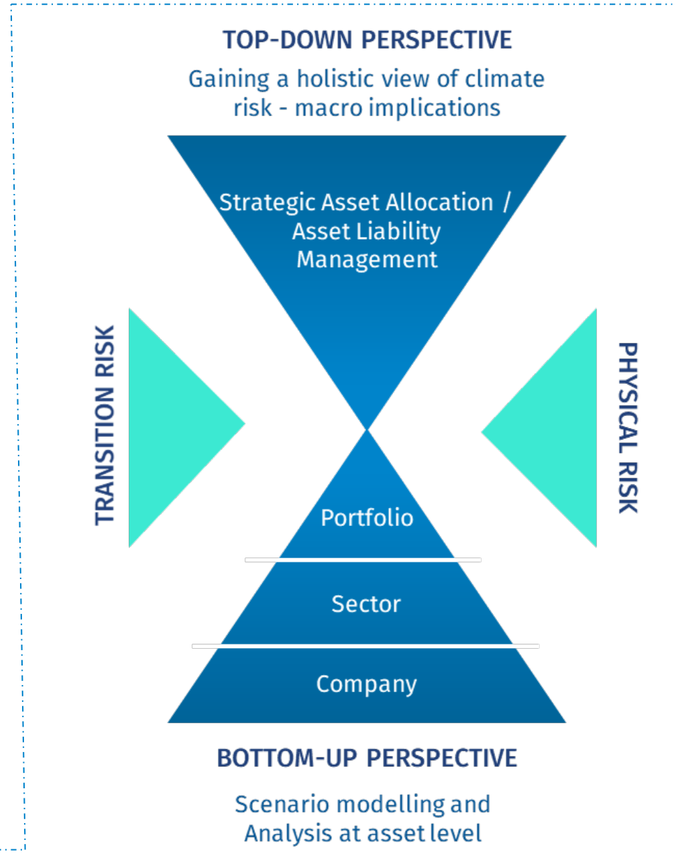
Underlying climate science models, *as well as* ***Cambridge Econometrics' macro-economic model*** *and the* ***Ortec Finance stochastic financial model*** *are* ***established*** *and well* ***respected****. What is unique and new in our solution is that we combine them.*

A closer look at the ClimateMAPS methodology

*The approach focuses on **systemic risk** and relies on a **top-down approach**, rather than holding-specific climate risk.*

CLIMATE MAPS

1. Climate-related risks are **systemic** and therefore **unhedgeable**.
2. **Climate change** will fundamentally impact how the **economy performs** as a whole.
3. **'Stock-picking'** is **insufficient** to manage systemic risk.
4. Therefore, taking climate change into account as a **risk driver** in your **strategic investment decision-making** is crucial.



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Climate Scenario Narratives

Global Warming Pathways Modelled

Paris Orderly Transition

- **Large transition impact** due to policy measures & technology drivers
- Transition is assumed to occur as smoothly as possible
- **Market pricing-in** dynamics occur smoothed out over 2020-2024 period
- **Physical impacts** occur up to 1.5/2ºC which are greater than today but much less than under a Failed Transition

In line with:
Emissions ~ IPCC RCP 2.6
Median climate sensitivity
Leading to global warming below 2°C by 2100 with a probability of 75%

Paris Disorderly Transition

- **Large transition impact** due to policy measures & technology drivers
- Transition has disruptive effect on financial markets with **repricing** taking place in 2024 followed by a sudden **sentiment shock** and stranded assets in 2025
- **Physical impacts** occur up to 1.5/2ºC which are greater than today but much less than under a Failed Transition

In line with:
Emissions ~ IPCC RCP 2.6
Median climate sensitivity
Leading to global warming below 2°C by 2100 with a probability of 75%

Failed Transition

- **Limited transition impact** because economies follow the business-as-usual track without additional new policy measures
- **Severe physical impacts** occur increasing over time as temperatures rise – both gradual physical changes such as agricultural and worker productivity, as well as more frequent and severe extreme weather events
- **Markets price in physical risks** up to 2050 by end of this decade and post-2050 physical impacts from the mid-2030s

In line with:
Emissions ~ IPCC RCP 6.0
High climate sensitivity
Leading to global warming of appr. 4°C by 2100

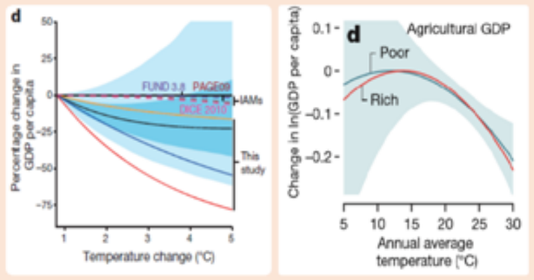
Methodology at a glance: Integrating climate risk into financial scenarios

CLIMATE MAPS

Climate-informed INPUT Data/Assumptions — 1.5°C | 2°C | 4+°C

Physical Risk Factors:

GRADUAL PHYSICAL RISK



CLIMATE-ATTRIBUTABLE EXTREME WEATHER RISK

Event frequency & losses per type of peril and location

Transition Risk Factors:

- Power Generation
- Road Transport
- Energy Efficiency
- Carbon Price

POLICY DRIVERS

- CO_2 Carbon Capture & Storage
- Renewable Technologies

TECHNOLOGY DRIVERS

MACRO-Economic Model

STOCHASTIC Financial Model

Systemic Climate Risk– Aware Scenarios Sets

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Outputs: zoom in to GDP

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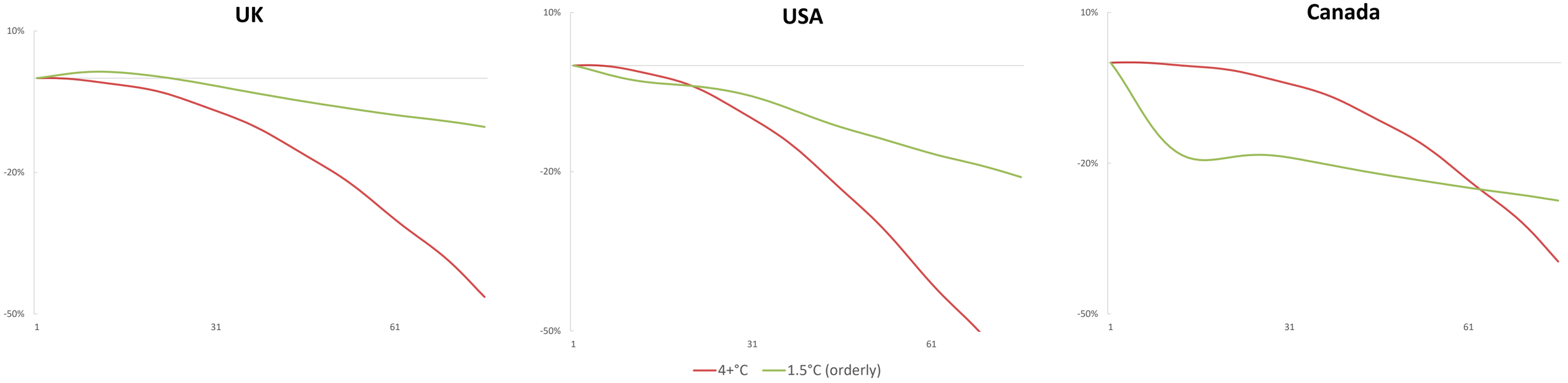
Output: GDP

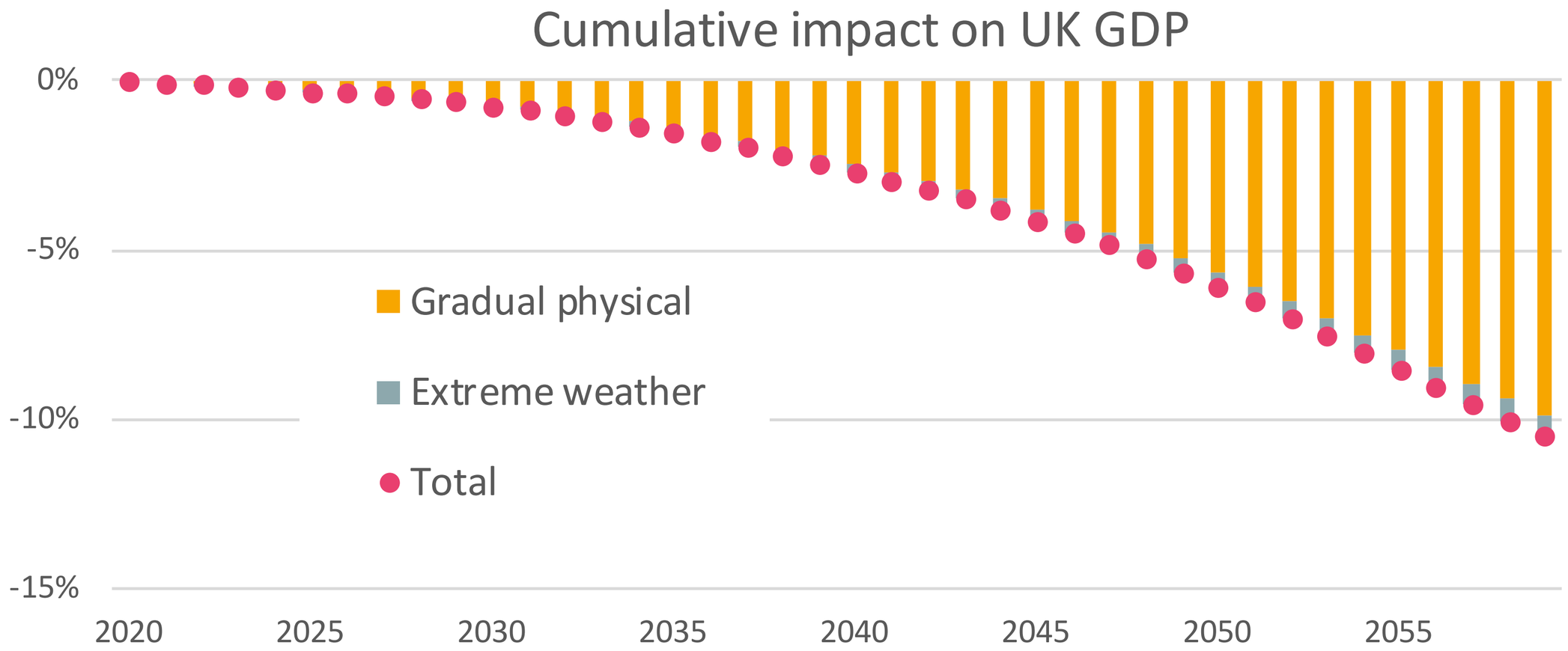
Systemic Climate Risk – Aware Scenarios Sets

