Stanford Experts on Climate Change

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Biology

Elizabeth Hadly

Hadly has conducted extensive research throughout North and South America on the ecology and evolution of vertebrates. In 2012, Hadly co-authored a paper that found that the planet may be nearing a critical threshold beyond which environmental changes will be rapid and unpredictable. Based on the findings, California Gov. Jerry Brown asked Hadly to compile a scientific consensus statement on climate change, which Brown has distributed to dozens of world leaders. Recently, Hadly co-authored the book "Tipping Point for Planet Earth: How Close Are We to the Edge?" about the risks of climate change and overpopulation. Hadly is the Paul S. and Billie Achilles Professor in environmental biology at Stanford and a senior fellow at the Stanford Woods Institute for the Environment.

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Expertise: Biology

Carbon and Methane Accounting

Rob Jackson

Jackson studies the effects of climate change and droughts on forest mortality and grassland ecosystems. He chairs the Global Carbon Project, which compiles data on fossil fuel emissions and deforestation, and previously chaired the Department of Energy's National Institute for Climate Change Research in the southeastern U.S. His recent work has focused on what window of time is left to limit warming to below 2 degrees Celsius. Jackson is the Michelle and Kevin Douglas Provostial Professor at the Stanford Doerr School of Sustainability; senior fellow at the Stanford Woods Institute for the Environment; and senior fellow at the Precourt Institute for Energy.

Contact: rob.jackson@stanford.edu, (650) 497-5841
Expertise: Climate change, drought, land use, full life-cycle carbon accounting, effects of climate and drought on forest mortality, fracking and drinking water quality, and urban natural gas leaks.

Alicia Seiger

Seiger is a lecturer at Stanford Law School and leads sustainability and energy finance initiatives at Stanford Law, Graduate School of Business, and the Stanford Doerr School of Sustainability. She has served as an advisor to the Governors of California and New York, the New York State Comptroller, and numerous pension fund, endowment, and family office CIOs on the topics of climate risk, opportunity, and resiliency. Her first book, "Settling Climate Accounts: Navigating the Road to Net Zero" considers the rise of carbon accounting in the context of the last three decades of global climate action, examines the rough edges of Net Zero in practice, and makes recommendations for the road ahead.

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Expertise: Carbon accounting, climate risk and disclosure, climate finance, carbon credits, carbon markets, blended finance, ESG, innovation, climate policy, venture capital, and climate philanthropy.

Freshwater and Drought

Noah Diffenbaugh

Diffenbaugh studies the climate system, including the processes by which climate change could increase extreme weather events such as drought and impact agriculture, water resources, and human health. He has served as a lead author for Working Group II of the IPCC and has provided testimony and scientific expertise to the White House, the Governor of California, and U.S. congressional offices. Diffenbaugh is the Kara J Foundation Professor of Earth System Science and Kimmelman Family Senior Fellow at the Stanford Doerr School Sustainability.

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Expertise: The climate system, including the processes by which climate change could impact agriculture, water resources, extreme weather events, and human health.

Conservation

Jim Leape

A 30-year veteran of conservation work on every continent, Leape is the former director of WWF International and leader of the global WWF Network, one of the world's largest conservation organizations. Leape is the co-director of the Stanford Center for Ocean Solutions and the William and Eva Price Senior Fellow at the Stanford Woods Institute for the Environment.

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Expertise: Climate change, conservation, and natural resource management; Chinese environmental policy, forest protection, marine conservation, water resources management and sustainability in global commodity markets.

Economics

Charles Kolstad

Kolstad is an internationally known environmental economist with a focus on environmental economics, climate change, and energy. He has been a convening lead author for the IPCC (economics and ethics). His research interests are in information, uncertainty and regulation, with much of his applied work in the area of climate change and energy markets. He is a professor, by courtesy, of economics; senior fellow at the Precourt Institute for Energy; senior fellow at the Stanford Woods Institute for the Environment; and a senior fellow at the Stanford Institute for Economic Policy Research.

