

CS 2015 Conference

Theme1. **Tackling grand challenges and everyday problems with citizen science**

Some of our most significant scientific and social challenges cannot be addressed without extensive data and massive public engagement. Citizen science is a vehicle to provide these resources and address these challenges. How can citizen science contribute to documenting biological responses to conservation challenges (e.g., climate change, early detection and response to invasive species, ground-truthing satellite data), advancing public health, increasing scientific literacy, analyzing astronomical phenomena, or fostering international collaboration and cross-disciplinary solutions?

Title: **NASA ROVER, Tackling Citizen Science with Grand Challenges and Everyday Problems**

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ROVER is the Citizen Science arm of the NASA Clouds and the Earth's Radiant Energy System (CERES) Students' Cloud Observations On-Line (S'COOL) Project. Since 2007, participants around the world have been making and reporting ground truth observations of clouds to assist in the validation of the NASA CERES satellite instrument.

NASA scientists are very interested in learning how clouds affect our atmosphere, weather, and climate (relating to climate change). It is the clouds, in part, that affect the overall temperature and energy balance of the Earth. The more we know about clouds, the more we will know about our Earth as a system and citizen scientists are an important piece of that puzzle!

As a ROVER cloud observer, all participants follow simple online tutorials to collect data on cloud type, height, cover and related conditions. Observations are sent to NASA to be matched to similar information obtained from satellites and sent back to participants for comparison and analysis. The supporting ROVER website houses a searchable database archiving all participant reports and matching satellite data.

By involving Citizen Scientists in cloud observations and reporting we can gain a valuable set of data that would have been previously unavailable to science teams due to funding, manpower, and resource limitations or would have taken an unreasonable amount of time to collect. Reports from a wide range of Citizen Scientist locations are helpful to assess the satellite data under different conditions. With nothing more than their eyes and an internet connection participants provide a different perspective and analysis of clouds, adding to a more complete picture of what's happening in the atmosphere in which we live.