Climate-adjusted GDP growth

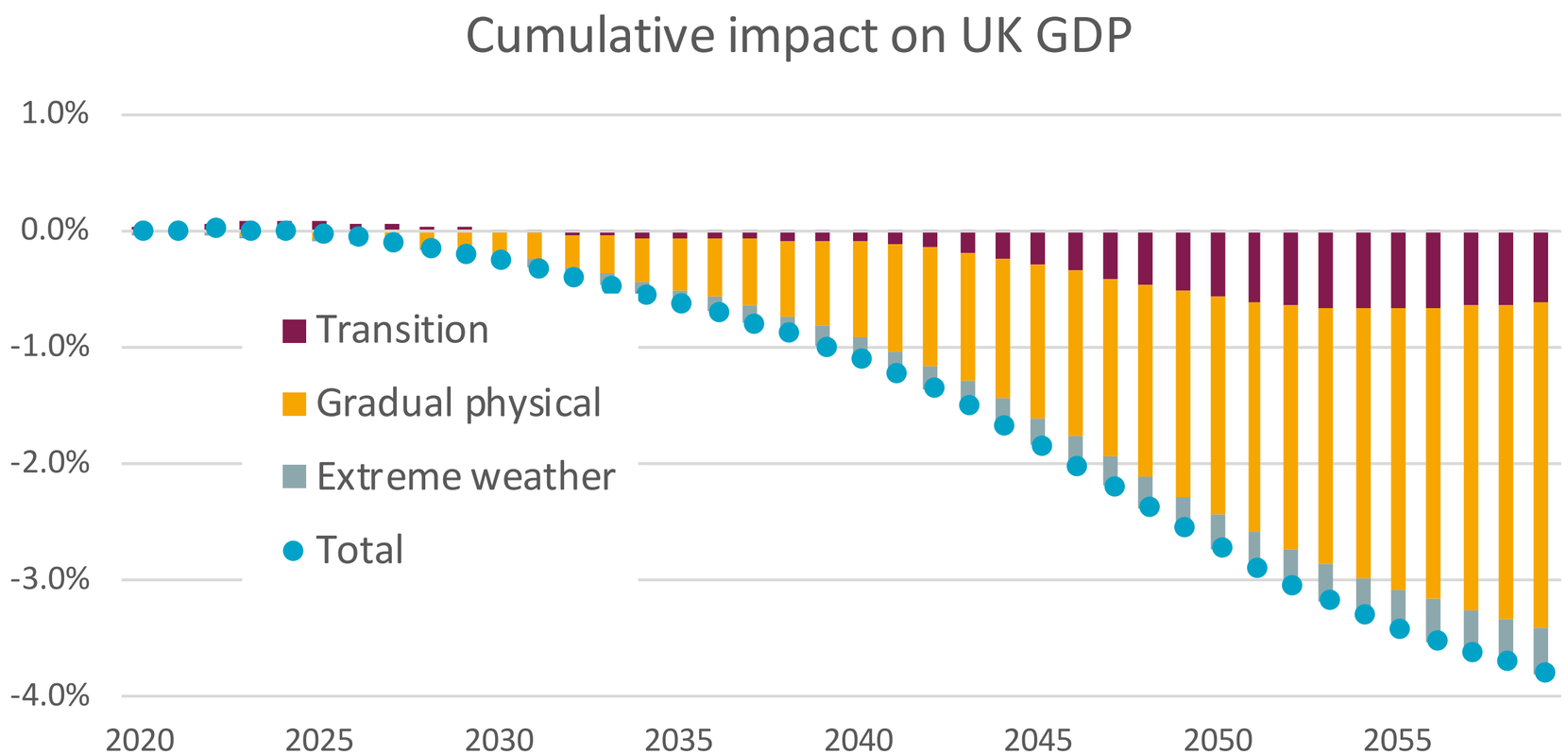
(cumulative difference to climate-uninformed baseline)



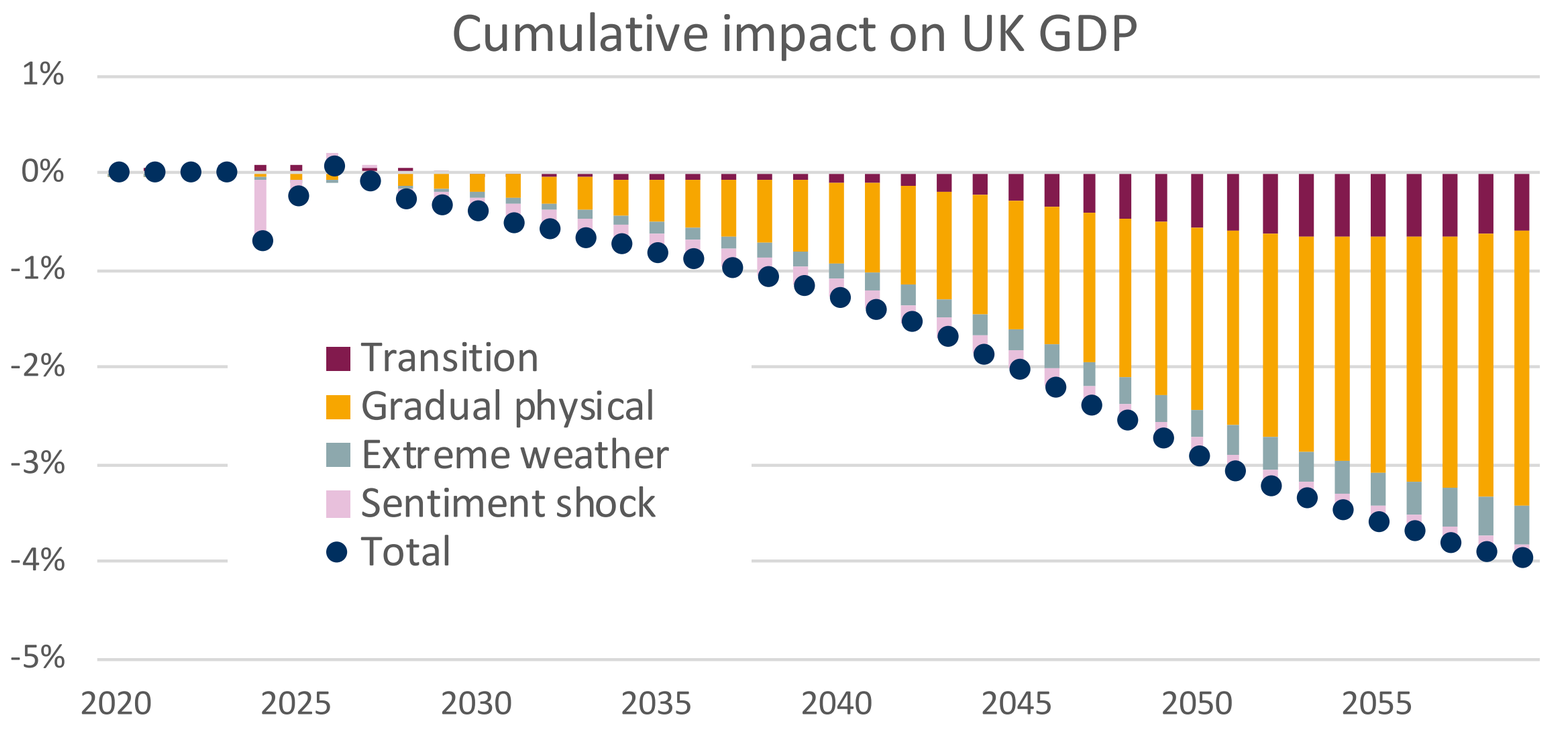
Contribution analysis: Failed Transition



Contribution analysis: Orderly Transition



Contribution analysis: Disorderly Transition



Implications for policy makers

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Implications for policy makers & regulators

Conclusions:

1. Transition is positive for growth in the UK & Europe;
2. Transition is central to economic competitiveness;
3. Expected economic growth is lower in all climate-informed pathways due to physical climate risk;
4. Investors are aligning portfolio's with climate risks & opportunities.

Recommendations:

1. Introduce very robust climate policy now (e.g. 50 GBP/tonne CO2);
2. Increase resilience to physical risk, be prepared for drag on growth;
3. Mainstream climate-related risks & opportunities in all economic-financial decision-making & regulation.

About us

About Climate & ESG Solutions
The Climate & ESG Solutions team at Ortec Finance specializes in integrating sustainability across our clients' strategic investment decision-making process. We enable our clients to understand their sustainability risks and opportunities, act on their values and meet regulatory requirements – all through efficient integrated software solutions. We combine research-backed ESG and climate change insights with standard investment process modeling and analysis.

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About Ortec Finance
Ortec Finance was created in 2007 through a management buyout of the company ORTEC b.v, which was founded in 1981 by four innovative students of econometrics at the Erasmus University of Rotterdam, who believed mathematical theories and algorithms could be used to optimize the performance of companies.
With a team of 250 experts in Rotterdam, Amsterdam, Hong Kong, the United Kingdom, Canada, and Switzerland, Ortec Finance is leading in innovation through strong ties with academic communities, regulators, and practitioners. The company's long-standing and global client base comprises of leaders in the pensions, sovereign wealth, insurance, asset management, and private wealth management markets. Ortec Finance focuses on providing support for investment decision-making for institutional and private investors. The company designs, builds, and applies solutions for asset-liability management, ex-ante and ex-post risk management, performance measurement and risk attribution, and financial planning.

Q&A

Our next session starts at 11am

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Reflecting climate uncertainty

Chris Paterson, GAD
Cathy Ansell, World Bank
Paul Wyse, Environment Agency secondee to DfE
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Government Actuary's Department

Reflecting climate uncertainty

Scenario analysis

Chris Paterson

17 November 2020

Government climate risk management

OBR Fiscal risks report

Net Zero analysis and COP 26 preparation

TCFD disclosures

Can scenario analysis help?

Government backed pension schemes

Contingent liabilities

Disaster financing

Government insurance arrangements

Scenario analysis

What?

- Possible narratives of how future might unfold
- They're exploratory ***not*** predictive
- Need to be defined both in terms of pathway and climate outcome

Why?

