Josef Korbel School of Global and Public Affairs
UNIVERSITY OF DENVER

Frederick S. Pardee Institute for International Futures

ANNUAL REVIEW

2024–2025

“As we reflect on a year of tumultuous change and persistent global challenges, the imperative for forward-looking analysis has never been more clear.”

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FROM THE DIRECTOR

As we reflect on a year of tumultuous change and persistent global challenges, the imperative for forward-looking analysis has never been more clear. In an era often characterized by profound uncertainty and rapid policy shifts, the role of long-term integrated models, like our International Futures (IFs) modeling platform, is increasingly vital. These tools are not crystal balls but rather instruments for navigating complexity and, crucially, for fostering shared understanding.

The utility of models, especially in these times, lies not in prediction as such but rather in their capacity to structure our thinking about the future. Long-term integrated models allow us to explore durable underlying trends—those deep-seated demographic, economic, and environmental currents that will shape our world for decades to come. Simultaneously, they provide a robust framework for examining uncertainty through scenario analysis, enabling us to consider a range of plausible futures and the implications of different policy choices.

One of the most significant contributions of these models is their power to convene groups of people and create conversations. By providing a common, empirically grounded platform, they draw together diverse stakeholders—policymakers, researchers, practitioners, civil society, and the private sector—to engage with complex issues. Through this process, models can help build intersubjectively shared meaning and a collective grasp of the challenges and opportunities that lie ahead. This shared understanding is the bedrock upon which effective, collaborative action is built.

In a period marked by rising nationalism, the global perspective offered by integrated models is particularly valuable. They illuminate the interconnected nature of our world and help us identify and grapple with large-scale collective action problems, such as climate change, pandemics, and sustainable development, which transcend national borders and demand cooperative solutions. By anchoring our discussions in empirically grounded analysis, these models provide a crucial bulwark against purely ideological or short-term perspectives, helping us to chart more resilient and equitable long-term courses for action.

As the Pardee Institute for International Futures continues its work, we remain committed to advancing and applying these powerful tools. It is through the rigorous development and thoughtful application of long-term integrated models that the Institute can best contribute to a more informed, prepared, and, ultimately, a more hopeful global future.

Jonathan D. Moyer

Director, Frederick S. Pardee Institute for International Futures

Associate Professor, Josef Korbel School of Global and Public Affairs, University of Denver

PARDEE INSTITUTE UPDATES

As the Director's letter states, we believe the work of the Pardee Institute is, if anything, even more important now than in the past.

In this section, we describe mission-critical organizational initiatives that enhance our ability to do outstanding work aligned with our values and our unique capabilities.

We also provide high-level metrics about our activities over the past year. For example, you will find information about increases in the volume of our research and the number of sponsors supporting it. You will also read about a corresponding increase in the size of our core team.

Perhaps of greatest importance, you will read about our strategic plan update. Following an Institute-wide process led by Director of Operations Pam Hoberman, the outcome will guide our decisions, our partnerships, and our work over the next five years.

PARDEE BY THE NUMBERS

PARDEE INSTITUTE TEAM

17
Core Team Members

88
Student Employees

PUBLICATIONS

25

6
Journal Articles

6
Reports

5
Commentaries

8
Third-Party Publications

RESEARCH & ACADEMIC ACTIVITY

24
Events and Presentations

2
Courses taught by Pardee Institute faculty

15
Sponsors

22
Projects

$1.9m
Research Expenditures

CORE PARDEE TEAM

As of end of August 2025

Divya Bandi
System Modeler-Developer
Divya.Bandi@du.edu

Janet R. Dickson
Senior Advisor
Janet.Dickson@du.edu

Kathryn Handler
Business Coordinator
Kathryn.Handler@du.edu

Taylor Hanna
Associate Director of
Development Analysis
Taylor.Hanna@du.edu

Pam Hoberman
Director of Operations
Pamela.Hoberman@du.edu

Barry B. Hughes
Senior Scientist and Founder
of the Pardee Institute
Barry.Hughes@du.edu

Bido Ibrahim
Research Associate
Abdelrahman.Ibrahim@du.edu

Mohammod T. Irfan
Senior Scientist
Mohammod.Irfan@du.edu

Sam Kunz
Senior Research Associate
Samantha.Kunz@du.edu

Stellah Kwasi
Senior Research Associate
Stellah.Kwasi@du.edu

Kylie McKee
Research Associate
& Project Manager
Kylie.McKee@du.edu

Collin Meisel
Director of Analysis
Collin.Meisel@du.edu

Jonathan D. Moyer
Associate Professor & Director
of the Pardee Institute
Jonathan.Moyer@du.edu

Caleb Petry
Model Development
Research Associate
Caleb.Petry@du.edu

Deva Sahadevan
Research Associate
Deva.Sahadevan@du.edu

José Solórzano
Lead Systems Developer
Jose.Solorzano@du.edu

Yutang Xiong
Lead Data Operations Manager
Yutang.Xiong@du.edu

SETTING DIRECTION FOR A MORE KNOWABLE FUTURE: Introducing Our 2025 Strategic Plan

BY PAM HOBERMAN
DIRECTOR OF OPERATIONS

At the Pardee Institute, we share a deep camaraderie in caring about the global future with those we serve.

We support a global community tackling today's most consequential issues—from climate and conflict to development and security. Through our data, tools, and analysis, we strive to amplify the platforms and influence of our collaborators and partners to that end, guided by our values of interconnectedness, curiosity, and transparency. Those same values anchor our long-term vision: to build a more knowable future.

We are building a world that looks to its past to learn about its future, where this knowledge drives decisions that yield desired outcomes. In his Director's letter, Jonathan Moyer reminds us that there are lasting, long-term trends and that attention to them is crucial for effective planning and smart policy decisions. This perspective grounds our mission and underscores the value we aim to deliver to our community.

