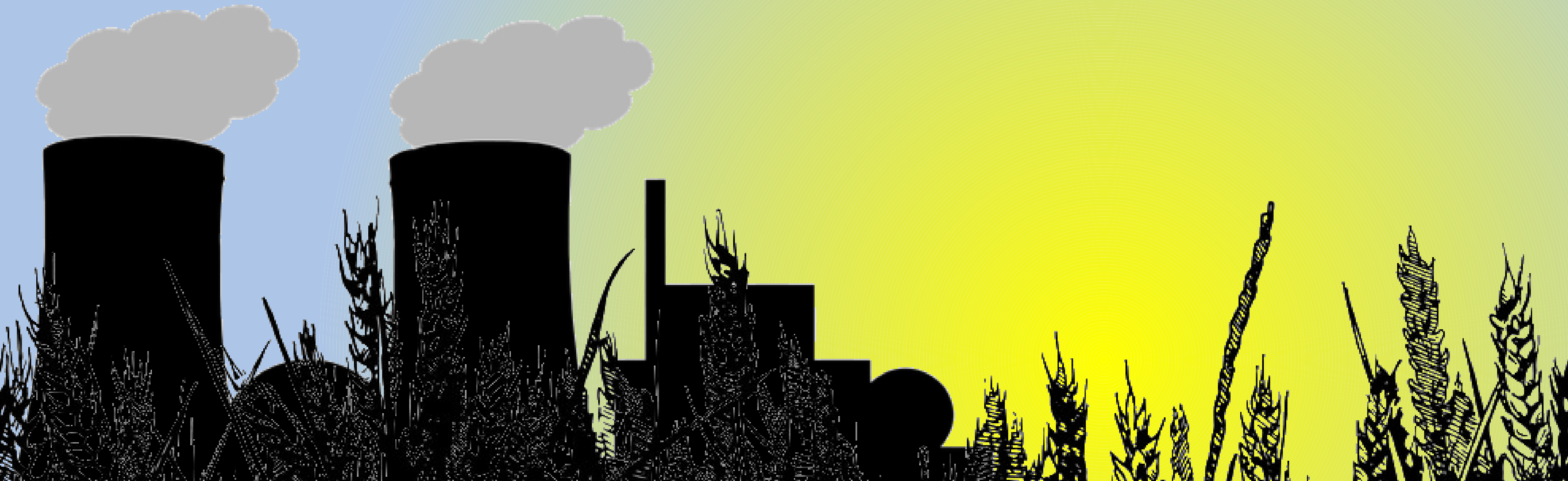


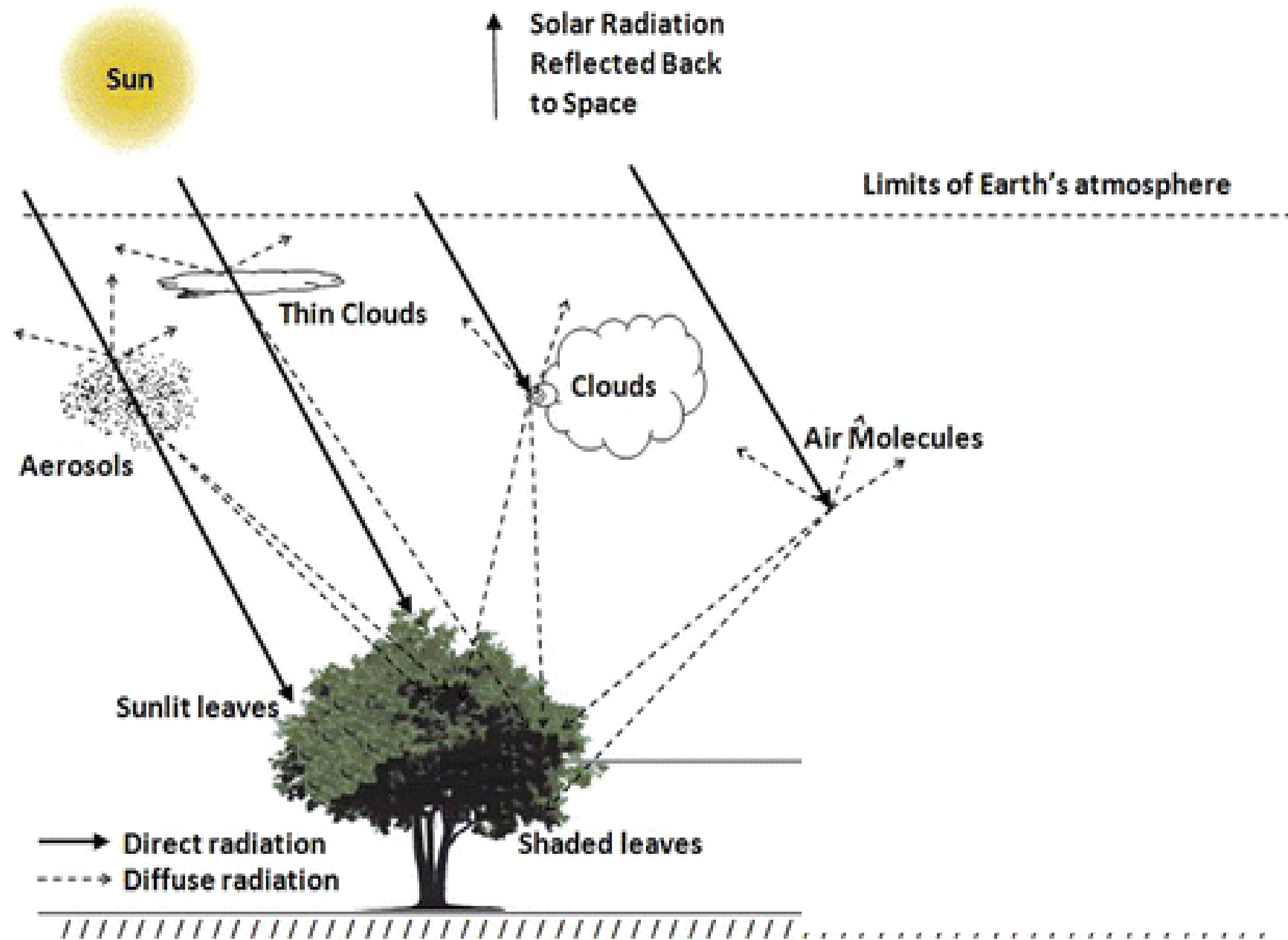
# Does Particulate Matter reduce Crop Yields on the North China Plain?

Mike Wolfe, Oliver Wild, Steve