Sean
Crowell
LumenUs Scientific, LLC
Berrien Moore, University of Oklahoma
Mate Adamkovicz, Lockheed Martin Advanced Technology Center
Eric Burgh, Lockheed Martin Advanced Technology Center
Samantha Edgington, Lockheed Martin Advanced Technology Center
Greg McGarragh, Colorado State University
Chris O'Dell, Colorado State University
Peter Somkuti, NASA GSFC
Clem Tillier, Lockheed Martin Advanced Technology Center
Poster
After selection as the second Earth Venture Mission in 2016, the Geostationary Carbon Observatory (GeoCarb), led by the University of Oklahoma PI Dr. Berrien Moore III, was developed until its cancellation during Phase C in November 2022. The GeoCarb PI was directed by NASA to complete as much of the instrument as remaining funding permitted. The GeoCarb team successfully completed alignment and focus of the spectrograph before verification through a sequence of thermal vacuum campaigns, during which other characteristics of the instrument were determined (e.g., SNR, spectral range, stray light). These measurements suggested that the GeoCarb integrated instrument would have sufficient performance to deliver on the promise of the originally proposed greenhouse gas observing mission. As a result, the project continued with integration of the optical subassemblies and electronics into a fully integrated instrument as of August 2023. The instrument underwent a final thermal vacuum campaign during the fall of 2023 and was shipped to NASA for storage in November 2023. Since that time, the GeoCarb science team has been analyzing the test data to determine the capabilities of the integrated instrument with positive results. All indications are that the GeoCarb instrument will meet its key performance requirements.

In this presentation, we will discuss the spectral, radiometric, and polarimetric performance of the GeoCarb instrument from the measurement campaigns, including the spectral and spatial image quality, polarization response, and SNR. We will address the implications for the scientific capabilities of the fully characterized and calibrated observatory should NASA restart the program.
Poster PDF
crowell_sean_futuremissions.pdf
Meeting homepage
IWGGMS-20 Workshop
Download to PDF