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SUBGLACIAL ANTARCTIC LAKE EXPLORATION: FROM A CURIOSITY TO A FOCUS OF SCIENTIFIC RESEARCH

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Qualitative observations taken as early as the mid-1950's inferred the presence of large lakes beneath the Antarctic ice sheet. The existence of a large region of liquid water beneath Vostok Station was suggested by radio-echo sounding data taken in the 1970's and the presence of what is now referred to as Subglacial Lake Vostok was first reported at the 23rd meeting (August 1994, Rome, Italy) of the Scientific Committee on Antarctic Research (SCAR) in a joint Russian-British report. This report led to a series of international workshops that formalized the scientific relevance of Lake Vostok and focused international attention on the considerable challenges presented by the way we conduct science in such unique and inhospitable settings in an atmosphere of increasingly stringent environmental concerns. Airborne radar surveys have now documented at least 150 subglacial lakes beneath the Antarctic ice sheet, the largest being Lake Vostok. Exploration of subglacial environments will require careful and detailed planning, organization and international cooperation. To this end, SCAR convened an international Group of Specialists (SALEGOS) at their 26th meeting (July 2000, Tokyo, Japan) to develop a detailed assessment of the needs and critical milestones to be accomplished during the implementation of a subglacial environment exploration and research program. In 2004 SCAR selected Subglacial Antarctic lake Exploration (SALE) as one of its five major interdisciplinary Scientific Research Programs and SALE has been chosen as a research theme for the International Polar Year 2007-2008. Topics under discussion by SALE include the current state-of-knowledge of subglacial environments, technological needs and challenges, societal impacts, a portfolio of scientific projects and "clean" requirements for entry, observatory deployment, and sample retrieval. This presentation will (i) focus on the new and exciting interdisciplinary science that has been generated by recent studies of subglacial environments and (ii) provide a vision for SALE over the next decade.