CLIMATE ANALYTICS

2018 ANNUAL REPORT

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Cover photo: Herd of European Bisons in National Park Bialowieza, Poland by Daan Kloeg

Message from the CEO

Bill Hare speaking at the Green Climate Fund's Global NDA Conference in October 2018. Photo: Green Climate Fund

Climate Analytics' broad engagement in scientific and policy issues of key importance to those who stand to suffer most from unchecked climate change continued to make a difference in 2018 – from new science to improve the understanding of current and future impacts, through showing governments the implications of national policy choices in the light of the latest science and ways to improve them, to assisting vulnerable countries in getting onto low-carbon development pathways and preparing for impacts.

2018 was a year of climate impacts – we saw new temperature records in Oman and Algeria, Japan baked in a heat wave that lead to thousands of hospitalisations, while European farmers faced major crop losses. Communities in Kerala, India suffered worst floods ever recorded that resulted in many deaths, and forest fires burned not just in Australia and California, where longer and earlier bushfire seasons are becoming a frightening reality, but as far north as the Arctic Circle in Sweden.

These are just a few examples of impacts in line with climate science projections – a body of scientific work Climate Analytics has contributed to significantly in the last ten years. In 2018, the work of the global climate science community culminated in the Intergovernmental Panel on Climate Change (IPCC) ground breaking report, which warns of the increased risks of devastating climate impacts, should global average temperature exceed 1.5°C, emphasising that even half a degree matters.

Scientists from our climate science and impacts team contributed 11 peer-reviewed articles just from one project, which were all subsequently assessed in the report. One of our experts was a lead author of a chapter relating to small islands, and also guest edited a special issue of a scientific journal, which gathered new studies across a number of disciplines on the key issues facing small islands. Many of these studies were also assessed by the IPCC.

Climate Analytics scientists based in the Caribbean, Pacific and West Africa have helped co-develop tools and analyses that are assisting countries in this region develop adaptation plans and strategies that can be funded by the GCF and other climate finance facilities.

In its report, the IPCC has also shown that it is feasible to limit warming to 1.5°C and outlined pathways for achieving this, at the same time showing that the transformations required for this need to happen very rapidly and carbon emissions need to halve within the next decade.

In 2018, global greenhouse gas emissions grew again, showing that climate action is nowhere near on track to deal with the climate challenge. The Climate Action Tracker, an assessment we've been running since 2009 with NewClimate Institute and Ecofys, underscored the need for urgent action and showed that if all governments were to implement their Paris pledges in full, warming would rise to 3˚C in 2100

The Climate Action Tracker continued to look into how different sectors can achieve the rapid transformations required to be in line with the 1.5°C goal, in 2018 focusing on agriculture, appliances and road freight. In its new 'Scaling Up Climate Action' series, it identified options for the EU and South Africa to align policies with the Paris Agreement, with more countries to come in 2019, including Indonesia and Australia. With EU leadership critical on climate change action now the scaling up EU climate action report gained significant attention at COP24 in Katowice at the end of 2018.

As part of our work on providing science-based benchmarks for phasing out fossil fuels to put the world on track for the 1.5°C limit in the Paris Agreement, our decarbonisation team produced coal phase out studies on Germany and Japan. As a rapid and early phase out of coal in the power sector is absolutely critical we well focus with our research and funding partners on work that can help accelerate this. Towards the end of 2018 we began work on a major report on decarbonizing Asia to be released during 2019.

We have also begun to look into the very limited role of natural gas in Paris Agreement compatible energy transformation as concerns and in this context looked in depth at Australia's climate policies – it is now the largest gas exporter globally - and in particular at globally significant expansion of the liquid natural gas (LNG) industry in Western Australia.

It is clear that continued diplomatic pressure to ramp up climate action is vital. 2018 was also the most important year in international climate negotiations since Paris Agreement and the annual UN climate summit - COP24 in Katowice, Poland – was tasked with adopting a set of rules necessary for the Agreement's implementation.

Our climate diplomacy team supported Small Island Developing States and Least Developed Countries during high-level regional and international workshops, strategy meetings preparing for international negotiations, and put in countless hours at UNFCCC climate conferences to ensure these countries have the latest scientific and policy inputs to underpin their push for robust rules that can pave the way to stronger action.

In the international climate finance arena, our experts supported delegates from these countries to ensure that the rules governing the Green Climate Fund, envisioned to help them, enable simplified access to funds to run their own mitigation and adaptation projects.

Alongside the diplomatic push for more ambitious climate action, these vulnerable countries also led by example and many are in the process of rolling out their own ambitious climate policies and projects. We support many countries in key processes – from formulating plans, using the latest available scientific information, to finding strategies to finance their implementation.
In a number of West African countries, our science and policy experts worked with government agencies and regional scientific institutions to co-develop science based national adaptation plans, ensuring that the expertise stays in these countries.

Access to international climate finance is a key constraint for many vulnerable countries and, in 2018, we supported governments in seeking out funding opportunities for adaptation and mitigation climate finance, as part of the IMPACT project. Our Implementation Strategies Team also embarked on four Climate Finance Readiness projects in four countries helping governments ready their institutions to receive such funds, turn their plans into bankable projects that meet GCF criteria.

Achieving all this would not have been possible without the 'back office' support in managing our operations, finance, administration and logistics, both in our head office and to our different operations around the world. As Climate Analytics has grown so has the workload in this area and our functioning has only been possible because of the dedicated and committed work in this area.

Looking ahead, for the next two years Climate Analytics will focus on providing scientific and policy research and analysis which can support and guide countries to update their Paris commitments (NDCs) and current policies to bring them into line with the 1.5°C limit in the Paris Agreement. Achieving a major improvement in the emissions outlook and providing the research and analytical to support the global transformation in energy, transport and infrastructure by 2020 when countries are required to update their NDCs will be a key focus for Climate Analytics. Ultimately the success of the Paris Agreement may well be measured by just how much the world community is able to work together to improve the level of climate commitments and actions by 2020.

Bill Hare
CEO and Senior Scientist

Scope of our work

AFRICA

- NAP process, implementation and financing strategies
- Adaptation and Disaster Risk Management (DRM)
- Multi-Sectoral Investment Plans for Climate and DRM
- Economic impacts of climate variability
- Forests and governance
- Interative data tools RegioCrop and REgioClim

SUPPORT TO LDCs

- Climate Diplomacy (UNFCCC)
- NDC formulation, update, revision and implementation
- NAP implementation
- NAP process financing strategy
- GCF and climate finance readiness

SUPPORT TO SIDS

- Climate Diplomacy (UNFCCC)
- NDC formulation, update, revision and implementation
- NAP implementation
- NAP process financing strategy
- GCF and climate finance readiness

EUROPEAN UNION

- Coal phase-out for the EU
- EU 2020 Strategy: Water, Agriculture, Low-carbon Economy, Climate Change and Food security
- Analysis of results and implications for pathways and policies for low-emissions European societies
- Mitigation options for key sectors including transport and buildings

1.5°C GLOBAL ANALYSIS

- 1.5°C science: global impacts, risks and action needed
- Coal phase-out to meet the Paris Agreement temperature limit
- Real world decarbonisation progress, future potential of sectors and strategies to meet these potential carbon reductions
- Sea level rise analysis

ASIA

- Coal phase-out to meet the Paris Agreement temperature limit
- Energy transformation
- Co-benefits analysis

AUSTRALIA

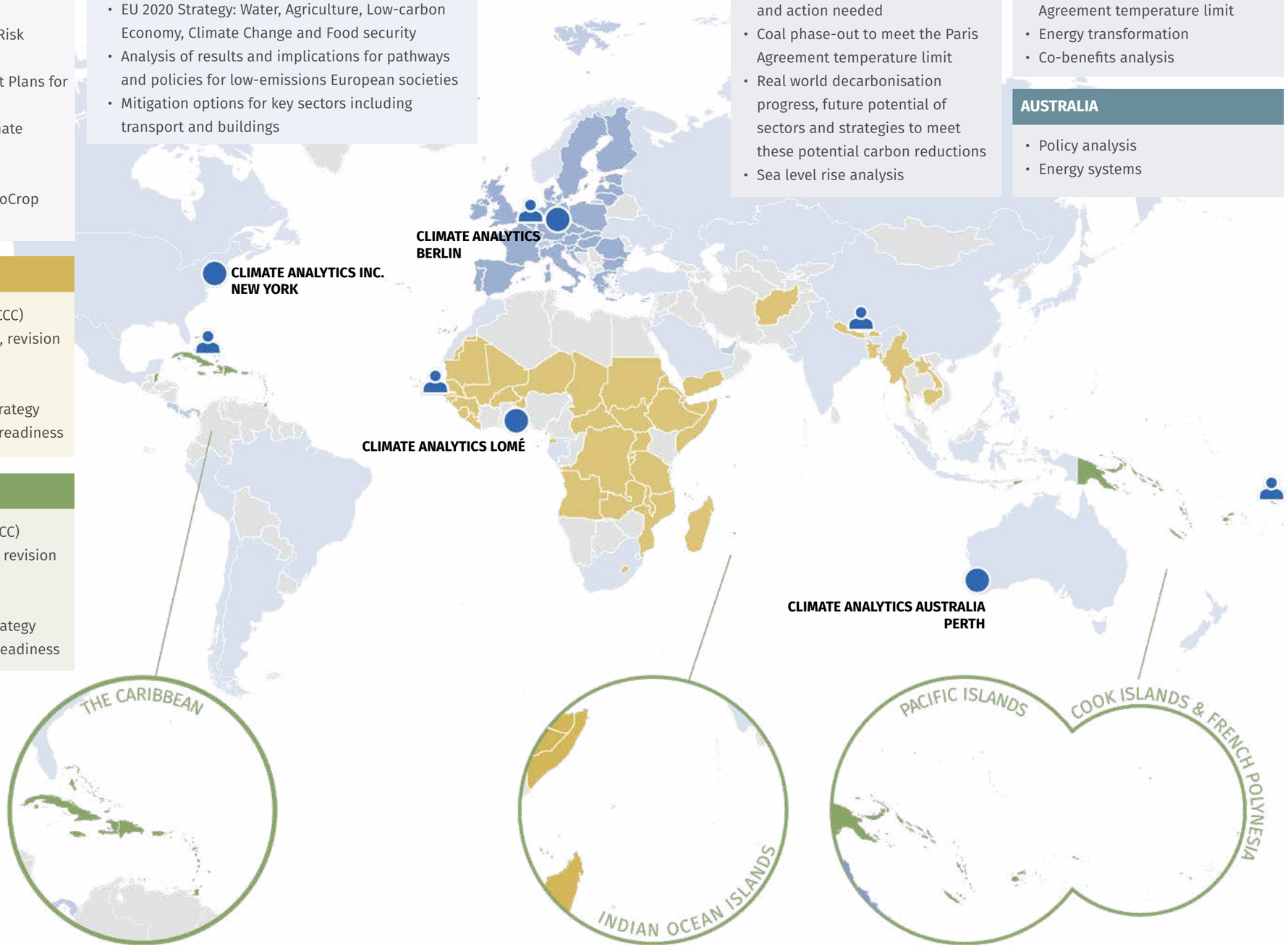
- Policy analysis
- Energy systems

THE CLIMATE ACTION TRACKER

This scientific analysis, tracks climate action and efforts towards the globally agreed long-term temperature goal. It tracks 32 countries, including all the biggest emitters and a representative sample of smaller emitters, covering about 80% of global emissions and approximately 70% of global population.

- Track and evaluate individual country actions
- Aggregate individual country efforts to a global result/effort
- Compare efforts of individual countries
- Policy analysis and recommendations
- NDC target analysis
- Track sectorial decarbonisation trends
- Provide data to the public

ClimateActionTracker



LDCs Least Developed Countries

SIDS Small Island Developing States

European Union

Climate Action Tracker Countries

Leading research on 1.5°C

Limiting warming to 1.5°C offers a chance to save at least a fraction of coral reefs, such as Australia's Great Barrier Reef. Photo by Kyle Taylor

In October 2018, the IPCC published its long-awaited Special Report on 1.5˚C, where it outlined the pathways to keep warming to within 1.5°C above pre-industrial levels in order to avoid the worst impacts of climate change. Climate Analytics was actively involved in the development of the report, with our scientists contributing to the literature base underpinning it.

Indeed our Bahamas-based scientist Adelle Thomas was lead author of Chapter 3 "Impacts of 1.5°C of Global Warming on Natural and Human Systems." Our head of Climate Science and Impacts, Carl-Friedrich Schleussner, contributed 15 published scientific papers to the report, the second highest number of papers on 1.5˚C from a single scientist.

The IPCC report showed that humanity would have to reduce its carbon emissions by at least 49% below 2017 levels by 2030 and achieve carbon neutrality by 2050 in order to meet the target. It highlighted the huge difference between impacts at 1.5˚C and 2˚C, an issue that has been the subject of Climate Analytics' scientists' work.

The IPCC directly addresses the point that climate action undertaken so far is inconsistent with the UN's Sustainable Development Goals. It also tells a story of possibility and points out clearly where the risks, challenges and opportunities are.
It gives us a whole range of options and actions that can be taken – and indeed there are many ways it can be done. But its main message is that 1.5˚C is possible to achieve - giving the lie to the claims that it is not - and that there are many positive benefits in doing so.

Nevertheless, limiting warming to 1.5˚C is a huge and complex task. To contribute to achieving the 1.5˚C target, in 2018 the UNFCCC continued its 'Talanoa Dialogue' process aimed at helping countries to implement and upgrade their Nationally Determined Contributions (NDCs).

Climate Analytics provided inputs to the **two 2018 Talanoa Dialogues**, structured around the questions 'Where are we?', 'Where do we want to go?' and 'How do we get there?'. Climate Analytics also produced a briefing on the 1.5˚C target, informing the Talanoa Dialogue question 'How do we get there?'.

