Muon Space Satellites to Create Meaningful Data Repository to Combat Climate Change

Muon Space will launch a fleet of satellites designed to analyze Earth's atmosphere, land, and water in fine detail using measurements from its own equipment and publicly available satellite data. Muon's satellites will use thermal infrared sensors, infrared spectroscopy, and low-frequency radar to gather data and apply its algorithms to existing image databases and calculating soil moisture levels, snow depth, and standing water in various locations. Their integrated remote sensing platform is expected to provide accuracy and integration of data to more effectively combat climate climate.

Early customers such as Tomorrow.io and Google are partnering with Muon to develop new mission-critical geophysical datasets, which have already resulted in catch businesses polluting protected areas. "In areas like agriculture where there are some bogus things going on, you can see something like waste discharge very clearly with these approaches," Jonny Dyer, CEO and cofounder of Muon Space, says. "When we look back in 20 years, it's going to be obvious that the only way markets can develop around this stuff and regulators can feel comfortable is if this is real and you have good data."

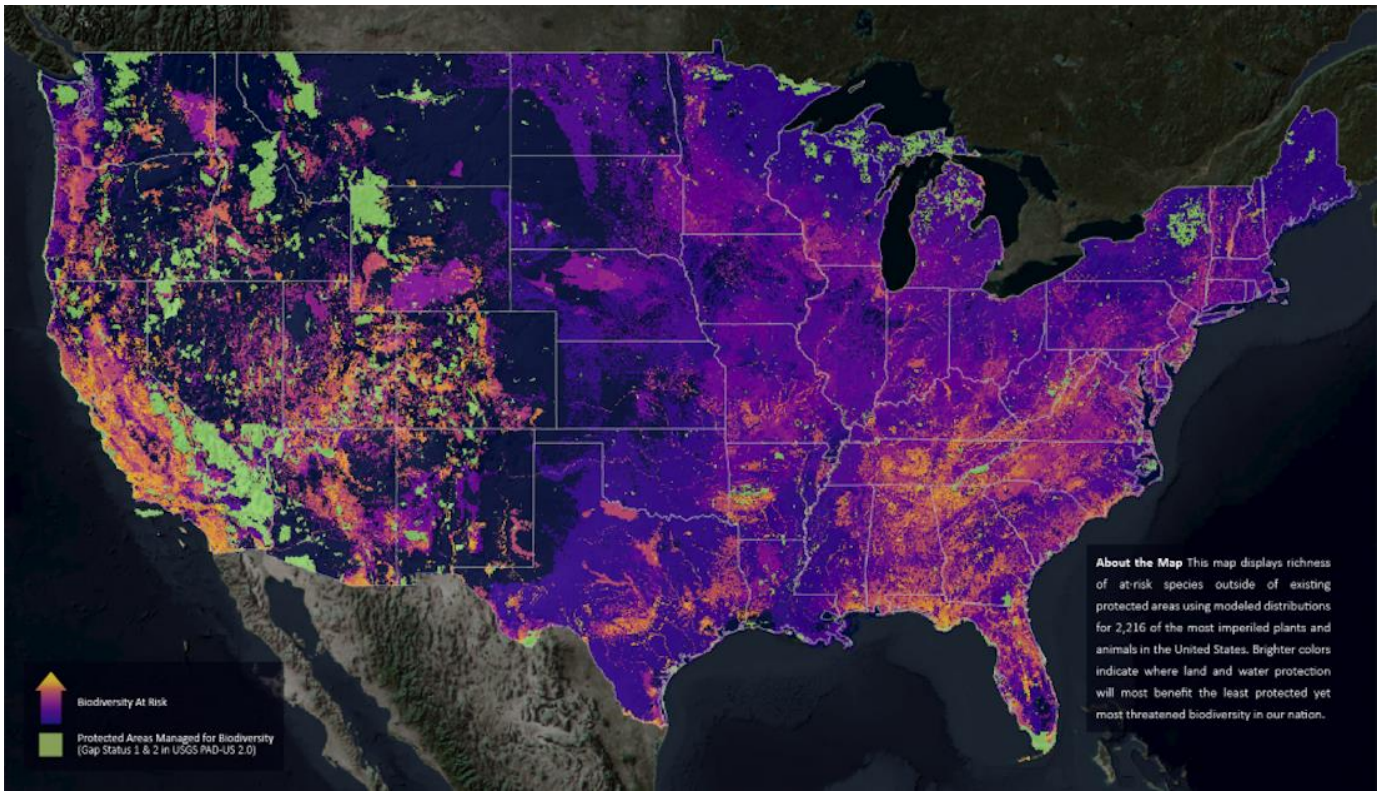
Muon's founders are veterans of the space industry. Jonny Dyer was the chief engineer of Skybox Imaging, a startup that created techniques to make satellites smaller and cheaper, purchased by Google in 2014. Dan McCleese, is the former chief scientist at NASA's Jet Propulsion Laboratory. Muon Space raised $10 million in seed funding led by Costanoa Ventures with participation from Space Capital, Congruent VC, Ubiquity Ventures, South Park Commons, and Climactic VC.