- Focus on tangible outcomes
- Allow interrogation and build understanding
- Build resilience through preparedness

GAD scenarios

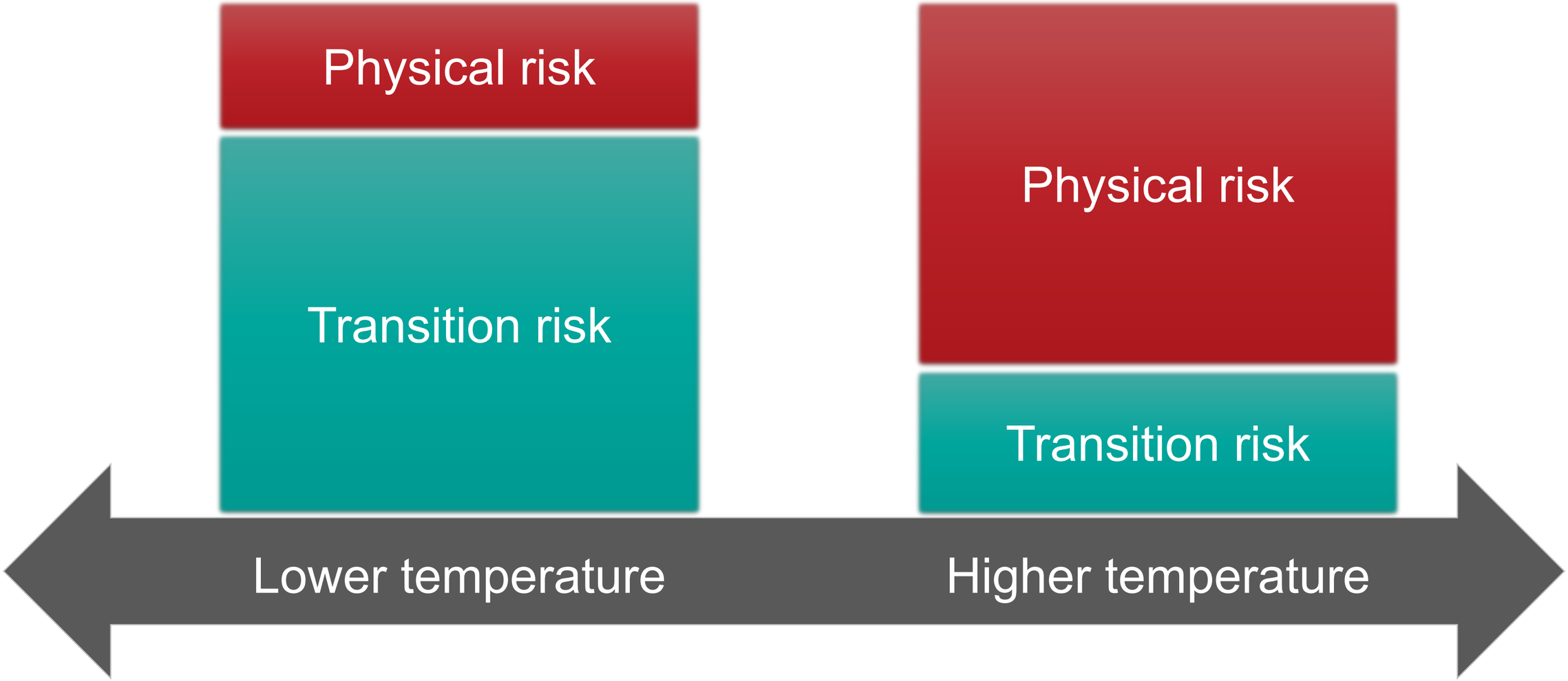
Aggressive mitigation +2ºC

Delayed mitigation +3ºC

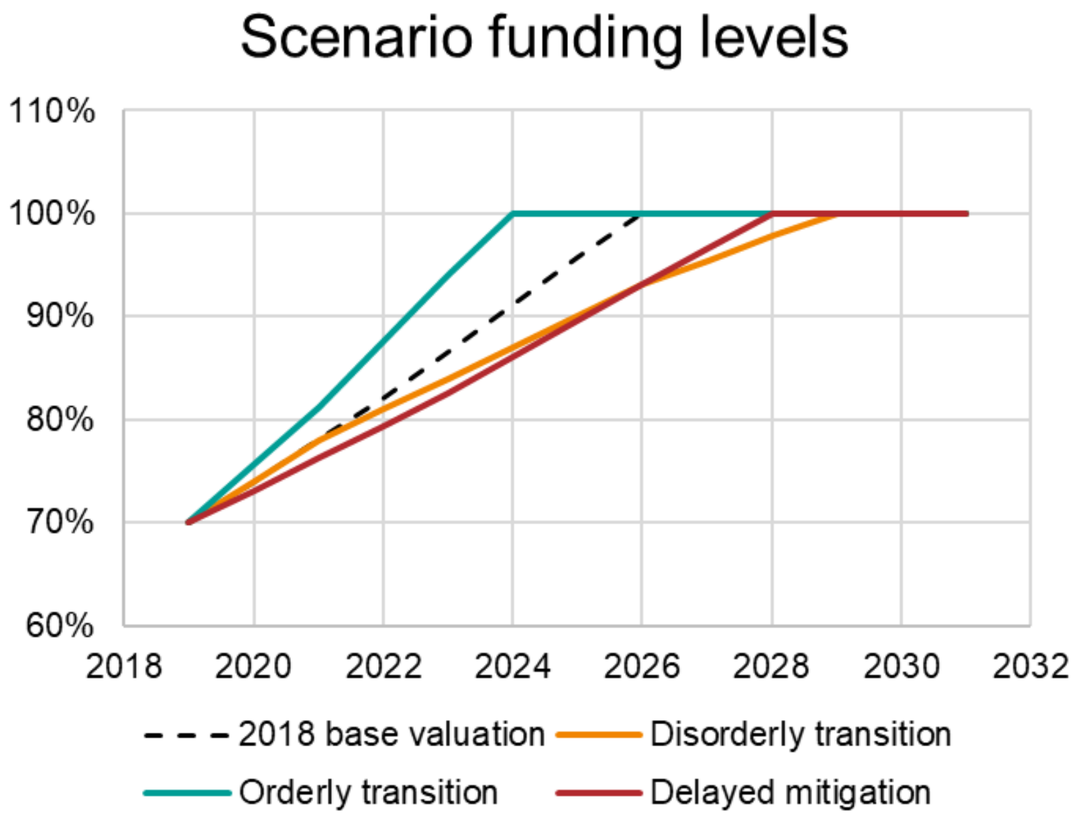
Orderly transition

Disorderly transition

Balance between risk types



Impact on time to reach full funding



Year scheme becomes fully funded		
Base case	2026	-
Orderly transition	2024	-2
Disorderly transition	2029	+3
Delayed mitigation	2028	+2

Quality Assurance Scheme

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Catastrophe Models & Climate Change

Dr Cathy Ansell
17 Nov 2020 | 11:00 AM – 12:00 PM

Disaster Risk Financing & Insurance Program

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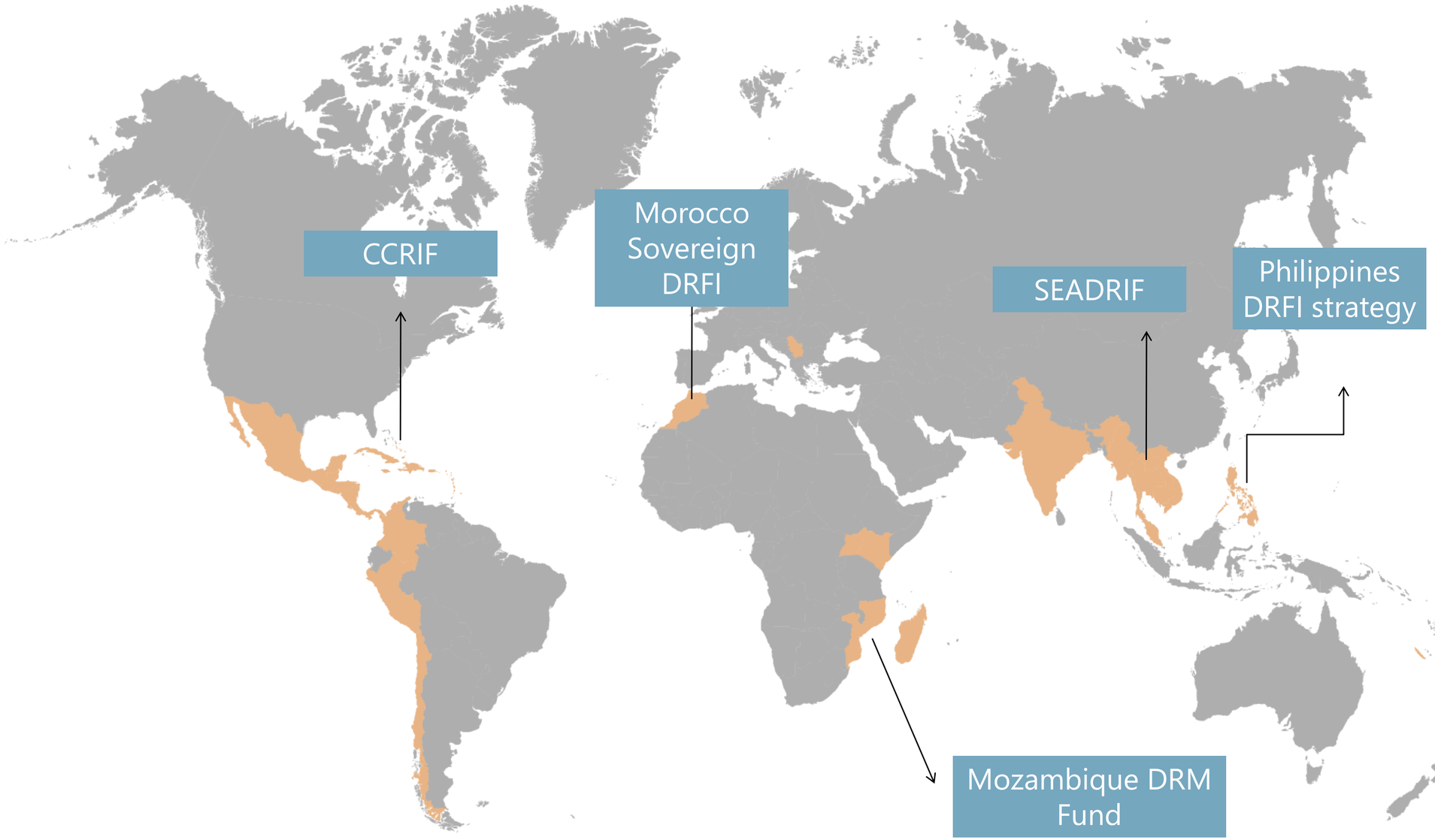
Crisis and Disaster Risk Finance Team

Our vision: “Financial planning to protect people against climate shocks, disasters and other crises is a core priority for all countries”



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Catastrophe Models & Climate Change

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Stochastic Event Sets

Catastrophe models – what are they, how do they work and how are they built?