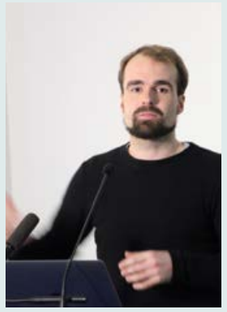
Climate Analytics continues to highlight the importance of policymakers taking up the IPCC SR15 conclusions, publishing papers and blogs outlining the need to keep warming to within 1.5˚C, with a particular emphasis on avoiding dangerous climate change in the climate-vulnerable LDCs and SIDS.

Since it was founded, Climate Analytics has undertaken extensive research on how to limit the global temperature increase to 1.5°C and published key papers on the topic. Our scientists have provided major contributions to international and regional scientific assessments.

In 2018, Climate Analytics scientists contributed to a review of regional differences in climate hazards at 1.5˚C and 2˚C, including an assessment of climate change hotspots.

Our work with the Climate Action Tracker also contributes to the 1.5˚C goal. The CAT undertakes an annual update of the global warming level government action will lead to, and assesses individual government action against the 1.5˚C limit. It has an ongoing decarbonisation series that looks at the pathways to full decarbonisation of our energy system in various high emitting sectors and provides a data portal for others to make sectoral calculations and comparisons (see pages 23, 24).

Dr Carl-Friedrich Schleussner



Climate Analytics' head of Climate Science and Impacts, Dr Carl-Friedrich Schleussner, has been credited with publishing the second highest number of papers on 1.5˚C: 15. Carl's work includes the first paper that compared the impacts of warming between 1.5˚C and 2˚C, which formed an important section in the SR15 report.

Carl has contributed to the literature on 1.5°C on a diverse set of topics: methodological ground work, changes in climate extremes and climate impact projections including water availability and food production as well as tipping elements and societal implications of climate change. A special focus of his work has been the 'hot spots' of climate change under 1.5°C in small islands and least developed countries.

Climate impacts at 1.5°C and 2°C
HAPPI DE Project

The HAPPI-DE project, funded by the German Federal Ministry for Education and Research (BMBF), provided targeted scientific inputs into the IPCC Special Report on 1.5°C. The HAPPI-DE consortium was led and coordinated by Climate Analytics. As part of the project, a group of international researchers assessed global and regional climate model simulations, as well as impact model simulations in the agriculture and water sector, resulting in 11 scientific publications, all led or co-authored by Climate Analytics scientists. All the publications were assessed in the IPCC Report. Here's a selection:

1.5°C HOTSPOTS: CLIMATE HAZARDS, VULNERABILITIES, AND IMPACTS

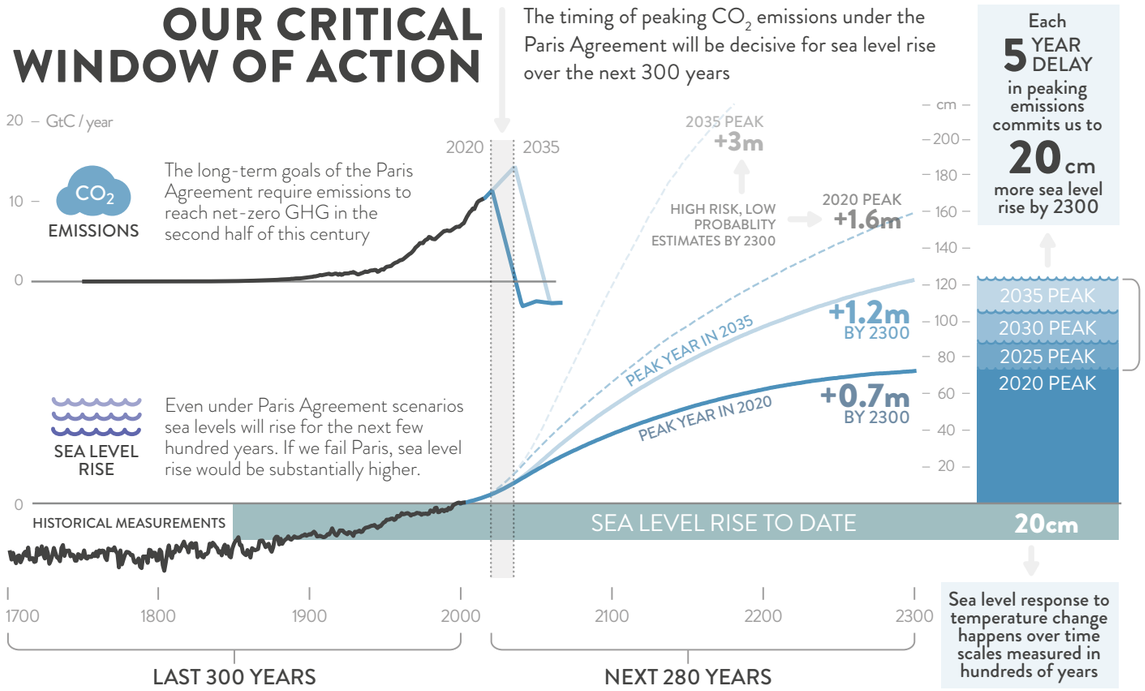
This article contains the review of scientific evidence of regional differences in climate hazards at 1.5°C and 2°C and provides an assessment of selected hotspots of climate change, including small islands as well as rural, urban, and coastal areas in sub-Saharan Africa and South Asia, that are particularly affected by the additional 0.5°C global mean temperature increase.
Schleussner, C.-F. et al. 1.5°C Hotspots: Climate Hazards, Vulnerabilities, and Impacts, Annu. Rev. Environ. Resour. 43, 135– 163 (2018)

CROP PRODUCTIVITY CHANGES IN 1.5° C AND 2° C WORLDS UNDER CLIMATE SENSITIVITY UNCERTAINTY

This article investigates the sensitivity of future crop yield projections with a set of global gridded crop models for four major staple crops at 1.5°C and 2°C warming above pre-industrial levels, as well as at different CO2 levels determined by similar probabilities to lead to 1.5°C and 2°C.
Schleussner, C.-F. et al. Crop productivity changes in 1.5 °C and 2 °C worlds under climate sensitivity uncertainty. Environ. Res. Lett. 13, 064007 (2018)

ROBUST CHANGES IN TROPICAL RAINY SEASON LENGTH AT 1.5° C AND 2° C

This article presents projections for changes in tropical rainy season lengths for levels of global mean temperature increase of 1.5°C and 2°C above pre-industrial levels.
Saeed, F. et al. Robust changes in tropical rainy season length at 1.5 °C and 2 °C. Environ. Res. Lett. 13, 064024 (2018)



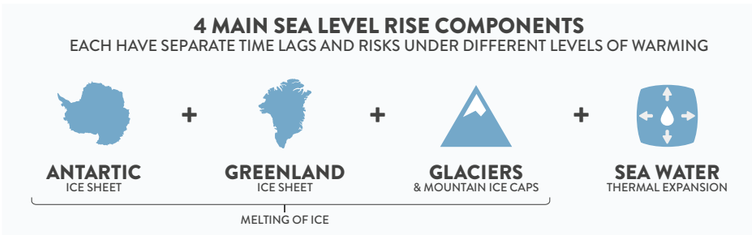
Sea level legacy: 20cm more rise by 2300 for each 5-year delay in peaking emissions

Peaking global CO2 emissions as soon as possible is crucial for limiting the risks of sea level rise, even if global warming is limited to well below 2°C. This study published in the journal Nature Communications analysed for the first time the sea level legacy until 2300 within the constraints of the Paris Agreement.

The researchers, including two scientists from Climate Analytics, projected global sea level to rise between 0.7m and 1.2m until 2300 with Paris Agreement put fully into practice. As emissions in the second half of this century are already outlined by the Paris goals, the variations in greenhouse-gas emissions before 2050 will be the major leverage for future sea levels.

The researchers find that each five year delay in peaking global CO2 emissions will likely increase median sea level rise estimates for 2300 by 20 centimeters.

"For millions of people around the world living in coastal areas, every centimeter can make a huge difference – to limit sea level rise risks immediate CO2 reduction is key" – Dr Carl-Friedrich Schleussner.



STUDY: Matthias Mengel, Alexander Nauels, Joeri Rogelj, Carl-Friedrich Schleussner (2018): Committed sea-level rise under the Paris Agreement and the legacy of delayed mitigation action. Nat. Commun. [DOI: 10.1038/s41467-018-02985-8]

SLICE – Short- and Long-Term Impacts of Climate Extremes

Identifying key impact channels and effective strategies for long-term economic development under climate change

Floods, tropical cyclones, heatwaves, and droughts cause not only substantial direct damages but also have the potential to deteriorate socio-economic development perspectives in the long term. A systematic understanding of the main impact channels of climate extremes on socio-economic development from the household to the macroeconomic level is missing to date. The SLICE project aims at closing this gap.

The three-year project, which started in November 2018, is a collaboration between Potsdam Institute for Climate Impact Research, Climate Analytics and the Ifo Institute for Economic Research. It is funded by the German Federal Ministry of Education and Research (BMBF) via the funding line Economics of Climate Change.

SLICE aims to combine econometric methods and dynamic, process-based modelling from the household to the macroeconomic perspective to gain a deep understanding of how climate extremes impact socio-economic development. On the household level, we aim to study the long-term distributional impacts of climate-related shocks such as floods or droughts on well-being and development prospects in terms of economic wellbeing as well as impacts on health and education.

The resulting scientific publications, policy briefs, open-access datasets and open-source software will be developed with the guidance of stakeholders.

Selected 1.5°C blogs and briefings

CARBON BUDGETS FOR 1.5°C

Recent publications have argued that the remaining "carbon budget" available to meet the Paris agreement long-term temperature goal is larger than previously estimated in IPCC Fifth Assessment Report. This briefing outlines why the notion of "more time" for climate protection is ill advised. We have no time to lose to achieve 1.5°C.

SETTING THE RULES: CAN COP24 DELIVER ON 1.5°C?

COP 24 is about more than a set of rules. It is about designing a system that can deliver climate action in line with the IPCC's clear message: that we must do everything possible to limit warming to 1.5°C, and that we need to act fast. Will governments gathered in Katowice act with the urgency and unity needed for preventing the most dangerous levels of climate change?

THE ROLE OF FINANCE AND INVESTMENT IN MEETING THE 1.5°C GOAL

This week, climate finance – funds for developing countries to enable low-emission and climate-resilient development – takes center stage as political leaders discuss how to ramp up climate ambition at COP24 in Katowice, Poland. What role can investments and finance for mitigation and adaptation play, in particular for the most vulnerable countries?

HOT, DRY OR FLOODED - MORE WEATHER EXTREMES BEYOND 1.5°C

This blog gives an overview of the most important of the recent 1.5˚C studies on climate impacts and extreme events. Much of it will be synthesised in the IPCC special report, due out in October, which will be a key document for setting the course of climate policy at a global level.

STAYIN' ALIVE: HEATWAVE MAKES SEARING CASE FOR 1.5°C

This year's extreme summer, still scorching central and northern Europe, is a stark illustration of the kind of climate change impacts we could see if nothing is done to reduce greenhouse gas emissions. Heat waves, droughts and other extremes will only increase in severity and frequency as the Earth continues to warm. Limiting warming to 1.5°C, as governments around the world pledged by signing the Paris Agreement, can help avoid the worst impacts of climate change.

AUTHORS FROM VULNERABLE NATIONS IN IPCC REPORTS

Just as the voices of vulnerable nations were critical in including the 1.5°C limit in the Paris Agreement, it is also critical that experts from these states play an active role in authorship of IPCC reports. It is encouraging to see that the composition of the body of experts selected to put together the Special Report on 1.5°C and the Sixth Assessment Report increasingly reflects this.

Climate science

Science and Loss and Damage

EmBARK (Temporal Evolution of Barriers to Adaptation and their Relevance for Climate Related Loss and Damage), a joint project with the Humboldt University in Berlin, launched at the end of 2017, takes an interdisciplinary approach to address one of the core issues of the climate-policy interface: How to separate loss and damage and adaptation.

A team of four Climate Analytics researchers (all PhD candidates) look into barriers to adaptation to climate change and investigate the timescales for developing countries to overcome these barriers. The project contributes to a growing body of scientific literature on the links between climate change and extreme weather events (attribution), and to gain insights into policy approaches to loss and damage. Our researchers collaborate with Oxford University, IIASA in Vienna, the Potsdam Institute for Climate Impact Research (PIK), and have presented their work at conferences, including the European Geosciences Union (EGU) Assembly, and a number of workshops.

In 2018, the team developed global projections of governance as a barrier to climate change adaptation, and completed a comprehensive regional assessment of institutional barriers to climate change in the Caribbean. One of the focus areas was an indirect attribution study on tropical cyclones, examining the extent to which global warming contributed to the particularly active hurricane season in 2017. In order to understand how this science can make a difference for policy, the team undertook an in-depth analysis of the evolution of the use of scientific arguments in international climate negotiations.

IPCC authors in our ranks

In 2018, three of our experts were nominated as Lead Authors of the IPCC Sixth Assessment Report (AR6). They are part of Working Group II, which deals with impacts of climate change on natural and human systems and their vulnerabilities. The group also analyses the capacities and limits of these systems to adapt to climate change and options to reduce climate-associated risks and for creating a sustainable future.

Participants of the IPCC Working Group II AR6 First Lead Author Meeting, attended by our scientists Dr Adelle Thomas, Dr Tabea Lissner and Dr Edmond Totin. Photo: Maike Nicolai, IPCC

Dr Tabea Lissner, who leads our science team's work on climate change adaptation and vulnerability, will contribute to Chapter 4: Water.

Dr Edmond Totin, a climate impact and adaptation expert based in Benin, will contribute to Chapter 9: Africa.

Dr Adelle Thomas, Bahamas-based researcher who focuses on aspects of social vulnerability, adaptation strategies and loss and damage, will contribute to Chapter 16: Key risks across sectors and regions plus the Special Report on 1.5°C.

Our science team counts in its ranks more IPCC authors, who have participated in previous assessment cycles.

Climate Analytics co-founder and CEO, **Bill Hare** was Lead Author in the Fourth Assessment Report (AR4), for which the IPCC was awarded the Nobel Peace Prize in 2007.