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Expertise: Economics of greenhouse-gas mitigation, adaptation, and regulation, risk and uncertainty, international agreements, and decarbonization policies.

Marshall Burke

Burke's research focuses on social and economic impacts of climate change. He has recently published on the past and future global economic impacts of climate change, and on the relationship between high temperatures and human conflict, including armed violence and civil wars. Ongoing work estimates the magnitude of loss and damage estimates potentially owed by large emitters. Burke is the Deputy Director of the Center on Food Security and the Environment; an associate professor of Global Environmental Policy at the Stanford Doerr School Sustainability; a senior fellow at the Freeman Spogli Institute for International Studies and a senior fellow at the Stanford Woods Institute for the Environment.

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Expertise: Food security, climate change, economic development.

Energy

Arun Majumdar

Majumdar is the Chester Naramore Dean of the Stanford Doerr School of Sustainability. He is a former division director for environmental energy technologies at Lawrence Berkeley National Labs, founding director of the Advanced Research Projects Agency-Energy (ARPA-E), acting under secretary of energy, vice president for energy at Google, and co-director of the Precourt Institute for Energy. Majumdar is the Jay Precourt Professor at Stanford and a senior fellow at the Precourt Institute for Energy.

Contact: amajumdar@stanford.edu, (650) 725-4016
Expertise: As founding director the Department of Energy's ARPA-E program, he can discuss the role of clean-energy technologies in shaping U.S. and global climate and energy policy, as well as energy in the developing world.

Mark Z. Jacobson

Jacobson's research focuses on understanding air pollution and global warming and developing large-scale clean, renewable energy solutions. He has developed and applied three-dimensional atmosphere-biosphere-ocean computer models to simulate air pollution, weather, climate, and

renewable energy. He has also developed roadmaps to transition countries, states, cities, and towns to 100% clean, renewable energy and computer models to examine grid stability in the presence of high penetrations of renewable energy. His work forms the scientific basis for the energy portion of the U.S. Green New Deal. Jacobson is a professor of civil and environmental engineering in Stanford's School of Engineering; director of Stanford's Atmosphere/Energy program; a senior fellow at the Precourt Institute for Energy; and a senior fellow at the Stanford Woods Institute for the Environment.

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Expertise: Renewable energy, atmospheric science.

Environmental Law

Michael Wara
Wara's research focuses on climate policy and regulation, both domestically and internationally. His current scholarship addresses the performance of the emerging global market for greenhouse gasses and mechanisms for reducing emissions, especially in developing countries after the expiration of the Kyoto Protocol. Wara is the director of the Climate and Energy Research Program and senior research scholar at the Stanford Woods Institute for the Environment; a research fellow at the Program in Energy and Sustainable Development in Stanford's Freeman Spogli Institute for International Studies; and a research fellow at the Steyer-Taylor Center for Energy Policy and Finance.

Contact: michael.wara@stanford.edu
Expertise: Environmental and energy law and policy.

Food Security

David Lobell
Lobell was a lead author for Chapter 7, "Food Production Systems and Food Security", of the report issued in March 2014 by Intergovernmental Panel on Climate Change (IPCC) Working Group II. His research focuses on identifying opportunities to raise crop yields in major agricultural regions, with a particular emphasis on adaptation to climate change. He is the Gloria and Richard Kushel Director of the Center on Food Security and the Environment; a professor of Earth System Science at the Stanford Doerr School Sustainability; and William Wrigley Senior Fellow at the Stanford Woods Institute for the Environment and the Freeman Spogli Institute for International Studies.

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Expertise: Food security, crop yields and climate change.

Health

Michele Barry
As a physician to underserved populations around the world, Barry has seen firsthand the human impact of global warming and environmental degradation. She has helped lead the effort to address climate change as a global health crisis while also serving as an adviser on two

presidential transition teams. Barry is the Drs. Ben & A. Jess Shenson Professor and professor of medicine; senior associate dean for global health; director of the Center for Innovation in Global Health; and a senior fellow at the Stanford Woods Institute for the Environment.

