



## **Study on the Agricultural Residues Burning and PM<sub>2.5</sub> Change in China by Remote Sensing Technology**

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Agricultural residues are materials left over from the production of crops. The total amount of agricultural residues in China is about 660 million tons every year, while a large proportion of that is burnt directly on the croplands. Agricultural residues burning is a significant source of air pollution in developing countries including China. In this study, the MODIS MOD14A1 products were used to derive the daily fire spots of China. Then, the agricultural residues burning spots were obtained by extracting with the area of croplands which is from MODIS MCD12Q1 products. After vectorization of agricultural residues burning pixels and with the help of fishnet, the burning density distribution maps were eventually completed. According to the statistics, there were 71,237 pixels of agricultural residues burning in 2014. The pixels mainly focused on April, June and October, the number of which were 11,628, 10,912 and 20,965 respectively. The results show that the distribution of agricultural residues burning is closely connected with ploughing and harvesting activities and it is more severe in north China. The air quality data of 150 cities in China were also used to obtain the daily and monthly distribution maps of PM<sub>2.5</sub> by Kriging interpolation method. The maps indicate that the PM<sub>2.5</sub> is always higher in north China than that in south China. Comparing the results of agricultural residues burning points with the results of PM<sub>2.5</sub>, we found the agricultural residues burning can cause the PM<sub>2.5</sub> increase, especially in June, the agricultural residues burning region was spatially and temporally consistent with the PM<sub>2.5</sub> increase region in this month.