From Models to Multipliers: Translational Geo-AI for Climate Resilience

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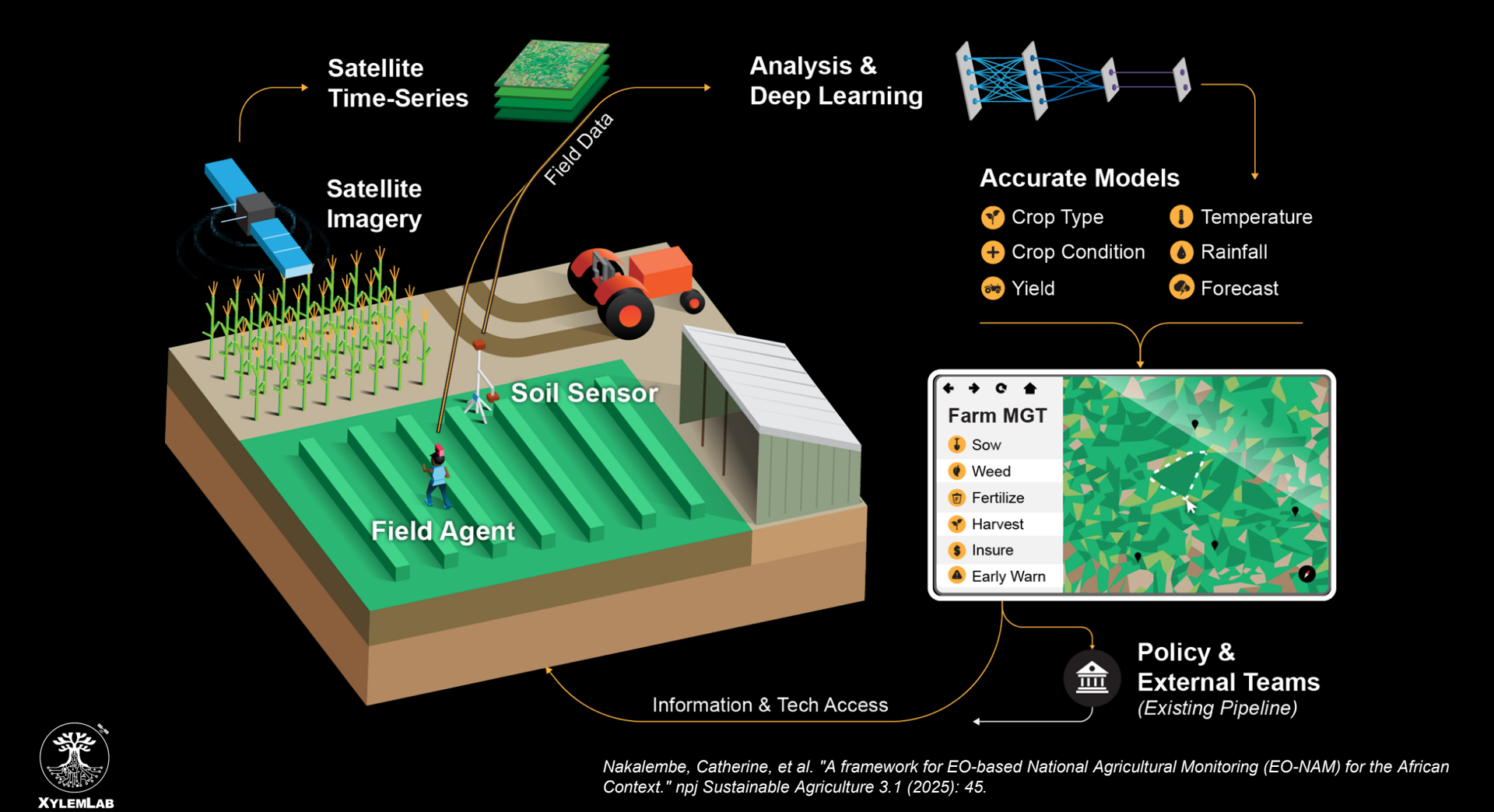