Extreme Events & Climate Change

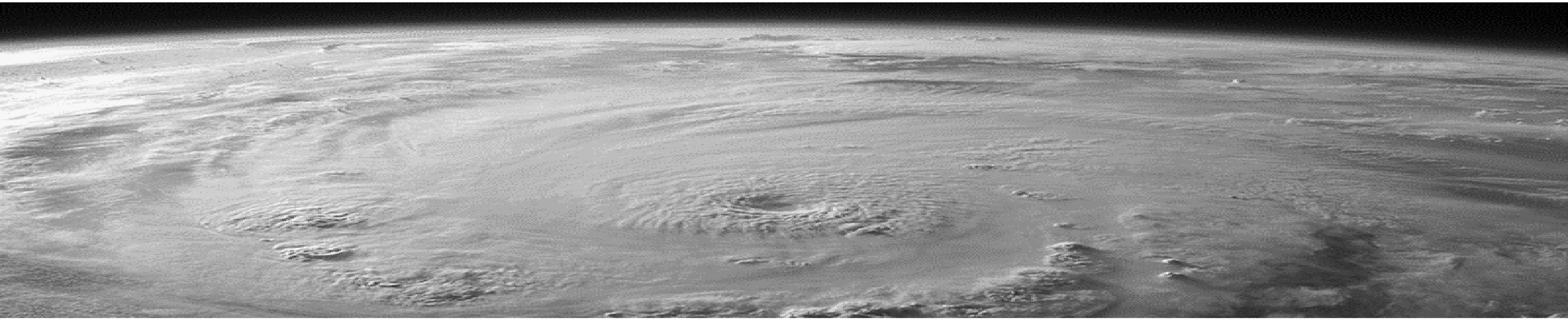
Changes in frequency, intensity and other physical parameters under climate change scenarios

Cat Models & Stress Tests

How catastrophe models are modified to calculate losses under climate change

Is this sufficient?

What is this missing? What is the uncertainty on this? Should the market ask for more?



What are Catastrophe Models?

A catastrophe model quantifies expected annual losses and return period losses from different extreme events to help price insurance.

Hazard

10 000 years of stochastic events e.g. synthetic hurricanes which represent physically possible events and their probability of occurrence

Event 1: Windspeed of 100mph

Exposure

Information on the buildings which are exposed to the extreme events including location, building material, age and value

Building 1: Value of $100

Vulnerability

Relationship between expected damage ratio for a building based on its material etc. at different windspeeds

Damage Ratio: 5%

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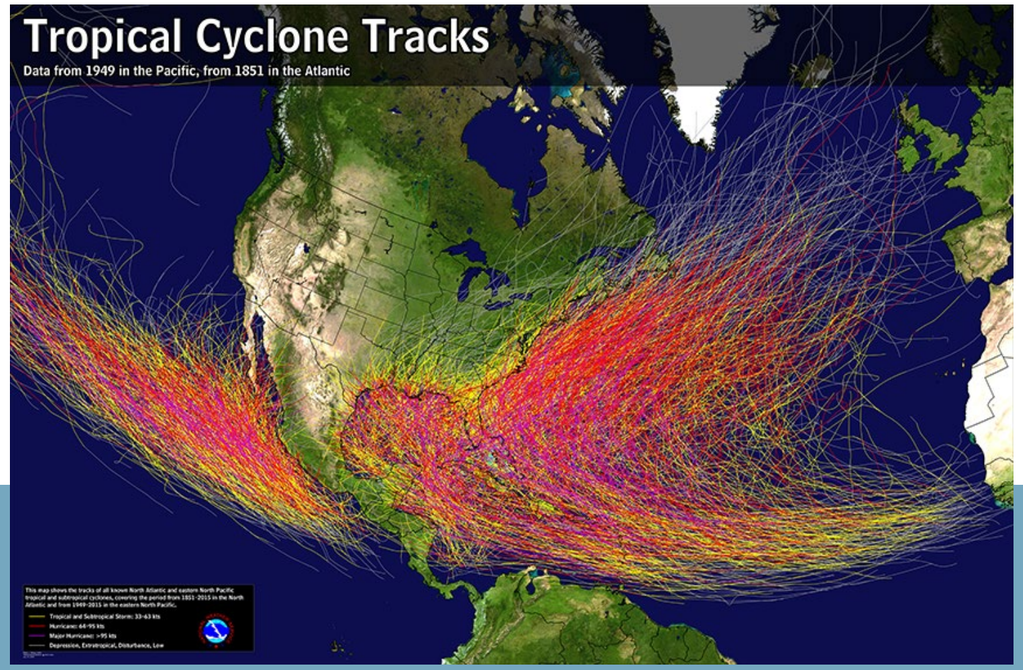

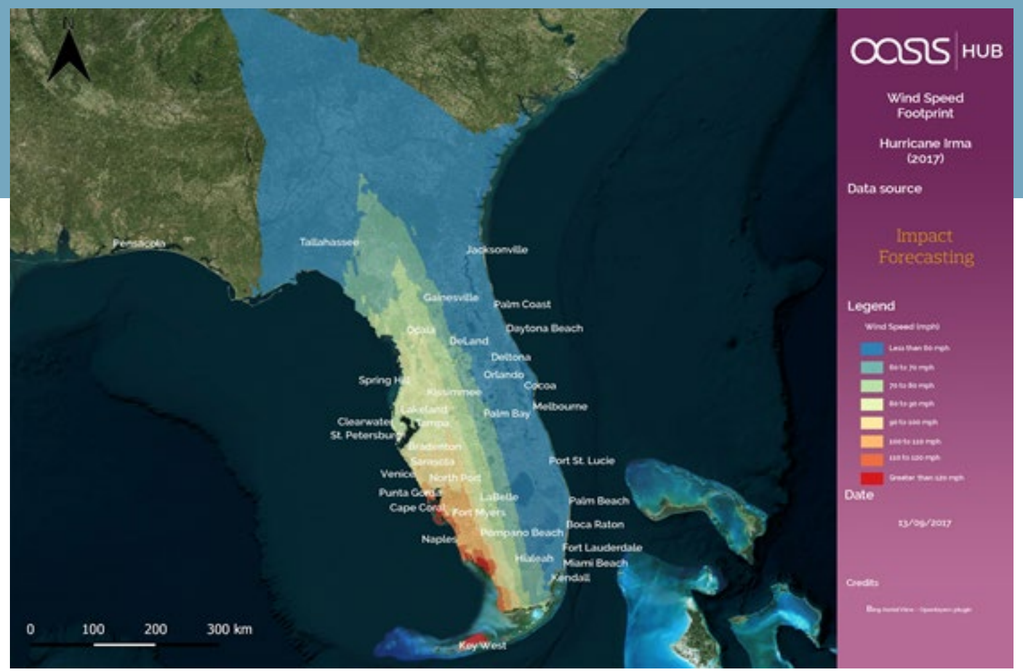

Basics of Hurricane Modelling in Catastrophe Models: Stochastic Event Sets

A synthetic event set of hurricane tracks is generated which contains thousands of events

- Does not contain every possible event which can happen (impossible!)

- In its entirety the event set should cover the distribution of possible events and losses

- Each event is a physically realistic event and the distribution of windspeeds, storm sizes and locations across all the tracks are sampled from known relationships e.g. variation of storm size with windspeed and pressure based on current climate

- The loss for an individual event is calculated based on its footprint and underlying exposure

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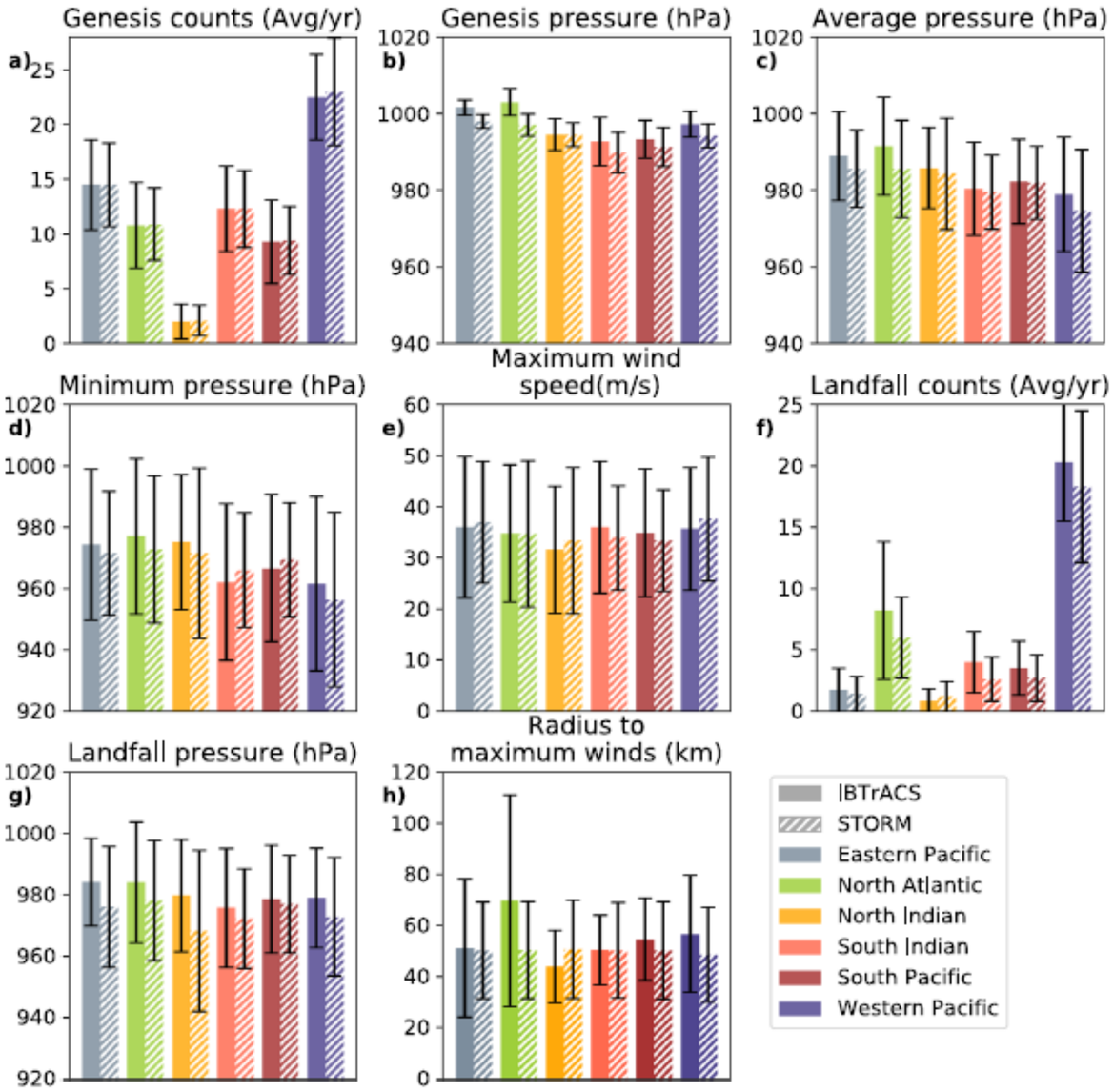
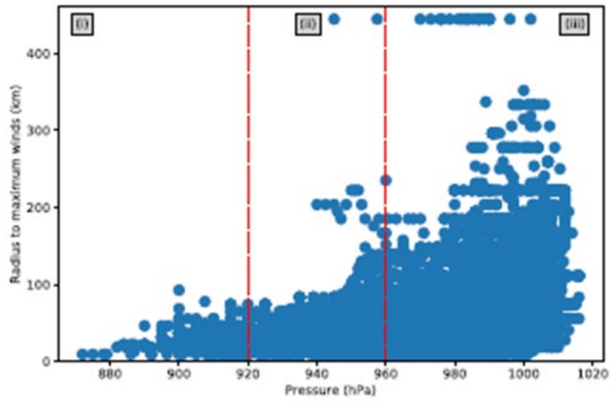


Fig. 5 Bar charts showing the mean value of each of the different tropical cyclone characteristics, as listed in Table 3. Black lines represent the error bar, given as one standard deviation from the mean. Each of the colors represents a different basin. Solid bars represent IBTrACS data, dashed bars represent STORM data.

