

# AI FOR EARTH

Azure Award Grantees



## ABOUT

The Microsoft AI for Earth program makes advanced Microsoft Azure cloud computing resources and powerful AI tools, as well as AI expertise and training, to individuals and organizations working on environmental and conservation programs aimed towards transforming the way we are currently managing complex environmental challenges.

These awards are intended to drive exploration and discovery by providing innovative data science, spatial analysis, and visualization tools to organizations that are focused on finding solutions to climate change, loss of biodiversity, agricultural cost and yield, and increased water scarcity. Learn more about environmental sustainability at Microsoft.

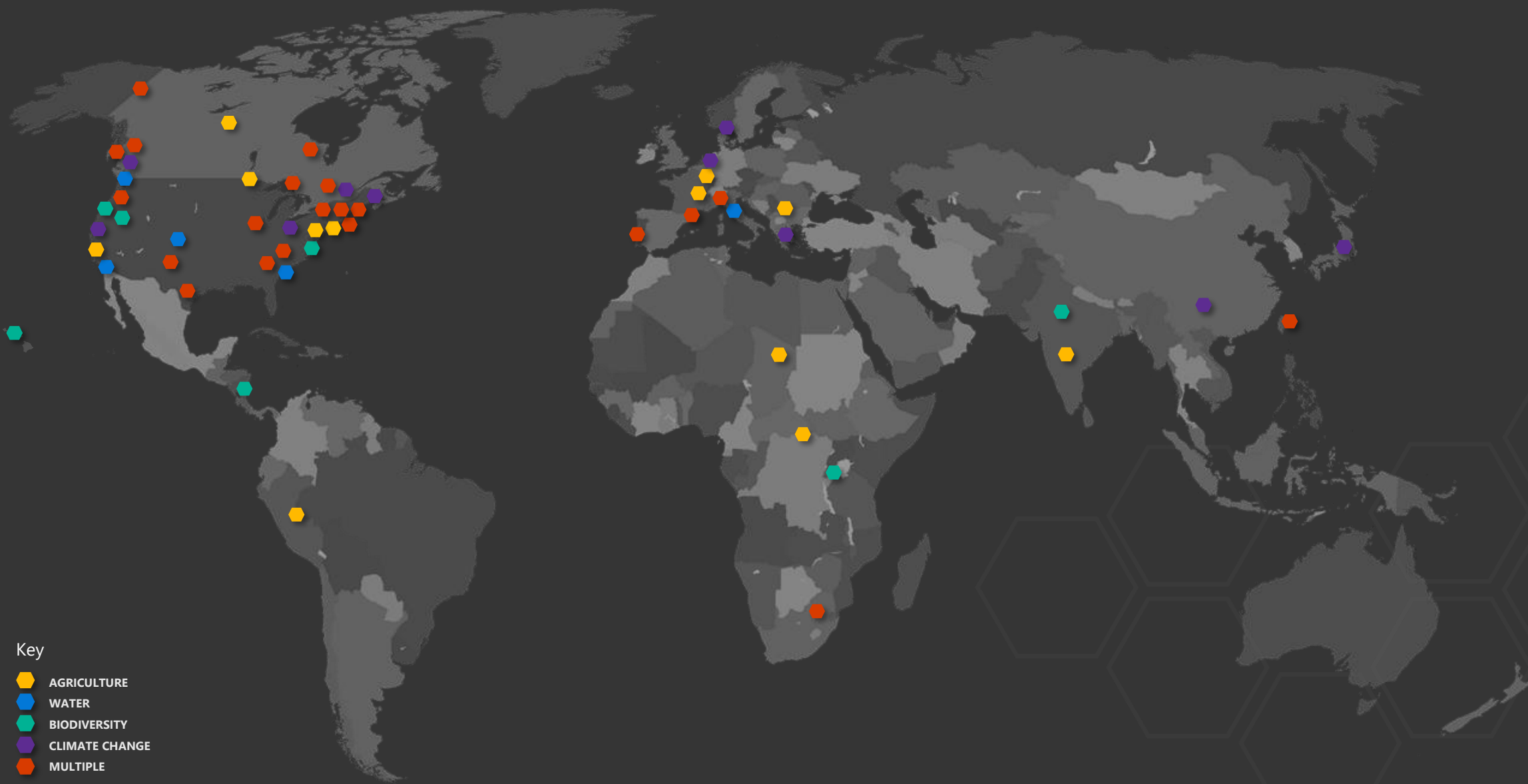
## TO DATE AI FOR EARTH HAS:

Awarded more than 60 grants to individuals and organizations in 20 countries.



