ClimateScape is an internet based sensor and mapping network that enables citizens & scientists to actively monitor, analyze, plan for, and react to the impacts of changing climate across landscapes, both ecologically and economically. It supports the efforts of many conservation groups across the US including foresters, farmers, ranchers, recreation groups and citizen watershed groups allowing them to access past and present climate impact information as well as undertake future scenario planning. ClimateScape aggregates nationally available data from satellite and ground sensor systems.

**OVERVIEW**

We seek to empower all stakeholders to apply a broad suite of environmental data— ranging from satellite data to locally maintained sensors, from historic datasets to predictive models—to create local climate action plans for dealing with the impacts of climate change and its secondary effects: disturbance (fire, floods, drought), changing land-use patterns and invasive spread. The ClimateScape web application, in mid-stage development is a set of tools designed to provide ready, simple access to necessary data in near real-time as well as historic comparisons.

ClimateScape is a web mashup that provides real time access to water quality and meteorological sensors, webcams, satellite images, active fires, Snotel sites, wind fields, and more. It is built on the familiar Google Maps platform that includes user-friendly access to historic trends, analysis tools, and modeling capabilities of current and future conditions using the NASA-CASA (Carnegie-Ames-Stanford Approach) model and TOPS (Terrestrial Observation and Prediction System). Through these NASA-Ames programs and other federal and state sensor systems, the ClimateScape web application will deliver instantaneous access to numerous critical ecological parameters (current, past, and predicted) sourced from ground sensors and ecological modeling based on NASA satellite data. Output from NASA models will aid in adaptation to climate change, for example understanding crop stress and soil condition, and planning for water concerns such as tracking snowpack, reservoir storage, and flood events. We hope that ClimateScape will encourage further cooperation with stakeholders obtaining and deploying additional sensor networks of environmental data.

In the same way that Weather.com puts meteorological data in the hands of citizens & scientists, ClimateScape.net will deliver instant access to critical ecological parameters needed to understand and adapt to climate change.
CLIMATESCAPE WILL SERVE AS AN EARLY WARNING SYSTEM

Climate change and its associated extreme weather events can occur abruptly and without warning. ClimateScape is a freely available source of environmental data streams that can prepare citizens and scientists alike for such events. For example, a concerned citizen watershed groups could use ClimateScape to develop and implement their own watershed management plans (e.g., developing drought plans that include flow and water temperature action triggers as identified by state and federal hydrologists and biologists). To create and implement these plans, such groups need ready access to local real-time stream flow and temperature data, coupled with water quality measures such as salinity, dissolved oxygen, and turbidity (via local sensors). These data can be compared with 60 years of historical data supplied by our partners, and scenario planning efforts can be made using NASA models to determine the impacts of potential changes in climate and demographics. By utilizing comprehensive input data, ClimateScape will serve as an early warning system. It will help citizens, scientists, conservationists, and policymakers to ability to prioritize actions based on local and regional conditions.

EARLY PROJECTS & EXAMPLE SCENARIOS

During the first year of the Phase II project, the Crow Nation in Montana was becoming fully aware that the frequency, intensity, and severity of wild land fires were being driven primarily by changing climatic conditions such as drought and other extreme weather events. It became clear that our developments were applicable to all related disasters such as floods, severe droughts, forest pathogen outbreaks and other extreme weather events—all being driven by the impacts on changing climate on the landscape.