

GEOVISUALIZATION AND CLIMATE SERVICES: CONTEXTUALIZING EARTH SYSTEMS DIALOG

Ned Gardiner¹

Carrie McDougall^{2,3}

John McLaughlin³

Frank Niepold⁴

In response to global, national, and regional demands for interpreted climate products and services, educators and communications specialists at the United States National Oceanic and Atmospheric Administration (NOAA) are developing visualizations, building web- and installation-based display systems, and supporting communities of professional communicators who use Earth-focused visualizations (geovisualizations) to help audiences understand the climate system and also to solicit audience perspectives. This paper details how we use visualization to provide a common understanding about climate issues to facilitate dialog. We draw on numerous examples, each with distinct audiences and communication objectives. We established NOAA's Science on a Sphere[®] (SOS) network of 41 informal science institutions that each have installed an SOS[®] three-dimensional Earth visualization environment. We also describe how to use geovisualization within planetariums and portable immersive visualization environments (i.e., the Geodome[™]) to facilitate dialogs about regionally relevant climate issues. We used both Science on a Sphere[®] and Geodome[™] immersive visualization to contextualize climate information at the United Nations Framework Convention on Climate Change Convention of Parties-15 (COP15) in Copenhagen, Denmark, December 7-18, 2009. Interpreted visualizations provide both cognitive and affective pathways for helping audiences grasp climate system concepts. Engaging multiple learning pathways and deliberately engaging audiences in conversations helps people grasp concepts and incorporate climate information into their own thinking. This paper demonstrates how to use interpreted geovisualization as a platform for dialog about climate at local to global levels. In summary, we define how interpreted visualization complements a broader strategy for working at the interface between climate science and societal needs.

¹Ph.D.; 2020 LLC contract to NOAA Climate Program Office; Corresponding author: Room 468; 151 Patton Avenue; Asheville, NC 28801; USA; 240-687-1874; ned.gardiner@noaa.gov

²Ph.D.; ³NOAA Office of Education; ⁴UCAR Fellow/ NOAA Climate Program Office