

IBCP PROJECTS ON GLOBAL CHANGE AND THE ENVIRONMENT

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During the last few years the IGCP has broadened its program to include more projects concerned with the environment and global change. This was partly in response to the growing concern over the state of our planet and humanity's interaction with it. Although there are a variety of projects, a number concern the CO₂ cycle, coastal and near coastal areas, desert regions, and applied projects such as the effect of weathering on structures. Notable achievements concerning CO₂ include identifying rapid climate change at a resolution of 100-500 years from stable isotopic data of speleothems, and the evaluation of the terrestrial carbon cycle indicating the importance of peat in interglacial carbon storage. Coastal studies have documented sediments deposited by tsunamis from recent earthquakes enabling future prediction. Sophisticated desert investigations have uncovered vast areas of groundwater below sand dunes in the eastern Sahara that should promote agriculture. Other desert studies have confirmed that in the Asian-African belt there were two wetter episodes between 55 - 22 ka, a major dry phase between 22 - 15 ka, a major dry period at c. 4 ka, and a major humid phase between 8 - 6 ka. In addition, desert margin shifts in north China are estimated at 500 km between the last glacial and the present. Applied projects have shown the high degree of weathering of cultural sites by anthropogenic pollution. The presence of bacteria has been grossly underestimated in the weathering process. Bacteria can increase the rate of weathering and acid production more than 30 times.