This renewed and focused collective sense of purpose emerged from our 2025 strategic planning cycle, initiated earlier this year, and forms the foundation of our 2025 Strategic Plan, which will cover the next five years. The 2024–2025 academic year marked the conclusion of our last strategic plan, released in 2020, prompting a revisit and refresh of our strategic direction.

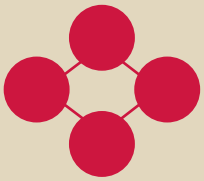
As a team, we entered this planning cycle by returning to core questions: What is our purpose? Who do we serve? How do we know we're making an impact? These reflections helped us strengthen our value system and build a framework for delivering our mission and achieving our vision through uncertain times.

The new plan builds on the foundation of our 2020 strategy, adapting to a more dynamic framework while staying rooted in what makes our work distinctive and useful. Four high-level, interdependent goals form the pillars of our 2025 Strategic Plan. They focus on the International Futures model and its users, academic excellence, policy engagement, and sharing knowledge to inspire deeper engagement with those who share our vision. These goals are broad by design, mission-aligned, and built to adapt. They will serve not just as benchmarks, but as milestones for growth and purpose.

With this plan, we look ahead to the next five years with clarity, aligning our practices and partnerships with core values to help everyone from global leaders to an engaged public navigate complexity and make informed, future-focused decisions.

The Pardee Institute: 2025 Strategic Direction

VALUES



INTERCONNECTEDNESS

Bringing together ideas and people to build knowledge

CURIOSITY

Pursuing ideas and knowledge with empathy and initiative

TRANSPARENCY

Openness in approach and open access to the long-term future

MISSION

To understand the long-term dynamics of durability and change using an open-source, integrated macrosystems approach to develop data, tools, and strategies for people seeking understanding about the global future

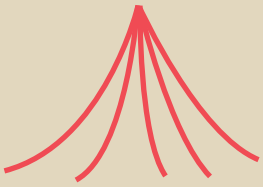
VISION

A more knowable future

GOALS

Prepare the next generation of our International Futures modeling platform

Push the frontiers of academic knowledge



Deepen relationships with policy communities

Strategically and effectively communicate our story

DOWN TO BUSINESS

BY PAM HOBERMAN
DIRECTOR OF OPERATIONS
& KATHRYN HANDLER
BUSINESS COORDINATOR

This year, the Business Operations team grew into a multidisciplinary group of eight, comprising three staff members and five students. Spanning HR, research administration, communications, programming, and more, our work aims to provide the infrastructure that underpins and advances the Pardee Institute's mission-driven research. This article highlights a few signature Institute achievements that the Business Operations team supported and facilitated over the past year.

We saw a meaningful rise in sponsored research activity, reflecting both the rising demand for our work and the strength of our research teams. Research expenditures increased by nearly 20 percent from $1.6 million to $1.9 million, and our sponsored project portfolio became larger and more diverse, growing to 17 distinct awards supported by 15 different sponsors. These included both new collaborators and long-standing partners. For comparison, last year our portfolio comprised 12 distinct awards supported by 11 sponsors.

To sustain this momentum, we introduced new practices to enhance and scale our research administration and invested in capacity-building efforts to position us for sustainable, ongoing growth. For example, we added an additional researcher and a system modeler-developer to the Institute's Core Team.

We also took steps to increase the visibility of the Institute's expanding body of work, led by our restructured, student-driven Marketing and Communications team (MarCom). Key initiatives included developing a series of one-page summaries of research projects to showcase our work, releasing a quarterly newsletter reaching over 300 constituents, expanding our media library, and growing social media engagement—all aimed at broadening our presence and improving our messaging (*see page 20 for more information about the MarCom team*).

Against a backdrop of growth and aligned with the University of Denver's strategic planning cycle, the Pardee Institute completed a nine-month, Institute-wide planning process to update our strategic plan. Rooted in collaboration and shared purpose, this effort crystallized our values and shaped direction for advancing our mission-driven research. The outcome is a focused strategic framework guiding our efforts over the next five years (*see pages 6 and 7 for more details about the strategic plan*).

These examples of progress made this year reflect the dedication, adaptability, and quiet leadership of the staff and students behind these mission-critical functions. Looking ahead, the Business Operations team remains dedicated to building the systems, structures, and strategies that enable the Pardee Institute's research to thrive.

PARDEE RESEARCH

The central purpose of our research is to build knowledge about the long-term future.

We do this by developing and using unique data and analytical tools across three teams: one focused on sustainable development analysis; one focused on geopolitical analysis; and one focused on development of the International Futures (IFs) modeling platform.

A new position was created at the Institute this year to oversee the coordination, review, and quality of research and deliverables across these three teams and to foster new capabilities in our modeling and analytic work through a more connected research structure. This spring, we welcomed Collin Meisel, formerly the Associate Director of Geopolitical Analysis, into this new role as the Pardee Institute's Director of Analysis.

The pages that follow provide highlights about the work of the research and modeling teams from September 2024 through the end of August 2025.

SUSTAINABLE DEVELOPMENT ANALYSIS

BY TAYLOR HANNA
ASSOCIATE DIRECTOR OF DEVELOPMENT ANALYSIS

In a year marked by geopolitical upheaval, climate urgency, and economic volatility, the Sustainable Development Analysis Team at the Pardee Institute has focused on responding to these changes while keeping a steady eye on the future.

Our goal is to help our partners make sense of the broad and connected trends shaping long-term development outcomes. The team, including Senior Research Associate Stellah Kwasi and Research Associates Bido Ibrahim and Deva Sahadevan, have participated in numerous academic and policy-oriented research efforts toward this end.

