

Fossil Dinoflagellates from the Core Sediments of the Bransfield Strait, Antarctica

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Five cores (S4, S7, S15, S16 and AB2) from the Bransfield Strait located between the South Shetland Islands and the Antarctic Peninsula have generally yielded rich and diverse marine dinoflagellate cysts. However, the diversity, abundance and stratigraphic range of the fossil contents vary with each core. Cores S4, S7 and S16 located at relatively steep submarine slope near coast yield much abundant and stratigraphically homogeneous assemblage, whereas S15 located offshore produced heterogeneous taxa of different ages and poor abundance. By comparison with dinoflagellates from other Southern Hemisphere localities, particularly Antarctic Islands, southern Australia and southern Indian Ocean, cyst assemblages of core S4, S7 and S16 are considered to be of Late Campanian and Paleogene age, while those of core S15 is of Cretaceous to Recent. Because the fossil dinoflagellates indicate Cretaceous or Tertiary age different from Recent sediments, they are regarded as allochthonous. They seem to be reworked from Cretaceous or Tertiary sedimentary rocks of the neighbouring land or islands and transported into the Bransfield Strait. Cysts of core S4, S7 and S16 are interpreted to be transported from the South Shetland Islands and the Antarctic Peninsula by mass flow and those of S15 by bottom current from the Weddell Sea which is flowing into the Bransfield Strait. Furthermore, sediments of S15 were accumulated under the influences of multiple sedimentary processes in varying environments, whereas those of S4, S7 and S16 seem to be deposited during single sedimentary episode as shown by their monotonous species composition throughout the core. In contrast to before-mentioned cores, the AB2 core located in the Maxwell Bay of the South Shetland Islands yield mostly Pleistocene to Recent taxa indicating minimum influence of currents on sediment and cyst reworkings and relatively stable environment.