

Review of “Does afforestation deteriorate haze pollution in Beijing-Tianjin-Hebei (BTH), China?” by Long et al.

General comments

The authors report the forest cover change in the BTH during 2001-2013 based on the MODIS product, and they assimilate the land cover change to the WRF-Chem model to investigate the effects of afforestation on haze pollution in this region. Furthermore, they examine whether a speculative and controversial proposal of building a large ventilation corridor system in Beijing would be beneficial in improving the local air quality. The authors conclude that afforestation has minor effects on the haze pollution in BTH, and building the ventilation corridor system would not help in improving the air quality in Beijing either. The manuscript is well presented; I have some minor comments for the authors to address.

Specific comments

1. Land cover change can modify many factors associated with air quality, such as surface roughness, surface moisture and terrestrial erosion, dry deposition of pollutants, thermal stability of PBL, etc. These factors affect air quality directly or indirectly. For example, changing the surface roughness can affect the surface wind speed and consequently affect air quality, upon which this manuscript addresses. A change in surface moisture and surface erosion affect the emissions of natural particles; a change in dry deposition can affect the in situ air quality and the air quality downwind when recirculation occurs. Since this manuscript focuses exclusively on the factor of surface roughness, the authors should clarify this confinement. Other factors could play important roles in improving the air quality, and taking all factors into account, it is likely that afforestation would improve the air quality in the BTH.

2. L230-232, the correlation measures the strength of a linear relationship between two variables; a high correlation coefficient means merely a strong linear relation, but it does not necessarily mean that a variable is a strong contributor of the other one.