Dr Michiel Schaeffer, our Science Director, was part of the Working Group III of IPCC's Fifth Assessment Report (AR5), which focused on the scientific, technological, environmental, economic and social aspects of mitigation of climate change.

ISIpedia - online encyclopedia of climate impacts

ISIpedia is a three year project started in 2017 that responds to the need to bridge the gap between the knowledge on climate impacts available within the scientific community and that available to policy makers.

The ISIpedia project aims to design a future website that provides cross-sectoral, indicator-based climate impact assessments at the global and national scale. These assessments are based on research carried out under the Inter-sectoral Impact Model Intercomparison Project (ISIMIP). To ensure that the outcome is a user-friendly website that caters to the needs of stakeholders, Climate Analytics leads on stakeholder engagement within the project. Overall the project has three focus areas:

- Stakeholder Engagement, led by Climate Analytics
- Coordination of ISIMIP Model Simulations, overseen by Potsdam Institute for Climate Impact Research
- Design, Development and Editorial Oversight of the ISIpedia Portal, coordinated by IIASA

In 2018, the Stakeholder Engagement Team at Climate Analytics launched the ISIpedia Stakeholder Survey, which was used to gather input on the needs of users both in terms of content and design for the future portal.

The team also hosted the first of two Indicator Development Workshops that cover two focus regions of ISIpedia: Eastern Europe and West Africa. The first Indicator Development Workshop, which took place in Krakow, Poland in November 2018, brought together 15 stakeholders and 4 ISIMIP modellers to exchange on how to make modelling results more useful. A second workshop will take place in Ouagadougou, Burkina Faso, in February 2019.

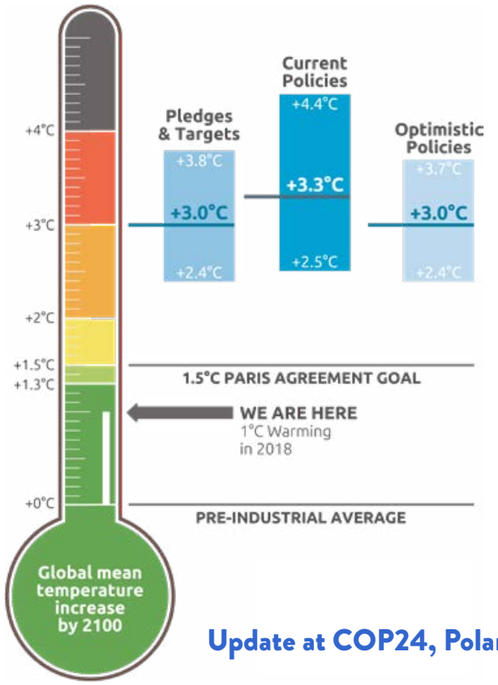
Next to gathering online and in-person input from stakeholders for the future portal, the Stakeholder Engagement Team of ISIpedia has been busy presenting first findings of the stakeholder engagement process at many conferences: from the European Geoscience Union Conference and European Meteorological Society Annual Meeting, to the Scientific Conference on Climate Adaptation in Eastern Europe and Adaptation Futures.

2018 culminated in an exciting side event at COP24, where ISIpedia, in collaboration with the Burkina Faso delegation and Jeunes Volontaires pour l'Environment, organised a panel discussion, "Towards Constructive Science-Policy Dialogues in West Africa," moderated by Quentin Lejeune, part of the ISIpedia Stakeholder Engagement Team.

TOP: Inga Menke and Quentin Lejeune from the ISIpedia Stakeholder Engagement Team, at "Meet the Expert" at COP24 in Katowice.

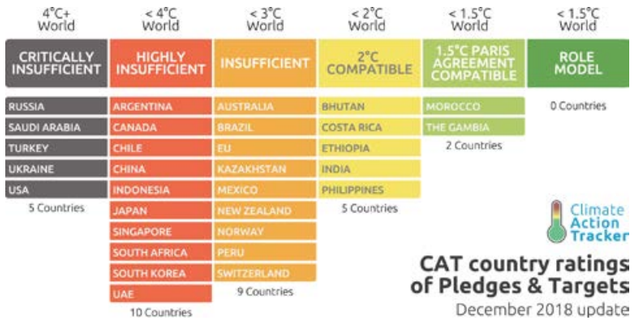
BOTTOM: Panelists for the COP24 side-event on science-policy dialogues in West Africa.

Climate Action Tracker



ClimateActionTracker

The Climate Action Tracker is a flagship project for Climate Analytics, and our work is being cited across the world by policymakers and media alike.



Update at COP24, Poland

Our annual update, released at COP24, showed that if all governments were to implement their Paris pledges in full, warming would still be at 3˚C in 2100. The policies pathway - ie our measurement of the impact of government policies currently in place - showed a warming of 3.3˚C.

We introduced a new measurement - our "optimistic policies" pathway which looked at actions governments were taking that are not yet embedded in policies, but which give an indication of the direction policies are going in. This was a little more positive and showed governments heading to warming of 3˚C.

Progress in 2018 was mixed.

While some countries, such as Norway and Costa Rica are forging ahead with decarbonisation of transport and renewable energy deployment, others risk losing their climate leadership positions, such as China, where coal use rose again for a second year running, and Brazil, which appears to have turned away from its forest protection policies even before its recent change of government.

Several countries published, adopted or reinforced energy or electricity sector roadmaps giving reason for hope, such as Chile's 2050 energy strategy, which aims at decarbonising the energy system, India's National Electricity Plan, and South Africa's long-awaited energy resource strategy, which foresees a shift away from coal toward renewables and gas.

We also introduced a new layer of ratings, showing the direction governments have been taking. Concerningly, the majority of countries we track have not yet fully aligned their policies to actually achieve their commitments under the Paris Agreement.

However, we do detect real movement, with Argentina, Canada, Chile, Costa Rica, Ethiopia, the EU, India and Morocco taking significant steps in the right direction.

CAT DECARBONISATION MEMO SERIES

Decarbonisation series continues

In 2018 the CAT continued with its series of papers on decarbonisation that look at how various sectors can achieve the kind of rapid decarbonisation required for the world to limit warming to 1.5˚C.

AGRICULTURE

We found that reducing emissions through changes in farming practices alone will not be enough to limit global warming to 1.5°C, but changing our diets and reducing food waste could make significant additional reductions. This calls for a much more holistic approach.

The briefing looks at options for mitigating non-CO2 emissions from agriculture from two angles: key areas "on the field," and trends in consumer behaviour. It addresses three main areas of action: changing farming practices, reducing food waste, and changing diets.

Agriculture accounts for 10% of global C02 emissions, and as much as 50% of non-C02 emissions. To limit warming to 2˚C we need to reduce agricultural emissions by 11%–18% by 2030, but to achieve 1.5˚C requires a doubling of that effort.

APPLIANCES

The next decarbonisation paper looked at energy efficiency in appliances and lighting. We found that the world could make huge reductions in global warming by simply adopting the highest existing energy related standards for lighting and appliances. This can be achieved at net zero costs for consumers and provide health benefits.

If the highest existing minimum energy performance and labelling standards were applied globally, they could save around 4,500 TWh in 2030, the equivalent of closing 1,140 average coal-fired power plants (600 MW).

Coupled with low carbon electricity, applying these standards globally could reduce annual emissions by 5.2 GtCO2 in 2030 (-60%) compared with business-as-usual - more than the current annual emissions of the entire European Union.

ROAD FREIGHT TRANSPORT

Government policies often neglect road freight transport, which was responsible for about 40% of well-to-wheel CO2 emissions from the global transport sector in 2014. We found that without policies to address these emissions, heavy road transport activity is expected to increase about threefold from 2010 levels by 2050.

The analysis shows that full decarbonisation of global freight emissions should be targeted for around 2050 to meet the Paris Agreement goals. For the EU this means that freight emissions should be reduced by at least 30% below 2015 levels by 2030, with full decarbonisation of overland freight by around 2050. Decarbonising transport will produce large health and energy security benefits, including air quality improvements, grid balancing, electricity storage, and economic benefits such as reduced fuel import costs.

Achieving a Paris Agreement compatible emissions level for heavy vehicles will also require sustainable biofuel blending, energy efficiency and demand reduction, as well as contributions from modal shifts from road freight towards railroads and ships. Only four countries - Canada, China, Japan and the United States - have introduced efficiency standards for heavy-duty freight vehicles that would encourage a switch. Others will need to follow.

Climate Action Tracker

New series: Scaling Up Climate Action

The CAT has embarked on a series of very detailed assessments of government action. Our "scaling up climate action" series looks at a country's potential for achieving 1.5°C Paris Agreement compatibility and what would be the best pathway towards this. The CAT has developed a new model to help with these assessments. "Prospects" allows the CAT scientists to model various sectors to help identify a country's potential.

SOUTH AFRICA

The first off the ranks was the Scaling up South Africa report. This was released in South Africa to coincide with the Government's consultation period for its new proposed energy plan.

Key points:

- We found that by scaling up climate action in South Africa's electricity supply, urban passenger transport, and residential buildings sectors, which cover about half of South Africa's 2012 emissions, the country's total greenhouse gas emissions can be reduced by up to 96% below 2012 emissions in these focus areas by 2050.
- Actions in these areas alone would reduce economy-wide emissions by 17 % below 2012 levels, and bring South Africa close to meeting its 2050 emissions reduction target. While the three focus areas will almost fully decarbonise under our most ambitious scenario, additional action in other sectors and sub-sectors will be needed to decrease economy-wide emissions in line with the Paris Agreement's temperature limit.
- Our models also found a surprising result: that changing from a high to a low-carbon electricity supply by 2030 is likely to create as many employment opportunities in South Africa as it would make obsolete, and provide jobs in technologies and sectors that are more likely to form the core of future electricity supply, both in South Africa and globally.

WHAT CAN SOUTH AFRICA DO TO SCALE UP CLIMATE ACTION?

EUROPEAN UNION

The next assessment was the EU Scaling Up report, which we released at a press conference in the first week of COP24.

Key points:

- The European Union's targets and policies are not yet compatible with the Paris Agreement's 1.5° C limit. This report analyses areas where the European Union could accelerate its climate action.
- Scaling up climate action in the European Union's electricity supply, residential building and passenger road and rail transport - covering around 60% of the EU's current energy related emissions - can decarbonise these sectors by 2050.
- The reductions in these three sectors alone are enough to reduce EU28 total greenhouse gas emissions by up to 52% below 1990 levels in 2030. This shows that the EU can and needs to ratchet up its 2030 target to make it consistent with the Paris Agreement.
- To get on track toward Paris Agreement-compatible emissions reductions, the EU needs to urgently scale up climate action in the transport and buildings sectors, decarbonising them by 2050, with decarbonisation of electricity generation and electrification of transport, heating and cooling as essential steps.

Global decarbonisation

Kraftwerk Neurath. The 4400 MW lignite-fired power station in Neurath, North Rhine-Westphalia, Germany is the second largest in the EU. The five units on the left were built in the 1970's and the two 1100 MW units on the right were completed in 2012. Photo by R.Classen

Coal needs to disappear from the global electricity sector by 2050 but governments of OECD countries need to phase it out by 2030 if they are to meet the 1.5°C target they agreed to by joining the Paris Agreement. While it is clear that bold action on coal phase-out is needed, public and private investors are still planning new coal-fired power capacity and new mining projects.

Policy makers and investors, as well as civil society in general, need a better understanding of the implications of the Paris Agreement, to which governments have signed up to, for their energy and investment planning.

Our reports underpin the global coal phase-out movement by providing rigorous, science-based benchmarks to establish coal exit dates consistent with the Paris Agreement. In addition, we provide a scientific assessment of the array of benefits and co-benefits, beyond emissions reductions that the energy transformation would represent.

Germany establishes Coal Commission to set phase-out date

In June 2018, the German government launched a task force for devising a coal phase out plan for the country. The coal commission was charged with setting a timeline for dismantling German coal plants to keep emissions in line with government targets while also providing economic perspectives for coal workers and regions.

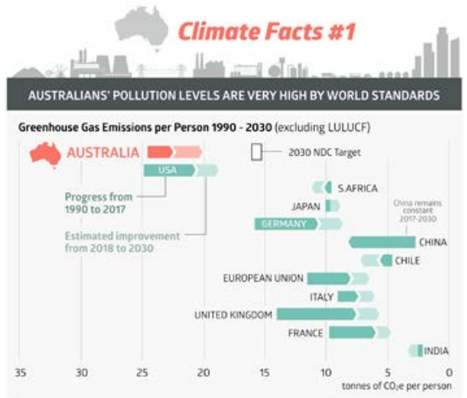
A report by Climate Analytics timed to coincide with discussions ongoing in Germany's coal commission showed that Germany could make this target and meet its Paris Agreement obligations if it rapidly phases-out coal by 2030, with intermediate plant shut downs by 2020. The report also showed that this quick coal phase-out would bring a number of co-benefits compared to alternative (slower) phase-out plans, in particular related to air pollution and avoided health impacts.

REPORT: Science Based Coal Phase-out Pathway For Germany in Line with the Paris Agreement 1.5°C Warming Limit: Opportunities and Benefits of an Accelerated Energy Transition, October 2018

Global decarbonisation

LEFT: Graphic from the first of four facsheets on Australia's climate policy perfomance: AUSTRALIA'S POLLUTION PROFILE AND HOW TO TURN IT AROUND showing how far behind the rest of the world Australia's per capita emissions are.

RIGHT: Graphic from the report: WESTERN AUSTRALIA'S GAS GAMBLE showing the size of conventional and unconventional gas resources in Western Australia compared to Paris Agreement compatible budgets.



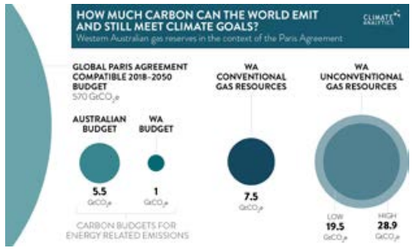
Evaluating Australia's climate policy

Together with the Australian Conservation Foundation, we have been analysing Australia's emissions profile and policies. The result is a set of informative, concise graphic factsheets outlining all you need to know about Australia's overall economy and emissions in key sectors – industry, electricity and transport – and what can be done to reduce them.

