New license gives campus access to a steady stream of web-geo data

Institute for Computation & Data-Enabled Insight
February 2023

Faculty, staff, students and designated campus colleagues now have access to a near daily stream of Earth-observation satellite data thanks to a new campuswide license with a web-geo platform called Planet [1].

Planet Labs PBC operates a fleet of more than 200 imaging satellites, capturing over 30 terabytes of data per day. Users can access this data to combine geospatial data sets, build new models, and obtain new insights in their research and science.

"The use of high-resolution images that reveal the pace and scale of the human imprint on our planet is especially critical for addressing research questions related to local, regional and global environmental changes and their consequences," said Sharon Collinge, director of the University's Arizona Institute for Resilience [2]. "Across campus, many researchers use such imagery to quantify and understand how shifts in human activities can propel humanity forward toward more resilient and sustainable futures."

Through the Institute for Computation & Data-Enabled Insight [3] website, users with a NetID can sign up to access PlanetScope data, PlanetScope mosaics, SkySat archives, a tasking dashboard and a robust series of educational resources and data analysis tools. PlanetScope is a constellation of approximately 130 satellites, each the size of a loaf of bread, that images the entire land surface of the Earth every day at a spatial resolution of 3.5 meters, meaning that the images show objects 3.5 meters or larger. SkySat is a high-resolution constellation of 21 satellites that collect images at 50 cm spatial resolution. Faculty users also can submit a request to Planet to capture high-resolution imagery over a specific study area.

The Institute for Computation & Data-Enabled Insight, or ICDI, was launched in March to help faculty, staff and students across all disciplines use the power of data, computation and collaboration to accelerate breakthrough discoveries in their work, build data and computation infrastructure – from software to computing technologies and tools, and provide education and training opportunities for the campus community to develop the data and computation skills needed to be successful in their research and careers.

"With this new license, our University research teams will be able to capture in high-resolution detail hot spots and hot moments, such as natural disaster impacts, and evaluate social and Earth system processes as they evolve in new and exciting ways," said Tyson Swetnam, research assistant professor of geoinformatics, a member of the BIOS Institute and co-principal investigator of CyVerse [4].

University of Arizona researchers already have leveraged Planet's data. Scientists used PlanetScope [5] and deep learning to enhance global flood mapping, and a team of researchers from Mexico and the University analyzed Landsat and PlanetScope data [6] to assess landscape dynamics surrounding Mexican watersheds. The Landsat Program is a series of Earth-observing satellite missions jointly managed by NASA and the U.S. Geological Survey that provide images of Earth that are useful in observing land change due to climate change, urbanization, drought, wildfire and other natural and human-caused changes.

For an inaugural cross-campus Research Data Challenge [7], undergraduate and graduate students are competing for a chance to win $1,000 by creating innovative ways to use Planet Labs' satellite data to help analyze agricultural, environmental, urban and geopolitical issues. The deadline to enter the challenge is Feb. 24. The winners will be announced during an award luncheon on Earth Day, April 21.

"Data tools and assets like Planet data are critical to building the information infrastructure that University of Arizona faculty, staff and students need as leaders in the Fourth Industrial Revolution," said Arthur "Barney" Maccabe, ICDI executive director. "This relationship builds on the University's tradition of providing access to high quality information infrastructure."

As of January, researchers from more than 1,000 universities around the world were accessing Planet data through the company's Education and Research Program licenses, and Planet data has contributed to more than 2,500 academic publications [8], according to the company.

"The University of Arizona is an exceptional institution that has made historic strides in exploration and scientific fields, and we are very excited to see what their researchers will discover with our data. This campuswide access will enable faculty and students to collaborate across departments to generate novel interdisciplinary findings," said Joe Mascaro, director of science strategy and programs at Planet Labs.

Sign up to access [9] the Planet data. For more information on accessing or using Planet data, contact Swetnam [9] or Angela Cruze [10], program manager at ICDI, or visit Planet University [11] for free online courses.