Important Storm Parameters in Stochastic Event Sets

The stochastic event sets are calibrated to ensure that the distributions of parameters and landfall locations match well with history and known physical processes.



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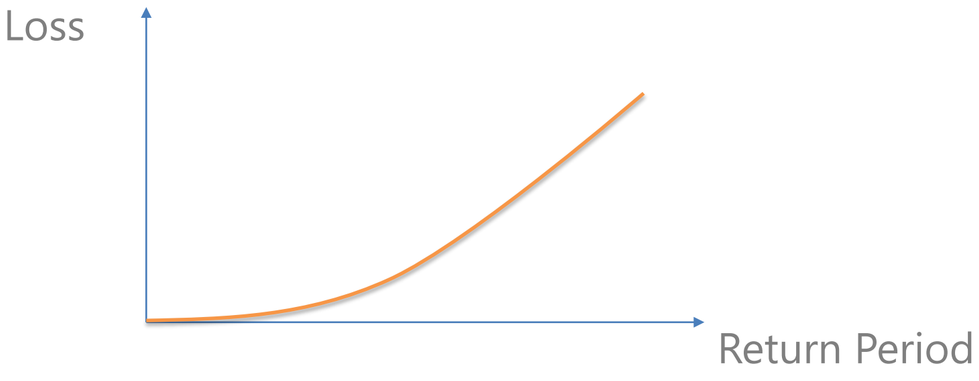
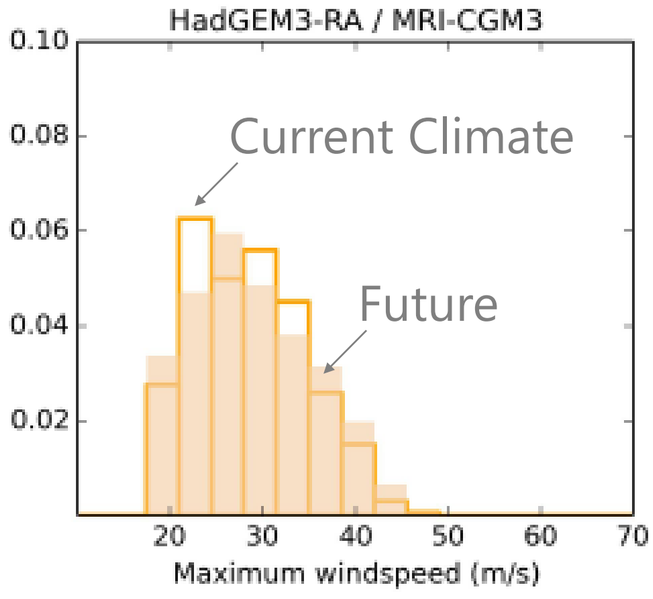
Event	Intensity	Frequency	Loss
1	Cat 1	0.001	100mn
2	Cat 2	0.002	2bn
3	Cat 3	0.005	10bn
4	Cat 5	0.0001	8bn
…	…	…	…



Extreme Events & Climate Change

Many scientific studies on the impact of climate change discuss the change in severity and frequency of events.

Under climate change stress tests, catastrophe modelling companies then change the frequency of storms within the event sets to “stress” the financial impact.



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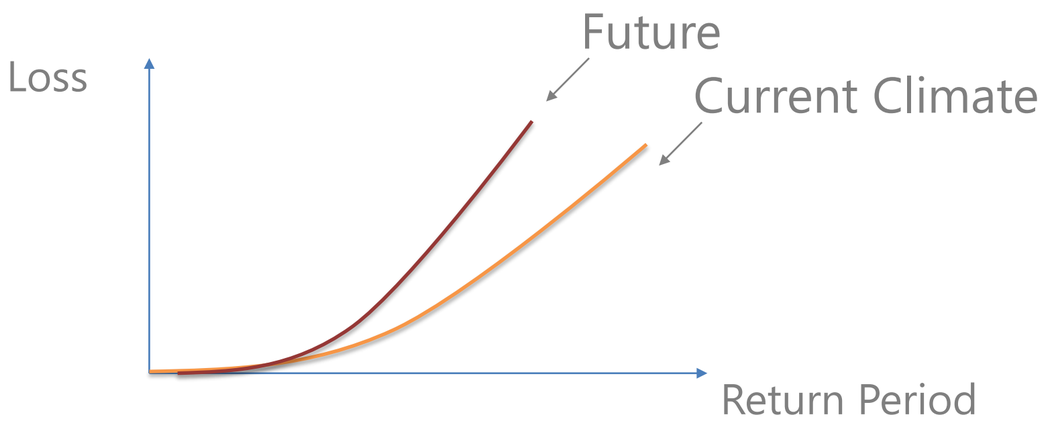
Event	Intensity	Frequency	Loss
1	Cat 1	~~0.001~~ 0.0011	100mn
2	Cat 2	~~0.002~~ 0.0014	2bn
3	Cat 3	~~0.005~~ 0.007	10bn
4	Cat 5	~~0.0001~~ 0.0003	8bn



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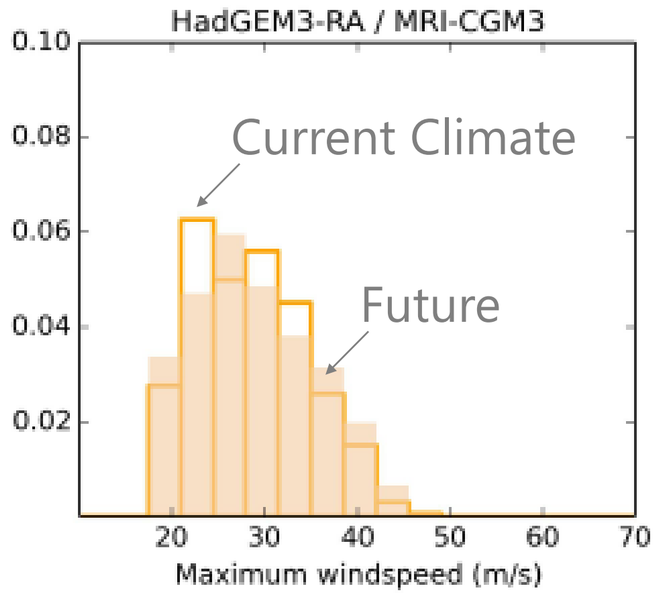

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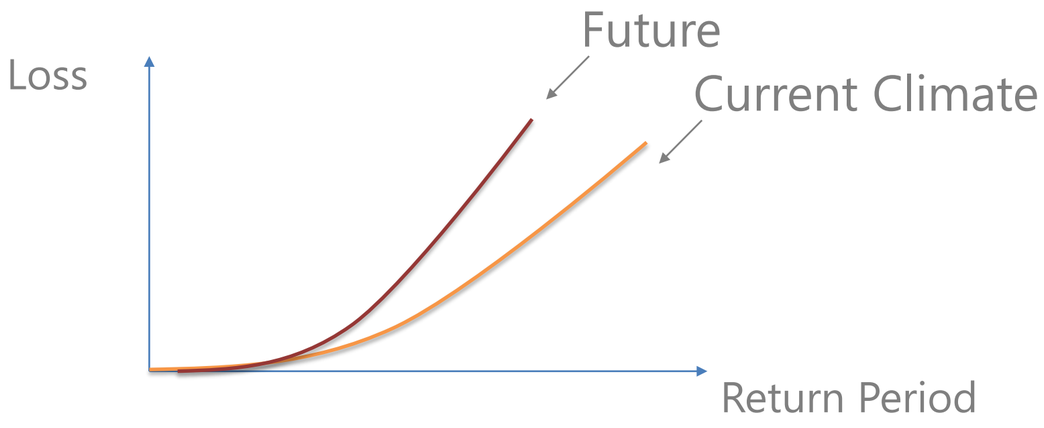
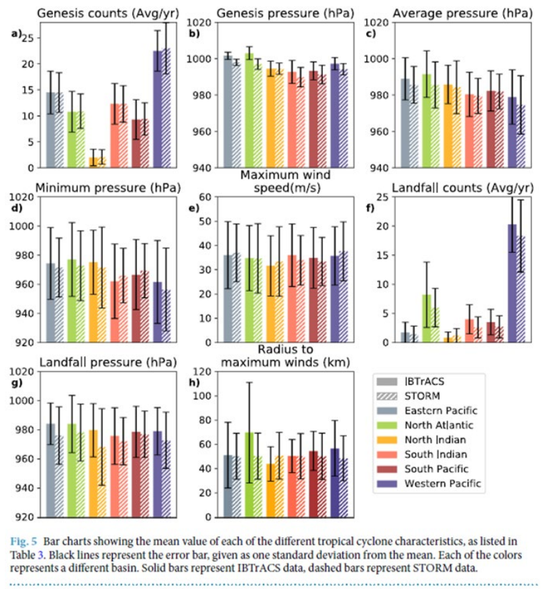


Is this sufficient?

What about all the other relationships which the event set was calibrated on?

These are often not recalibrated or even checked for how the relationships have changed.

Should the market push for better?



