

Please join us at the **AOS Applications Seminar Series** talk:

## **How NASA's Spaceborne Active Sensors Have Contributed to Operational NOAA 3D Cloud Products for Aviation**

**Seminar Speaker:** John Haynes, Cooperative Institute for Research in the Atmosphere (CIRA)

**Thursday, January 26, 2023**

1:00PM-2:00PM Eastern Time

[Meeting Link](#)

### **About the Seminar**

The radar and lidar onboard CloudSat and CALIPSO have provided a decade and a half of joint observations of the vertical structure of clouds, aerosols, and precipitation in the atmosphere. These are research missions, but measurements from these instruments have contributed significantly to operational products through more indirect pathways. This work examines how historic spaceborne radar and lidar data have been used to add “depth” to the mostly cloud-top information provided by operational passive sensors like the GOES Advanced Baseline Imager (ABI) and JPSS Visible Infrared Imaging Radiometer Suite (VIIRS), specifically through contributions to NOAA’s Cloud Base Height and Cloud Cover Layers products. Applications that will be discussed include development of passive sensor-based cloud vertical cross sections for Alaska pilots operating in challenging terrain, as well as experimental global 3D gridded cloud products for aviation. The use of active sensor data to train a machine learning model to determine the presence of low-levels clouds in ABI/VIIRS scenes will also be discussed.

### **About the Speakers**



Dr. Haynes is a Research Scientist at the Cooperative Institute for Research in the Atmosphere (CIRA), the NOAA Cooperative Institute in Fort Collins, Colorado. He received his B.S. in Meteorology from Pennsylvania State University, and his M.S. and Ph.D. in Atmospheric Science from Colorado State University, studying under Graeme Stephens. He is a longtime product developer for the CloudSat mission and also develops operational cloud products for the Advanced Baseline Imager (ABI) and Visible Infrared Imaging Radiometer Suite (VIIRS). Dr. Haynes also leads a project investigating future channels for the upcoming Geostationary Extended Observations (GeoXO) mission.