Our research often highlights the complex, interconnected nature of the world. Our work with UNDP Yemen, for example, highlighted the long-term risks of land degradation, how land degradation intersects with conflict, and the benefits of investing in integrated land restoration. In Kazakhstan, we helped show how policies that promote economic growth and good governance can also support environmental sustainability. With UNDP's SDG Integration Team, we examined how low-carbon development can go hand-in-hand with broader economic and social progress. Ongoing work with UNDP Iraq is focused on the risks of continued dependence on oil revenues and the strategic opportunities presented by economic diversification and clean energy investment.

In fact, the importance of addressing long-term environmental and energy futures is at the center of much of our research. To better understand the consequences of different energy transition pathways, we were supported by Octopus Energy in expanding the capacity of the International Futures modeling platform to forecast renewable energy production and to use that expanded model to help stakeholders chart inclusive and sustainable pathways forward. This project models a just energy transition—one characterized by both increased sustainability and greater equality in energy access and human development. This scenario does require significant upfront investments. However, if those investments are effectively directed toward both renewable energy and broad-based sustainable development, they can unlock a virtuous cycle that leads to economic gains, the alleviation of poverty and hunger, and is aligned with global climate commitments.

Just as important as the technical insights these projects provide is their ability to bring together government officials, researchers, and development practitioners to engage with shared data and scenarios. For example, our continued involvement in the forthcoming UNEP Global Environment Outlook (GEO-7), a process that brings together hundreds of experts and stakeholders, reflects the importance of multilateral cooperation and scientific collaboration. And we continue to work with the African Union Development Agency (AUDA-NEPAD) to build greater continental collaboration and support the internalization of the AU's Second Ten-Year Implementation Plan by African states.

This year, we also said good luck and farewell to our first cohort of Pardee Institute Fellows. The Fellows program supports a small group of smart, engaged Korbel School graduate students by providing tuition assistance and opportunities to work at the Institute (*please see page 16 for a description of the Fellows' work*).

Across all of these efforts, our aim remains the same: to provide tools and analysis that help decision-makers think clearly and plan effectively, even in times of uncertainty. We are proud of what we've accomplished this year and grateful to our partners around the world. We look forward to continued collaboration in the years ahead.

SUSTAINABLE DEVELOPMENT PROJECTS OVER THE LAST YEAR

GLOBAL

SPONSOR OR PARTNER	FOCUS OF PROJECT
Octopus Energy & UNDP	Analysis and report on just energy transitions
UN Women	Scenarios for Gender Snapshot report
UNDP SDG Integration Team	Analysis of SDG Push with low-carbon pathways
UNEP	Scenarios for Global Environment Outlook (GEO-7)
UNIDO	Contributions to 2026 Industrial Development Report

AFRICAN CONTINENT

AUDA-NEPAD	Ongoing collaboration in support of Agenda 2063
Institute for Security Studies	Review of African Futures scenarios

ETHIOPIA

USAID Ethiopia	Support for Country Development and Cooperation Strategy

IRAQ

SPONSOR OR PARTNER	FOCUS OF PROJECT
UNDP Iraq	Country development report with focus on green growth

KAZAKHSTAN

UNDP Kazakhstan	Country development report

NORTH MACEDONIA

UNDP North Macedonia	IFs training for research and policy communities

YEMEN

UNDP Yemen	Support for Voluntary National Review of SDG progress
UNDP Yemen	Analysis of land degradation and scenarios for restoration

GEOPOLITICAL ANALYSIS

BY COLLIN MEISEL
DIRECTOR OF ANALYSIS

For over a decade, a unique data and tool-building program that we call "Diplometrics" has been providing the foundation for the work of the Institute's Geopolitical Analysis Team.

Through the program, diplomacy and security data have been gathered, coded, and compiled into datasets and indices, creating quantitative measures of international relations across time, countries, and regions.

In 2025, we finally had the privilege of sharing with the public what is arguably the Diplometrics program's crown jewel: the Country and Organization Leader Travel (COLT) dataset. Led by Research Associate Kylie McKee and enabled by a large cadre of student research aides (*see page 18*) and previous students and staff, COLT catalogs every known, observed overseas trip taken by the primary heads of government and state from more than 200 countries from 1990 through the present day. Introduced in the international relations journal *International Studies Quarterly* in March of this year and available on the Harvard Dataverse repository, COLT is the only publicly-available global dataset of leader travel.

The information captured in COLT includes which countries leaders travel to, what official activities they participate in or international agreements they sign, the government leaders they meet with while abroad, and more. Currently comprising more than 100,000 international trips, the scope of the dataset enables rich descriptive statistics on leaders' travel

and rigorous exploration of the drivers and outcomes (such as material interests, conflict dynamics, and trade) associated with such travel.

COLT offers a new way to evaluate changing patterns of national power and geopolitical influence through the comparison of the number of trips received by a country minus the number of trips taken abroad by that country's leader, with being on the net receiving end serving as a measure of greater power and influence in global affairs. The data also show the increasingly interconnected nature of the world in recent years. In the 1990s, the average head of government or state took about 10 overseas trips per year. Since the rebound from the COVID-19 pandemic, that average is now more than doubled to roughly 23 overseas trips per year. Importantly, since COLT is the first global leader travel dataset, we can now know that nearly half of all world leader travel since 1990 has taken place within the Global South, with most leaders traveling primarily within the broader geographic regions in which they reside. While these trips rarely make headlines in the international press, they steer international relations in important ways—building connections across cultures, finalizing trade agreements between economies, bolstering military alliances, and much more.

We have only just begun to tap COLT's full potential. Expect much more in the years to come, including from the full spectrum of our geopolitical analysis portfolio and its interactions with the IFs platform (as represented in the diagram below), where Senior Research Associate Sam Kunz leads the construction and analysis of other measures of diplomatic activity and of shifting patterns of national power and influence and Model Development Research Associate Caleb Petry continues to push the bounds of what is possible in our forecasting of these critical trends.

