

Documentations and Inputs from Professor Zhaomei Zeng on the selection of the 84 (42-pairs of urban-rural) stations used in the 1990 GRL and 1990 Nature papers

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Background: Because the station history for 49 out of the 84 (42-pairs of urban-rural) stations used in the 1990 GRL and 1990 Nature papers were not included in the 1991 DOE data report, **charge** of “fabrication and/or misrepresentation” was raised about the **statement** of “few, if any, changes...In location” made in the two papers. In 14 February 2008, the Inquiry Committee expressed need for “documentations and inputs from the Respondent’s coauthor.....necessary to allow for any clear determination” on the **charge**.

Actions: After receiving the Inquiry Committee report on 18 February 2008, I immediately communicated with Professor Zhaomei Zeng (the co-author of both 1990 GRL paper and 1991 DOE data report), who made the **statement**. Currently, although retired from the Institute of Atmospheric Physics (IAP)/Chinese Academy of Sciences, she continues conducting research at IAP.

Inputs: Professor Zeng sent me a description (in Chinese) of the criteria for station selection with a Table marked with the status of station moves for each station of the 84-stations. Her input is attached below as an Appendix. Key points are noted here:

- Out of the 4,000 stations, 60- and 205- station networks were selected based on the “station history” considering the following factors: data length; number of site moves; data gaps; spatial representation, etc. While the station history was included in the 1991 DOE report for the 60-station network, they were not included in the 205-station network (published in 1993 DOE report which Professor Zeng is also a co-author) due partly to its not being a requirement under the US-China agreement, and partly to the huge effort coupled with inadequate resources (manpower and hardware) to digitize them.
- The 84-stations are a subset of the 60- and 205-stations datasets with 35-stations from the 60-station dataset, and 49-stations from the 205-station dataset. Note that while the station history of the 35-stations was used by Professor Zeng in compiling the number of station moves in the Table included in the Appendix, the 49-stations (most rural stations) are based on her recollection (together with checking against the present-day station location), simply because the original station history manuscripts (archived at IAP) and her detailed notes were no longer available due to several office moves over the almost 19-years time span.
- Below is a summary using Professor Zeng’s inputs for easy apprehension:

# of Station moves (1954-83)	# of Stations (total 35-stations)	# of stations (total 49-stations)
No	8	17
1	15	13
2	8	11
3	3	0
4	1	0
No longer remember	---	8

Conclusions: From the inputs provided by Professor Zeng, it is quite clear that she (1) had access to the station history when compiling the 60- and 205-stations datasets, and (2) used the criteria of “few, if any, changes in...location” to select the 84-stations used in the 1990 GRL and 1990 Nature papers. The **charge** of “fabrication and/or misrepresentation” is **false**.

Other Relevant Notes:

On 18 February 2008, Professor Jones (Lead author of the 1990 Nature paper) sent me a manuscript, “Urbanization effects in large-scale temperature records, with an emphasis on China” which was recently submitted to J. Geophysical Research for publication. In the paper, The most relevant finding is that comparing the 42-rural station data used in the 1990 GRL and Nature papers with those adjusted for homogeneity of a 728-station network yield very much the same results, implying that the station moves, if any, really did not matter when a representative set of stations (here 42-stations) was used.

Appendix Description of the background on preparation of the 60- and 205-stations datasets, and the numbers of moves within 1954-1983 for each station of the 84 (42-pairs urban-rural) stations used in the 1990 GRL and 1990 Nature papers (prepared by Professor Zhaomei Zeng, Institute of Atmospheric Physics, Chinese Academy of Sciences, 2/21/2008)

**42-pairs of stations used in “Urban Warming in China” study.
(★60-station network; others are in the 205-station network)**