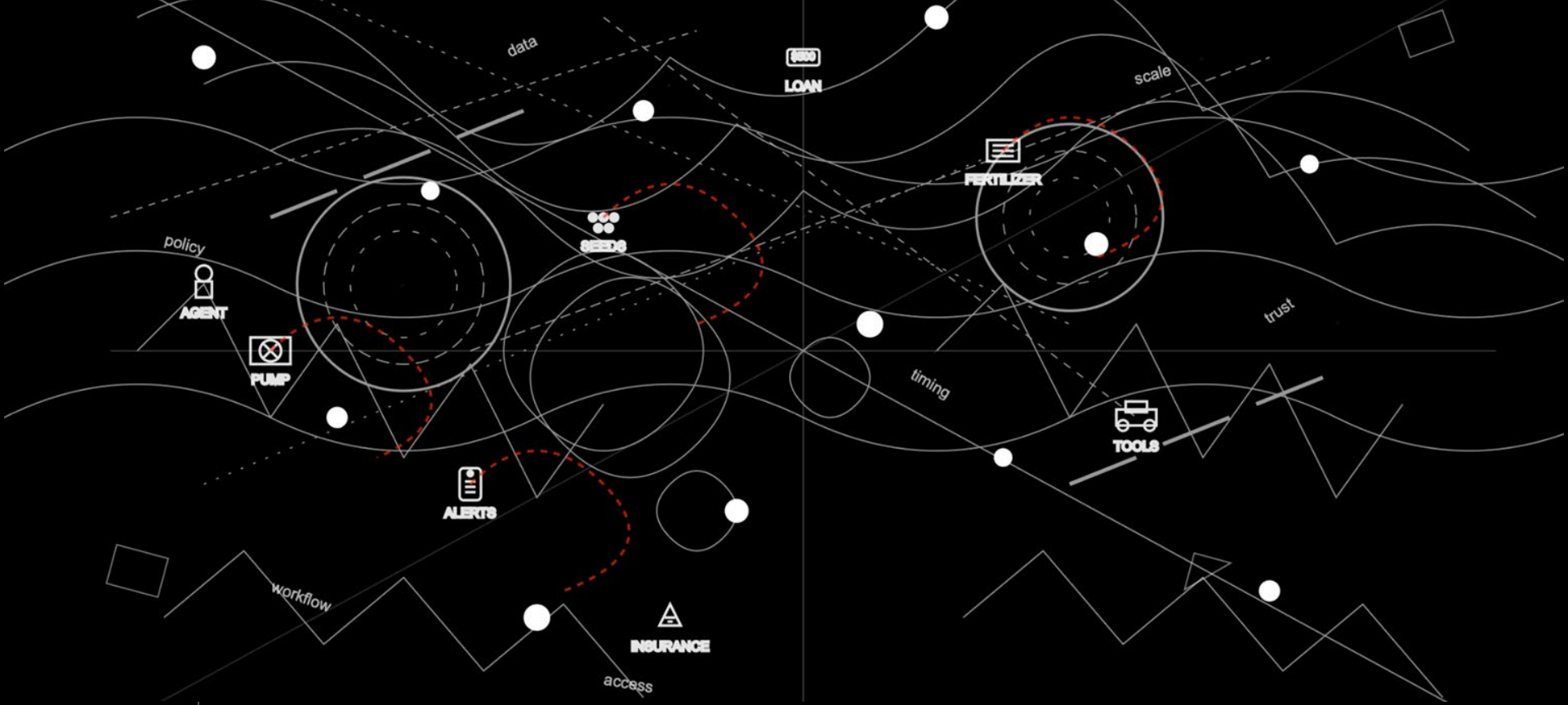
National Academies Accelerating Climate Progress Workshop
Arnold and Mabel Beckman Center | January 13-14, 2026