Our analysis shows that Australia is far behind similar economies in terms of carbon pollution per person and emission intensity. It is projected to fall even further behind because, unlike other nations, Australia has no effective national policy to drive down greenhouse gas emissions and improve energy efficiency.

The factsheets show that Australia's industry is inefficient, with no prospects for improvement due to a lack of policies. Its transport sector is polluting and the least efficient among similar economies. Also, despite vast renewable energy resources, Australia's electricity supply is highly dependent on polluting coal power plants.

AUSTRALIA CLIMATE POLICY FACTSHEETS:
Australia's pollution profile and how to turn it around
Australia's industry – inefficient and standing still
Australia's vehicle fleet – dirty and falling further behind
Australia's power supply: brown and polluting



Western Australia gas reserves risk causing Paris Agreement overshoot

Western Australia has large reserves of natural gas. Our research has revealed the global significance of their full exploitation. Exploiting WA's vast conventional and unconventional reserves would result in carbon emissions 4.4 times higher than the amount Australia's entire energy system can emit to comply with the Paris Agreement.

The domestic emissions expected from exploitation of all conventional gas reserves – on which present domestic use and liquified natural gas (LNG) exports are based – are about 40 to 75% above what Western Australia's energy sector could emit to comply with the Paris Agreement, the study showed. Exploitation of the much larger unconventional gas resources, which have been proposed for development, would result in emissions three times more than the amount permitted to comply with the Paris Agreement.

The study also found that the carbon emissions from LNG exports of Western Australia's total gas reserves would be six times greater than Australia's Paris Agreement energy sector budget. The carbon footprint of these total gas reserves is equivalent to 4.7-6.4% of the global Paris Agreement energy sector budget, debunking the notion that natural gas could present a solution to climate change, rather than a short-term transition fuel for certain regions.

The report also made clear that investors would be far better served by investing in WA's vast renewable energy potential, as renewables undercut market expectations of natural gas over the coming decades.

Japan comes under spotlight over plans to increase coal capacity

After the Fukushima nuclear accident in 2011 Japan announced plans to substantially increase its coal-fired power capacity, in contradiction with the deep emissions cuts it needs to play its part in tackling climate change. In 2018, Climate Analytics produced a report that showed that expansion plans at the moment would result in carbon pollution three times the level consistent with the Paris Agreement.

The report, co-authored with the Renewable Energy Institute of Japan, showed that Japanese businesses and investors risk stranded assets and loss of competitiveness from these investments as many of the world's largest insurance companies have begun to divest from companies with coal interests.

The report was launched in Tokyo, in a symposium with around 300 participants, and provided an excellent platform for a discussion with policymakers and finance sector representatives about why Japan is lagging behind in the energy transition and what policies would help to change this.

Announcements of coal plant cancellations in Japan has accelerated after the publication of the report, reaching a 59% decrease in the planned coal fleet compared with the plans analysed in the report.

REPORT: Science Based Coal Phase-out Timeline for Japan: Implications for policy makers and investors, May 2018
COMMENTARY: Japan at an international crossroads – seeking a sunset for coal, May 2018

Spreading the word

The impact of our work is also reflected in the number of key meetings where our experts engage in discussions on enhancing climate plans (NDCs) and decarbonisation. These meetings are gatherings of high-level government representatives, policy makers, industry and other key actors.

2050 PATHWAYS: LONG-TERM STRATEGIES FOR TACKLING CLIMATE CHANGE AND DEVELOPMENT
Bangkok, Thailand, 10-11 July 2018
Climate Analytics' Dr Ursula Fuentes Hutfilter presented on necessary decarbonisation steps for a 1.5°C–compatible pathway, and how this can guide governments in the development of long-term strategies to tackle climate change. It was organised by the 2050 Pathways Platform, the LEDS Global Partnership, the NDC Partnership, UNDP, and WRI, in cooperation with the UNFCCC.

10TH ENERGY DAY
Brasov, Romania, 16-17 March 2018
Climate Analytics policy analyst Paola Yanguas Parra (middle) was invited to talk about coal phase-out in the EU. She discussed coal phase out in the context of the emission reductions required under the Paris Agreement, and what it means for Romania's coal fleet.

COAL FREE DAY AT COP24
UK Pavillion, 13 December 2018
At an UK government event, as part of the Powering Past Coal Alliance and Coal Free Day at COP24 in Katowice, Paola Yanguas Parra gave the framing presentation about coal power generation scenarios in light of the Paris Agreement, and joined in a panel discussion on making a just transition away from coal.

LEFT: Yuko Nishida, Teruyuki Ohno, and Yuri Okubo from the Renewable Energy Institute of Japan with Climate Analytics' Dr Ursula Fuentes and Paola Yanguas Parra at the launch of the report on 29 May 2018 in Tokyo, Japan. The event, attended by around 300 people, included presentations from the Canadian Embassy and E3G about the Powering Past Coal Alliance.

RIGHT: Our policy analyst Paola Yanguas Parra (centre) at the 10th Energy Day, a major renewable energy conference in Romania.

Focus on the European Union

Our institute has long established itself as a strong scientific partner for EU research collaboration projects, science-based policy analysis and emissions reduction scenarios for the EU. In 2018 we have continued the work on two major Horizon 2020 projects and prepared a number of innovative reports on the EU's energy sector and coal phase-out, providing highly relevant input into the European climate and energy policy debate. We also entered new Horizon 2020 collaborations to contribute our expertise on assessing the risks and costs of climate change in Europe.

European flags on front of the European Parliament in Brussels. Photo: areporter

Central and Eastern Europe climate policy frontiers

Many Central and Eastern European countries have been witnessing economic growth in the range of 3-7 percent. Increasing car ownership, distance travelled and the size of residential buildings have not been compensated by energy efficiency improvements and decarbonisation of the fuel mix, leading to increasing emissions.

Meeting their obligations under the Paris Agreement, as member states of the EU, requires introducing carbon-cutting measures in all economic sectors, and these countries stand to benefit from sharing experiences of successful national policies that could be adopted by others. The goal of this European Climate Initiative (EUKI) funder project, launched in October 2018, is to identify such experiences in building and transport sectors, particularly in Bulgaria, the Czech Republic, Germany, Hungary, Poland, Romania and Slovakia, and to facilitate knowledge exchange and their promotion between these countries and other European states.

Climate Analytics assesses whether rolling out such best practice measures would generate enough emission reductions for these sectors to be in line with the Paris Agreement 1.5°C temperature limit, assesses the emissions gap and together with project partners WiseEuropa (Poland), Climate Strategies (UK) and Expert Forum (Romania) identifies policy solutions that could close it.

Co-designing the assessment of climate change costs

The Horizon 2020 project COACCH (CO-designing the Assessment of Climate Change costs) works with end users from research, business, investment and policy-making in Europe to jointly develop an innovative approach to downscale the assessment of climate risks and costs in Europe.

It is implemented with 12 partners from European Research Institutions, Universities and Ministries.

We lead the work on estimating climate change impacts on production and labour productivity of industry and services sectors, trade, tourism, and energy demand and supply. We also head the analysis of distributional impacts of climate change for the EU through the use of household survey data.

Results and Implications for Pathways and Policies for Low Emissions European Societies

RIPPLES is a Horizon 2020 project, which aims to assess the adequacy of the NDCs submitted at COP21 in light of the global temperature target of limiting warming to 1.5°C, in the context of broader development pathways, and to analyse their ambition in relation to trends, projection and domestic potentials.

20 European universities and institutes work on providing policy-relevant recommendations for the EU in the emerging post-COP21 context, including through its domestic policy and international climate diplomacy strategy.

In 2018, the project published a number of policy briefs on decarbonisation and presented some of its work on the review of current NDCs and innovation dynamics in low-transition pathways at a side event at COP24 in Katowice.

MAGIC: Moving towards Adaptive Governance in Complexity: Informing Nexus Security

The project "Moving Towards Adaptive Governance in Complexity: Informing Nexus Security" (MAGIC) is a four-year multidisciplinary Horizon 2020 collaboration of ten universities and research institutes. It seeks to develop a methodological framework to improve the governance of the complex interplay in the nexus between climate, water, energy and food.

In its third year, the researchers assessed the robustness of different narratives previously gathered with stakeholders. MAGIC aims to analyse these narratives with three considerations: feasibility - is the socio-economic system compatible with the biosphere; viability - is there a balance between supply and demand within the socio-economic system; and desirability - does the society at large accept the outcomes.

At Climate Analytics, we continued to advance a crosscutting understanding of how all these different directives and innovations contribute to European climate mitigation strategies and commitments. We also followed the European Commission's Action Plan on Sustainable Finance, applying a Nexus perspective to understand the development of an EU Green Bond Standard, approaching green bonds as a policy type of innovation, and of an EU sustainability classification system (the 'taxonomy'), to ensure robustness of a European definition of green with both long-term climate goals and Nexus considerations on the systemic nature of sustainability.

Long-Term Strategies

Publication: The EU long-term strategy to reduce GHG emissions in light of the Paris Agreement and the IPCC SR1.5

In November 2018, the European Union published its Strategic Vision "A clean planet for all" along with the "In-Depth Analysis" supporting it. In it, the European Commission claims that an 80% reduction of the EU's greenhouse gas emissions by 2050 can be taken as being in line with the Paris Agreement's long-term temperature goal. In this paper, published by the Fraunhofer Institute for Systems and Innovation Research, we discuss how the Commission's relabelling of the former "hold-below-2°C" pathways associated with the 2010 Cancun Agreements as the Paris Agreement temperature goal - "hold warming well-below 2°C, limit to 1.5°C " - is not correct. By design, the Paris long-term temperature goal is a strengthening of the former 2°C goal.

Working with SIDS, LDCs and other vulnerable countries

Traditional Senegalese meal. Senegal is a Least Developed Country and one of the countries we work with under the IMPACT project. Photo: Emily-Jane Proudfoot

IMPACT SCIENCE BASED IMPLEMENTATION OF 1.5°C COMPATIBLE CLIMATE ACTION FOR LDC AND SIDS

IMPACT is a cross-cutting, multi-faceted project, funded by the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU) as part of its International Climate Initiative (ICI). It aims to strengthen the connections between the scientific assessments of climate impacts, vulnerability and adaptation to help enable access to finance and help implement concrete projects. In addition, it aims to increase country-ownership and improve the target countries' abilities to fully represent their interests at the international level.

Climate change poses an existential threat to SIDS, LDCs and other vulnerable country groups and undermines sustainable development prospects for most. The IMPACT project was launched at the end of 2016 to facilitate the implementation of the Paris Agreement at the regional and national level in three focus regions – West Africa, the Caribbean and the Pacific.

Each region now has a Climate Analytics adaptation expert who works with stakeholders on the ground, and serves as focal point throughout the entire project. These experts are based in the Bahamas (Dr. Adelle Thomas), Samoa (Dr. Patrick Pringle) and Senegal (Dr Adama Faye).

One of the unique features that allows IMPACT to deliver tailored policy, technical and scientific support in the focus regions is the "country support request mechanism," developed with partner countries during the inception phase of the project.

In 2018, requests ranged from assessing the environmental damage, waste problems and immediate actions after cyclone Gita hit the Pacific region, to long term strategic planning such as reviewing the scientific background of Belize's climate policies.

IMPACT – Pacific update

2018 was a busy year for IMPACT in the Pacific, with a strong focus on support at the regional level. We have provided ongoing technical support for the development of Pacific Climate Change Centre (PCCC), a flagship centre for climate change knowledge, research, capacity building and innovation that is due to open in Samoa in 2019. We have helped to develop the strategy and business plan for the Centre so that it supports countries to make better use of climate change science and knowledge in decision-making.

IMPACT has worked in partnership with SPREP and other regional agencies and projects to develop new knowledge products and tools including the Pacific Marine Climate Change Report Card and a new Adaptation Planning Tool. The Report Card has proved particularly useful and was presented at the Polynesian Leaders meeting and at COP24. We are also working with SPREP to develop a framework for national level adaptation indicators for nations across the Pacific.

IMPACT has provided capacity building support in a number of areas including supporting IPCC Pacific focal points to make active contributions to the review of the Special Report on 1.5°C; leading a number of training sessions at a Climate and Disaster Resilience Monitoring and Evaluation in the Pacific Islands workshop; and capacity building at the Pacific Pre-COP in Fiji.

Fijian girl walks on flooded land. Photo: ChameleonsEye

We have been able to provide scientific input to high profile meetings in the region including Polynesian Leaders Group (PLG) meeting in Tuvalu, and provided the key note speech at the GCF Structured Dialogue in Federated States of Micronesia.

We also contributed to the development of a regional climate science and services strategy. Through the course of the year we have responded to 10 regional/country requests, with a growing number of requests relating to national level climate action.

Pacific Marine Climate Change Report Card

The first ever Pacific Marine Climate Change Report Card, launched in June 2018 as part of World Oceans Day, details current and projected climate change impacts on the Pacific island marine environment, what action is already being taken and what further responses are needed.

A result of a year-long collaboration between 60 Pacific climate change experts, including our Samoa-based regional scientist Patrick Pringle, and marine scientists from the United Kingdom, the user-friendly document is intended to help Pacific islanders and decision-makers to understand and respond to the likely marine impacts of climate change. Patrick has contributed one of the detailed supporting reviews that accompany the report card – "Effects of Climate Change on 1.5° Temperature Rise Relevant to the Pacific Islands."

Above: Dr Adelle Thomas, our Bahamas-based climate scientist as part of the IMPACT project, with Ms Fekitamoeloa Katoa 'Utoikamanu – High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) at a COP24 side event on Loss and Damage.

IMPACT – Caribbean update

We have been very active in the Caribbean with the IMPACT project in 2018. Much of our work has been related to adaptation and loss and damage - key issues for the region.

