PAN
POLSKA AKADEMIA NAUK

Oddział
we Wrocławiu

KOMISJA NAUK O ZIEMI I ŚRODOWISKU
ODDZIAŁU POLSKIEJ AKADEMII NAUK
we Wrocławiu

uprzejmie zaprasza na posiedzenie otwarte, które odbędzie się 21 kwietnia 2026 r. o godz. 14.00 (wtorek) w Centrum Badań Regionów Zimnych (BUWr, Wrocław, ul. Fryderyka Joliot-Curie 12)

Thermokarst landforms in Canada: distribution and relation to permafrost terrain conditions

prof.

Stephen Wolfe

is a research scientist at the Geological Survey of Canada and an adjunct professor at Carleton University. With over 30 years of experience in permafrost and cold-climate research, he has authored more than 50 peer-reviewed papers, focusing on aeolian processes in Canada. His work includes dune-based drought reconstructions, studies of Pleistocene dune fields in permafrost regions, and analyses of wind regime shifts during deglaciation. He has also investigated the formation of oriented lakes, thermal contraction cracking, sand wedges, and barchan-type dunes in Arctic and western Canada.

Abstract: Permafrost thaw and the melting of ground ice can drive major ecological changes, damage infrastructure, and disrupt biogeochemical cycles. A new paleogeographic model for northern Canada maps the distribution of relict, segregated, and wedge ice, linking their occurrence to past climate shifts, deglaciation, vegetation changes, and inundation processes. Results align with field data, showing relict ice dominance in the western Arctic, widespread segregated ice in fine sediments, and wedge ice linked to prolonged cold exposure.

Ground ice loss also leads to thermokarst formation. Based on nearly 16,000 observations, a conceptual model identifies “thermokarst domains” that reflect terrain conditions controlling landform distribution. These domains help interpret past permafrost thaw and anticipate future landscape changes.

Przewodniczący Komisji
Nauk o Ziemi i Środowisku
Prof. dr hab. Zdzisław Jary