XylemLab

Nakalembe, Catherine, et al. "A framework for EO-based National Agricultural Monitoring (EO-NAM) for the African Context." npj Sustainable Agriculture 3.1 (2025): 45.



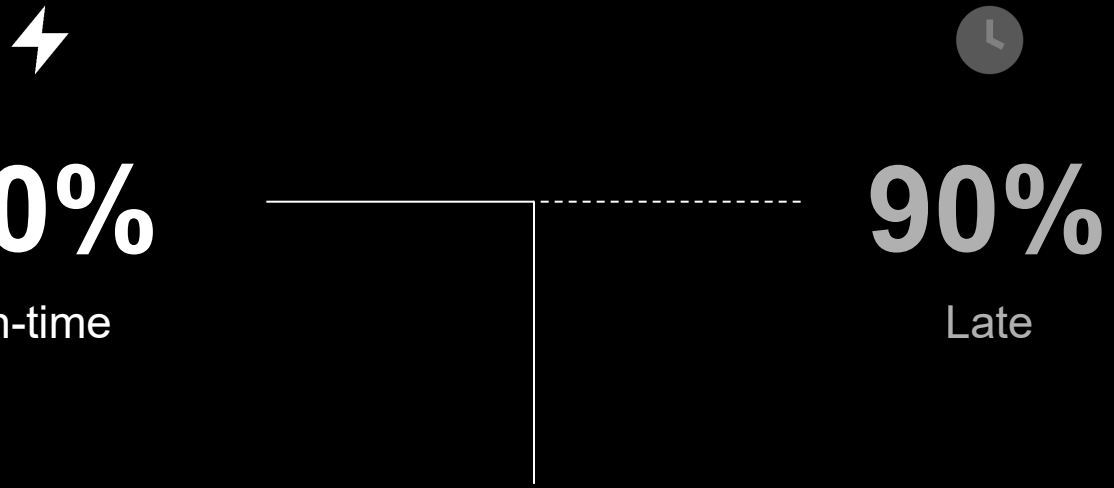
The Messy Middle

Five Fundamental Shifts

SHIFT 1

Technology

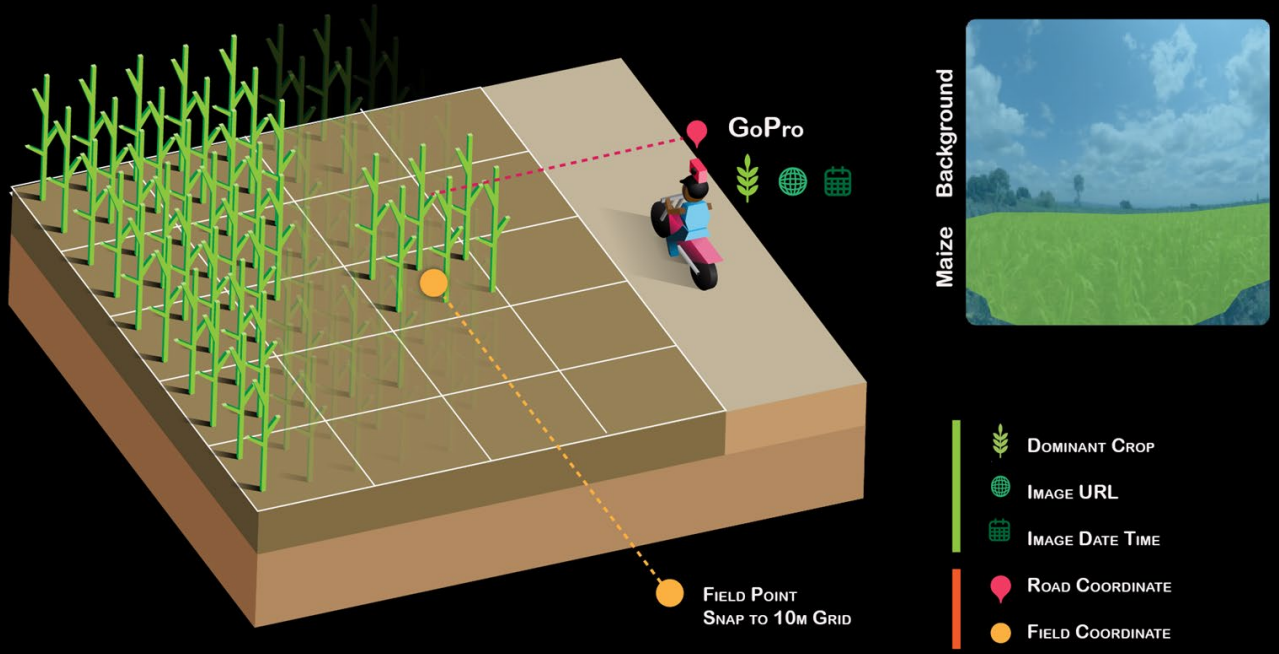
