Trouble in polar paradise (Science, 08/30/02), significant changes in the Arctic environment are scientifically documented (R.E. Moritz et al. ibid.). More trouble, lots more, “abrupt climate change,” (R. B. Alley, et al. Science 03/28/03). R. Corell, Arctic Climate Impact Assessment team (ACIA), “If you want to see what will happen in the rest of the world 25 years from now just look what’s happening in the Arctic,” (Arctic Council meeting, Iceland, 08/03). What to do?

Make abrupt Arctic climate change a grand challenge for the IPY-4 and beyond!

Scientifically:
- Describe the “state” of the Arctic climate system as succinctly as possible and accept it as the point of departure
- Develop a hypothesis and criteria what constitutes “abrupt climate change,” in the Arctic that can be tested with observations.

Observations:
- Bring to bear existing observations and coordinate new investments in observations through an IPY-4 scientific management committee
- Make the new Barrow, Alaska, Global Climate Change Research Facility a major U.S. contribution and focal point for the IPY-4 in the U.S Arctic

Arctic populations, Native peoples:
The people of the North are living already, daily, with wrenching change, encroaching on their habitats and cultures. For them “the earth is faster now,” (I. Krupnik and D. Jolly, ARCUS, 2002). From a political, economic, social and entirely realistic perspective, an Arctic grand challenge without the total integration of the Native peoples in this effort cannot succeed. Therefore:
- Communications must be established, and the respective Native entities must be approached with the determination to create well founded, well functioning, enduring partnerships.
- In the U.S. Arctic, Barrow with its long history of involvement and active support of science and with the new global climate change research facility is the focal point of choice

Private industry:
Resource extraction in the Arctic followed by oil and gas consumption, return the combustion products as greenhouse gases to their regions of origin. Thus multinational company operations are affected by their own activities. There is a strong, convincing case, that these industrial giants must be involved in Arctic partnerships of the grand challenge. A most instructive, very successful example is the collaboration by the chemical companies after the discovery of the polar ozone holes, followed by the replacement of the culprit chlorofluorocarbon compounds.

Public relations and involvement/education:
The IPY offers a unique opportunity to showcase and drive home, into homes, the seriousness of the issue, Hollywood/Madison Avenue/ NASA style, nothing else will do.
Ultimately we need to be mindful that “civilizations are ephemeral compared to species. –What we need is a primer on science, clearly written and unambiguous in its meaning—a primer for anyone interested in the state of the Earth and how to survive and live well on it.” (James Lovelock, Science, 08/05/98). Let’s start in the Arctic-NOW.