

Preliminary Conclusions (updated 2/2017)

Data analysis continues on this project; however, based on initial comparisons of 2011-2015 total days per month during which substantial low-level inversions occurred at two closely located measurement sites, we tentatively conclude:

- Low-level inversions, whether measured in or out of the valley, are quite frequent in Allegheny County, Pennsylvania.
- Seasonally, there appears to be a tendency toward more measured low-level inversions in the valley during the late spring through mid-summer mornings and winter evenings. Early- to mid- fall apparently favors more out-of-valley evening inversions. However, these differences may be because of monthly sun angle variation with respect to in- and out-of-valley measurements and the small but important difference in times the observations were made.
- Annual differences show more low-level inversions in the valley in the morning with more inversions out of the valley in the evening. These differences may be because of the small but important difference in times the observations were made. And, curiously, the five-year duration reveals a shift from more morning and evening in-valley inversions early on to more out-of-valley inversions in later years.

For improved understanding of air-dispersion characteristics and consequences, it is important to model with upper-air data that properly represents--both spatially and temporally--all locations within the modeling domain.

Observations Needed to Benefit Future Research

Access to radiosonde measurements made during **descent** of the radiosonde (after its ascent that provides the traditional 00Z and 12Z observations). These measurements will help verify and augment upper-air soundings.