August 2024

Julie Ann Wrigley Global Futures Laboratory
Arizona State University

Global Futures: Now

Monday, July 22, 2024, marked the hottest day on Earth ever recorded, with an average global temperature of 62.88°F (17.16°C), surpassing the previous day's record. 2024 is set to become the warmest year since records began in 1850, highlighting the urgency of our climate crisis. While these numbers are

alarming, they fail to capture the human impact at the heart of this global challenge.

For outdoor workers, children, and the elderly, record-high temperatures only intensify the risk of dehydration, heatstroke, and other heat-related illnesses. For unhoused individuals, extreme heat becomes a daily challenge of life or death. This is especially true in the desert southwest, where shade is scarce, rainfall is minimal, and the sun's intensity alters the feasibility of outdoor activities. In 2023, despite the availability of cooling centers, hydration stations, and emergency shelters, Maricopa County saw the heat claim 645 lives, a 52% surge compared to the previous year. Even as temperatures dip in the evenings, this summer's higher-than-average overnight lows offer limited reprieve from the day's relentless blaze, meaning vulnerable populations are at greater risk than ever before.

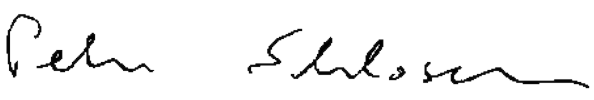
Already we are seeing mass heat-related casualty events around the world. In Saudi Arabia, 1,300 people died during an annual Islamic pilgrimage as temperatures soared to 120 degrees Fahrenheit (48.9 degrees Celsius). In India, heatstroke wards are now commonplace in major hospitals. To help acclimatize to the unprecedented heat, athletes are resorting to "sauna training" during this summer's Olympics in Paris. These examples of an accelerating crisis are clear warning signs of a transition into a world in which self-regulation mechanisms of our planet will lead to widespread suffering and loss of life. They also raise the question of what more needs to occur for there to be a widespread radical response to the crisis. Without drastic changes to policies and to our individual actions as members of global society, the extremes from heat and similar pressures imposed onto the life-supporting systems of our planet will become an increasingly common phenomenon.

This is why the Julie Ann Wrigley Global Futures Laboratory is engaged on many fronts to create new insights into how the present emergencies can be addressed and – more importantly – how we can anticipate future pressure points and avoid them. We are not limited to acting due to the lack of scientific insights into the problems we face or how to respond to them. In principle, we already have more knowledge than we are using to move toward a future that allows all life to thrive.

One prominent example of how the Global Futures Laboratory is advancing solutions to these problems is the Southwest Sustainability Innovation Engine (SWSIE), recently funded by the National Science Foundation. The goal of SWSIE, together with its partner academic institutions from Utah and Nevada, as well as more than 70 partners from outside academia, is to chart pathways for the Southwest to stay economically healthy and competitive under increasing environmental pressures including heat and water scarcity. The ASU component of SWSIE, led by the Global Futures Laboratory, has been designed on the foundation of numerous efforts by entities and individual faculty members and staff across ASU demonstrating the depth and breadth of research at the Global Futures Laboratory and ASU in general on the timely topic of heat and related pressures from global change.

Additionally, on July 29, Konrad Rykaczewski, associate professor of mechanical engineering and Senior Global Futures Scientist and Jennifer Vanos,associate professor in the School of Sustainability in the College of Global Futures, introduced MaRTy – a mobile biometeorological station – on Arizona Horizon . MaRTy enables ASU researchers to study the effects of extreme temperatures on the human body by measuring air temperature, humidity, wind speed, direction, and MRT (Mean Radiant Temperature) using a 6-directional method. Novel instruments such as MaRTy enhance our understanding of the adverse effects of extreme temperatures on the human body and can lead to the design and building of more sustainable urban environments and infrastructures.

These are only a few examples of the innovative, collaborative efforts helping to alter the course of our future. We know how to respond to climate change. We know that international cooperation, policy changes, advancements in technology, and individual actions will help mitigate the growing pressure on our planet. The challenge is getting people to act, and to do so in time.



Peter Schlosser
Vice President and Vice Provost of Global Futures

ASU researchers combatting extreme heat

The fourth story in a series about how ASU is changing the way the world solves problems highlights the work ASU researchers are doing to combat extreme heat. Researchers at the Global Futures Laboratory are bringing awareness and solutions to combat negative health outcomes from extreme heat. Scientists and scholars from a range of disciplines are working with communities to measure and understand extreme heat and the risks it poses.

