

Near Term Regulatory Modeling Assessment

- Colorado's ozone issues include locally generated summer ozone, winter ozone, increasing ozone with altitude in some areas, SI episodes, and smoke generated ozone.
- Although SI and Wildfire smoke contribution to O₃ is interesting and important on some days in the Denver/NFR NAA , anthropogenic photochemical episodes still dominate the highest concentrations. Therefore, it is important not to lose sight that controls on VOC and NO_x sources are still important. The RAQC and CDPHE are committed to conduct ongoing modeling analysis to better understand the sources and controls for ozone precursors.
- In some other areas like Colorado Springs, SI events are amongst the top four ozone concentrations. Therefore, it is more important to flag SI events in some areas of the state as opposed to others.
- Some of the wildfire smoke enhanced high ozone events are very complicated. For example, the July 4th 2012 ozone episode along the Northern Front Range was enhanced by smoke from a fire in eastern Wyoming. While it might at first appear obvious that it was an exceptional event, the situation is complicated by the fact that the smoke laden air mass moved over communities and the DJ Oil and Gas basin where anthropogenic emissions were pulled into the mix. The question is whether the wildfire caused an ozone exceedance or if it would have occurred anyway without the smoke. As Dr. Pfister showed, it is very difficult to model fires.
- Colorado is also concerned about wintertime ozone formation in the O&G fields. Presently, the Rangely monitor in northwest Colorado has exceeded the ozone NAAQS several times during the last three years. When preliminary data from the winter of 2013 are included, the 3-yr design value is 77 ppb, which is above the NAAQS. The Rangely monitor is located on the eastern end of the Uintah basin. While transport from more central areas of the Uintah basin into Colorado appears to be an important factor, the contribution from local emissions as well as emissions moving downvalley during nocturnal drainage, for example, needs further investigation.

continued

- Several years ago, Colorado's ozone modeling planning process was expanded to address transport of ozone in and out of the Denver/NFR Area. As presented by various experts at this workshop, the understanding of transport mechanisms is continuing to evolve.
- Rapid O&G development in Colorado is a driving force for continued air quality assessments for various NEPA actions and SIP development. The need for better O&G EI is ever present.
- Thanks to efforts of various staff at APCD like Pat Reddy we have a good grasp of SI and we routinely forecast SI events in advance. Pat continues to develop various methods such as statistically-based methods to identify exceptional events.
- It is apparent that multi-agency collaborative regional approaches to ozone modeling are needed.
 - Some of the regional workgroups CDPHE are involved in include the Three State Study (3SAQS), Four Corners task force, and WRAP.
- Regional modeling and emission processing have made tremendous strides since the early days of the RPOs. While it is important to keep advancing the science, it is daunting for limited staff resources at state and local agencies to keep up with all the developments and to incorporate the latest science into the various SIP process.
- Finally, over the past couple years, there has been some great collaboration between the research community at NOAA and NCAR as well as other institutions in Colorado. These valuable partnerships continue to advance our understanding of air quality issues.