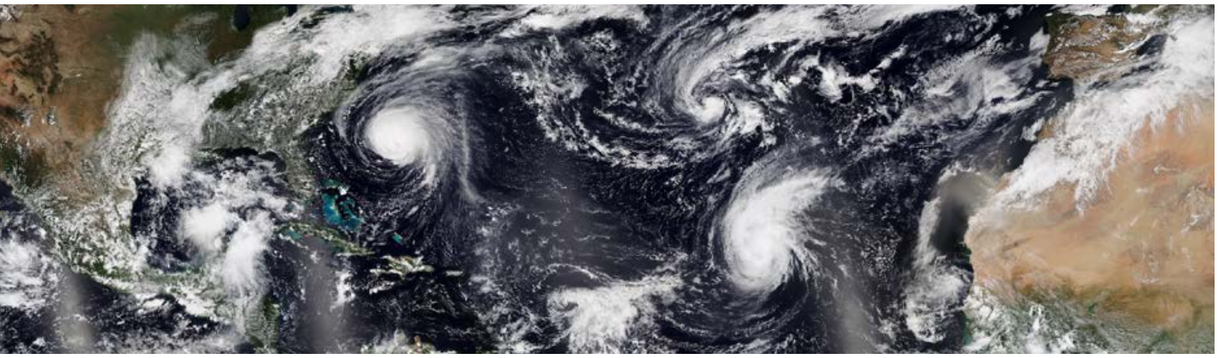
We produced a policy brief on methods of costing loss and damage at the national level and potential financing mechanisms. We also produced a policy brief on debt for climate swaps, which assesses the potential for Caribbean countries to use these mechanisms as an avenue to address debt challenges while also increasing resilience to climate change.

The special issue in a scientific journal focused on SIDS and 1.5°C that we supported gathered multi-disciplinary research from an array of experts, including from Caribbean institutions.

The peer-reviewed literature database has also been completed with over 100 articles focusing on the Caribbean. This is integrated into the CCCCC Clearinghouse and is a valuable scientific resource for proposals and projects. The regional network of scientists has been developed with over 20 scientists from institutions in the region.

We have developed an adaptation planning map that contains over 100 adaptation projects, strategies, programmes and policies. It is a central database to identify the varied adaptation action that has taken place in the region. We also began development of a Caribbean perspective and approach to gender and climate change.

Finally, we completed two country requests: preparing a brief on geo-engineering for The Bahamas and assisting in developing a robust project plan to address sea level rise in Saint Lucia. We also began work on a third large country request from Belize focused on updating a national climate change policy.



The 2018 Atlantic hurricane season featured four simultaneous named storms (Florence, Isaac, Helene, and Joyce), the first year since 2008. Photo: National Oceanic and Atmospheric Administration September 12, 2018

Spotlight on Small Islands and 1.5°C

Although there is a significant body of work focused on climate change and Small Island Developing States, not much of it focused specifically on the 1.5°C temperature limit and its implications for small islands.

The IPCC special report on 1.5°C was a unique opportunity to address this literature gap with a special issue of journal Regional Environmental Change, edited by IMPACT researchers, including our Regional Scientist Dr Adelle Thomas. It gathered 15 peer-reviewed articles from a variety of disciplines across both social and natural sciences from an array of experts, including from Caribbean institutions.

It was released in August 2018 and many of the articles were referenced in the IPCC Special Report on 1.5°C.

Women carrying clay pots to collect water in Poa, Burkina Faso. Photo: giulio napolitano / Shutterstock.com

IMPACT - West Africa update

Building scientific capacity of governments and relevant agencies in West African Least Developed Countries to assist them in devising and implementing low-carbon development strategies and support them in their adaptation planning activities are some of the core goals of IMPACT work in this region.

Our support is tailored to countries' strategic needs, which we received through the Country Request mechanism set up as part of the project. In 2018 we worked with representatives from Burkina Faso, Mali, the Gambia, Niger and Togo. We have also developed user-friendly climate data tools for use in West African countries in response to their request to strengthen the scientific evidence of climate change vulnerability in the region.

CLIMATE RESEARCH

One of the aims of our work in West Africa under the IMPACT project is enhancing climate change research in the region through collaborating with regional climate service providers and scientific bodies.

In 2018, one of the main focuses or our work was on the implications of the IPCC Special Report on 1.5°C for West Africa, in collaboration with the West African Science Service Center on Climate Change and Adapted Land Use (WASCAL). We presented the results during the joint Economic Community of West African States (ECOWAS) and West African Monetary and Economic Union (UEMOA) preparatory workshop for COP24 in Accra, Ghana in October.

We also took part in ECOWAS' Scientific and Technical Consultative Group on Climate Change meeting in Abuja, Nigeria in September, contributing to discussion on strategies to reduce climate change vulnerability in West Africa.

SUPPORTING LDCS

Our experts supported the Least Developed Country Group, particularly African LDCs, during the UNFCCC pre- and intersessional meetings as well as the LDC Group's strategic and ministerial meetings by providing French-language briefings, presentations and materials. We provided focussed support on topics relating to climate change adaptation and carbon markets, and sought to ensure that the positions of West African LDCs are taken into consideration in the UN climate negotiations.

Climate diplomacy

Steps to the entrance of the conference centre for the UN climate talks in Katowice, Poland. Photo: Sebastian Indra MSZ/ Ministry of Foreign Affairs of the Republic of Poland

2018 was the most important year in international climate negotiations since the adoption of the Paris Agreement, with the annual UN climate conference - COP24 in Katowice, Poland - mandated to complete and adopt the rules necessary for the Agreement's implementation. The Katowice COP was also important for highlighting the urgent need for more ambitious climate action through the Talanoa Dialogue, informed by the scientific wake-up call provided by the October release of the IPCC Special Report on Global Warming of 1.5°C.

With these critical milestones in 2018, the stakes were high for Small Island Developing States and Least Developed Countries. Their priorities focused on securing a common, robust set of rules that ensures environmental integrity, and drives implementation and increased ambition; and a Talanoa Dialogue outcome that delivers the ambition needed to keep global warming to below 1.5°C.

Throughout the year, our Climate Diplomacy team provided strategic, real-time, technical, briefing and capacity building support to ministers, negotiators and high-level officials from SIDS and LDCs in response to a broad range of requests. The support provided by the team covered engagement under UNFCCC and Paris Agreement rulebook negotiations, the Intergovernmental Panel on Climate Change (IPCC) and the Green Climate Fund (GCF), and was carried out under the IMPACT project (BMU, Germany), with support to LDCs also provided under the Negotiation Support Project (BEIS, UK).

The team, led by experienced climate lawyer Damon Jones, is composed of lawyers, policy analysts and scientific advisers, who ensure that vulnerable country representatives have technical support and access to the latest science and policy analysis to help underpin their push for outcomes that protect the interests of their countries.

In addition to real-time support during UNFCCC negotiations, and meetings of various climate-related bodies, our advisors supported SIDS and LDC ministers in meetings such as the annual Petersberg Dialogue, the second Ministerial on Climate Action, a CARICOM Heads meeting and the Polynesian Leaders Group Summit.

In preparation for COP24, we worked closely with our regional partner organisations in convening meetings and preparing briefing documents for Ministers and high-level officials under the IMPACT project. These included a meeting for LDC ministers and lead negotiators from over 30 countries in Addis Ababa, Ethiopia; a workshop organised with SPREP (and with additional financial support from Fiji) for Pacific SIDS in Fiji attended by high-level representatives from 12 countries; and a workshop in Barbados organised with the Caribbean Community Climate Change Centre (5Cs) and attended by representatives from nine Caribbean countries.

There was also an increase in demand for scientific-related support in 2018, focused in particular on the IPCC 1.5SR. Our Climate Diplomacy and Science teams partnered to ensure that SIDS and LDCs had comprehensive and digestible analysis on drafts of the report to inform their inputs, and we convened meetings under the IMPACT project to facilitate information exchange between government officials and regional scientists.

Outside the international climate negotiations, the Climate Diplomacy team engaged in a range of regional activities and policy-focused projects aimed at supporting actions that deliver increased ambition and transformational change consistent with the Paris Agreement goals. This included completing the first phase of the Regional Climate Championing project in the Caribbean and an analysis of financial sector global governance under the RIPPLES project.

CLIMATE FINANCE

Facilitating access to 1.5°C compatible climate finance is essential for the successful implementation of climate mitigation and adaptation strategies. As part of the IMPACT project, we support SIDS and LDC board members to sustain their active engagement and equitable participation in the work of the Green Climate Fund (GCF) Board, including its technical panels and committees.

Throughout 2018, our climate finance experts supported SIDS and LDC GCF board members: Ambassador Aliioaiga Feturi Elisaia (Samoa), Ambassador Ronald Jumeau (Seychelles), and Mr Tosi Mpanu Mpanu (Democratic Republic of the Congo).

Although 2018 was not all smooth-sailing for the Fund, with the resignation of its executive director halfway through the year, SIDS and LDCs saw encouraging progress on a number of crucial issues, such as the Simplified Approval Process, with the first proposal presented to the Board for consideration in its first meeting of the year, followed by another three SAP funding proposals in total. The SAP was developed to simplify and streamline the preparation, review and approval procedures of certain small-scale projects, particularly from direct access entities.

The Board also approved 42 funding proposals worth $2 billion, including 13 from LDCs and 10 from SIDS. The number of accredited entities grew by 16, which included three direct access entities, to access funding directly through national and regional entities, two of which were from SIDS: the Ministry of Finance and Economic Management (MFEM), Cook Islands and Protected Areas Conservation Trust (PACT), Belize.

The first formal replenishment process – to raise contributions for the GCF to continue supporting the adaptation and mitigation actions of developing countries and promote the transition towards low-emission and climate resilient development - was launched in October, and will conclude in October 2019.

A number of policies aimed at improving the Fund's accountability, including Indigenous people's policy, Environmental and Social Policy and components of the Risk Management Policy were also adopted in 2018. The GCF also selected the Word Bank as its permanent trustee.

Our experts also support SIDS and LDC negotiators with briefings and analysis on matters relating to climate finance in the international climate negotiations under the UNFCCC.

TOP: Our international climate finance expert Mahlet Eyassu Melkie with Tosi Mpanu Mpanu (Democratic Republic of Congo) and his advisor Marie-Paule Lusamba, representing the Least Develped Countries on the Green Climate Fund board.

BOTTOM: Bianka Kretschmer with Ambassador Aliioaiga Feturi Elisaia of Samoa, Ambassador Ronald Jumeau of Seychelles and Joe Aitaro of Palau.

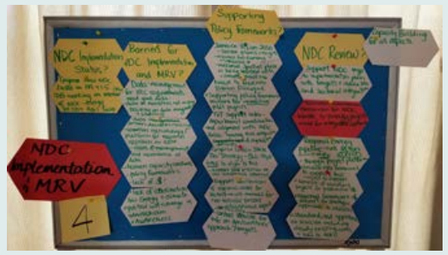
Implementation strategies

Our experts lead work relating to facilitating science-based access to 1.5°C compatible climate finance, including as part of the IMPACT project. The Climate Analytics Implementation Strategies team works on developing tools for developing countries' priorities to ensure that they match climate funds' investment criteria, and supports stakeholder countries in seeking out domestic and international funding opportunities for adaptation and mitigation.

Director of our New York office, Laetitia De Marez, addressing participants of a climate finance readiness workshop in Grenada.

Working with national governments, regional agencies and international entities, our experts, bring over ten years of experience in climate finance, translate NDCs and NAPs into implementation concepts that have strong synergies with sustainable development. Our aim is to ensure that funding proposals put forward by our stakeholders are country-owned, innovative, Paris-compatible and truly transformational in nature, while meeting criteria for accessing international climate finance and leverage private sector investment opportunities.

Our experts also work with accredited entities, governments and private sector actors to deepen their understanding of what makes an impactful climate project. We help strengthen the scientific and technical robustness of project ideas and concepts through climate change impacts projections, assessments of project mitigation potentials, and the organisation of structured multi-stakeholder consultations.



NDC Support Cluster

Climate Analytics is part of the NDC Support Cluster, established by the German Ministry of Environment as part of its International Climate Initiative (ICI), which aims to promote coordinated consultations and maximise synergies in its partner countries. Organisations connected with implementing agencies from all regions exchange and cooperate to deliver timely and tailored support to developing countries in the implementation of their NDCs.

LEFT: Climate Analytics Inc. team (centre of photo, from left Rachel Pham, Paolo Cozzi, and Frances Fuller) with the team from the Climate Change Division in Jamaica during a climate finance readiness workshop.

RIGHT: Participants working on an exercise during a national adaptaion planning workshop in Saint Lucia.

Climate finance readiness

As developing countries translate their climate adaptation and mitigation targets and ambition into strategies and concrete project ideas, one of the biggest barriers they face is accessing international climate finance.

Climate Analytics works with capacity-constrained developing countries, including through the Green Climate Fund's (GCF) Readiness and Preparatory Support Programme, to strengthen their institutional capacities and convert their priorities into pipelines of bankable and impactful projects, including through the development of GCF country programmes.

Building on our long-standing relationships with Small Island Developing States across the Caribbean, and with developing countries in Africa, in 2018, we have started to assist a number of countries as part of the GCF's Readiness Programme: Grenada, Saint Lucia, Jamaica and Tunisia.

We work with a broad cross-section of stakeholders supporting the development of nationally tailored procedures and mechanisms to facilitate access to the the GCF and mobilise climate finance. We develop trainings, tools, exercises, knowledge products and project concepts with the ultimate goal of building lasting capacity that helps developing countries meet the requirements of climate funds and attract private investors.

Financing and private sector engagement in national adaptation planning

The success of a national adaptation plan (NAP) requires the mobilisation of both public and private finance from national and international sources.

From November 2018, our implementation experts have been working with the Government of Saint Lucia and key economic actors to devise a financing strategy for the NAP and a private sector engagement strategy, including the preparation of a Public Private Partnership concept.

The financing strategy is based on an assessment of past flows and current public and private sources of climate financing available both domestically and internationally, their investment criteria and focal areas. It organises and prioritises existing NAP priorities and project ideas by matching them with the most appropriate funding sources and identify next steps in unlocking their potential.

