

5th International Conference on Environmental Toxicology and Ecological Risk Assessment

September 12-13, 2016 Phoenix, USA



L DeWayne Cecil

Sustainable earth Observation Systems, LLC, USA

Assessment of climate change impacts on air temperature, precipitation, and human health; a specific example and some universal recommendations

Weather and climate change are the integrators of all environmental processes. Regardless of the sector or group of individuals being monitored, weather and climate will ultimately determine the availability of water and energy, food scarcity or abundance, and human health and wellbeing. In this talk, we will look at a specific example of approaching a challenging sustainability project with teams of individuals looking at historic preservation, sustainable design, and human health in the 18th century Villa Bologna in Malta. The talk will close with a set of generic but universal guidelines and recommendations for assessing risk and planning for resiliency, sustainability, and protecting human health in the face of changing climate and extreme weather events. As a specific example of assessing risk from climate change and extreme weather events, this talk will present data from a University of Malta study conducted by Dr. Charles Galdies coupled with findings from the United Nation's Intergovernmental Panel on Climate Change 5th Assessment Report, from NASA, and from the US EPA. According to climate change projections, Malta will become hotter and drier in the coming decades (Galdies, 2011, and IPCC, 2013). Desertification is underway and projected water shortages of up to 70 percent by the year 2100 have been reported by the Intergovernmental Panel on Climate Change. Imposed on top of these climate change projections is the increased use of nitrogen fertilizers across Malta in an attempt to respond to increasing human population that could exacerbate resource scarcity and associated human health issues. Drought conditions are projected to occur more often and to last for longer periods of time. Additionally, 5 of the 10 warmest years on record for air temperature occurred during the past 10 years. Malta's climate is changing more rapidly than the global average and this is reflected in recorded air temperatures. Malta is currently the most densely populated nation of all 27 member nations in the European Union and is experiencing unprecedented levels of refugee incursions from northern Africa and the Middle East. These compounding factors of significant projected sea-level rise combined with storm surge and high tide, increasing air temperatures, decreasing precipitation, and increasing population all add up to major challenges for the government and people of Malta and for the owner and staff of the Villa Bologna. One of the most significant factors for determining success or failure in local designs and plans over time is baseline weather and climate data; the integrators of environmental processes. In Malta, our team insisted on establishing a continuous weather station at the Villa Bologna. Additionally, through community education and involvement, and by incorporating the weather station into the Malta Met Office network (and the World Meteorological Network (WMO) at some point), we hope to raise awareness of the potential for sustainable living, historic preservation, and to reduce the risks to human health through sound science with sustainable earth observations and data for assessment and monitoring.

Biography

Dr. L. DeWayne Cecil is the Chief Scientist for Sustainable earth Observation Systems LLC (SeOS) in Waynesville, NC. SeOS is an Aerospace Applications and Climate Services consulting firm formed in 2015. He is also the Program Manager on the Science and Technology support contract at NOAA's National Centers for Environmental Information (NCEI, formerly the National Climatic Data Center) in Asheville, NC and the Chief Climatologist for Global Science & Technology, Inc. (GST). He joined GST in January 2012 after retiring from 31 years of service in the U.S. federal sector with NASA, NOAA, and the USGS. Dr. Cecil maintains an office for GST and SeOS in The Collider, a regional climate solutions think-tank in Asheville, NC. Additionally he is on contract with The Center for the Advancement of Science in Space, the managers of the US International Space Station National Laboratory.

bgaswillys@gmail.com