THE PARDEE INSTITUTE'S GEOPOLITICAL ANALYSIS RESEARCH PORTFOLIO AND KEY DATA SERIES

Diplomacy Data

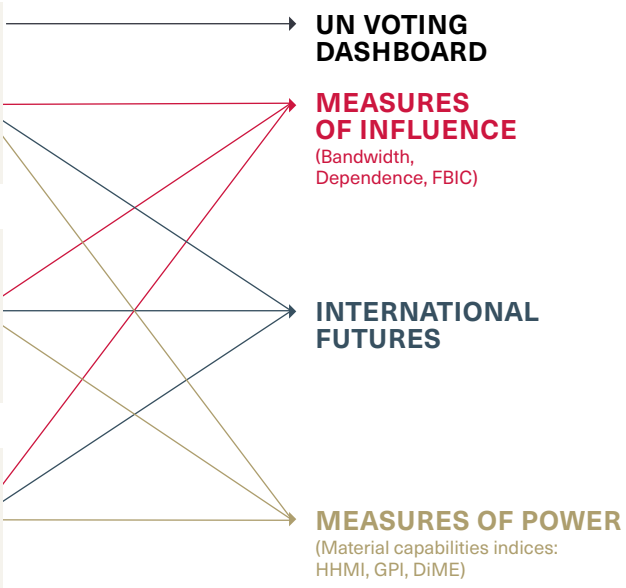
- Country Organization & Leader Travel
- Diplomatic Representation & Services
- International Organizations
- Multilateral Treaties
- UN Voting Patterns
- WTO Disputes, & More

Economic Data

- Bilateral Trade & Tariffs
- FDI, Portfolio Investment, & Global Value Chains
- Foreign Aid & Remittances
- Multinational Enterprises
- Trade Agreement Index
- Trade Complimentary Index, & More

Security Data

- Arms Trade Stocks
- Military Equipment Index
- Perceived Mass Atrocities
- Total & Disaggregated Military Spending Stock, & More



IFs DEVELOPMENT:

New Modeling Capabilities

BY JOSÉ SOLÓRZANO
LEAD SYSTEMS DEVELOPER

This year's update focuses on two significant modeling capabilities that are being incorporated into the International Futures (IFs) modeling platform: bilateral modeling and extensions of the energy model. In interaction with other components of the IFs model, they further expand the ways in which IFs is unique.

BILATERAL MODELING

The Pardee team has been working for nearly a decade to enhance IFs representation of interactions within and across the international system by developing bilateral country-to-country forecasts. For example, beyond simply forecasting how much one country trades with the rest of the world, we want to forecast which countries it trades with, how much, and how that trade may change over time.

Bilateral forecasting has immense challenges. Country-to-country historical data can be difficult to find. The number of relationships that exist in a year is huge, as 188 countries in interaction form over 35,000 country-pairs. In addition, mathematical challenges can be daunting, particularly when balancing and reconciling forecasted annual flows for each country-pair. The payoffs, however, are tremendous, as bilateral relationships form the foundation of networked relationships, allowing us to better understand and forecast how each country's interactions with all others ripple through, shape, and reshape the international system.

Bilateral forecasts are featured in a number of our recent projects, including research on spheres of geopolitical influence in the coming decades and a study of the implications of the African Continental Free Trade Agreement. During the past year, Caleb Petry, Pardee Institute Model Development Research Associate, has continued to refine IFs bilateral forecasting capability, focusing on trade, aid, diplomatic exchange, and geopolitical influence capacity. Some of these one-of-a-kind bilateral forecasting capabilities will soon be accessible to IFs users.

ENERGY MODEL EXTENSION

In a recent project with UNDP and Octopus Energy (*see page 11*), the IFs energy model was extended to project long-term energy production, costs, and investment needs for a renewable energy transition. Previously, IFs represented hydropower separately but combined all other forms of renewable energy into a single category. Now, renewable energy is disaggregated by source into four energy types: hydropower, solar, wind, and geothermal (plus a small residual category). Resulting analyses and projections, while still subject to considerable uncertainty, are appreciably strengthened since costs and availability of renewable energy vary widely by source. In all, the IFs energy model now explicitly represents energy in the four forms of renewable energy listed above, three forms of fossil fuels (oil, gas, and coal), and nuclear energy. The Institute is indebted to Senior Scientist Mohammod Irfan, Research Associate Deva Sahadevan, and Lead Data Operations Manager Yutang Xiong for the data, analytic, and modeling work required for this significant energy model extension.

THE STUDENT EXPERIENCE AT PARDEE

Students enable both the scope and depth of our research.

In turn, their experience with us enriches their academic studies, prepares them for future professional careers, and even often influences the choice of those careers.

Eighty-eight University of Denver students, primarily enrolled in the Korbel School, were employed at the Pardee Institute this past year. Students were organized into six teams. Two—the Fellows and the IFs Data Team—focused their work on maintaining and extending IFs and analyses with it. Three—COLT, Core Diplometrics, and PMAD—conducted essential research for the Diplometrics Program. A sixth team—Marketing, Communications, and Business Operations—enhanced the Institute's external communications and contributed to its smooth administration.

You can read about our outstanding student teams on the pages that follow.

Pardee Fellows

TEAM SUPERVISOR: BIDO IBRAHIM, RESEARCH ASSOCIATE

Each year, a small number of incoming Korbel School graduate students are selected to be Pardee Fellows for the duration of their graduate studies. Their work with the Pardee Institute focuses on the use of the International Futures (IFs) modeling platform for analysis and exploration. The Pardee Fellows program began in fall 2023. This year, there were nine Fellows, five continuing from the fall 2023 entering class and four from the fall 2024 entering class.