The private sector engagement strategy is an integral part of the overall financing strategy. Tailored to the Lucian context, it includes a sector mapping and an action plan with concrete measures to ensure continued engagement, and dialogue so that adaptation is mainstreamed in businesses operations and planning and generates partnership and innovative ideas.

Climate adaptation

PAS-PNA final workshop on vulnerability studies in Dakar, Senegal.

Science-based climate change adaptation in West Africa

One of the key focuses of our work in West Africa is strengthening national science-policy interfaces and increasing the capacity and efficiency of science-based National Adaptation Plans (NAP), through the PAS-PNA project. The project is active in Benin, Senegal, Burkina Faso and 12 other Sub-Saharan African Least Developed Countries (LDCs).

Our experts lead the scientific component of the project, which focuses on capacity building and reinforcing national scientific knowledge on climate change impacts and adaptation. Part of this work aims at strengthening dialogue between civil servants, policy makers and the national scientific community, facilitated through a series of meetings and workshops involving all key stakeholders.

In May 2018, we started activities in Burkina Faso, taking stock of existing in-country scientific knowledge and studies on climate change and its impacts, as well as how that information makes its way into national policy making processes, as had been done previously for Benin and Senegal.

Much of our work throughout the year focused on guiding and supporting eight vulnerability studies. In Senegal, we supported three studies conducted by local post-doctoral scientists, focusing on the vulnerability of water resources, agriculture and coastal morphology in the Saloum Estuary, Fatick region, as well as on identifying appropriate adaptation options. We supported three studies in Benin focused on current and future vulnerability of water resources, agriculture and health in the country's central agro-ecological zone. In Burkina Faso, two studies focused on climate change impacts on national economic development and water resources.

Our approach has directly involved over 120 scientists across the three countries. We organised seven workshops with a wide range of stakeholders to ensure broad ownership of the studies. We also organised over 15 one-day meetings with the national research consortia and groups. These received strong local media coverage.

Climate Analytics' PAS-PNA and ISIpedia teams joined forces in facilitating a side event for Burkina Faso and the Togolese youth NGO Young Volunteers for the Environment (JVE) at UNFCCC COP24, with the theme "Towards Constructive Science-Policy Dialogues in West Africa".

Djibril Dayamba joined the project as our national climate change impacts and adaptation expert, based in Ouagadougou, Burkina Faso, taking Climate Analytics' core PAS-PNA team to seven colleagues.

The PAS-PNA (Projet d'Appui Scientifique aux processus de Plans Nationaux d'Adaptation) project is a partnership between Climate Analytics and the German Corporation for International Cooperation (GIZ) and is funded by the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

Climate tools: latest science for adaptation planning

Access to the best available scientific information is of vital importance for governments and communities to develop strategies to adapt to the changing climate. We developed a number of open-access, user-friendly, interactive online tools that make climate projections easily available to policy makers and researchers in fields such as agriculture, energy and human health.

Local Sea Level Rise

Local SLR uses best available data to show how much sea levels are projected to rise around the globe at different levels of warming. The projections are presented for three emission scenarios: one compatible with the Paris Agreement, one where temperatures reach +2.5°C, and another one reaching +4°C by the end of the century. Users can search for projections for their local area on an interactive map and in one click download an easy to understand graphic.
Available at: **localslr.climateanalytics.org**

RegioCrop

RegioCrop gives expert and non-expert users simple access to crop yield projections for all African countries derived from state-of-the-art global crop models. The tool allows users to see how different levels of warming will affect a variety of common crops, including maize, rice, wheat and soy in their country at the province level.
Available at: **regiocrop.climateanalytics.org**

ADAPTATION FUTURES 2018
Dialogues for Solutions
5TH INTERNATIONAL CLIMATE CHANGE ADAPTATION CONFERENCE
CAPE TOWN SOUTH AFRICA 18–21 JUNE 2018

Adaptation Futures spotlight on climate adaptation in developing countries

In June 2018, scientists and practitioners from over 600 organisations working in the field of climate change adaptation came together for the 5th Adaptation Futures conference in Cape Town, South Africa. For the first time the conference was held in Africa – an opportunity to shine light on developing country adaptation issues.

Six Climate Analytics experts, including regional scientists from Small Island Developing States (SIDS) and Least Developed Countries (LDCs) had the opportunity to share their work in a number of sessions focused on stakeholder engagement in adaptation planning and governance of resources from a vulnerable country perspective, as well as present new climate services tools.

Two of our projects, PAS-PNA and IMPACT, focus on solutions for enhancing the development of science-based adaptation strategies in West African LDCs and SIDS.

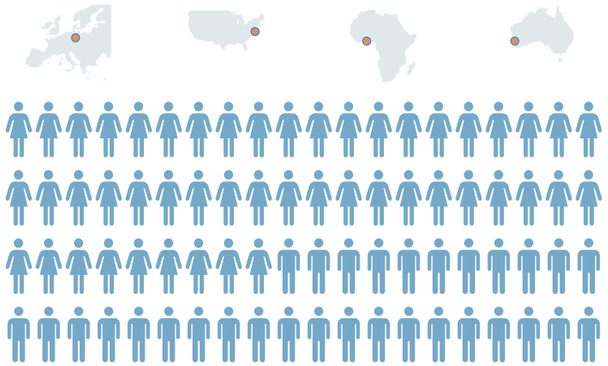
At a session we organised a diverse group of participants, including researchers, adaptation practitioners and policy-makers brainstormed ways to overcome barriers commonly experienced while working in the field of science-based climate adaptation in developing countries.

ISIpedia featured at one of the "tool shed" sessions, which introduced climate services and tools developed with strong stakeholder engagement. ISIpedia will be a user-friendly, freely accessible online encyclopaedia for consistent impacts projections across sectors, and is currently under development, following extensive consultations with key stakeholders to shape it to their needs.

Climate Analytics at a glance

An international team

BERLIN NEW YORK LOMÉ AUSTRALIA



82 STAFF
60% FEMALE

55 RESEARCH STAFF
35 NATIONALITIES

Australia, Antigua & Barbuda, Bahamas, Belgium, Benin, Bhutan, Bosnia and Herzegovina, Brazil, Burkina Faso, Canada, Colombia, Ethiopia, France, Germany, Grenada, India, Iran, Ireland, Italy, Jordan, Lithuania, Mexico, Nepal, The Netherlands, New Zealand, Pakistan, Philippines, Poland, Senegal, Spain, Sweden, Togo, Trinidad & Tobago, United Kingdom, United States of America

Mission

To synthesise and advance scientific knowledge in the area of climate change and on this basis provide support and capacity building to stakeholders. By linking scientific and policy analysis, we provide state-of-the-art solutions to global and national climate change policy challenges.

Vision

To support science-based policy to prevent dangerous climate change, enabling sustainable development

30 Events and workshops

67 Partner organisations

31 Reports & peer-reviewed publications

Social media

7500+ Twitter followers

3200+ Facebook followers

1500+ Linked In followers

The team

MANAGEMENT

Dr Bill Hare is a physicist and climate scientist with 30 years' experience in science, impacts and policy responses to climate change. Bill has contributed actively to the development of the international climate regime since 1989, from the 1992 UN Framework Convention on Climate Change right through to the Paris Agreement in 2015. Dr Michiel Schaeffer is a biophysicist and brings significant scientific skills and experience in the international climate policy world. Bill and Michiel, who co-founded Climate Analytics in 2008, are both authors of IPCC AR4, which was awarded the Nobel Peace Prize. Henrike joined Climate Analytics in 2010 and oversees our day to day operations covering Finance, Project Management, Project Development, Communications, Human Resources, and Administration.

This complete list of staff is accurate to early 2019.

Dr (h.c) Bill Hare
CEO
Senior Scientist
A

Dr Michiel Schaeffer
Science Director
G

Henrike Doebert
COO
Chief Operating Officer
B

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michiel.schaeffer@climateanalytics.org
henrike.doebert@climateanalytics.org

CLIMATE SCIENCE

Our Science Team conducts cross-cutting research which analyses impacts and risks in order to understand the full implications of climate change, as well as to help develop pathways and scenarios to limit the increase in global temperatures to 1.5°C. The team has contributed to several major reports on the issues of climate change and sustainable development, always aiming to make the latest climate science easily accessible by presenting the highly complex findings in a way that is comprehensible to stakeholders in the international climate arena.

EXPERTISE

- Impacts and risk assessment
- Climate vulnerability
- Climate modeling
- Data analysis (socio-economic, spatial, socio-ecological)
- Capacity building
- Climate science communication
- Food-water-energy nexus
- Economic costs of climate change
- Development economics

Dr Carl-Friedridrich Schleussner
Head of Climate Science and Impacts
B

Dr Tabea Lissner
Head of Vulnerability and Socioecological Systems
B

Dr Sarah D'haen
Scientific Coordinator Sub-Saharan Africa
B

Abu Rand Ajamia
Research Analyst
B

Marina Andrijevic
Research Analyst
B

Marie-Camille Attard
Project Manager
B

Maria Bertrand
Research Analyst
B

Jean-David Coulibaly
Student Assistant
G

Dr Djibril Dayamba
Climate Impact and Adaptation Expert
G

Dr Adama Faye
Climate Impact and Adaptation Expert
G

Jessie Granadillos
Development Economist
B

Kaylin Lee
Student Assistant
B

Dr Quentin Lejeune
Research Associate and Knowledge Broker
B

Gina Maskell
Student Assistant
B

Inga Menke
Research Associate and Stakeholder Engagement Expert
B

Alex Nauels
Scientific Advisor
B

Petra Nieland
Project Manager
B

Dr Mélinda Noblet
Climate Impact and Adaptation Expert
G

Peter Pfleiderer
Data Analyst and Programmer
B

Dr Patrick Pringle
Senior Research Associate Climate Change Strategies
G

Theresa Rauch
Scientific Project Coordinator
B

Dr Fahad Saeed
Scientific Model and Data Manager, Regional climate scientist
B

Dr Aichetou Seck
PAS-PNA Project Assistant
G

Alcade C. Segnon
Project Assistant / Junior Scientist
G

Olivia Serdeczny
Research Analyst Loss and Damage
B

Emily Theokritoff
Research Analyst
B

Dr Adelle Thomas
Senior Caribbean Research Associate
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Dr Edmond Totin
Climate Change and Adaptation Expert
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B BERLIN
N NEW YORK
L LOMÉ
A AUSTRALIA
G GLOBAL

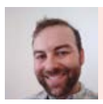
IMPLEMENTATION STRATEGIES

Our Implementation Strategies Team has a wide range of experience in facilitating turning climate strategies and targets into actions at national and regional levels. It focuses on enhancing developing countries' ownership in implementing climate action with tailored tools and training to build institutional and technical capacity in governments and key stakeholders. The team also supports countries in the process of translating their mitigation pledges and adaptation plans into robust project concepts and investment plans.

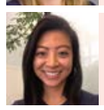
EXPERTISE
- National and regional adaptation planning
- Support in formulating, updating, revising NDCs
- National and regional capacity building and climate finance readiness
- Climate financing strategies and access to GCF
- Monitoring and reporting systems
- Mitigation and adaptation
- Development policy and strategies
- Synergies with the SDGs and development co-benefits


Laetitia De Marez
Head of Implementation Strategies / Director of Climate Analytics Inc.
N


Frances Fuller
Implementation Specialist
Deputy Director of Climate Analytics Inc.
N


Paolo Cozzi
Implementation Specialist
G


Oladé Balo Akakpo
Science-Policy-Interface Coordinator
L


Rachel Pham
Project Manager
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Dr Jan Sindt
Climate Policy Analyst
G


Kouassigan Tovivo
Climate Policy Analyst
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CLIMATE POLICY

The Policy Team assesses the effectiveness of international strategies and national climate policies, including low-carbon development plans, in meeting global climate goals and reducing GHG emissions whilst achieving sustainable development goals. One important aspect of this work is the Climate Action Tracker (CAT), an independent scientific analysis in cooperation with two other research institutes. The aim is to increase transparency and to encourage countries to make stronger pledges or increase their level of national action.

EXPERTISE
- Mitigation options and adequacy of action
- Integrated Assessment Models
- Emissions gap assessment
- Data analysis and visualisation
- Energy systems and emissions trading
- Sustainable development
- Capacity building
- Programming and modeling


Dr Ursula Fuentes Hutfilter
Senior Policy Adviser
A


Prof Robert Brecha
Visiting Scientist
B


Dr Tina Abouhmaboub
Climate Policy Analyst
G


Dr Andrzej Ancygier
Senior Climate Policy Analyst
B


Jasmin Cantzler
Climate Policy Analyst
B


Dr Andreas Geiger
Scientific Model and Data Analyst
B


Dr Antje Kästner
Project Manager
B


Niklas Roming
Climate Policy Analyst
B


Fabio Sferra
Climate Policy Analyst
B


Claire Stockwell
Senior Policy Analyst
B


Paola Yanguas Parra
Decarbonisation Strategies Team Lead / Climate Policy Analyst
B


Luis Zamarioli
Research Analyst
B


Dr Anne Zimmer
Climate Change Economist
B


Gaurav Ganti
Policy Analyst
B

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PROJECT DEVELOPMENT AND COMMUNICATIONS

Our Development team works with our scientists and analysts to seek out opportunities to apply our expertise to projects that further our vision to support science-based climate and development policymaking. Our communications staff ensure that our research results and publications reach wide audiences through data visualisation, extensive media networks and outreach activities.

EXPERTISE
- Project development
- Partnership building
- Donor requirements
- Communication strategies & messaging
- Social media and web management
- Media and outreach activities
- Editorial work
- Graphic design, data visualisation of research findings


Lorraine Brindel-Schild
Head of Development and Partnerships
B


Ela Smith
Head of Communications
B


Matt Beer
Data Visualisation and Graphic Design Specialist
B


Marc Hall
Communications Officer
B


Sarah Heck
Junior Manager / Project Development
B

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CLIMATE DIPLOMACY

Our Climate Diplomacy Team works with ministers and negotiators from SIDS and LDCs in the UN climate negotiations, related international processes and regional meetings. It has supported these vulnerable country groups to ensure the Paris Agreement reflects their key priorities, including the 1.5°C temperature goal. The team focuses on providing strategic, technical and real-time negotiation support in developing the Paris Agreement rule-set and in a variety of international climate fora, including the GCF and the IPCC.

