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The Importance of Natural Variability

We have seen that our ability of determining if cloud seeding *causes* some *observed or hypothesized effect*, such as changes in local rainfall in specified target areas, is strongly dependent upon the *natural variability* of the system. However, the same can be said in assessing if anthropogenic greenhouse gas emissions, or deforestation, or release of CCN have any significant impact on global climate. While the time and space scales are very different, nonetheless the bottom line in examining potential human-caused effects is: *are these effects large enough in magnitude to be extricated from the 'noise' of the natural variability of the system?* There are few, if any, cases in which we can answer this question affirmatively. Ice cores have shown, for example, that a switch from an ice age climate to a non-ice age environment can occur over only a few decades (La Brecque, 1989a,b) without human intervention.