Fellows become highly skilled in the use of IFs and are heavily involved in both client-facing research and internal Pardee projects. This year they supported literature reviews, scenario development, analysis (including vetting of model results), and report writing for projects with various UN entities, Octopus Energy, and the Stimson Center. Internally, the Fellows were involved in IFs user enhancement projects, such as improving the IFs network diagram, creating a new version of the IFs flexible display, and updating IFs documentation on the Institute's Wiki page.

"One of the most meaningful projects I contributed to is the Yemen land degradation and human development report, published in partnership with the UNDP. Being involved in a project with high-impact, real-world policy relevance was incredibly rewarding."

"I wanted to work on real-world projects that connect academic research with policy outcomes. The Institute gave me that and more as I've been able to lead projects, contribute to published work, and work closely with a team of talented researchers."

"The Pardee Fellowship has given me great connections and a better understanding of modeling and how it can be used in international development situations. IFs is such a valuable tool and learning how to build scenarios will be great for my future career."

IFs Data Team

TEAM SUPERVISOR: YUTANG XIONG, LEAD DATA OPERATIONS MANAGER

The IFs Data Team plays a foundational role in the development and sustainability of the International Futures (IFs) modeling system. Tasked with developing, maintaining, and expanding the IFs database, the team of four students ensures that IFs is grounded in reliable, transparent, and up-to-date empirical data.

The team manages the full data lifecycle, systematically collecting, verifying, formatting, and vetting data from a wide range of sources. These processes are carried out using data tools such as Excel, Python, R, and SQL, and are documented on an open-source wiki server to promote transparency and reproducibility.

In addition, the Data Team supports research staff and model developers across the Institute by fulfilling ad-hoc data requests that enable timely client deliverables and research outputs. A recent example of the team's impact is its work on renewable energy data, which supported an innovative collaboration between the Pardee Institute, Octopus Energy, and UNDP. This effort was an essential component of enhancements in the IFs energy model and is featured in a recently released co-authored report.

"I was hoping to grow my research and data skills. I achieved both goals, and I felt like I was growing professionally and academically."

"As I prepare for a career in research and analytics, I now have more technical skills to apply to my resume. For example, I was able to learn Python and effectively use it in my work. I also wrote data comparison reports, which helped me develop analytical writing skills."

"Contributing to expanding the IFs energy database was meaningful to me. Not only did I build my research skills, but also knowing that people can use IFs for sustainability and environmental purposes is incredible. I feel like I am a part of something bigger."

Country and Organization Leader Travel Team (COLT)

TEAM SUPERVISOR: KYLIE McKEE, RESEARCH ASSOCIATE & PROGRAM MANAGER

COLT is the only publicly available global dataset on the international travel of heads of state and intergovernmental organizations. It is the COLT team that makes possible the massive data gathering and coding that it requires (*see pages 12 and 13 for more about the COLT project*). This is the Pardee Institute's largest student team, comprising about 40 students at any given time.

The COLT team is divided into three cohorts by geographic region and type of organization. Each cohort has a student project lead, several students who collect and code the data, and a small number of students who vet the code and submit it for inclusion in the COLT database. The students who collect the data perform open-source searches of qualitative data on library databases, government websites, and verified social media accounts. With the help of a guide that provides coding details and procedures, they then synthesize the data into a quantitative format in a process that also requires their interpretation and independent judgment.

"The Pardee Institute has provided me with the skills to analyze open-source data and apply it to foreign policy issues. I have had the chance to collaborate with an incredible group of individuals who share the goal of creating a better future and delivering meaningful work."

"I loved codifying global events into concrete data and am now interested in exploring careers in data analytics and research."

"Working at the Pardee Institute has strengthened my analytical skills, attention to detail, and understanding of global policy issues in a research-driven environment. These invaluable skills will apply to any professional setting."

Core Diplometrics Team

TEAM SUPERVISOR: SAM KUNZ, SENIOR RESEARCH ASSOCIATE

This team of five students supports the empirical foundation for the Institute's modeling and analysis of geopolitical relations by collecting, analyzing, and managing data on various diplomatic events and relationships.

The team gathers and compiles data going back as far as 1945 on formal international interactions for all countries. The data include memberships in over 400 intergovernmental organizations, participation in over 500 multilateral treaties, and measures of diplomatic representation. Four team members follow detailed coding protocols to determine specific details about each interaction, while the team leader vets the data to ensure their accuracy and integrity.

The data the Core Diplometrics team provides form a substantial portion of the Institute's Formal Bilateral Influence Capacity Index, which in recent years has been featured in outlets such as *The Economist* and the BBC.

"The work environment at Pardee is incredibly supportive, and I feel that my peers and supervisors are truly committed to fostering learning and growth."

"The projects I worked on include Multilateral Treaties, UNGA, Embassies, and the IGOs. For each of these projects, I coded and vetted data, strengthening my attention to detail and improving my ability to work with complex datasets."

Perceived Mass Atrocities Dataset Team (PMAD)

TEAM SUPERVISOR: COLLIN MEISEL, DIRECTOR OF ANALYSIS

A team of six students supported the PMAD project through its conclusion at the end of 2024. Built to support the Elie Wiesel Genocide and Atrocities Prevention Act, the PMAD team gathered and coded data quarterly, reviewing various human rights reports and major search engines to identify events of mass atrocity. Team members also wrote accompanying country case narratives to provide a qualitative context for the data.

The PMAD project covered 195 countries. Students recorded information on perpetrator groups, event occurrence, magnitude, and data sources. The PMAD team provided critical support for the effort and completion of the project.

"Through my work at Pardee I've developed my professional skills in even more ways than I was expecting. I've gained research experience, had to meet deadlines, and successfully seen a project through to completion."