Long, Kirsti Ashworth



# Background

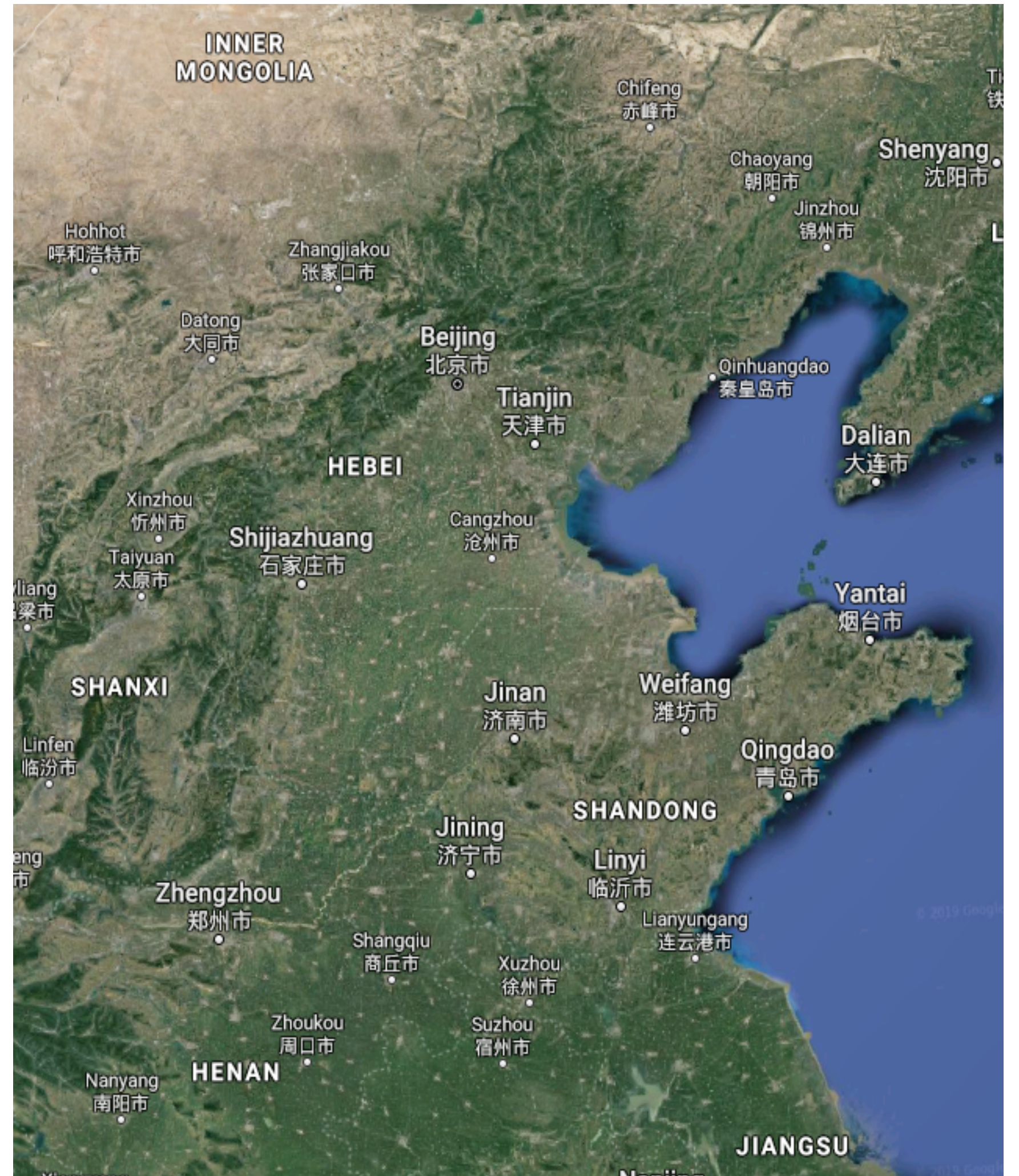
- PM intercepts incoming radiation
- PM scatters or absorbs shortwave radiation