EXPERTISE
- Negotiation support for SIDS & LDCs
- Architecture of international climate regime
- International climate and environmental law
- Multilateral agreements
- Green Climate Fund
- Evolution of international climate finance landscape
- Climate finance readiness and enhancing access
- IPCC processes
- Carbon markets
- Capacity building and training


Damon Jones
Head of Climate Diplomacy
G


Manjeet Dhakal
Head of LDC Support Team
G


Rueanna Haynes
Senior Legal Adviser / AOSIS Support Team Lead
G


Claire Fyson
Research Analyst
B


Bianka Kretschmer
Climate Policy Analyst
B


Hannah Kügler
Project Manager
B


Mahlet Eyassu Melkie
Climate Policy Analyst
B


Dorji Tshewang
LDC Policy Analyst
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Rodrigo Narvaez Rojas
Student Assistant
B


Imogen Rickert
Junior Policy Adviser/ Logistics Manager
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GLOBAL OPERATIONS

Our Global Operations Team works in three different countries to ensure the smooth management of our various offices and provides support to all other teams at Climate Analytics. The expertise of the team covers management, human resources, finance and logistics.

EXPERTISE
- Working in a multinational legal and financial environment
- Experience in the financial and administrative operations of NGOs and research institutes
- Full project financial and administration support
- Expertise on donor requirements
- National and international tax compliance
- Knowledge of human resources and company law in various countries
- Logistics and event planning


Amandine Berger
Head of Project Management
B


Victoria Redmond
Head of Global Finance
B


Claudia Neumann
Human Resources Manager
B


Holali Ametepe
Administrative Assistant
L


Tania Delgado Martinez
Finance Officer
B


Amen Eklou-Takpani
Financial Accountant
L


Flavien Kwadjo Ezobafuno Vidja
Project Manager
L


Alma Jurgelaityte
Executive Assistant to the CEO
B


Luka Vasilj
Finance Officer
B

Contact
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Climate Analytics Lomé

The Climate Analytics Lomé team, from left: Flavien Vidja, Holali Ametepe, Oladé Balo, Amen Eklou and Kouassigan Tovivo.

The Lomé office focuses on climate science and governance issues relating to Least Developed Countries (LDCs). Our presence in Lomé, Togo, has enabled us to considerably expand our networks in West and sub-Saharan Africa, creating strong ties to key regional institutions, government ministries and agencies as well as civil society actors. This allows us to tailor projects to meet these countries' specific demands and ultimately enable climate policy decision making to be based on robust scientific evidence.

The Lomé office plays an important role in providing scientific, policy and analytical support to assist francophone LDCs in the UNFCCC, Green Climate Fund and related climate fora.

Much of the Lomé team's work relates to developing and reinforcing connections between robust climate science and policy making in the region, providing technical support to governments implementing their climate plans (NDCs). The office also provides technical support to governments in mainstreaming adaptation considerations into their regular policy making activities, as part of the National Adaptation Plan (NAP) process.

REINFORCING ACCESS TO CLIMATE FINANCE

As part of our implementation strategies work, in 2018 our Lomé experts supported the government of Tunisia on devising a functional climate finance mobilisation strategy and a monitoring system for climate finance flows, under the Green Climate Finance (GCF) Readiness programme. This project was coordinated by the Sahara and Sahel Observatory (OSS).

FORESTS GOVERNANCE

Together with NGO Fern, our Lomé team carried out an assessment of the role of forest governance in achieving the climate objectives in the NDCs of African countries that signed the Voluntary Partnership Agreements (VPAs) under the EU's Forest Law Enforcement Governance and Trade (FLEGT) Action Plan. The project involved analysing the correlation between forest governance and deforestation in Cameroon using scientific methodologies and provided recommendations on how African VPA countries can better integrate forest governance into their mitigation and adaptation measures. The findings were showcased at the European Parliament in Brussels in March 2018 at the event *Achieving the 1.5° target with forests – What role for the EU?*

Climate Analytics New York

Our New York office, Climate Analytics Inc. works closely with a number of our stakeholders' permanent missions to the United Nations, at the epicenter of world diplomacy. It provides scientific, policy and technical support to those vulnerable countries in climate and sustainable development related UN processes.

The office also focuses on establishing country systems and processes for the implementation of adaptation and mitigation actions under the Paris Agreement. In 2018, it started several projects aimed at strengthening national institutional capacity, developing strategic frameworks that enhance ownership and formulating robust project concepts to access climate finance and mobilize private sector investment. Our New York team operates mostly in the Caribbean region and in 2018 worked closely with local experts in Grenada, Saint Lucia and Jamaica but also in Tunisia.

In addition to analytical work, our New York office brings together key audiences to communicate and discuss latest analysis and science publications, and break down silos between diverse research communities, civil society, financial institutions, diplomats and decision makers to maximise synergies and impact across different agendas. Our New York team regularly holds or co-hosts high-level events, including the prominent Climate Week NYC, organised by The Climate Group during the high-level segment of UN General Assembly every September.

LINKING CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT

In 2018 we supported a number of events organised by the government of Belize, in the lead up to their chairmanship of the Alliance of Small Island States (AOSIS). Our experts contributed scientific presentations about the issue of loss and damage, and about how limiting warming to 1.5°C, as stated in the Paris Agreement, is intrinsically linked to achieving the Sustainable Development Goals, and how best to align the two agendas to maximise synergies.

Climate Analytics Inc. Director Laetitia De Marez with H. E. Ambassador Lois M. Young opening the event "Staying below 1.5°C to achieve the SDGs" on 5 February 2018 at UN Headquarters in New York.

Climate Week NYC 2018

COOL TIPS FOR A LIVEABLE PLANET - THE WHYS AND HOWS OF 1.5°C

This event outlined the latest science findings on climate impacts and benefits of limiting global warming to 1.5°C. Climate Analytics experts and guests, including prominent climate scientist Prof Michael Oppenheimer, looked at what the latest body of research means for implementing the Paris Agreement, especially in terms of the scale and pace of decarbonisation required to achieve this goal, and what policies are needed in response to these findings.

WHAT'S THE HURRY - BENDING THE CARBON EMISSIONS CURVE

This event focused on the scientific and political dimensions that make 2020 such a crucial year for climate action. It included updates from the Climate Action Tracker about where we are with climate action globally, and what some of the key players – the US, EU, China, India – are up to. Against the background of these assessments and developments, a panel including SIDS and LDC representatives as well as Mission2020 and UNFCCC, discussed what political processes need to be aligned by 2020: UNFCCC and the Talanoa Dialogue, non-state action and the UN SG summit.

Climate Analytics Australia

View of the City of Perth, Western Australia. Photo: Lev Kropotov

Our office in Perth, Australia was established in 2017 in order to expand our institute's work on climate policy and energy transformation strategies in the Asia-Pacific Region.

As a number of rapidly developing economies in the region are planning major new coal power developments, we look into how renewable energy alternatives could meet energy demand, and the benefits this would yield for sustainable development, which is a crucial concern for these countries.

In 2018, we also worked with Australian civil society organisations to produce a number of impactful studies to contribute to the discussions on Australia's national and state climate and energy policy. All the reports and briefings have received wide media coverage.

AUSTRALIAN CLIMATE POLICY FACTSHEETS

Together with the Australian Conservation Foundation, we have been analysing Australia's emissions profile and policies. The result is a set of informative, concise graphic factsheets outlining all you need to know about Australia's overall economy and emissions in key sectors – industry, electricity and transport – and what can be done to reduce them. Our analysis shows that Australia is far behind similar economies in terms of carbon pollution per capita and emission intensity.

WESTERN AUSTRALIA'S GAS GAMBLE

In 2018, we released a report on the implications of exploiting Canning Basin and other unconventional gas resources in Western Australia for achieving climate targets. It found that carbon pollution from Western Australia's current and proposed natural gas projects would be over four times higher than what Australia's energy system can emit under the Paris Agreement. The report concluded that rather than risking stranded assets by investing in gas, it would be much smarter for WA to take advantage of its vast renewable energy resources.

ENERGY TRANSITION HUB

Through our Australian office's association with Murdoch University in Perth, we are involved in the Energy Transition Hub, an Australian-German innovation partnership. It is a collaborative venture supported by the Australian Department of Foreign Affairs of Trade and the German Federal Ministry of Education and Research. It brings together researchers, industry experts, government, and communities to address energy transition challenges across a range of disciplines.

... and our Berlin headquarters

View of U-Bahn over the Oberbaum Bridge in Berlin Friedrichshain-Kreuzberg. Photo: canadastock

The headquarters of our organisation are located in Berlin. Half of our staff works at our Berlin office – over 40 employees across all teams, including most of our operations team – administration, finance, project management and development. Also the majority of our science and policy staff are based here and enjoy close working relationships with many European universities and institutes on joint projects. A number of our scientists maintain an affiliation with one of the world's premier climate science institutes, Potsdam Institute for Climate Impact Research (PIK), which enables close scientific collaboration.

One of our key new projects in 2018 is SLICE, which looks at how climate extremes impact socio-economic development all the way from the household to the macroeconomic level.

Our Berlin office is also the hub for our EU climate policy work, which, in 2018, grew to include a new Horizon2020 project COAACH, which focuses on assessing risks and costs of climate change in Europe. Another new area of work is on Paris Agreement-compatible climate action in the transport and building sectors in Central and Eastern Europe.

EVENT: WHERE ARE WE AND WHERE DO WE WANT TO GO - IMPACTS AVOIDED BY LIMITING WARMING TO 1.5°C

27 November 2018

The landmark report on the impacts of 1.5 °C global warming released by the IPCC in October 2018 provides comprehensive evidence of the impacts of climate change today and how they will increase with 1.5°C warming and even more with 2°C. Our scientists have contributed significantly to the science base underlying the 1.5°C special report through HAPPI-DE project, carried out with partners from Goethe-Universität Frankfurt (GU), Climate Service Center (GERICS) and Deutsches Klimarechenzentrum GmbH, Hamburg (DKRZ).

This event, held at Humboldt University in Berlin, showcased the main findings of this scientific project in the context of the IPCC special report.

A panel including Matthias Duwe, Head of the Climate unit at Ecologic Institute,
Tania Guillen from GERICS and Dr. Christiane Textor, Head of the German IPCC Coordination Office discussed the significance of this new science for the upcoming climate conference COP24 and the Talanoa Dialogue.

Our history

Climate Analytics was formed in 2008 in Potsdam to bring cutting edge science and policy analysis to bear on one of the most pressing global problems of our time: human induced climate change. As the urgency of this problem has grown so have we and Climate Analytics now has over 80 people with a wide-ranging expertise working in four offices and in different locations around the world. We are motivated by the desire to empower those most vulnerable – Small Island Developing States and Least Developed Countries – to use the best science and analysis available in the international climate negotiations, as well as developing policies and institutional capacity to adapt to climate change.

2008 Poznan

Founding
Three concerned scientists - Dr. (h.c.) Bill Hare, Dr. Malte Meinshausen and Dr. Michiel Schaeffer - founded Climate Analytics with the aim of providing scientific and policy analysis to SIDS and LDCs.

2009 Copenhagen

Climate Action Tracker
The CAT is an independent science-based assessment, which tracks the emissions commitments and actions of 32 countries and aggregates counbtry action to the global level determining likely temperature increase by the end of the century.

Launch of PREVENT
First of its kind, this project combined latest climate science and policy support to underpin the push by SIDS and LDCs for ambitious outcomes in the international climate negotiations.

2010 Cancún

UNEP Emissions Gap Report 2010
First in a series of reports – co-authored by Climate Analytics' scientists – assessing compatibility of climate action with the 2°C and 1.5°C temperature goals.

Launch of SURVIVE
This project delivered science and policy support, which helped SIDS and LDCs secure key elements to protect their interests in the Paris Agreement, including the 1.5°C limit.

2011 Durban

UNEP Emissions Gap Report 2011
Stating that enough technical potential existed to close the emissions gap in 2020, but that fast action by countries was needed.

Green Climate Fund (GCF) Support
The Green Climate Fund was Green Climate Fund (GCF) Support The Green Climate Fund was set up for financing climate resilient and low emissions development in developing countries. In 2011, Climate Analytics started supporting SIDS and LDC Transitional Committee members's and from 2012 supporting GCF board members.

Launch of AMPERE
A major European project focused on analysing mitigation pathways and the associated mitigation costs in a series of multi-model comparisons.

2012 Doha

UNEP Emissions Gap Report 2012
A sobering assessment of the gulf between ambition and reality in respect to keeping a global average temperature rise this century under 2 degrees Celsius.

1st World Bank Turn Down the Heat
Why a 4°C warmer world must be avoided
First in the series of influential reports, produced by Potsdam Institute for Climate Impact Research and Climate Analytics.

2013 Warsaw

UNEP Africa's Adaptation Gap Report
Climate change impacts, adaptation challenges and costs in Africa

UNEP Emissions Gap Report 2013
The options to narrow and potentially bridge the emissions gap in 2020

2nd World Bank Turn Town the Heat
Climate extremes, regional impacts and the case for resilience

Launch of High Level Support Mechanism (HLSM) for SIDS and LDCs
Provision of tools and materials to meet ministerial needs in climate negotiations, including workshops for high-level officials and negotiators.

Final AMPERE conference
This conference on Europe's role in future global climate policy was an opportunity for stakeholders to share their insights on climate change mitigation pathways.

2014 Lima

UNEP Adaptation Gap Report 2014
First in a series focusing on finance, techno-logy and knowledge gaps in climate change adaptation.

IPCC AR5 climate change 2014: synthesis
The Synthesis Report provides an integrated view of climate change as the final part of the IPCC's Fifth Assessment Report (AR5).

