Air Resources Laboratory
Climate Observations and Analyses Research

Essential Information and Tools for Understanding Climate Now and in the Future

Businesses, citizens, communities, governments, and international organizations are requiring accurate and high quality meteorological observations and forecasts to assess and adapt to current and potential threats associated with climate variability. Changes in the climate can influence economic prosperity, national security, and human and environmental health. The Air Resources Laboratory (ARL) has a Climate Observations and Analyses Research Program that provides essential information and tools for decision-makers to understand how and why climate has changed and what changes might occur in the future. ARL's activities focus on:

• advancing the quality and quantity of reference observations;
• evaluating select observing systems for their ability to satisfy ongoing and evolving climate requirements;
• improving the understanding of air-surface interactions; and
• analyzing long-term observational datasets and models to understand climate variability and change.

ARL provides high quality, reference-grade measurements of critical climate parameters, such as air temperature, precipitation, winds, land surface temperature, and solar radiation. As a key participant in climate observing networks, both nationally and internationally, ARL develops methods for measuring climate parameters with high accuracy and reliability. ARL designs, evaluates, and maintains the array of instruments and the infrastructure for the U.S. Climate Reference Network (CRN). The CRN provides the Nation with a climate-quality benchmark observing system that meets national commitments to monitor the climate of the United States for the next 50-100 years.

ARL engineer works on a Climate Reference Network site in Wolf Point, MT Photo: NOAA

A Surface Energy Budget site collecting data from an active cornfield in Bondville, IL Photo: NOAA

ARL also conducts long-term field studies to improve the understanding of interactions between the atmosphere, the land surface, and plants, which leads to better climate and weather predictions. Additionally, ARL conducts energy, water, and greenhouse gas flux measurements and analyzes their relationships. A predictive understanding of the surface energy budget and related feedbacks is critical to the understanding of climate forcing factors at the land surface and the ability to credibly predict future conditions, especially those related to water resources.

For More Information, Contact:

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