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- Aalborg University (Denmark)**  
High-resolution spatialized population projections.  
**Climate Change**
- Audubon Society (US)**  
Using cloud-based, high-throughput image classification solutions to conserve biodiversity in response to extreme weather events and rapid landscape change.  
**Biodiversity, Climate Change**
- Binghamton University (US)**  
Wetland mapping and monitoring using geospatial big data and deep learning.  
**Water, Climate Change**
- Brigham Young University (US)**  
Improved streamflow forecasting service for flood and drought prediction at a local and global scale.  
**Water, Agriculture, Climate Change Biodiversity**
- Brown University (US)**  
Assessing surface water sensitivity to permafrost extent using CubeSat imagery and machine learning.  
**Climate, Agriculture**
- Carnegie Mellon University (US)**  
Improving patrol strategy to combat poaching using deep reinforcement learning.  
**Biodiversity**
- Centro Alexander Von Humboldt (Nicaragua)**  
Forest monitoring platform of deforestation in two forest districts of Nicaragua.  
**Biodiversity**
- Cetaqua (Spain)**  
A prescriptive analytics approach for orchestrating agricultural, urban and industrial uses of water from watersheds  
**Water, Agriculture**
- Chinese Academy of Science, Kunming Institute of Technology (China)**  
Simulation to curb climate change in a collectivist society.  
**Climate Change**
- Claremont Graduate University (US)**  
Deep learning for early detection, identification, and mapping of cassava diseases using multispectral aerial imagery.  
**Agriculture**
- Columbia University (US)**  
Keeping a close watch on our trees: large-scale forest ecological surveys via a data science workflow using high-resolution imaging and remote sensing data.  
**Biodiversity, Climate Change**
- Columbia University (US)**  
Real time earth  
**Climate Change**
- Cornell University (US)**  
Artificial intelligence driven yield and crop cover forecasting utilizing real-time precision agriculture data.  
**Agriculture**
- Deltares (Netherlands)**  
A climatology-based approach for landslide identification and generation of hazard maps.  
**Climate Change**
- Duke University (US)**  
Developing cloud-based workflows for mapping and censusing seabird breeding colonies at scale with Unmanned Aircraft Systems and machine learning.  
**Biodiversity**
- ETH- Zurich (Switzerland)**  
Fighting deforestation with deep learning and smart contracts.  
**Biodiversity, Climate Change**
- Georgia Institute of Technology (US)**  
Deep learning for fine-scale population maps.  
**Water, Biodiversity, Climate Change**
- Georgia Institute of Technology (US)**  
Supporting conservation planning using mathematical optimization.  
**Biodiversity**
- Ghent University (Belgium)**  
Applying ML and AI to ultimately turn agricultural data into automated animal health and welfare monitoring tools.  
**Agriculture**
- Global Environment and Technology Foundation (US)**  
Machine Learning for Improved Water Services.  
**Water**
- Indraprastha Institute of Information Technology (India)**  
Intelligent tool for monitoring monkey population.  
**Biodiversity**
- International Center for Tropical Agriculture (Uganda)**  
Enhancing food and nutrition resilience in Africa through a Nutrition Early Warning System (NEWS).  
**Agriculture**
- International Crops Research Institute for the Semi-Arid Tropics (India)**  
Plant pest prediction models and farm advisory.  
**Agriculture**
- Lakehead University (Canada)**  
Development of a forest resource inventory by utilizing deep learning for automated tree species identification, stand delineation and land classification.  
**Biodiversity, Climate**
- Long Live the Kings (US)**  
Water, climate, and food web effects on the survival of Puget Sound salmon: bolstering marine ecosystem modeling with Azure cloud computing.  
**Water, Climate Change, Agriculture**
- Massachusetts Institute of Technology (US)**  
Hardware-enabled AI for the future of sustainable indoor agriculture.  
**Agriculture**
- Michigan State University (US)**  
Complexity as a holistic path to sustainability, not a roadblock.  
**Agriculture, Climate, Biodiversity**
- Northeastern University (US)**  
The networked digital earth for harnessing complexity and designing policy.  
**Climate Change**
- Northeastern University (US)**  
Risk assessment and sensitivity analysis of climate change on crop models using machine learning and big data analytics.  