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Expertise: Global health, healthcare systems, infectious diseases, public health, tropical diseases.

IPCC Processes, Climate Resilience and Adaptation

Chris Field
Field's research emphasizes field and laboratory studies of impacts of climate change, from the molecular to the global scale. From 2008 to 2015, Field was co-chair of Working Group II of the IPCC. He is the Perry L. McCarty Director of the Stanford Woods Institute for the Environment; founding director of the Carnegie Institution for Science's Department of Global Ecology; the Melvin and Joan Lane Professor for Interdisciplinary Environmental Studies at Stanford's School of Humanities and Sciences and the Stanford Doerr School Sustainability; and senior fellow at the Precourt Institute for Energy.

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Expertise: Climate change, including impacts, adaptation and vulnerability. Global perspective crossing regions and sectors. Special expertise on ecosystems and agriculture.

Michael Mastrandrea
Mastrandrea is an interdisciplinary scientist whose work focuses on climate risks and resilience and the design and implementation of energy and climate policy. He helped lead development of the IPCC Fifth Assessment Report and has also served as an author for the Fourth U.S. National Climate Assessment and as an associate editor for California's Fourth Climate Change Assessment. He is Research Director of the Climate and Energy Policy Program and a senior research scholar at the Stanford Woods Institute for the Environment. He also serves as Chief Advisor for Energy and Climate Research at the California Energy Commission.

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Expertise: Climate change risks and resilience, climate and energy policy implementation, scientific assessment.

Jenny Suckale
Suckale focuses on understanding disaster risk and resilience by exploring the processes that govern extreme events in different natural systems and working with private and public partners to increase community resilience. She leads the Stanford Future Bay Initiative, a partnership committed to co-production of actionable intelligence to shape a more equitable, resilient, and sustainable urban future for Bay Area communities. Suckale is an assistant professor of geophysics at the Stanford Doerr School of Sustainability; assistant professor, by courtesy, of civil and environmental engineering; and center fellow at the Stanford Woods Institute for the Environment.

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Expertise: Climate hazards, community impacts and resilience, physical processes of extreme events, urban flooding, induced earthquakes.

Oceans

Stephen Palumbi

Palumbi is an internationally recognized expert on climate change impacts on marine life. His current work focuses on how coral reefs can adapt to climate change and the genetics of marine reserves designed for conservation and fisheries enhancement, with projects in the Philippines, Bahamas and U.S. West Coast. Palumbi is the Jane and Marshall Steel Jr. Professor of Marine Sciences at the Stanford Doerr School of Sustainability, and an affiliate of the Stanford Woods Institute for the Environment.

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Expertise: Climate change and ocean acidification.

Psychology and Human Behavior

Gabrielle Wong-Parodi

Wong-Parodi is a psychologist who applies social, behavioral, and decision science approaches to understand how people react and are affected by global environmental change in order to develop interventions to improve adaptive capacity and resiliency. Her recent work has focused on the impacts of natural hazards and extreme events on individuals and communities coping with hurricanes and floods. Wong-Parodi is an assistant professor of Earth System Science at the Stanford Doerr School Sustainability and a center fellow at the Stanford Woods Institute for the Environment.

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Expertise: Natural disaster psychological and behavioral impacts, climate risk and adaptation

Sea Level Rise, Ice Sheets and Glaciers

Dustin Schroeder

Schroeder's research focuses on the subsurface processes and conditions that govern the stability of continental ice sheets, such as Antarctica, and their contribution to the rate of sea level rise. Schroeder uses airborne ice-penetrating radar to measure the thickness of ice sheets, bed conditions underneath glaciers, and ice melt from underneath the glacial surface. Schroeder is an associate professor of geophysics at the Stanford Doerr School of Sustainability and a senior fellow at the Stanford Woods Institute for the Environment.

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Additional Stanford climate experts can be found at
https://news.stanford.edu/expertise/climate-change/