Integration & Translation



SHIFT 2

Ground Truth Data

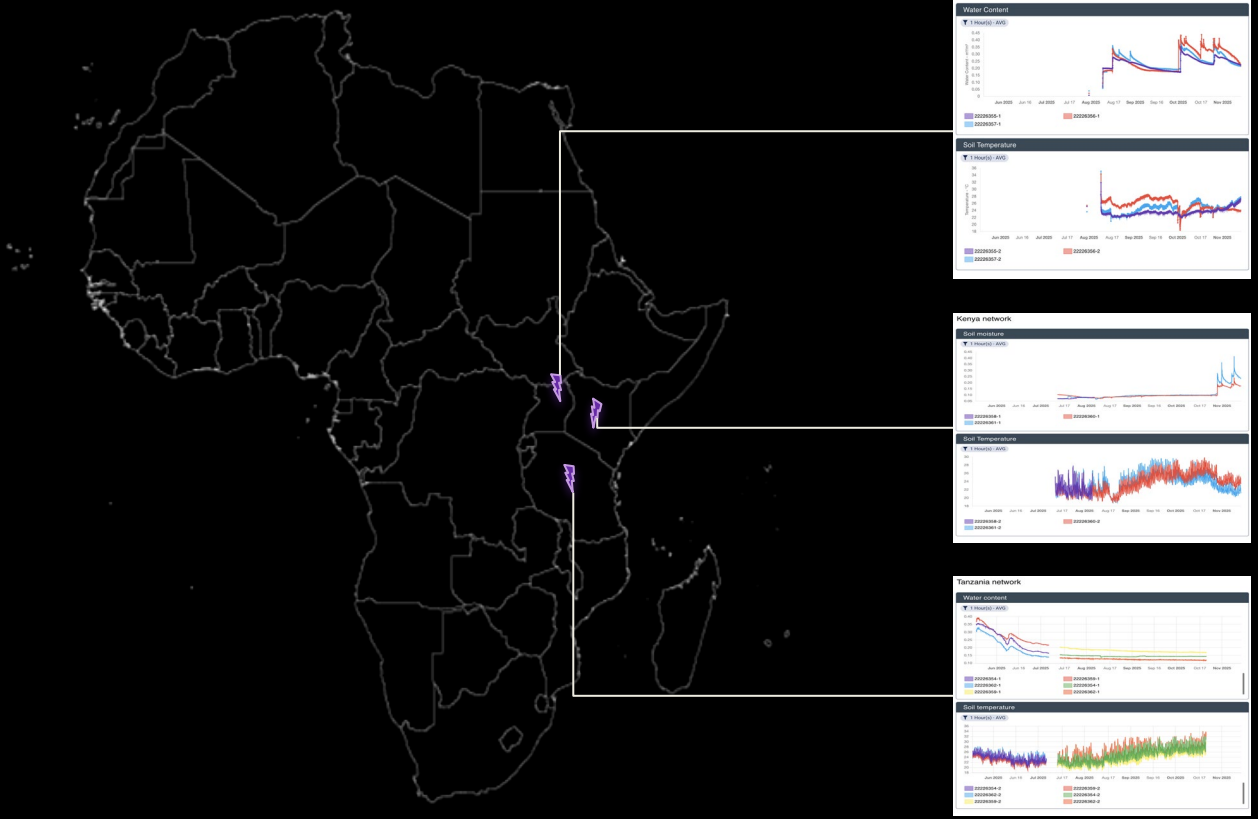
Helmets Labeling Crops



Nakalembe, Catherine, et al. "Helmets Labeling Crops: Kenya Crop Type Dataset Created via Helmet-Mounted Cameras and Deep Learning." Scientific Data 12.1 (2025): 1496.