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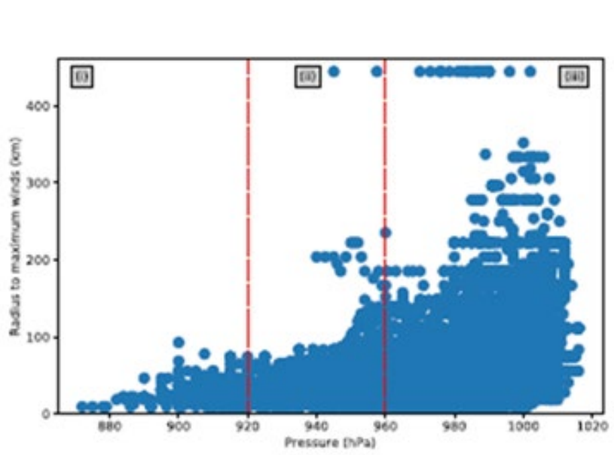

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Is this sufficient?

Depends on what you want to do with it…

Stress Testing

This methodology is sufficient for stress testing the overall potential economic impact of climate change on extreme events

Very simple to apply – can be done outside of model developers and allows firms, central banks etc. to undertake this analysis

Underwriting Risk/Specific Location Risk

Event set does not include "new" events which may now be possible under climate change but weren't before. Therefore, would not recommend to use for pricing risk or assessing the risk of a small portfolio of locations e.g. assets

This next step can only be done by model developers.

Catastrophe models inherently assume that the past is a good indication of the future. When do we think that this will break down?

Disaster Risk Financing
& Insurance Program

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Thank you for your time

For more information on the project contact;

Cathy Ansell | cansell@worldbank.org | +1 202 294 6892

Federal Ministry
for Economic Cooperation
and Development

THE ROCKEFELLER FOUNDATION

SWEDEN

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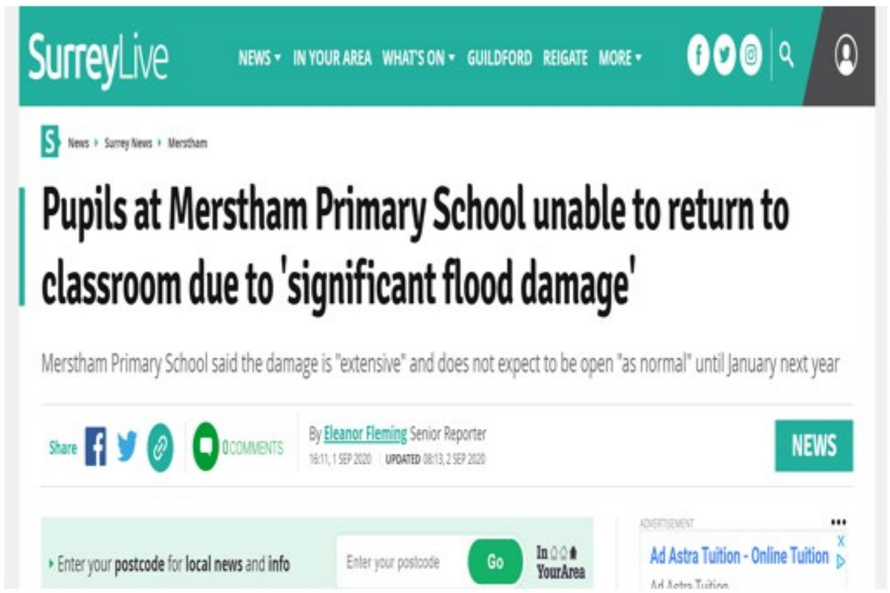
from the british people

USAID
FROM THE AMERICAN PEOPLE

Securing Investment in Climate Resilient Schools

Contacts:

Paul Wyse
Flood Resilience Manager
(Environment Agency Secondee)
Risk Protection Arrangement Team
Department for Education
Email: paul.wyse@education.gov.uk



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Pupils at Merstham Primary School unable to return to classroom due to 'significant flood damage'

Merstham Primary School said the damage is "extensive" and does not expect to be open "as normal" until January next year

Share 0 COMMENTS By Eleanor Fleming Senior Reporter
16:11, 1 SEP 2020 | UPDATED 08:13, 2 SEP 2020

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24,000 schools

School land > Area of Birmingham

8,890,357 pupils

Excellent School Resource Management

Children's Mental Health

Promoting outcomes of disadvantaged children and young people

Child wellbeing, character & happiness

Thousands at flood risk

Overheating Challenges

£127M water bills last year

Too Hot

Too Dry

Too Wet

Opportunities to introduce nature based solutions on constrained sites to improve teaching and learning conditions

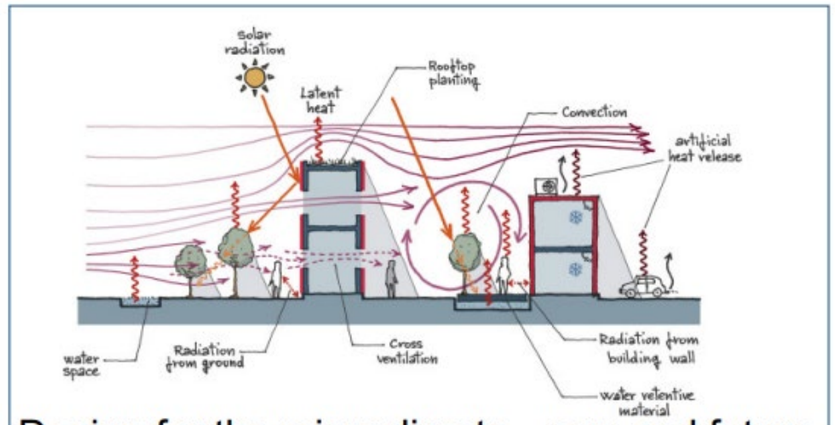
Green roof shades to cycle parking

All weather nature-based outdoor play space

Trees to provide shade to play spaces and classrooms, helping keep them cool in summer

Perimeter hedges to trap road pollution and noise

Ponds and swales to create cooling effect



Design for the microclimate - now and future


How clean are your hands?
Very Dirty
Dirty
A Bit Dirty
Clean
9500 Litres
per day


SOW
SEEDS

Climate Resilient Places (Schools)

Environment Agency Partnership funding, to protect schools and local communities.

Water Company Partnership funding, to install SUDS and potential water savings.

Installation of Property Level Protection to reduce flood risk.

Today's growth & infrastructure resilient in tomorrows climate

Education & Skills Funding Agency

ESFA Condition Data Collection (CDC)

Purpose, benefits and limitations

This short document explains why the ESFA are undertaking the CDC. It summarises how CDC data may be useful to schools and responsible bodies. It also summarises the limitations of CDC data.

Department for Education

Technical Annex 2C: External Fabric

Output Specification

Home

Good estate management for schools

From: Department for Education
Published: 25 April 2018
Updated: 28 March 2019, see all updates

Search this manual

Contents > The fundamentals of good estate management

The fundamentals of good estate management

An overview of the important policies, processes and documents schools should aim to have in place.

Review each of the sections below to make sure that you:

- have the right policies, processes and documents in place
- can address any gaps in your organisation's plans

Table 8. Recommendations for the Department of Education

Recommendation	Timing
Skills: • Working with DWP, BEIS and the Home Office, develop a strategy for a Net-Zero workforce that ensures a 'just transition' for workers transitioning from high-carbon to low-carbon and climate resilient jobs, integrates relevant skills into the UK's education framework and actively monitors the risks and opportunities arising from the transition. This strategy should include the development and roll-out of plans for training and skills, with buildings and manufacturing being priority areas.	2021
Monitor and measure improvements in reducing emissions in **schools and public buildings** (and associated travel), aiming for zero-carbon buildings wherever possible, and ensure they are resilient to the future impacts of climate change.	Now and ongoing
Consider the wider role of the **education system** in supporting the transition to a net-zero economy and preparing for the risks of climate change – including the need for greater public awareness and understanding, and the need for technical skills in the workforce.	Now and ongoing
Priorities for all departments: • Integrate Net Zero into all policy making, and ensure procurement strategies are consistent with the UK's climate objectives. • Ahead of the CCC's next adaptation progress report in 2021, demonstrate adaptation planning for a minimum 2°C and consideration of a 4°C global temperature rise (by 2100 from pre-industrial levels). • Follow best practice shown by leading businesses to monitor and verify their paths to a net-zero and climate resilient future. • Demonstrate actions that address all of the more urgent risks set out in the second UK climate change risk assessment relevant to the Department.	Now and ongoing

Department for Environment Food & Rural Affairs

Environment Agency

dwi

CCW
The voice for water consumers
Y coeff sy'n rhoi llais i ddefnyddwyr dŵr

Ofwat

By email only: 20 July 2020

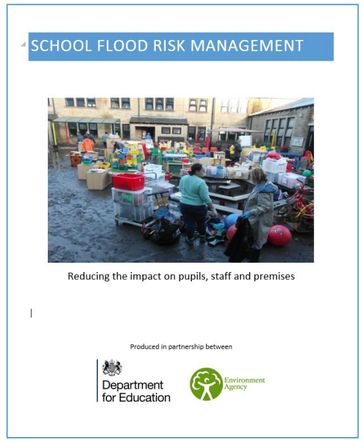
GREEN ECONOMIC RECOVERY – THE WATER INDUSTRY'S ROLE IN BUILDING A RESILIENT FUTURE