Marketing, Communications, and Business Operations Team

TEAM SUPERVISOR: KATHRYN HANDLER, BUSINESS COORDINATOR

A team of five students brings creative and strategic support to the Institute's business functions. Over the past year, the team expanded from two to five members, significantly strengthening communications, streamlining operations, and launching new initiatives.

One student works jointly with the Director of Operations and the Business Coordinator, providing critical support for daily functions, while four form the Marketing and Communications (MarCom) cohort, amplifying the Institute's impact and visibility.

The MarCom cohort plays a crucial role in shaping the Institute's narrative and communicating the impact of our work to diverse audiences. Its major projects include producing a monthly internal newsletter, creating one-page descriptions of research projects for external stakeholders, managing the Institute's website, writing articles about our research, and overseeing social media.

Meanwhile, the Business Operations Assistant supports key functions such as payroll, HR, and event planning to provide a smooth experience for employees and the community. This year, the Business Operations Assistant partnered with the MarCom cohort to expand the Institute's digital library and integrate new marketing technologies into business initiatives.

"The Pardee Institute has encouraged me to step out of my comfort zone and nurture my curiosity. My work here has refined my writing and critical thinking skills, equipping me for the professional world."

"My work at the Pardee Institute has polished my communication skills, built my professional voice, and improved my writing about technical projects for a general audience. As I move into a research-oriented field, these skills will be invaluable in communicating the findings of my own work."

"I've learned a lot of skills, ranging from working with software platforms like Salesforce, Drupal, and WordPress to sharpening my writing skills to fit the shared voice of an institute."

PARDEE IN THE WORLD

In the Director's letter, Jonathan Moyer notes that one of the most meaningful aspects of our work is its ability to bring people together and foster conversation among diverse stakeholders.

This section of the Annual Review provides information about Institute activities that allowed us to do just that.

We first share information about the wide range of formal events and presentations in which Pardee core team members were key participants, followed by the list of publications over the past year. We include publications authored solely by Pardee Institute team members and publications authored jointly by Pardee team members and our research collaborators. We also include third-party publications in which our tools and/or analyses were foundational in the work of others.

EVENTS AND PRESENTATIONS

Sept. 2024

SEPTEMBER 2–6

Jonathan Moyer, Pardee Institute Director, and **Taylor Hanna, Associate Director of Development Analysis,** participated in a **GEO-7 authors' meeting in Nairobi**. The meeting focused on finalizing the second-order draft of the United Nations Environment Program's (UNEP) Seventh Global Environment Outlook and a summary for policymakers.

SEPTEMBER 6

Jonathan Moyer presented a paper on "Green Transition and International Conflicts" at the 120th Annual Meeting & Exhibition of the **American Political Science Association in Philadelphia**.

SEPTEMBER 12

The Pardee Center celebrated its designation as a University of Denver research institute and launched its new name, the **Frederick S. Pardee Institute for International Futures**.

SEPTEMBER 24–26

Mohammod Irfan, Pardee Institute Senior Scientist, presented a paper on long-term projections of multidimensional poverty at the 2024 annual conference of the **Human Development and Capability Association** in **Kolkata, India**.

Oct. 2024

OCTOBER 1

Mohammod Irfan gave a presentation on the economic model of IFs to government officials from various economic and trade planning departments in **Dhaka, Bangladesh**.

OCTOBER 25

Collin Meisel, Pardee Institute Director of Analysis, participated in discussions on national security at the **Council on Foreign Relations** Twenty-Ninth Term Member Conference in **Washington, D.C.**

OCTOBER 29

Jonathan Moyer led a session titled "Introduction to IFs Modeling Platform" at the virtual **2024 African Futures Conference** hosted by the **Institute for Security Studies**.

Nov. 2024

NOVEMBER 1–7

Jonathan Moyer presented new Shared Socioeconomic Pathway scenarios developed with IFs at the **Integrated Assessment Modeling Consortium** conference in **Seoul, South Korea**.

NOVEMBER 9

Mohammod Irfan presented his research on Bangladesh's future development at the **2024 Bangladesh Development Initiatives** conference in **Berkeley, California**.

NOVEMBER 11–15

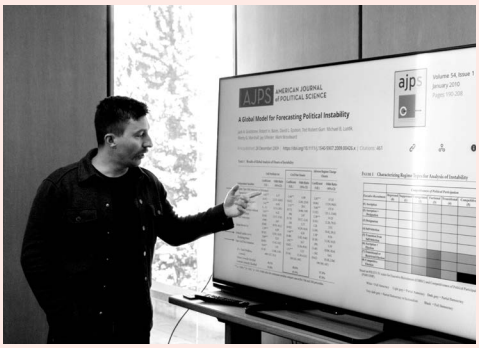
The **Pardee Institute** hosted a delegation of senior officials from the **African Union Development Agency (AUDA-NEPAD)** for a week-long **IFs training**. During the week, the Institute hosted a panel discussion for the Korbel School community at which delegation members discussed progress in the implementation of **Africa's Agenda 2063** plan.

NOVEMBER 14

The **United Nations Development Programme's 2023/2024 Human Development Report**, which features the Pardee Institute's use of the International Futures platform to explore SDG-related low-carbon scenarios, was presented at the **29th session of the Conference of Parties (COP29)** in **Baku, Azerbaijan**.

NOVEMBER 18–22

Collin Meisel was an invited participant in the inaugural **NATO-SHAPE Red Team Workshop** in **Brussels, Belgium**.



Dec. 2024

DECEMBER 2–4

Caleb Petry, Pardee Model Development Research Associate, participated in a workshop titled **"Peacekeeping Dividends and Post-conflict Development (Dividends),"** organized by the University of Essex at the British Academy in London. Following that, he worked with colleagues at the **University of Essex** on a project that uses the IFs platform to assess peacekeeping dividends.