SHIFT 2

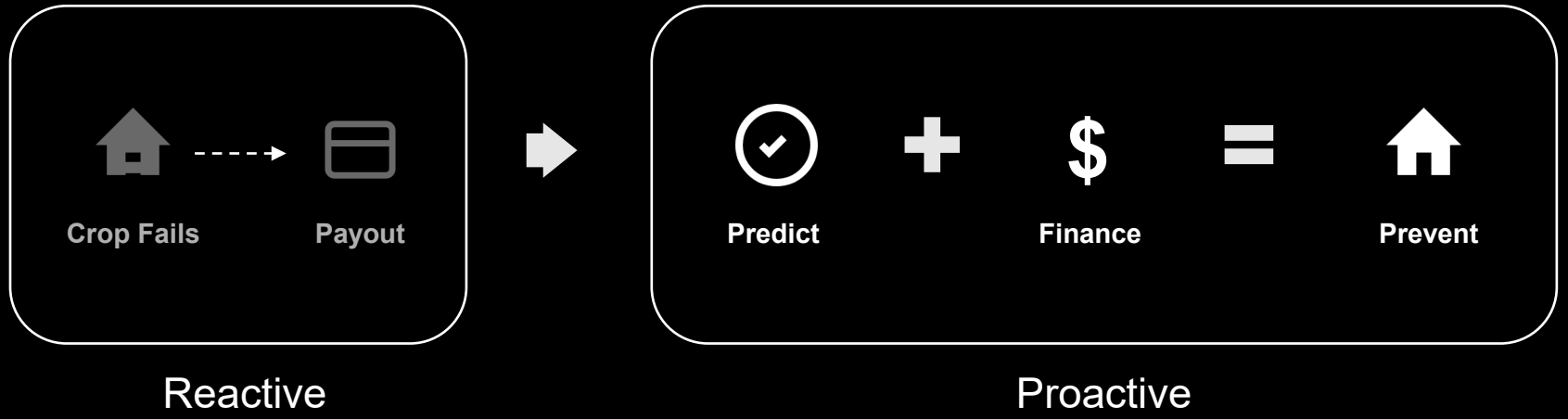
Ground Truth Data



SHIFT 3

Finance

From Reactive to Proactive



SHIFT 4

Policy

Reward Prevention Over Response

Emergency Response

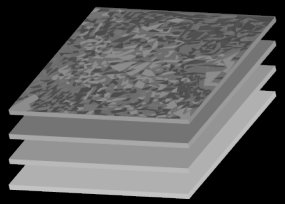
Prevention & Integration

Nakalembe, Catherine. "Lessons From Uganda's Earth Observation-Based Disaster Risk Financing Program." AGU Advances 7.1 (2026): e2025AV002224.

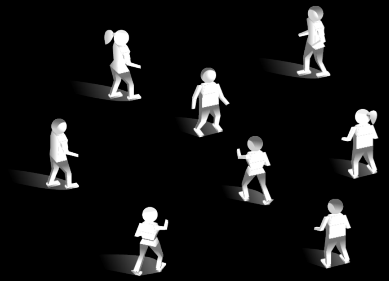
SHIFT 5

People

Multipliers, Not Obstacles



Data

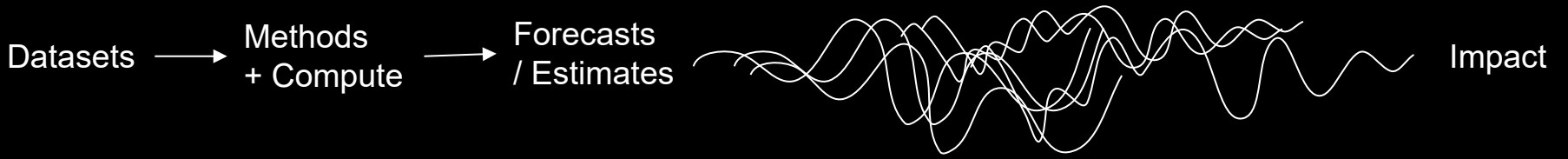


Extension Agents

Local Leaders

Action

At Scale


Datasets
Methods
+ Compute
Forecasts
/ Estimates
Impact

THE
XYLEM
INSTITUTE

Thank You

Contact: cnakalem@umd.edu