Read more

Jay Famiglietti pens New York Times guest essay on groundwater scarcity and solutions

As part of the New York Times' What to Eat on a Burning Planet Opinion series, School of Sustainability Global Futures Professor Jay Famiglietti provides an essay entitled Will We Have to Pump the Great Lakes to Feed the Nation? In this essay, Famiglietti examines what the U.S. and many states must do to protect precious water

resources that are vital to food production.

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New study finds 4.2 ka event not as significant a climate event as originally considered

The study, published in Nature and co-authored by Stephanie Arcusa (assistant professor in the School of Complex Adapative Systems and researcher with the Center for Negative Carbon Emissions) with a cohort of researchers from Norther Arizona University, found many events of regional importance but few at the global scale. Using new coding tools to explore a global dataset of paleoclimate records to identify instances of abrupt climate change over the past 10,000 years, the study focused on the so-called "4.2 ka event" that has been used as a geologic marker by the international community was not one of the planet's remarkable events compared to others 8,200, 1,600 and 1,000 years ago.

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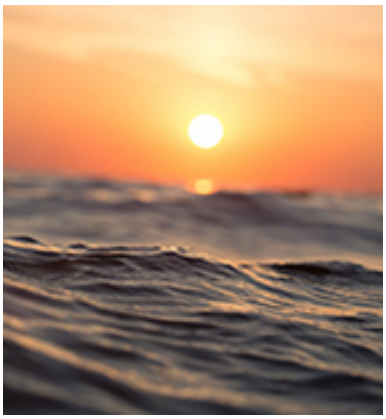
Center for Biodiversity Outcomes incorporating data

into decision-making for conservation efforts

Leah Gerber and Gwen Iacona collaborated on a curated collection for the Public Library of Science that addresses the disconnect between data and decision-making. The other papers in the collection were curated to represent the different dimensions of this challenge and incorporated a diverse array of voices from around the world that represent academia, nonprofit organizations and funding entities.

Read more



School of Ocean Futures student Nicole Kaiser to conduct marine research as NSF fellow

Earlier this year, Nicole Kaiser was accepted into the 2024 cohort of the NSF Graduate Research Fellowship Program. This highly competitive opportunity provides three years of study and research funding for graduate students in STEM. Kaiser said her current work is a natural evolution of her childhood passion for aquatic ecosystems.

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Senior Global Futures Scientist

Beth Polidoro works to unveil extinction-risk status of world's reef-building corals

In order to determine which species may be at the highest risk of extinction and which may be more resilient to local threats and climate change, Senior Global Futures Scientist and ASU Associate Professor Beth Polidoro and colleagues have been assessing the extinction-risk status of the world's reef-building corals as part of a partnership with IUCN, an international organization working in the field of nature conservation and sustainable use of natural resources.

Read more

Brian Sherman to helm NSF Engines: Southwest Sustainability Innovation Engine

Brian Sherman, the new chief executive officer of NSF Engines: Southwest Sustainability Innovation Engine, brings decades of experience in entrepreneurship, public sector strategy and technology-based economic development to SWSIE, which aims to transform the desert Southwest into an economic hub based on sustainable technologies.

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Patricia Solís featured on KJZZ

A recent KJZZ story highlights that federal dollars meant to help low income households pay for energy is largely not going towards Arizona's cooling efforts. Instead, it mostly goes to help families in other parts of the country keep their homes warm in the winter. KJZZ's Lauren Gilger spoke with Patricia Solís, executive director of the Knowledge Exchange for Resilience at ASU, which put together an extensive report for the governor on extreme heat preparedness in Arizona after last summer's record heat.

Read more

"Financial literacy in the digital age — A research agenda" awarded best paper award of 2023

Earlier this summer, a paper authored by researchers including Eusebio Scornavacca , director and professor of the School for the Future of Innovation in Society, was named "best paper" in the Journal of Consumer Affairs for the year 2023. The authors propose directions for measuring digital financial literacy, updates to the financial literacy curriculum and developments of digital learning tools. They also highlight collaboration between the public and private

sectors to create a fairer and more inclusive economic landscape.