EVENTS AND PRESENTATIONS CONTINUED

DECEMBER 11

The **United Nations Development Programme** launched the *Land Degradation and Human Development in Yemen* report in collaboration with the Pardee Institute in **Riyadh, Saudi Arabia**. **Taylor Hanna** led the Pardee project team and presented the Institute's contributions to the project at the launch, which took place at the **United Nations Convention to Combat Desertification's 16th Conference of Parties (COP16)**.

DECEMBER 18

Research by **UNDP Kazakhstan** and **Pardee**, spearheaded by **Taylor Hanna**, was presented to participants from **Kazakhstan's Agency for Strategic Planning and Reforms, the Ministry of National Economy,** and other experts and researchers in **Astana, Kazakhstan**.

Mar. 2025

MARCH 5

Jonathan Moyer presented virtually at a panel for the **National Academies of Science, Engineering, and Medicine** at an event focused on preventing technological surprise. Jonathan discussed the use of "envelope curves" to better understand future demand for technology based on macro-model long-term projections.

MARCH 24–28

Taylor Hanna led a week-long IFs training in collaboration with **UNDP North Macedonia** at the Macedonian Academy of Sciences and Arts in **Skopje, North Macedonia**. The training equipped 11 participants from government, UNDP, and academia with the skills to integrate IFs analysis into their work.

Apr. 2025

APRIL 2

Taylor Hanna attended an expert group meeting with the **United Nations Industrial Development Organization (UNIDO)** in **Vienna** to demonstrate how Pardee's modeling capabilities will support UNIDO's upcoming Industrial Development Report.

May 2025

MAY 5–8

Jonathan Moyer participated in the "High-Impact Climate Events, Tipping Points, and Irreversible Regional Impacts Assessment Writing Meeting" workshop, held at the **NASA Goddard Institute for Space Studies** in New York to foster collaboration on a future publication.

June 2025

JUNE 16–17

Jonathan Moyer and **Collin Meisel** participated in a **RAND Global Competitive Analysis (GCA) workshop** in **Washington, DC,** as part of a GCA project in which the Pardee Institute is a consortium member.

APRIL 3–4

Collin Meisel participated in a **book workshop** hosted by Edward Elgar Publishing in **Uppsala, Sweden**, for authors of the forthcoming **Edward Elgar handbook** on peace and the Sustainable Development Goals.

July 2025

JULY 2–3

Taylor Hanna attended the **Second Industrial Development Report Expert Group Meeting** in **Vienna** for work related to production of the **United Nations Industrial Development Organization's** 2026 report, to be focused on the future of industrialization.

JULY 16–18

Jonathan Moyer presented an initial operationalization of the SHAPE scenarios at the **Forum on Scenarios for Climate and Societal Futures** organized by the **Priestly Centre for Climate Futures and the University of Leeds** in **Leeds, U.K.**

Aug. 2025

AUGUST 18–22

In collaboration with AUDA-NEPAD and the Institute for Security Studies, **Taylor Hanna** participated in foresight training in **Kigali, Rwanda** for the **Rwanda National Council for Science and Technology**.

PUBLICATIONS

JOURNAL ARTICLES

Analysis of integrated global SDG pursuit: Challenges and progress
Hughes, B. (2025, July 22). *Sustainability, 17*(15), 6672. https://doi.org/10.3390/su17156672

High-level leader visits: A promising area of study in IR
Balcı, A., Kim, J., Moyer, J.D., Meisel, C., McKee, K., Baturo, A., Woo, B., Choi, S., Ku, M., Van Rythoven, E., & Holmes, M. (2025, May 19). *International Studies Perspectives*, Ekaf008. https://doi.org/10.1093/isp/ekaf008

The past, present, and future of Ghana's WASH sector: An explorative analysis
Abu, T., Achore, M., Irfan, M., Musah, I., & Azzika, T. (2024, December). *Water Security, 23*. https://doi.org/10.1016/j.wasec.2024.100185

Protocol for making forecasts exogenous in the International Futures model
Solórzano, J., Hughes, B., Irfan, M., Xiong, Y., Kwasi, S., Ibrahim, A., Makhamatova, S., Hanna, T., & Moyer, J.D. (2024, December 20). *STAR Protocols, 5*(4). https://doi.org/10.1016/j.xpro.2024.103414

Representing gender inequality in scenarios improves understanding of climate challenges
Andrijevic, M., Zimm, C., Moyer, J.D., Muttarak, R., & Pachauri, S. (2025, February 4). *Nature Climate Change, 15,* 138–146. https://doi.org/10.1038/s41558-024-02242-5

When heads of government and state (HOGS) fly: Introducing the country and organizational leader travel (COLT) dataset measuring foreign travel by HOGS
Moyer, J.D., Meisel, C., Szymanski-Burgos, A., Scott, A., Casiraghi, M., Kurkul, A., Hughes, M., Kettlun, W., McKee, K., & Matthews, A., (2025, March 17). *International Studies Quarterly, 69*(2). sqaf013. https://doi.org/10.1093/isq/sqaf013

"Despite representing a crucial day-to-day diplomatic tool, travel by heads of government and state (HOGS) has remained an under-investigated topic in international relations, inhibiting our ability to better understand how these visits change foreign aid, interstate conflict, diplomatic affinities, and more. Here, we fill that gap by introducing the first global dataset on the foreign visits of state leaders, the Country and Organizational Leader Travel (COLT) dataset . . ."

