

Maps of raw and gridded, population-weighted % of Facebook Posters matching search criteria

The datasets shown in these maps were created by Bonne Ford, Jeffrey R. Pierce, and Moira Burke. Please contact bonne@atmos.colostate.edu if you have any questions.

Search criteria:

text RLIKE 'smoke|smoky|haze|hazy|air quality'

text NOT RLIKE 'cigarette|i smoke|a smoke|we smoke|to smoke|gonna smoke|smoker|smoke free home|smoke free pet free|second hand|u smoke|you smoke|smoke signals|can smoke|can t smoke|cant smoke|don t smoke|dont smoke|pack of smoke|who smokes|who smoke|smoke a|smoked a|smoking home|smoking|smokeing|smoke this|smoked|hazel'

This dataset was created using de-identified, aggregated % of Facebook posters matching these search criteria at a municipality centroid (location determined by IP address) that were gridded and population-weighted. The following equation was used:

$$f_i = \frac{\sum \left\{ f_c \times \frac{P_c}{\left[1 + \left(d_{i,c} / d_s \right)^6 \right]} \right\}}{\sum \left\{ \frac{P_c}{\left[1 + \left(d_{i,c} / d_s \right)^6 \right]} \right\}}$$

Where the percent of Facebook posts (f_i) at a grid location (i) is the sum of all of the products of the population (P_c) and the original percent of Facebook posts (f_c) at each “Facebook municipality” (c), weighted by the inverse of the distance (d) between location (i) and the Facebook municipality (c). We generate a fixed 0.25° grid using an inverse distance weighting with a scale distance (or search neighborhood, d_s) of 20 km and a power of six. The dataset covers 5 June – 27 October 2015.

all_days_Facebook.pdf Legend: Original and gridded and population-weighted percent of Facebook posts meeting search criteria for all days in dataset (white signifies no data or regions with weighted population < 10). Points represent city centroids.

Acknowledgement

This work was funded by NASA Applied Science grant NNX15AG35G.