- This impacts light use efficiency and total levels of leaf photosynthesis





# Method

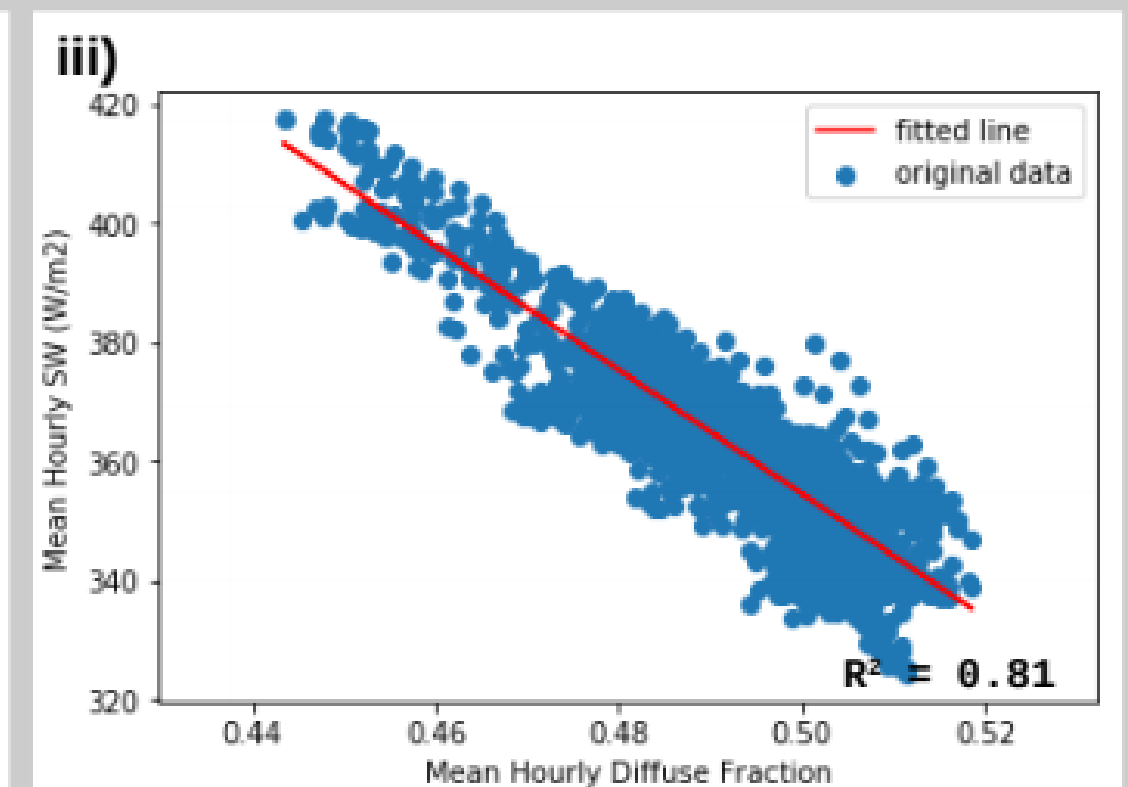
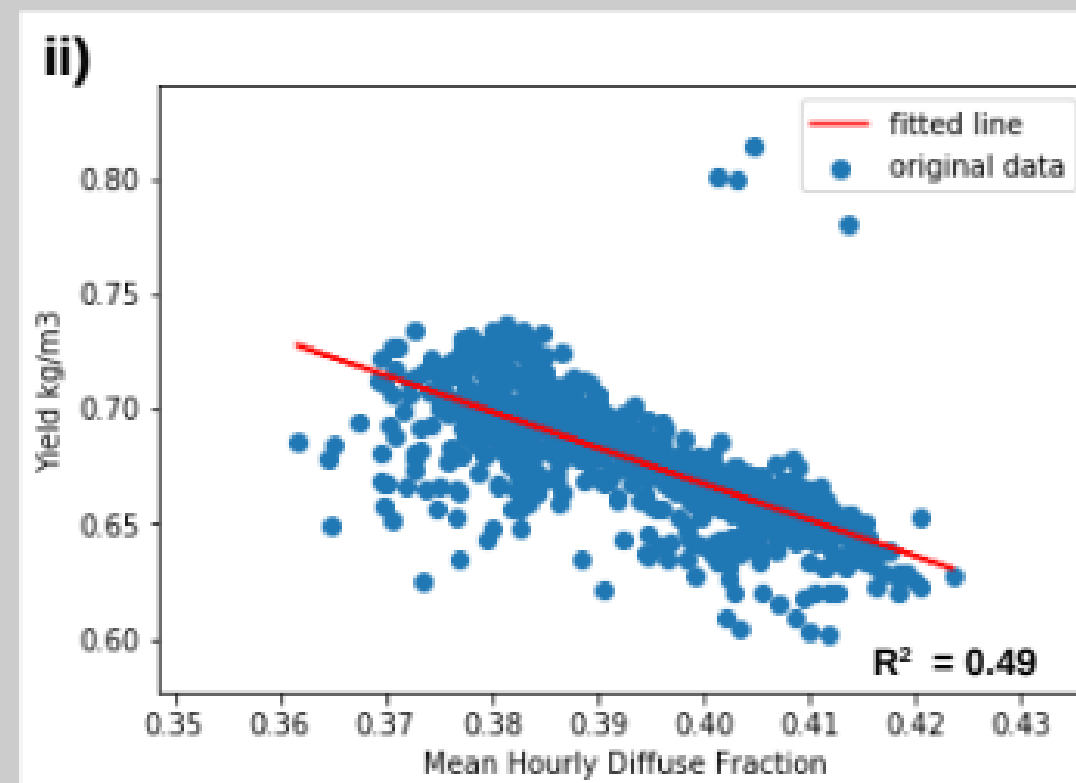
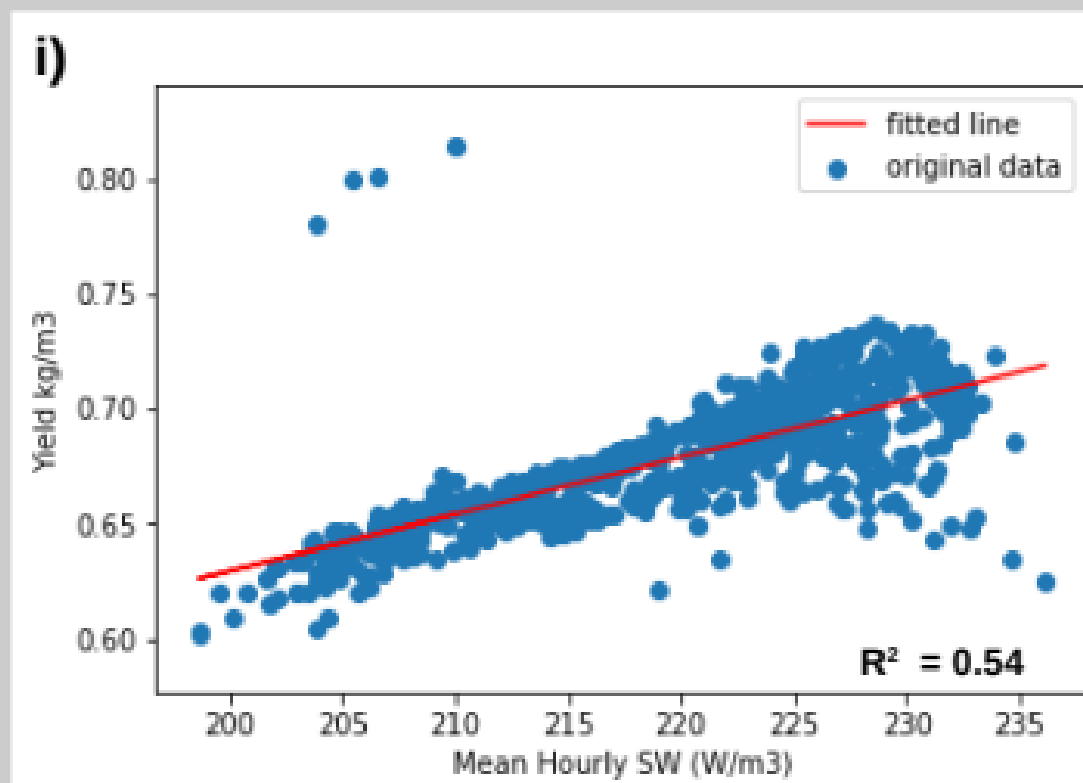