Commercial small satellite constellations offer a scalable, more cost-effective compliment to the large government systems but are not capable of the precise, scientific geophysical measurements needed for climate change applications. It's no longer enough for systems like these to count every tree on the Earth's surface; now they aim to measure each one's health, size, and species to compute their total biomass and ability to pull carbon dioxide out of the air.

Muon's goal is to build a single application to help companies do things like monitor the efficacy of their reforestation programs and allow regulators to prove which farmers are polluting certain rivers. "We think that over the next 10 years there's going to have to be a huge reckoning in terms of transparency around things like carbon credits and that we're going to need better data to adapt to climate changes," says Jonny Dyer. "We need to move from images of the planet to fundamental geophysical measurements."

Muon seeks to "fundamentally transform humanity's ability to address climate change and its impacts by deploying the world's most powerful scientific remote sensing satellite constellations."

Climate models disagree – often dramatically – and feedback mechanisms between parts of the biosphere (e.g. the impact of soil moisture on crop production) are still poorly modeled with incomplete, inconsistent data sets. Government bodies have been working to modernize their tech, but private industry tends to outpace their efforts.



NatureServe's map on biodiversity shows that 90 percent of Americans live within 30 miles of an area of high biodiversity importance.

Microsoft, Google, and Amazon.com have built systems that gather public climate data. Microsoft Corp. plans to be carbon-negative by 2030, one of the most ambitious corporate climate pledges to date. “We are the largest participant in the carbon removal market today,” says Lucas Joppa, Microsoft’s chief environmental officer. “How in the world are we ever going to monitor and validate the removal that we paid for in any sort of scalable way? The answer lies in remote sensing.” Microsoft’s Planetary Computer is one of the biggest repositories of climate-related data. Joppa warns that many problems still exist around working with satellite data, including basic, painstaking work such as pulling subpar images from databases and finding the right algorithms to simplify complex scientific measurements. “This is not easy, and it’s not cheap if you want to extract meaningful information,” he says.

Joe Hamman, a research scientist at the National Center for Atmospheric Research, says technological innovations could prove a distraction at a time of extreme urgency for climate-related work because of the piecemeal approach. “I don’t want to downplay what people are trying to do, but there are marginal benefits on many of these things,” he says. “There are fundamental challenges that we face with the climate that don’t go away because we have a new satellite or a clever way of doing accounting.” Muon Space provides a comprehensive, more accurate methodology to meet these climate objectives.

“As inhabitants of Earth, we are deeply passionate about facing these challenges head-on. As engineers and scientists, we see a clear opportunity to realize the promise of New Space to revolutionize our visibility into Earth’s Systems. As people, we are all at a place in our lives where we can’t imagine a better field to dedicate our time and energy to.” Jonny Dyer, Muen Space, CEO. *“There are rare moments in life when the stars align — moments where there is a confluence of people, passion, and opportunity that fit together perfectly. “Creating Muon feels like one of those rare, stars-aligned moments.”*