

Answer Key:

Handout H11-2: Plumas Air Quality through the Year

1. The 2000 air quality graph shows daily mean PM 2.5 data ($\mu\text{g}/\text{m}^3$) from the Quincy and Portola air quality stations. What was the highest recorded level of the PM 2.5 in 2000? When was it recorded? What are the associated health risks? **The highest recorded level of the daily mean PM 2.5 in 2000 was about 46. It occurred on 12/20/2000. 24-hour exposure to 46 PM 2.5 $\mu\text{g}/\text{m}^3$ is considered unhealthy for sensitive groups. There is increasing likelihood of respiratory symptoms in sensitive individuals.**
2. The Storrie Fire, a large wildfire in Plumas County, began on August 17, 2000. A few days after the fire began, there was a spike in particulate matter. How high did the PM 2.5 measurement get? How long did the PM 2.5 measurement stay this high? What are the associated health risks? **A few days after the Storrie Fire began, the daily mean PM 2.5 spiked at about 43. This lasted for only 1 day. 24-hour exposure to 43 PM 2.5 $\mu\text{g}/\text{m}^3$ is considered unhealthy for sensitive groups.**
3. The 2012 air quality graph shows the daily mean PM 2.5 measurement from the Quincy and Portola air quality stations. What was the highest recorded level in all of 2012? When was it recorded? What are the associated health risks? **The highest recorded level of the daily mean PM 2.5 $\mu\text{g}/\text{m}^3$ in 2012 was about 45. It occurred on 1/25/2012. 24-hour exposure to 45 PM 2.5 $\mu\text{g}/\text{m}^3$ is considered unhealthy for sensitive groups.**
4. The Chips Fire, a large wildland fire in Plumas County burned throughout August, 2012. How would you describe the daily particulate levels during the fire? What were the associated health risks while the fire was burning? **Throughout most of August, when the Chips fire was burning, the PM 2.5 levels mostly remained below 10 $\mu\text{g}/\text{m}^3$. This is good air quality. There were a few days of moderate air quality, when “unusually sensitive” people might be harmed.**
5. Based on particulate matter data from 2000 and 2012, which months seem most likely to have poor air quality? Which months generally have the best air quality? **The winter months tend to have the poorest air quality, while the summer months seem to have the best air quality – with occasional exceptions because of wildland fires.**
6. Based on what you know about temperature inversions, what do you think causes the worst episodes of air quality? **The air quality is poorest during the winter months. Inversions are typically more common in winter, when the air at the ground level doesn't warm up during the day, keeping it trapped on the earth's surface under a warmer layer of air. Any pollutants in the cold surface layer of air are also trapped – including particulates. In winter, the particulates probably come from wood-burning stoves, road dust, and possibly some industries.**