Read more

Designing a more sustainable future with AI

Researchers across the university, including at the Global Futures Laboratory, discuss their use of artificial intelligence to tackle issues like water resource management, food security, ocean health and more. This story is part of the ASU News “AI is everywhere ... now what?” special project exploring the potential (and potential pitfalls) of artificial intelligence in our lives.

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ASU students seek to combat food waste, insecurity through startup

While participating in student research with the Luminosity Lab, a group of ASU undergraduate students decided to explore potential solutions to food insecurity and waste. They founded the startup Verdantt Fresh, which aims to eliminate food waste and food insecurity through a two-pronged approach that pairs a fresh produce

vending machine with an app that tracks expiration dates of produce. It also has tips to maximize produce use and a payment portal. Grace Reiter, a co-founder of Verdantt Fresh and School of Sustainability student, recently spoke about the startup at the Sun Valley Forum.

Read more

Andrew Maynard: Why all undergrads should take at least one course where they watch sci-fi movies in class

Andrew Maynard, a professor in the School for the Future of Innovation in Society, writes that students can learn a lot about technology's role in the world from an unsuspecting source: sci-fi movies. In a Substack article, Maynard shares how his courses demonstrate that movie-watching can enhance the student learning experience.

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Second Gentleman, federal and state officials gather at Decision Theater to celebrate $15.9M in funding for Tempe–Mesa streetcar expansion

Second gentleman Douglas Emhoff joined Arizona officials and ASU community members on July 19 to celebrate a crucial federal investment into sustainable public transportation in the ever-growing East Valley. The event was to discuss a recent $15.9 million federal grant to Valley Metro that will support exploring the expansion of the Tempe streetcar into Mesa. The funding will advance Valley Metro's Rio East-Dobson Streetcar Extension (REDE) Study into the engineering and environmental phases — an effort that will eventually support East Valley residents and ASU community members alike.

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Events

Accelerating Energy Sector Transformation through Global Partnerships and US

Learn more about the Rural Groundwater Resilience Workshops

Are you interested in bringing a Rural

Innovation

Join us to discuss threads in the global energy transition and hear from a panel of industry, federal, and academic leaders discussing how U.S. innovations and global partnerships can help address emerging opportunities.

Thursday, August 8, 2024
9 a.m. – 10 a.m. (MST)
Walton Center for Planetary Health | Auditorium 107

More

Groundwater Resilience Workshop to your community? ASU's Impact Water – Arizona program invites local governments, organizations, and groups to apply now to co-host a customized, pro-bono workshop to support locally-driven efforts for building groundwater resiliency.

Wednesday, August 14, 2024
12 p.m. – 2 p.m. (MST)
Via Zoom

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Cultivating Careers: Professional Opportunities with the US Department of Agriculture

Did you know there are nearly 60,000

How to Land a Federal Job: USAJOBS Information Session

Join us for a workshop where we dive into the world of federal jobs and unveil the keys to successfully

job openings in food, agriculture, natural resources and health sciences each year? Join us to learn more about the variety of careers at the U.S. Department of Agriculture.

Wednesday, September 18, 2024
4:30 p.m. – 5:30 p.m. (MST)
ISTBX 481 and Zoom

More

securing employment through the USAJOBS.gov website.

Tuesday, October 29, 2024
4:30 p.m. – 6 p.m. (MST)
ISTBX 481 and Zoom

More

Futurecast

Edition 6 | Spring 2024

Global Futures: Futurecast offers a look into our prospective futures through the eyes of the extensive Global Futures Scientists and Scholars Network. Explore what might come in the seconds, days, and years ahead. Our latest issue talks about how we can draw inspiration from the patterns in nature to implement strategic decisions in our built world.

Read now

Global Futures Viewbook

We must rediscover our planet and our relationship with it.

What does this mean, exactly? For the faculty, students, researchers and global partners of the Julie Ann Wrigley Global Futures Laboratory, it means a commitment to urgently exploring pathways to impactful solutions and decisions that address the challenges we have caused through resource extraction and thoughtless consumption as part of a relentless pursuit of “progress.”

We believe better is possible.

Learn more

ASU Julie Ann Wrigley Global Futures Laboratory
Arizona State University

#1 in the U.S. for global impact
–Times Higher Education, 2021

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Be sure to receive this newsletter as well as other journals and updates including our biannual journal, Futurecast.

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