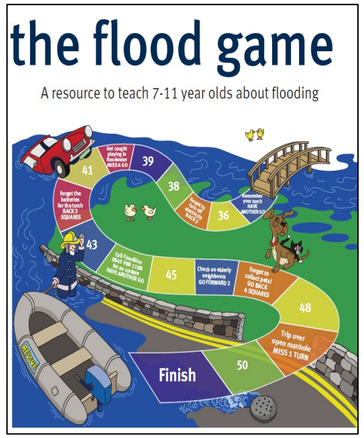
Dear All,

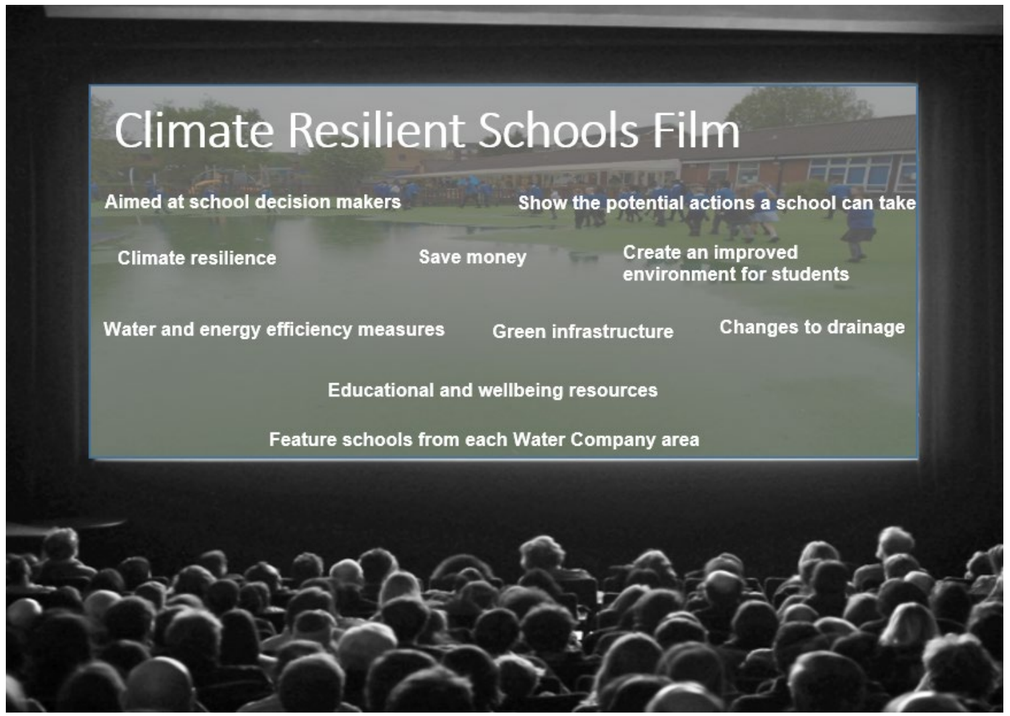
We, – the Government, the Environment Agency, the Drinking Water Inspectorate, Ofwat and CCW, are writing to you to set out how water companies can help to meet the economic and social challenges England faces. This letter invites you to play your part in the country's green economic recovery from the COVID pandemic and deliver a new and more resilient future, building on your quick and effective incident response in the recent months.

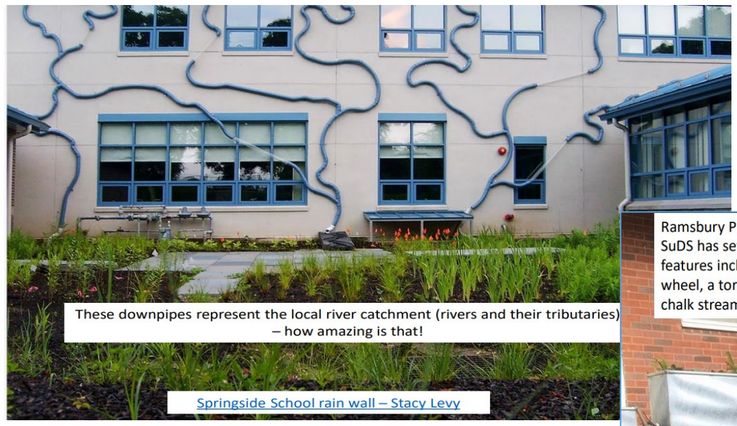
Global issues like climate change and an ever-increasing demand for water highlight the essential role the water industry plays in a successful society, economy and a thriving natural environment. Now more than ever we need exemplary services and support for all the people and businesses in this country, and real and lasting improvements to the environment for current and future generations. As a water company, you take the lead in delivering a safe and secure water supply, a thriving natural environment and great customer service.

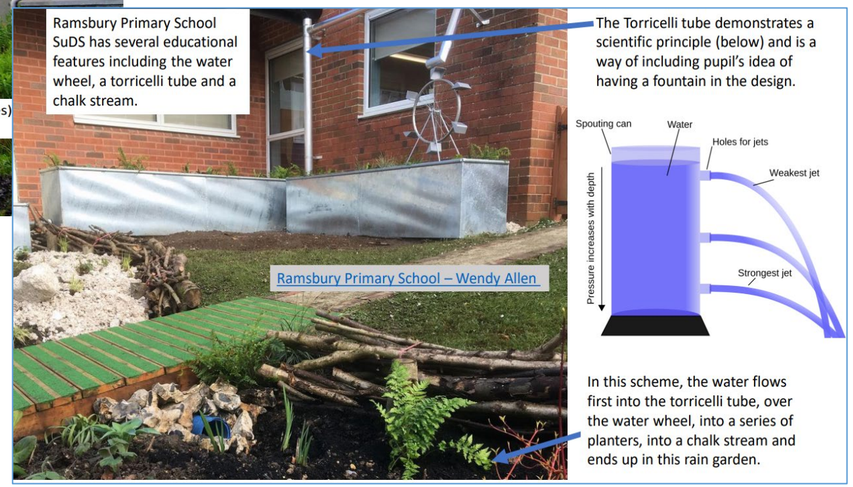
A nation ready to respond and adapt to flooding and coastal change



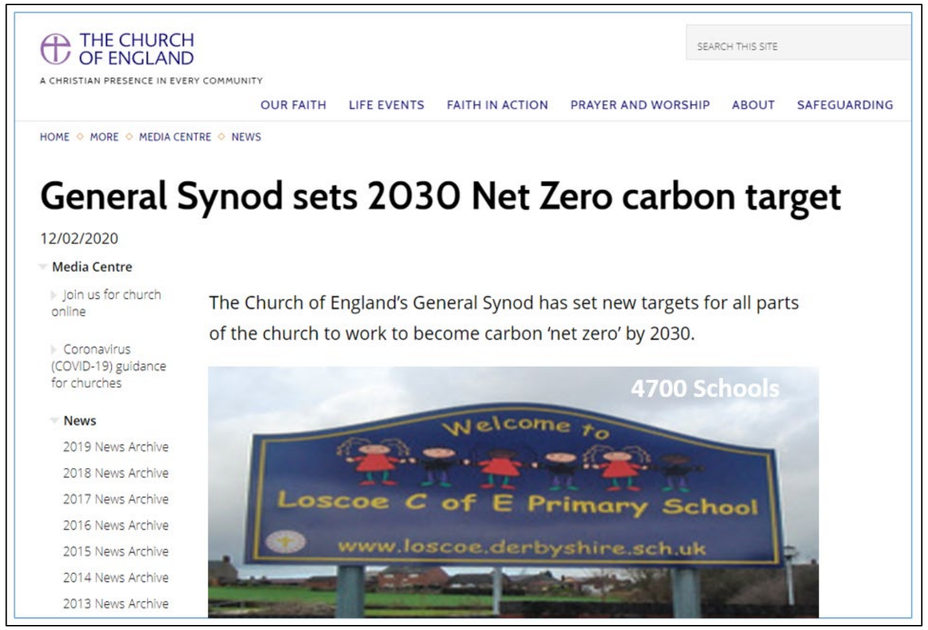








Wider Benefits / Links



COMMERCIAL DIRECTORATE – MAKING EVERY POUND COUNT

Adaptation, Resilience and Impacts on Decarbonisation in a changing climate (ARID)

Research Project collaboration between UCL and DfE

Design Team

Presentation for GAD conference on 17 -18 Nov 2020

Professor Dejan Mumovic, UCL

Richard Daniels, DfE

Department for Education

UCL Institute for Environmental Design and Engineering

UCL

CCRA3 risks affecting schools

The CCRA3 risk assessment methodology identifies 67 Climate Change risks in all. This project deals with

- Overheating risks
- Impacts of decarbonisation

Other major risks in CCRA3 that affect schools include:

- Flooding and drought
- Pollution and Air Quality risks
- Increased Disease and Infection risks

Department for Education

Sensitivity of children

- Children are more sensitive to high temperatures than adults. Whilst children under five years of age are at highest risk, older children are also susceptible to ill health from heat.
- For every 1°C increase of classroom temperature academic performance in terms of speed deteriorates by 2-4%.
- Children are very sensitive to poor air quality which is affected by rising temperatures. Emergency admissions of 5-14 year old children for respiratory diseases in London increase by 5.2% for every 1°C increase in external temperature above 23°C.

"UK summers will become hotter and drier, with more frequent, intense and longer heatwaves. Mean daily temperature increases could be up to 5.4°C in the summer and 4.2°C in winter by 2070 under a High Emissions scenario"

MetOffice 2018. The UK Climate Projections 2018.

Department for Education

Decarbonisation of schools

School buildings have a key role to play in the transition to a low carbon UK economy.

School buildings are responsible for 15% of the country's public sector carbon emissions. Energy is often the largest non-staff cost and a significant portion of a school's budget; space heating using fossil fuels currently makes up the largest proportion of energy use (58%) and associated energy costs (45%) in schools [11].

The school building stock offers significant opportunities for energy use reductions because the factors determining energy performance and heating needs, such as occupancy activities and equipment use, are fairly homogeneous.

It is estimated that UK schools could reduce their energy bills by £44 million per year whilst preventing 625,000 tonnes of CO_2 from entering the atmosphere [11].

There have been rapid recent developments in strategies to reduce the carbon emissions of schools, and their uptake will increase in the future. To achieve this, school buildings will need to be either retrofitted or constructed to stringent energy standards.

We need to predict and avoid any unintended consequences of energy efficiency retrofit on health and thermal comfort, indoor air quality, visual comfort and daylight access, noise and acoustics.

Risks from decarbonisation of schools

Energy efficiency strategies that lack a whole systems approach can have unintended consequences for indoor environmental conditions, eg, an increased risk of overheating or reduced levels of daylight.

In heating dominated climates such as the UK, energy efficiency measures that rely on high building fabric thermal insulation and airtightness levels are typically optimised to reduce heating demand during winter.

Strategies are often not designed to meet the cooling needs of a building in a warming climate while maintaining a healthy indoor environment.

Department for Education

The project aims

1. To develop a risk-informed resilience model of the school building stock and optimise the opportunities for a transition to a low carbon future

2. To characterise, quantify and communicate climate-related asset management risks in order to develop equitable adaptation pathways

Department
for Education

Programme

12 months programme starting on 1 December 2020

Resources

Contribution in time from DfE

Two researchers from UCL both half time with different specialisms supported by senior UCL research staff

Department for Education

Objectives

- Objective 1 (WP2) Analyse the energy and building attributes of all 22,000 schools to produce a fully featured and consistent school building stock model
- Objective 2 (WP3) Apply building physics modelling to the school building stock model of 22,000 schools able to predict future overheating risks under a range of climate scenarios
- Objective 3 (WP4) Quantify the exposure of UK schoolchildren to climate change risks. The risks of high indoor temperatures in school buildings will be assessed under a range of low carbon building design and operational strategies in the current and future climate
- Objective 4 (WP4) Evaluate the effectiveness of near, medium and long term future overheating mitigation strategies and policies
- Objective 5 (WP5) Identify the optimum pathways for increasing climate resilience of the school building stock through policy and practice
- Objective 6 (WP5) Examine opportunities for extending the climate change risk model to other sectors of the non-domestic stock

Department for Education

Work Packages 1 and 2

WP1. Project Delivery and Management

Project Advisory Group Quarterly Meetings between DfE and OGDs chaired by Ann Bodkin, Head of Intelligent Design, DfE. Project Management Committee meets monthly, chaired by Richard Daniels, DfE Design Team.