3rd World Bank Turn Down the Heat
Confronting the new climate normal

Opening of offices in Lomé and New York
Our office in Lomé, Togo focuses on Paris Agreement implementation and issues relating to LDCs. Climate Analytics Inc. in New York focuses on implementation with emphasis on climate finance, and supports our stakeholders on climate and development related issues.

2015 Paris

UNEP Africa's Adaptation Gap Report
Bridging the gap/ mobilising sources.

UNEP Emissions Gap Report 2015
A scientific assessment of the impacts of the submitted Intended Nationally Determined Contributions (INDCs) on anthropogenic emissions of greenhouse gases.

UNEP Adaptation Finance Gap Report 2015
Bringing together key findings on adaptation costs and finance from AGR 2014 and preliminary findings from the 2016 assessment and drawing on insights related to adaptation costs and related finance needs as stated in the INDCs.

Paris Agreement
For the first time, world leaders agreed to limit global temperature increase to well below 2°C and further pursue efforts to limit it to 1.5°C, thereby paving the way for a safer and brighter future for everyone, but particularly for those most vulnerable.

Launch of IMPACT
A cross-cutting, multi-faceted project that aims to strengthen the connections between the scientific assessments of climate impacts, vulnerability and adaptation to help SIDS and LDCs access finance and implement concrete projects.

Launch of Horizon 2020 projects:
RIPPLES analyses the implications of COP21 outcomes for EU climate policy.
MAGIC looks at how the EU 2020 Strategy can achieve its goal of smart, sustainable and inclusive economic growth, taking into account the nexus between water, food, energy, land use and climate change.
COACCH develops an innovative science-practice and integrated approach to co-design and co-deliver an improved downscaled assessment of the risks and costs of climate change in Europe. Launced in 2017.

2016 Marrakech

UNEP Emissions Gap Report 2016

The Low Carbon Monitor
A Climate Vulnerable Forum commissioned report assessing the benefits of limiting global warming to 1.5°C.

PAS-PNA
A project to provide francophone Least Developed Countries in Sub-Saharan Africa with science-based support when formulating their National Adaptation Plans (NAPs).

2017 Bonn

A stress test for coal in Europe under the Paris Agreement
Report elaborating a strategy for phasing out coal in the European Union and providing a science-based shut-down schedule of coal power plants at the individual unit level.

UNEP Emissions Gap Report 2017
Assessing current national mitigation efforts and the ambitions countries have presented in their Nationally Determined Contributions, which form the foundation of the Paris Agreement.

Opening of office in Australia
Our Australian office has been established to expand our work on climate policy in the Asia Pacific region.

Launch of ISIPEDIA
A collaborative project to develop an online platform with climate change impacts information relevant for stakeholders in vulnerable countries.

2018 Katowice

UNEP Emissions Gap Report 2018
Assessment of current national mitigation efforts and the ambitions countries have presented in their Nationally Determined Contributions.

IPCC Special Report on 1.5°C
An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

Launch of science projects
CRAIC Climate Risk Adaptation and Insurance in the Caribbean
SLICE Short- and Long-Term Impacts of Climate Extremes

Key:
Major reports / Climate Analytics-led or involving our experts as lead authors
Flagship projects / milestones

Who we work with

2018 Partners

We are grateful for all our partners, funders and financial supporters whose continuous trust and support has made it possible for us to pursue our goal of preventing dangerous climate change and enabling sustainable development by combining climate science and policy.

- Agenzia Nazionale Per Le Nuove Tecnologie l'Energia E Lo Sviluppo Economico Sostenibile (ENEA)
- AirClim- Air Pollution & Climate Secretariat
- Asociacion BC3 Basque Centre for Climate Change – Klima Aldaketa Ikergai
- Australian Conservation Fund (ACF), Carlton, Australia
- Bruegel Aisbl
- Caribbean Community Climate Change Centre (CCCCC), Belmopan, Belize
- Catalan Institution for Research and Advanced Studies (Institució Catalana de Recerca i Estudis Avançats - Universitat Autònoma de Barcelona)
- Centre Nationnal de la Recherche Scientifique (CNRS)
- Charles and Associates Inc.
- Climate Action Network (CAN) Europe and International
- Climate Service Center Germany, Helmholtz Zentrum Geesthacht (HZG)
- Climate Strategies
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Deutsches Klimarechenzentrum GmbH, Hamburg (DKRZ)
- E3G
- Ecofys – a Navigant Company
- Ecologic Institut
- Eidgenoessische Technische Hochschule Zürich
- Europa-Universität Viadrina
- Expert Forum (EFOR)
- Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici
- Fondazione Eni Enrico Mattei
- Fraunhofer Institut
- Fundacao Coordenacao De Projetos Pesquisas E Studos Tecnologico (COPPETEC)
- Fundacja Warszawski Instytut Studiow Ekonomicznych - WISEEUROPA
- Germanwatch
- Global Climate Forum
- Goethe Universität Frankfurt (GU)
- Humboldt Universität Berlin
- ifo Institute for Economic Research
- INFRAS
- Institut de recherche pour le développement durable et les relations internationales (IDDRI)
- Institut für Physische Geographie
- Instituto Tecnológico de Canarias
- International Institute for Applied Systems Analysis (IIASA) / Internationales Institut fuer Angewandte Systemanalyse
- International Institute for Environment and Development (iied)
- Joint Research Centre- European Commission (JRC)
- Karlsruhe Institute of Technology
- Laboratoire des Sciences du Climat et de l'Environnement
- Ministerie van Infrastructuur en Waterstaat
- Murdoch University
- NewClimate Institute
- Paul Watkiss Associates LTD
- PBL Netherlands Environmental Agency
- Potsdam Institute for Climate Impact Research (PIK)/ Potsdam Institut für Klimafolgenforschung
- Renewable Energy Institute Japan (REI)
- Secretariat of the Pacific Regional Environment Programme (SPREP)
- Senckenberg Biodiversity and Climate Research Centre / Senckenberg Biodiversität und Klima Forschungszentrum
- Sofiiski Universitet Sveti Kliment Ohridski/ Sofia University St. Kliment Ohridski
- Stichting Deltares
- Stichting Vu
- The Climate Institute - Australia (CIA)
- The James Hutton Institute (JHI)
- Tsinghua University
- Umeå University
- Universidad Pablo de Olavide
- Universidade Federal do Rio de Janeiro
- Università degli Studi di Napoli Federico II
- Universitat Autònoma de Barcelona
- Universität Graz
- Universiteit Twente (UT)
- Universitetet i Bergen (UiB)
- University College London (UCL)
- University of Cambridge
- University of Cape Town
- University of East Anglia (UEA)
- University of Oxford
- University of West Indies (UWI), a subcontractor of MCII
- Univerzita Karlova
- Utrecht University, The Netherlands
- Vrije Universiteit Brussel (VUB)
- Wageningen University & Research (WUR)
- World Resources Institute (WRI)
- Wuppertal Institute for Climate, Environment and Energy

Financial information

FUNDERS AND FINANCIAL SUPPORTERS

Agora Verkehrswende

Australian Conservation Fund (ACF)

Department for Business Energy & Indutrial Strategy UK (BEIS)

Bundesministerium für Bildung und Forschung - German Federal Ministry of Education and Research (BMBF)

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit - German Federal Ministry of Environment, Nature Conservation and Nuclear Safety (BMU)

International Climate Initiative
European Climate Initiative

Carnegie Climate Geoengineering Governance Initiative (C2G2)

Caribbean Community Climate Change Centre (CCCCC)

Christian Aid

Children's Investment Fund Foundation (CIFF)

ClimateWorks Foundaiton (CW)

European Climate Foundation (ECF)

European Union's Horizon 2020 Research and Innovation Programme

Foreign and Commonwealth Office FCO Caribbean

Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ)

Ministry of Economic Growth and Job Creation, Jamaica

Greenpeace Foundation

Humboldt Viadrina Governance Platform

International Institute for Sustainable Development (IISD)

Munich Climate Insurance Initiative (MCII)

Observatoire du Sahara et du Sahel - Sahara and Sahel Observatory (OSS)

Umweltbundesamt - German Environment Agency (UBA)

United Nations Environment Programme (UNEP)

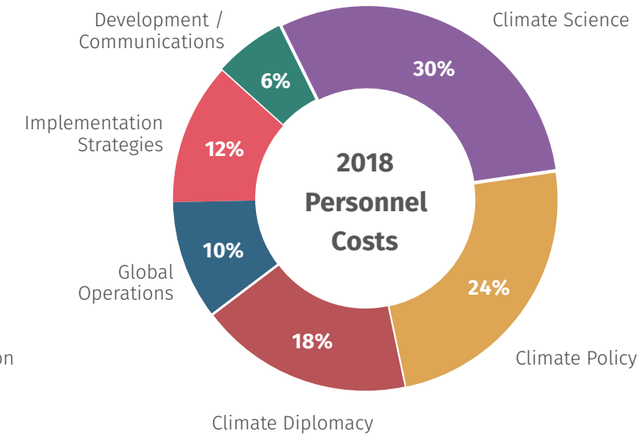
We Mean Business (WMB)

The World Bank

TOTAL	**€ 4 573 000**

EXPENDITURE

Personnel Costs	73%	€ 3 570 000
Travel and Workshop Costs	12%	€ 610 000
Partners (including subcontractors)	6%	€ 290 000
Administrative Costs	9%	€ 420 000
Outreach	0.4%	€ 18 000
TOTAL		**€ 4 908 000**



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Integrated Assessment Models: what are they and how do they arrive at their conclusions? Bill Hare, Robert Brecha, Michiel Schaeffer (2018)

Australia Climate Factsheets - Industry Ursula Fuentes Hutfilter, Jasmin Cantzler, Fabio Sferra, Bill Hare, Gaurav Ganti, Matt Beer (2018)

Evaluating Australia's climate policy action Ursula Fuentes Hutfilter, Jasmin Cantzler, Fabio Sferra, Bill Hare, Gaurav Ganti, Matt Beer (2018)

Keeping up with the renewable revolution - updating the NDCs Climate Analytics (2018)

How do we limit warming to 1.5°C: informing the Talanoa Dialogue question, "How do we get there?" (2018)

New Zealand's Zero Carbon Bill – getting the Paris Agreement right Bill Hare, Carl-Friedrich Schleussner, Michiel Schaeffer, Alexander Nauels (2018)

Japan at an international crossroads - seeking a sunset for coal Matthew Webb (E3G), Paola Yanguas Parra (2018)

Carbon budgets for the 1.5°C limit Carl-Friedrich Schleussner, Katarzyna B. Tokarska, Martin Stolpe, Peter Pfleiderer, Quentin Lejeune, Bill Hare (2018)

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The role of finance and investment in meeting the 1.5°C goal Bianka Kretschmer, Carl-Friedrich Schleussner, Inga Menke, Rodrigo Narvaez, 10 December 2018

Beyond offsets? Market mechanisms under the Paris agreement Carl-Friedrich Schleussner, Claire Fyson, Bill Hare, 07 December 2018

Key Messages for Small Island Developing States from the IPCC 1.5°C Special Report Adelle Thomas, Carl-Friedrich Schleussner, 06 December 2018

Small Islands and 1.5°C- A Special Issue in Regional Environmental Change Adelle Thomas, Carl-Friedrich Schleussner, 20 November 2018

En route to Katowice: Negotiators from Least Developed Countries prepare for COP24 , 27 October 2018

Hot, dry or flooded - more weather extremes beyond 1.5°C warming Quentin Lejeune, Fahad Saeed, Kai Kornhuber, Carl-Friedrich Schleussner, 27 August 2018

Stayin' alive: heatwave makes searing case for 1.5°C Claire Fyson, Fahad Saeed, Robert Brecha, Peter Pfleiderer, Quentin Lejeune, Carl-Friedrich Schleussner, 15 August 2018

Don't shift the goalposts of Paris Agreement's temperature limits Joeri Rogelj (IIASA), Matthias Mengel (PIK), 22 May 2018

Climate Action Tracker updates

Scaling up climate action in the European Union: Key opportunities for transitioning to a zero emissions society Andrzej Ancygier, Tina Aboumahboub, Anne Zimmer, Ursula Fuentes Hutfilter, Robert Brecha, Michiel Schaefer, Bill Hare, Matt Beer, Frederic Hans, Hanna Fekete, Keno Riechers, Takeshi Kuramochi, Niklas Höhne, Nicolas Fux, Thibaud Lemercier, Tom Berg, Yvonne Deng, Kornelis Blok (2018)

Paris Tango. Climate action so far in 2018: individual countries step forward, others backward, risking stranded coal assets Climate Action Tracker (2018)

Some progress since Paris, but not enough, as governments amble towards 3°C of warming Climate Action Tracker (2018)

The highway to Paris: Safeguarding the climate by decarbonising freight transport Fabio Sferra, Ursula Fuentes, Jasmin Cantzler, Gaurav Ganti, Yvonne Deng, Thibaud Lemercier, Sebastian Sterl, Takeshi Kuramochi, Lisa Luna (2018)

A policy spotlight on energy efficiency in appliances and lights could see big climate gains Jasmin Cantzler, Fabio Sferra, Ursula Fuentes, Gaurav Ganti, Thibaud Lemercier, Irina van der Hoorn, Yvonne Deng, Kornelis Blok, Takeshi Kuramochi, Markus Hagemann, Niklas Höhne, Climate Action Tracker, (2018)

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We are a non-profit institute, which brings together interdisciplinary expertise in the scientific and policy aspects of climate change. We are motivated by the desire to support countries most affected by climate change to use the best science and analysis available in their efforts to secure and implement a global agreement to limit global warming to levels that don't threaten their very survival.

We undertake high quality research on issues most important to the vulnerable countries, including on the 1.5° C temperature limit. Climate Analytics provides a gateway to scientific, policy and legal advice to empower poor countries and enjoys the trust of vulnerable country actors involved in the international climate negotiations and related national processes. We have long-established relationships with key regional institutions in Africa, the Caribbean and the Pacific, serving Small Island Developing States and Least Developed Countries.

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Supporting science based policy to prevent dangerous climate change enabling sustainable development

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