Northeast	WMO #	Southeast Coast	WMO #
★1 Qiqihar (*) △Anda (n)	50745 50854	★1 Shanghai (*) △Dongtai (n)	58367 58251
★2 Harbin (* *) △Qian Gorlos (n)	50953 50949	★2 Fuzhou (0) △Fuding (n)	58847 58754
★3 Changchun (0) △Tongliao (n)	54161 54135	★3 Guangzhou (*) △Heyuan (??)	59287 59293
★4 Shengyang (0) △Dandong(An Dong)(E-small)	54342 54497	★4 Nanning (* *) △Longzhou (??)	59431 59417
△5 Jixi(small moved) △Tonghe (??)	50978 50963	★5 Hangzhou (* * *) △Dinghai (n)	58457 58477
△6 Fuxin (E-small) △Chaoyang (E-small)	54237 54324	★6 Wenzhou (0) △Li Shui (E-small)	58659 58646
△7 Yichun (n) △Hailun (E-small)	50774 50756	★7 Shantou (*) △Haifen Shanwei (??)	59316 59501
Northern Plain	WMO #	Southwest	WMO #
★1 Beijing (* * * *) △Cangzhou (moved≤2)	54511 54616	★1 Chongqing (0) △Pengshui (n)	57516 57537
★2 Tianjin (*) △Huimin (E-small)	54527 54725	★2 Guiyang (*) △Tongzi(moved≤2)	57816 57606
★3 Luda (Dalian) (* *) △Gaixian Xiongyue (n)	54662 54476	★3 Chengdu (*) △Yaan (n)	56294 56287
★4 Jinan (*) △Juxian(??)	54823 54936	★4 Kunming (0) △Dali (E-small)	56778 56751
★5 Qingdao (*) △Laiyang (moved≤2)	54857 54852	△5 Enshi (E-small) △Yunxian (??)	57447 57253
★6 Zhengzhou (*) △Yanzhou (E-small)	57083 54916	△6 Leshan(moved≤2) △Neijiang(moved≤2)	56386 57504
△7 Luoyang (E-small) △Xihua (n)	57073 57193	△7 Mianyang(moved≤2) △Pingwu (??)	56196 56193
Mid-Lower Changjiang & Huaihe Basin	WMO #	Northwest	WMO #
★1 Yichang (*) △Zhongxiang (n)	57461 57378	★1 Xian (*) ★ Hanzhong (* *)	57036 57127
★2 Wuhan (* *) △Yeuyang (moved≤2)	57494 57584	★2 Taiyuan (* *) △Jiexiu (n)	53772 53863
★3 Changsha (* *) △Changde (E-small)	57679 57662	★3 Lanzhou (*) △Pingliang (n)	52889 53915
★4 Nanjing (0) △Sheyang (E-small)	58238 58150	★4 Urumqi (* * *) △Qitai (??)	51463 51379
★5 Nanchang (*) △Jian (E-small)	58606 57799	△5 Datong(moved≤2) △Weixian(moved≤2)	53487 53593
△6 Hefei (moved≤2) △Huoshan (n)	58321 58314	★6 Xining (*) △Linxia (n)	52866 52984
★7 Xuzhou (* * *) ★ Qingjiang (* *)	58027 58144	★7 Hohhot (0) △Urad Zhongqi(n)	53463 53336

For 60 stations (★): (0) no moved 8 stat., (*) One extremely small moved 15 stat., (**) two small moved 8 stat., (***) three moved 3 stat., (****) four moved 1 stat., during the 1954-1983.

For 205 stations (△): Based on my recollection during the 1954-1983 (n) no move 17 stat., (E-small) one extremely small moved 13 stat., (moved ≤ 2) moved ≅ 2 times 11 stat., (??) I had not in remembrance 8 stations.

说明:

我们选的 60 和 205 个站序列的台站都是有台站史料的，只是按中-美协议给了 60 个站的台站史。205 个站的选站也是根据每站的历史沿革从中国 4000 多个站中挑选资料年代长、观测场位置尽可能无变化和小变化或少变化的、资料连续性好、缺测记录少、并适当考虑台站空间分布的均匀性等原则来挑选的。至于 205 个台站史，当初收集资料时也有记录，因人力、经费、设备不足（只有一台计算机要输入数据）未能输入计算机中（工作量巨大）。后因本人去美国工作的前后，大气所和我在的研究室都经过多次搬迁，当年手抄记录早已当废纸销毁了。原始资料也因本研究所资料库多次搬迁和长期无人使用以及管理资料的人员早已退休多年而无法再查找。因此，上述 49 个乡村站的“站史信息”仅仅是我个人当年在做此工作时印象比较深的一些台站的记忆，可能不准确。对(??)这些站我已无印象，不过我与目前国家气象局整理的 7000 多个气象台的地理位置作了比较，这 49 个站仅部分站的观测高度稍有变化 (<1.5 米)，个别站的纬度或经度有 0.01 度的差异外并无大的改变。

中国科学院大气物理所

曾昭美

二 00 八年二月二十一日