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## ***Interactive comment on “A probe into the different fates of locust swarms in the plains of North America and East Asia” by G. Yu et al.***

**G. Yu**

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1. In Fig. 3, the Restraint locust year and the induced locust year are from record of EAP, but P.11190 line 23 “The combination of cold winter and low temperature during growing season and higher precipitation in spring and summer in NAP greatly restrained locust outbreaks and may have contributed to their decline and extinction soon after 1900AD” Does the locusts history in NAP show that they are also the kind of species prosperous under warm-dry (warm in winter and dry in spring and summer) conditions? If they do, should be mentioned, that will strengthen the argument.

Reply: Since there have not or little records of the locust swarms in NAP in the 20th century, it is hard to do statistical analysis for the climate pattern “warm in winter and dry in spring and summer” vs. the locust prosperous. The Fig. 3b and 3d only plotted

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the climate patterns vs. locust years in the EPA and provided the robust statistical relationships during the 20th century.

2. The locust species from different subfamilies may have different responds for the pesticides. The point is that a hypothesis should be mentioned “ responds of locust in both regions to the pesticides are similar” since they are different species in NAP and EAP.

Reply: The comment is acceptable.

3. P.11182 line 4-5 in EAP “extensive application of more effective chemical pesticides at higher intensity. “ Different kinds of pesticides may result in different effects on the locust swarms. It seems that the chemicals which being used in NAP and EAP are not the same? or possibly they are very similar, both are Arsenic baits? Please explain.

Reply: Large quantities of pesticides were used in the major agriculture regions of NAP in the late 1870s, which has been suggested as a possible major cause of the disappearing of locust outbreaks. The pesticides were mainly Arsenic baits used in the NAP. Comparatively, as chemistry industry developed much later in EAP than NAP, extensive applications of chemical pesticide to kill the pest were conducted at higher intensity in the granary region of China in EAP in the 1950-1960. When the pesticides used in the China were mainly Organochlorines, such as hexachloro-cyclohexane soprocide that were more effective chemical pesticides. However, locust swarms came back again in many areas of China in the 1960s (Note: the pesticides of hexachloro-cyclohexanes were disused in China since the 1970s, replaced by the low-toxicity and long-acting preparation pesticides so far).

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**BGD**

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