**Agriculture**
- Pennsylvania State University (US)**  
Cloud-enabled hydrology mesh workflows.  
**Water, Climate Change**
- Politecnico di Milano (Italy)**  
Deep learning for snow monitoring and predictive water system operation.  
**Water**
- Rain for Climate (Slovakia)**  
Rain for Climate Initiative: holistic water management theory.  
**Water**
- Southern California Coastal Water Research Project (US)**  
Using imagery from drones to identify trash in waterways to inform cleanup efforts and determine trash policy effectiveness.  
**Water**
- Taiwan AI (Taiwan)**  
Beyond Beauty – Homeland From Above.  
**Agriculture, Climate Change**
- Technical University of Munich (Germany); Indian Institute of Technology (India)"**  
Low-cost handheld plant health monitoring device for resource limited regions.  
**Agriculture**
- The Trust for Public Land (US)**  
The trust for public land Microsoft Azure data science machine pilot concept.  
**Climate Change**
- Tohoku University (Japan); University of California, Irvine (US)**  
Dynamic disaster management cloud service platform based on satellite remote sensing and artificial intelligence.  
**Climate Change**
- University of British Columbia (Canada)**  
Creating forest management solutions for conservation of biodiversity and protection of carbon in forests as climate changes.  
**Climate Change, Biodiversity**
- University of British Columbia (Canada)**  
Integrate machine learning and remote sensing for enhancing climate change mitigation and adaptation in agricultural ecosystem.  
**Climate Change, Agriculture**
- University of British Columbia (Canada)**  
Urban greenspace and climate change: how are Canada's 150 cities changing?  
**Climate Change**
- University of Bucharest (Romania)**  
Integrated assessment of the variability of the Urban Heat Island of Bucharest (Romania) using coupled WRF, LSM and satellite imagery.  
**Climate Change**
- University of California, Davis (US)**  
Endangered killer whale medical records and health database.  
**Biodiversity**
- University of Iowa (US)**  
Knowledge discovery, integration and communication for extreme weather and flood resilience using artificial intelligence.  
**Water, Climate Change**
- University of Maryland, Baltimore County (US)**  
Predicting climate change research using dynamic data assimilation for topic modeling.  
**Climate Change**
- University of Massachusetts Boston (US)**  
Advanced machine learning for long-lead precursors identification to extreme weather events.  
**Climate Change**
- University of Missouri (US)**  
Species Detection from camera trap images.  
**Biodiversity**
- University of Montpellier (France)**  
Isolated seamounts and islands as the last refugia for marine megafauna: revealing the unseen biodiversity using environmental DNA.  
**Biodiversity**
- University of Oviedo (Spain)**  
Development of tools for risk assessment in coastal areas with Geographic Information Systems.  
**Water, Climate Change**
- University of Pretoria (South Africa)**  
African SDG hub integration  
**Water, Climate Change**
- University of Saskatchewan (Canada)**  
Image and video analysis for rapid crop phenotyping.  
**Agriculture**
- University of Saskatchewan (Canada)**  
Predicting crop phenotypes from genotypes with deep learning.  
**Agriculture**
- University of Ss. Cyril and Methodius (Macedonia)**  
Cloud based general weed detection service.  
**Agriculture**
- University of Washington (US)**  
Pioneering the integration of microbial system models and microbial community analysis to advance wastewater treatment technology.  
**Water**
- University of Waterloo (Canada)**  
Using Azure services for integrated environmental monitoring, modelling and decision making.  
**Water, Biodiversity, Climate, Agriculture**
- University of Wisconsin-Madison (US)**  
Development of an automated computer vision system to monitor behavior of dairy calves.  
**Agriculture**
- Wayne State University (US)**  
A cloud-based analytics for real-time monitoring of landfills/superfund sites and the adjacent watershed.  
**Agriculture**
- WetDATA (US)**  
Democratizing access to water data to accelerate innovation through data visualization, predictive analytics and artificial intelligence applications.  
**Water**
- Yale University (US) and Wake Forest University's Amazonian Science Research Center (US)**  
Systematic ground truthing, land classification and crop health.  
**Agriculture**

### Key

- AGRICULTURE
- WATER
- BIODIVERSITY
- CLIMATE CHANGE
- MULTIPLE