IAF EARTH OBSERVATION SYMPOSIUM (B1)
Citizen Science in Global Earth Observation Systems (6-GTS.1)

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DESIGN FOR A CITIZEN SCIENCE AND PUBLIC ENGAGEMENT PROJECT CELEBRATING ANTARCTICA AND THE SOUTHERN OCEAN

Abstract

Antarctica is a unique and beautiful continent that is key to the global ecosystem and climate. Research based in Antarctica is helping scientists explore cutting-edge questions in oceanography, physics, climate science, ecology, and more. To most members of the public, however, Antarctica appears to be a cold and inhospitable place with little relevance to daily life. This paper presents the design of a proposed project that invites citizens to learn and participate in science related to Antarctica and the Southern Ocean. The project combines a citizen science campaign with the design of an immersive experience to communicate the importance of Antarctica and the Southern Ocean. The goal of the project is to increase a sense of stewardship to care for Antarctica within people around the world.

One aspect of the project is a physical experience that invites small groups of people to walk through an interactive, room-scale multi-sensory presentation providing education regarding the Antarctic. This presentation is designed to be placed in a museum such as an aquarium or science museum. The interactive presentation helps participants understand this dynamic region through an experience that combines photos, video, sound, haptic feedback and temperature changes. The information draws on multiple types of visual data from earth science satellites (ie ICESAT), airborne science platforms (ie IceBridge) and in-situ sensors (ie underwater video cameras and photographs). As participants walk through the presentation space, they learn vignettes about specific research areas in Antarctica, including studies on penguin colonies, glacier dynamics, sea level rise, meteorite search and ocean food chains.

In addition to the physical, interactive presentation, the second aspect of the project designs a companion Citizen Science campaign that feeds data into the presentation. Specifically, citizen scientists and students located in countries near the Southern Ocean (including Chile, South Africa, New Zealand and Australia) are invited to participate in a data collection campaign about their part of the Southern Ocean. A mobile application in both English and Spanish invites participants to submit photographs of the shoreline on the Southern Ocean. The team provides a small, low cost kit that allows citizen scientists to take temperature, salinity and pH measurements from coastal areas facing the Southern Ocean. Information from these citizen scientists is incorporated into the physical presentation in the museum. Meanwhile, the visual aspects of the presentation are provided online as video files that anyone can download to host on their own platforms.