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Data and Innovation Roundtable

Today, I am speaking about the importance of satellite remote sensing as an integral element of global terrestrial hydrologic observing systems, and as a key game changer that can quantify -- and help clearly visualize -- the rapid pace, and the global scale, of changing freshwater availability. By extension, remote sensing has exposed humans as the drivers of these dramatically shifting patterns, as well as the lack of global preparedness for the multitude of social, economic, and environmental consequences that these shifts are bringing.

For over two decades, satellites have revealed that the high and low latitudes are getting wetter, and mid-latitudes getting drier, but with a recent twist. Over the last 5 years, the high latitudes are now losing water, owing to warming temperature, ice, snow, and permafrost melting.

Importantly, satellites have enabled remote sensing of groundwater, very effectively making the invisible visible. They have revealed that nearly half of the world's major aquifers are being rapidly depleted, and in some regions, like California, the rates of depletion are accelerating.

From a global view, satellites have recently demonstrated that the continents are now drying, contributing more to sea level rise than both Greenland and Antarctica, and that the mismanagement of groundwater is as large a contributor to sea level rise as glaciers and ice caps on land.

All too often these science-driven data are left out of high-level international reports. This can no longer be the case.

I propose a coordinated effort to engage key international space agencies, data scientists, and transdisciplinary stakeholders, to make these data rapidly, freely, and easily accessible, to embed them into holistic, standardized data frameworks for up-to-date decision support, training, and to best support accelerated progress on global water sustainability.