WP2. Integration of datasets

(a) Condition Data Collection (CDC) school property survey for 22,000 schools,

(b) Display Energy Certificate data for all schools in England (2008-2014), and

(c) BEIS electricity and gas meter data for all schools in England.

Key deliverables: (a) 1 journal paper (Energy & Buildings), (b) Disaggregated Energy Benchmarking for the school building stock, (c) Climate Resilience Risk Register for the school building stock.

Department for Education

Work Packages 3

WP3. Digital Twin of the School Building Stock - UK Climate Resilience Embedded Researcher: Godoy Shimizu, DfE: Daniels, Academic: Korolija

- Each building has a digital twin with improved capabilities to better inform policy-makers, building users and other interested parties.
- The school sector used as the pilot study because of comprehensive data on the physical properties and energy use is available (see WP2). We will produce a set of tools to generate single school models and simulate sets of building models at the regional and national level to address specific questions

Key deliverable: Climate resilience platform to support informed asset management for school sector

Department for Education

Work Package 4

WP4. Co-creation of Climate Resilience, Adaptation and Decarbonisation Scenario Analyses - UK Climate Resilience Embedded Researcher: Godoy Shimizu, DfE: Daniels, Academic: Mavrogianni

- Data analyses from WP2 will be integrated into the digital twin of the school building stock developed in WP3. This will enable Specific scenario analyses for the introduction of new technologies, refurbishment programmes [22], and climate resilience and adaptation policy changes.
- Overheating risks will be correlated against other school climate change and wider resilience risks using the risk assessment framework developed by the Risk Protection Arrangement (RPA) Team in DfE, supported by GAD and the Environment Agency, to assess the property resilience risks of flooding, fire and crime.

Key deliverables: (a) Journal paper (Buildings and Environment), (b) Risk-informed Climate Resilience Scenarios, Adaptation and Decarbonisation Scenario Analysis

Department for Education

Work Package 5

WP5. Impact Acceleration - UK Climate Resilience Embedded Researcher: Godoy Shimizu, Project Advisory Group, DfE: Ann Bodkin, Academic: Mumovic

Engage with:

UKRI UK Climate Resilience Champion and cross-programme activities to help broaden the impact

Major professional bodies including the CIBSE School Design Group (10,000 members in 16 countries;), SPACES (a network of architects/engineers working in Local Authorities),

Public Health England and academic and industrial partners in the Building and Energy modelling, monitoring and benchmarking communities

Key deliverables: (a) Report on Asset Management for School Sector: Climate Resilience, Adaptability and Decarbonisation, (b) Methods and tools developed to produce a stock model of UK schools as a pilot for a wider model of the non-domestic building stock. (c) Conference presentation

Department for Education

For more information

Contact us

- By email: Design Standards.DfECapital@education.gov.uk

Department for Education

UCL Institute for Environmental Design and Engineering

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Q&A

Our next session starts at 12pm

Tuesday 17 November	
10am	**Understanding climate uncertainty** • **Dr Tamsin Edwards**, a climate scientist from King's College London • **Willemijn Verdegaal**, Co-Head Climate & ESG Solutions at Ortec Finance
11am	**Reflecting climate uncertainty** • **Chris Paterson**, an actuary at GAD • **Cathy Ansell** from the World Bank's Disaster Risk Financing and Insurance Program • **Paul Wyse**, an Environment Agency secondee to DFE • **Richard Daniels** (DFE) and **Professor Dejan Mumovic** (University College London)
12pm	**Upskilling – why and how** • Two of CSEN's co-chairs, **Dexter Lee**, and **Charlie Speller** • **John Bayliss**, an actuary at GAD and member of the Institute and Faculty of Actuaries' (IFoA) sustainability board

Government Actuary's Department

Upskilling – why and how:

Dexter Lee, CSEN co-chair, policy advisor at Defra
Charlie Speller, CSEN co-chair, policy advisor at Cabinet Office
John Bayliss, GAD

House keeping

This session is being recorded

Please turn off your video and mute your microphone if you are not presenting

Ask questions via the Q&A function

Civil Service
Environment
Network

Developing capability in environmental policy

Charlie Speller and Dexter Lee,
Co-Chairs of the Civil Service Environment Network

What is the Civil Service Environment Network?

- CSEN launched in October 2019
- We help build the environmental knowledge and capability of all our members
- We are open to all UK civil servants and our current membership comprises over 900 civil servants from a wide variety of backgrounds

What do we cover?

Our network offer focuses on four expansive and cross-cutting topics:

- Climate Change
- Natural Resources
- Biodiversity and Ecosystems
- Sustainable Development

Civil Service Environment Network

What do we offer?

- monthly talks delivered by expert speakers
- monthly discussion groups
- careers, networking & volunteering opportunities
- a monthly newsletter
- a website for all our resources

Civil Service Environment Network


THE CIVIL SERVICE
ENVIRONMENT NETWORK
ONLINE

www.civilserviceenvironmentnetwork.org

environment.network@faststream.civilservice.gov.uk

Join our mailing list

@ CSEN

Civil Service Environment Network

Government Actuary's Department

The Green Finance Education Charter

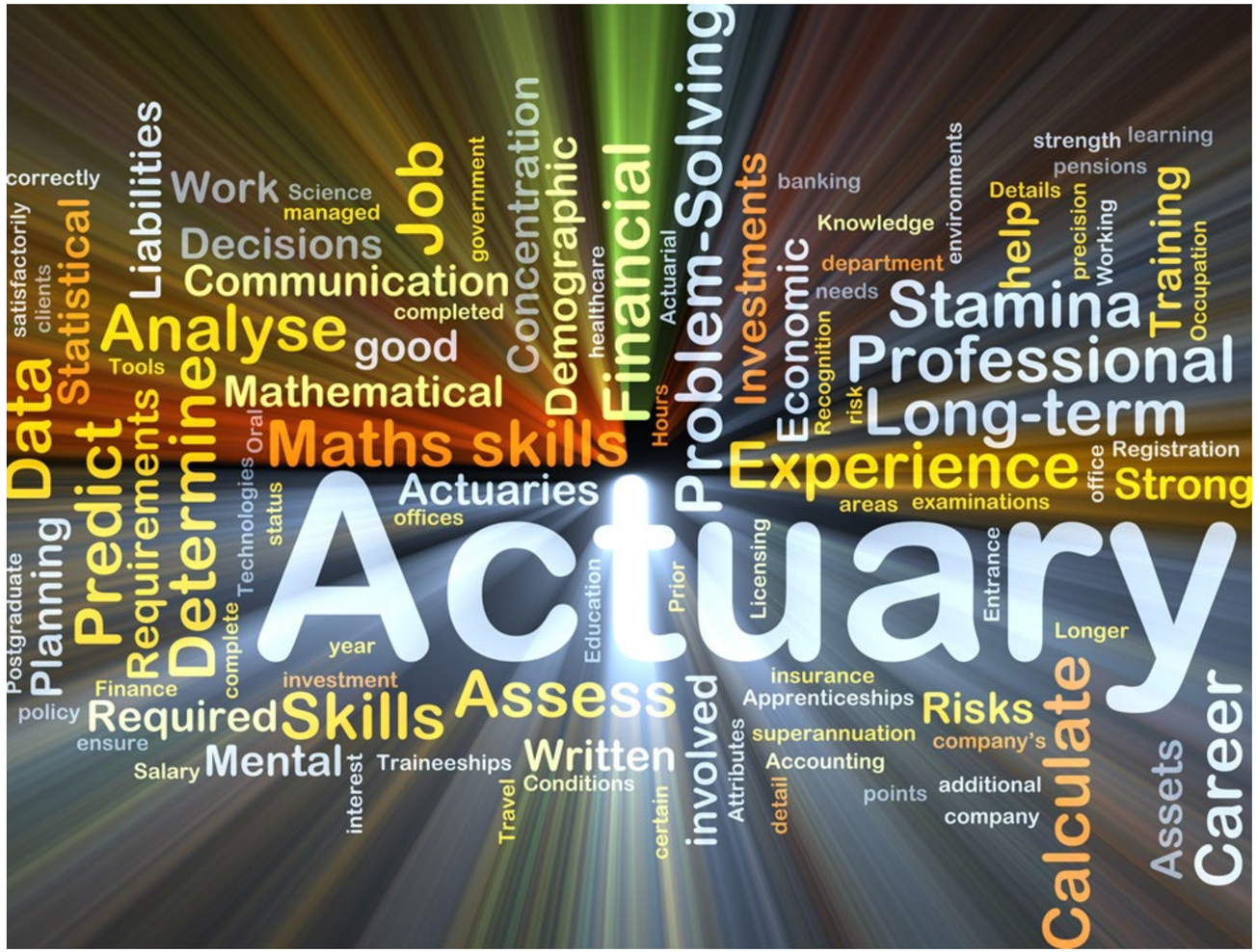
JOHN BAYLISS

17 November2020

Agenda

- Introduction to actuaries and the IFoA
- The Green Finance Education Charter
- The IFoA's approach

What is an actuary?



Institute and Faculty of Actuaries

What's the big deal: **All** Models are Wrong

How can we do this?

- By educating our members
- By giving them tools to try to build that understanding
- By accepting that the models will be wrong, but that they still help in explaining the uncertain future

The Green Finance Education Charter

Chartered Insurance Institute
Standards. Professionalism. Trust.

ACT

CISI
CHARTERED INSTITUTE FOR SECURITIES & INVESTMENT

ICAEW

CAIA ASSOCIATION

The London Institute of Banking & Finance

Chartered Banker

CAS

ACCA

CFA Society United Kingdom

Institute and Faculty of Actuaries

™

What does the GFEC require us to do?

- Engage members
- Curate, develop and promote relevant resources
- Encourage the adoption of relevant global and national standards

How are we going about it?

Q&A

Tomorrow’s agenda

Wednesday 18 November	
10am	**Future government challenges** • **Eileen Wang**, from HM Treasury’s Net Zero Team • **Kathryn Brown** (Head of Adaption) and **David Style** (Senior Analyst) from the Climate Change Committee
11am	**Value for money and climate reporting** • **Simon Bittlestone**, an Audit Manager at the National Audit Office • **Sara Ronayne**, an actuary at GAD • **Andrew Blair**, a Policy Adviser at the Department for Work and Pensions • **Teresa Clay**, Head of the Pensions Team at MHCLG will join for the Q&A panel
12pm	**Financing climate disasters** • **Daniel Clarke**, Director of the Centre for Disaster Protection, and • **Ekhosuehi Iyahen**, Secretary General of the Insurance Development Forum