REPORTS

Advancing the SDG Push with equitable low-carbon pathways
Abidoye, B., Banda, A., Baumwoll, J., Carman, R., Ibrahim, A., Moz-Christofoletti, M., Moyer, J.D., Orlic, E., Patterson, L., & Sullivan, E. (2024, November 13). United Nations Development Programme.
https://www.undp.org/publications/advancing-sdg-push-equitable-low-carbon-pathways

Charged for change: The case for renewable energy in climate action
Sahadevan, D., Irfan, M., Luo, C., Moyer, J.D., Mason, C., & Beynon, E. (2025, July). United Nations Development Programme, Pardee Institute for International Futures, & Octopus Energy.
https://climatepromise.undp.org/charged-for-change-renewable-energy-climate-action

Land degradation and human development in Yemen
Hanna, T., Kruczkiewicz, A., & Owen, M. (2024, December 10). United Nations Development Programme.
https://www.undp.org/yemen/publications/land-degradation-and-human-development-yemen

Navigating the future: Four scenarios assessing child well-being in the twenty-first century
Moyer, J.D., & Sahadevan, D. (2024, December). United Nations Children's Fund (UNICEF) Innocenti, Global Office of Research and Foresight.
https://www.unicef.org/innocenti/reports/navigating-future

Russia futures: Balancing constraint, resilience, and potential—looking into the next decade for Russia and its implications on a global order
Burrows, M., Meisel, C., & Chalikyan, N. (2025, June 24). The Stimson Center Strategic Foresight Hub Program.
https://www.stimson.org/2025/russia-futures/

Unlocking the potential of AfCFTA for Africa's young population
Alam, A., Byrne, J., Gad, L.O., Gopaul, P., Guerrero, M.B., Hanna, T., Jonsson, S., Moyer, J.D., Sakr, M., Sahadevan, D., Santos, M., & Yang, L. (2025, May). United Nations Children's Fund (UNICEF) Innocenti, Global Office of Research and Foresight.
https://www.unicef.org/innocenti/reports/unlocking-potential-afcfta-africas-young-population

"Ambitious renewable energy and energy efficiency targets and actions are widely recognized for their development benefits. But what if these targets are made even more ambitious and supported by broader policy measures that facilitate a just transition? What would be the quantifiable benefits for both climate and development?"

COMMENTARIES

China in Africa: More business-as-usual than bogeyman, bond villain, or benefactor
Meisel, C. (July, 2025). *Insecurity Monitor 2*(1).
https://tadweenpublishing.com/products/insecurity-monitor-issue-2-vol-1-summer-2025

From Myanmar to Gaza, Ukraine to Sudan—2024 was another grim year, according to our mass atrocity index
Meisel, C. (2025, January 13). *The Conversation*.
https://theconversation.com/from-myanmar-to-gaza-ukraine-to-sudan-2024-was-another-grim-year-according-to-our-mass-atrocity-index-246294

PUBLICATIONS CONTINUED

In Syria, be careful what you wish for
Meisel, C. (2024, December 12). *Modern War Institute*. https://mwi.westpoint.edu/in-syria-be-careful-what-you-wish-for/

Russia can afford to take a beating in Ukraine
Meisel, C., & Burrows, M. (2025, May 21). *War on the Rocks*. https://warontherocks.com/2025/05/russia-can-afford-to-take-a-beating-in-ukraine/

Why Russia isn't doomed
Burrows, M., & Meisel, C. (2025, April 16). *The National Interest*. https://nationalinterest.org/feature/why-russia-isnt-doomed

"The truth is, we don't know what the future holds for Syria. What we do know is that political events often have effects that unfold across many years, even decades, sometimes boomeranging in ways that are difficult to anticipate at the outset."

THIRD-PARTY PUBLICATIONS

Assad's downfall in Syria: Who wins and who loses?
Bartos, H., Chin, J., & Laite, S. (2024, December 10). *Modern War Institute*. https://mwi.westpoint.edu/assads-downfall-in-syria-who-wins-and-who-loses/

Carbon bargain: The energy transition will be much cheaper than you think
The Economist. (2024, November 14). *The Economist*. https://www.economist.com/interactive/briefing/2024/11/14/the-energy-transition-will-be-much-cheaper-than-you-think

Georgia's second Rose Revolution
Chin, J., & Kim, A. (2025, January 9). *The Loop*. https://theloop.ecpr.eu/georgias-second-rose-revolution/

Harnessing and advancing Africa's future demographic dividend
Cilliers, J. (2025, July 23). *The Netherlands Scientific Council for Government Policy*. https://english.wrr.nl/publications/working-papers/2025/07/23/harnessing-and-advancing-africas-future-demographic-dividend

A new Cold War? The emergence of new global competitors
Vision of Humanity Editorial Staff. (2025, January 13). *Vision of Humanity*. https://www.visionofhumanity.org/the-new-cold-war-emergence-of-global-competitors/

The toll of USAID cuts on Africa
Cilliers, J. (2025, February 25). *ISS African Futures Program*. https://futures.issafrica.org/blog/2025/The-toll-of-USAID-cuts-on-Africa?utm_source=Institute+for+security+studies&utm_campaign=375b5af3bc-Africa_Tomorrow_Blog&utm_

United Nations global risk report
Strategic Planning and Monitoring Unit of the Executive Office of the Secretary-General of the UN. (2025, July). *United Nations Headquarters*. https://unglobalriskreport.org/

An unlikely democracy: The legacy of Mongolia's 1990 revolution
Chin, J. (2025, March 13). *The Diplomat*. https://thediplomat.com/2025/03/an-unlikely-democracy-the-legacy-of-mongolias-1990-revolution/

"The incremental bill to cut emissions is likely to be less than $1 trillion a year, which is to say less than one percent of global GDP—not peanuts, but not an unaffordable pipe dream, either."

“It is through the rigorous development and thoughtful application of long-term integrated models that the Institute can best contribute to a more informed, prepared, and, ultimately, a more hopeful global future.”

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