COVID-19 Impact on Air Quality: CISESS Scientist Xinrong Ren with the Air Resources Laboratory and his UMD graduate student Philip Stratton have been measuring the impact of the lockdown in the DC-Baltimore Region. They have been flying on a small Cessna plane equipped to measure trace gases and aerosols regularly since March.

With traffic down to about half of its normal level, they are measuring the effects on levels of ozone and carbon monoxide as well as carbon dioxide and methane. These results are analyzed based on weather conditions so they can be compared to pre-COVID-19 concentrations measured by previous flights. Preliminary results show a 30% drop in carbon monoxide and carbon dioxide. See the UMD article at https://cmns.umd.edu/news-events/features/4600. (POC: Xinrong Ren, xinrong.ren@noaa.gov, Funding: ARL).
**Workshops, Conferences, and Meetings**

**Precipitation Prediction Grand Challenge Workshop:** On June 15 and 16, R. Ferraro participated at the NOAA Precipitation Prediction Grand Challenge (PPGC) virtual workshop. The purpose of the workshop was to review the status of the white paper being assembled, integrate six topical chapters and then present it to NWS and OAR leadership. The white paper is being led by Wayne Higgins of OAR and was briefed at the Weather, Water and Climate Board (WWCB) meeting on June 18. Ralph participated on the observations chapter team led by Howard Diamond (OAR).

The PPGC working group will meet a few more times over the summer and complete the white paper around August 1.

*(POC: Ralph Ferraro, Ralph.R.Ferraro@noaa.gov Funding: PDRA)*

**Media and Outreach**

On Wednesday, June 17, CISESS Scientists M. Quick, S. Rudlosky (SCSB), P. Meyers, and members of the University of Maryland Institute for Advanced Computer Studies (UMIACS) participated in an interview with journalist/writer Paul Willis from *Meteorological Technology International Magazine* ([https://www.meteorologicaltechnologyinternational.com/online-magazines](https://www.meteorologicaltechnologyinternational.com/online-magazines)). The interview focused on the work that has been done through the CISESS Proving Ground for the development of virtual reality tools used to analyze NOAA Earth Science datasets.

*(POC: Mason Quick, mason.quick@noaa.gov, Funding: GOES-R PGRR & GOES-R AWG)*
Publications

Why ENSO is Less Predictable: CISESS Scientist Jieshun Zhu at the Climate Prediction Center has coauthored a new article published in the June 2020 issue of the Journal of Climate. It compares the last 20 years of El Niño–Southern Oscillation (ENSO), starting in 1999/2000, to the prior two decades, starting in 1976/1977. The “regime change” that occurred in 1999/2000 has fewer extremes but occurs far more frequently. More frequent El Niños is associated with a larger sea surface temperature (SST) gradient across the tropical Pacific Ocean during the entire period. The reduced extremes are due to a more stable troposphere caused by mid-tropospheric warming. These changes had significant effects on numerous ENSO predictors, discussed in detail in the article. These changes have reduced ENSO predication skills.

The figure above of the tropical Pacific shows the correlation of the Ensemble Climate Forecast System v. 2 predictions with observations. The black contours are for both pre- and post-2000 while the shading shows the degraded performance when only post-2000 is evaluated.

*(POC: Jieshun Zhu, jieshun.zhu@noaa.gov, Funding: CPC)*