- JULES crop vn5.3 is used in this modelling, with maize configuration from Williams et al. 2017
- Model runs parametrised for a climatological average over NCP
- Meteorology from ERA-5 and run at 0.25 degree spatial and hourly temporal resolution



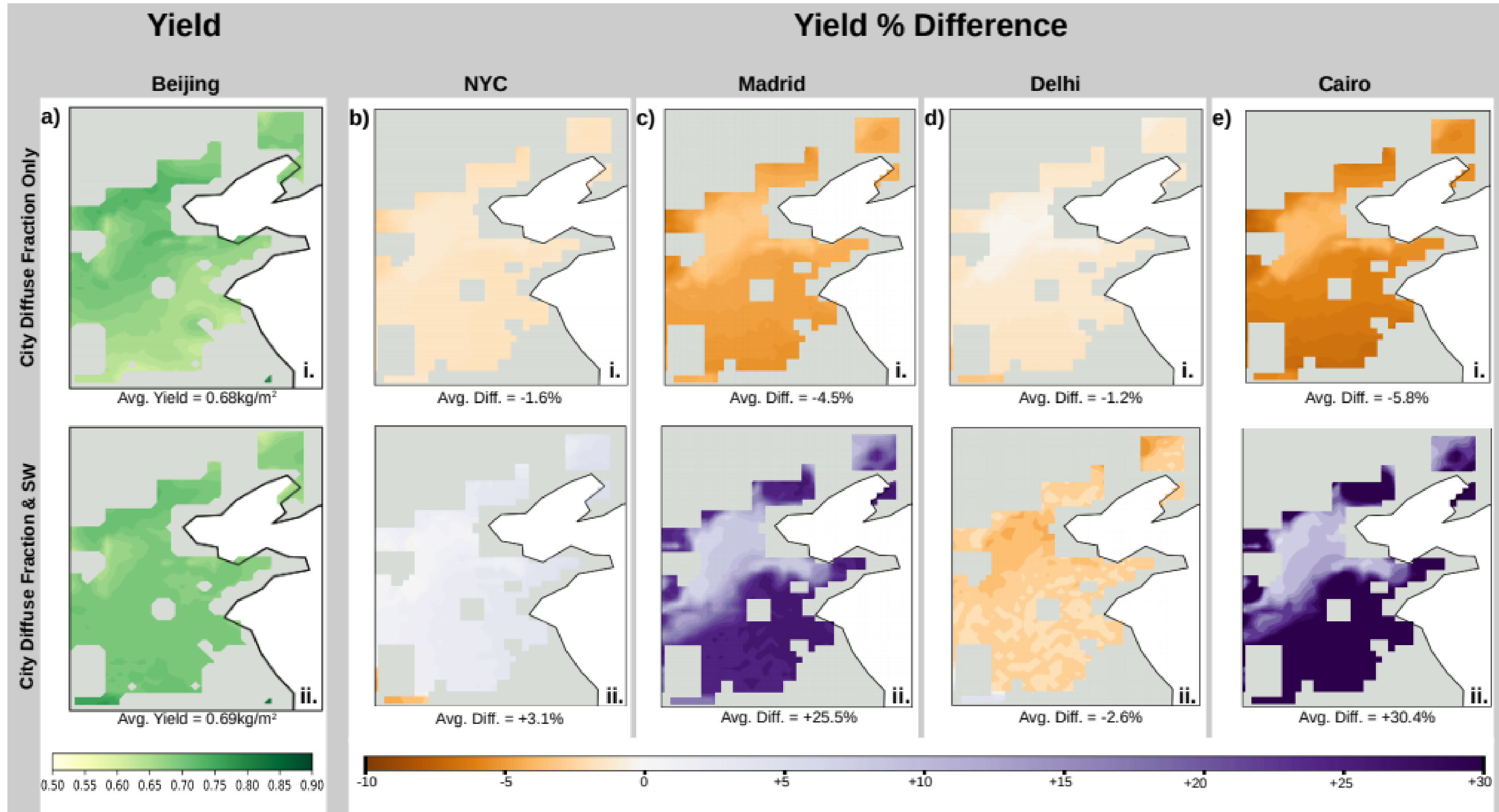


# Base Runs

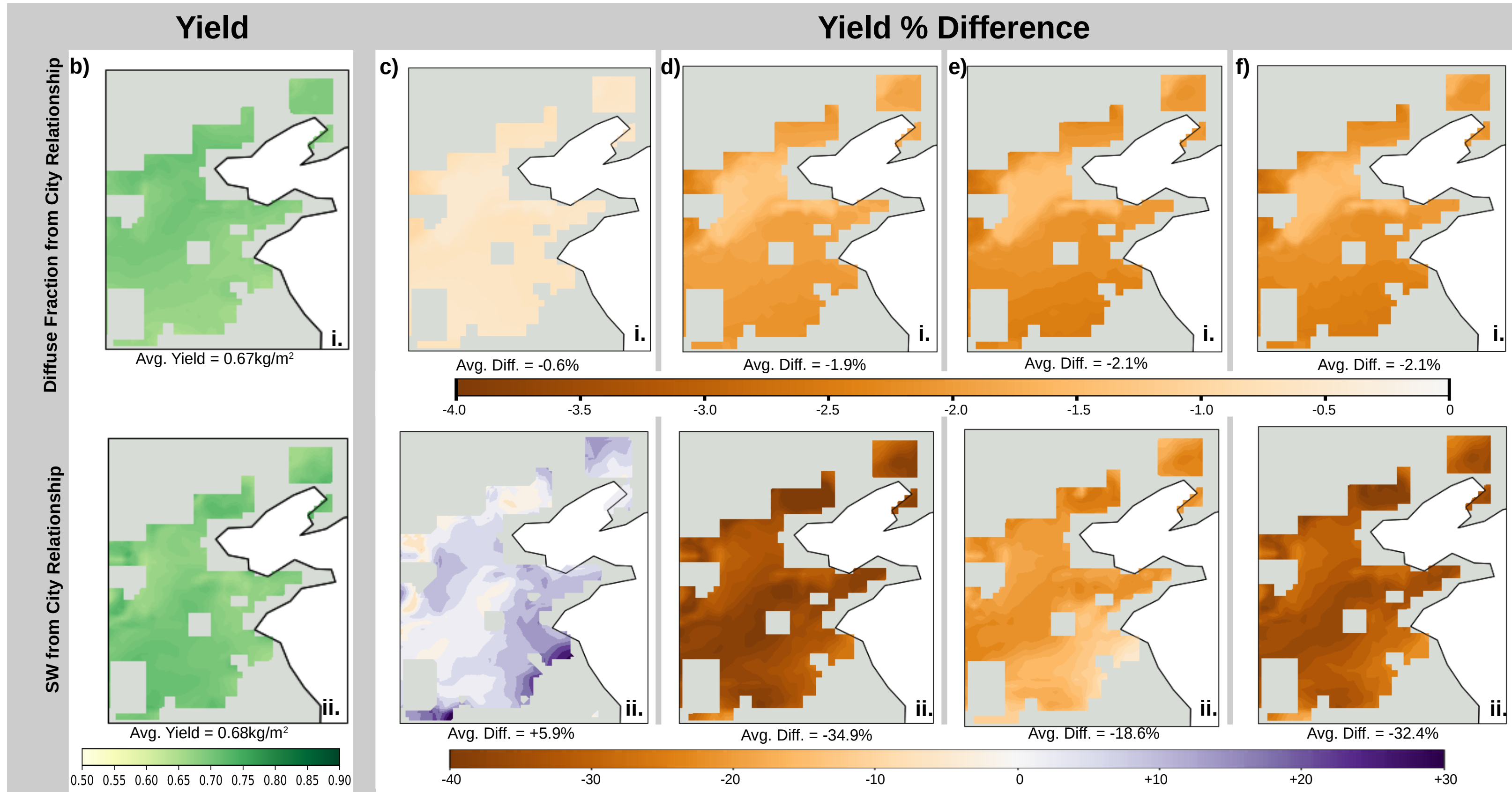
- There is a positive relationship between mean hourly SW and yield
- There is a negative relationship between mean hourly diffuse fraction and yield
- The relationship between diffuse fraction and yield is due to the relationship between total SW and diffuse fraction
- AOD is strongly correlated to diffuse and related to SW



# City Runs



# City Runs



# Development Stage

