

PALAEOCLIMATE AND QUATERNARY SESSION

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Palaeoclimate research aims to reveal the nature, temporal and spatial scale of climate changes throughout Earth's geological history, as well as the atmospheric, oceanic, tectonic and astronomical processes that control these changes. Since instrumental climate records cover only the last few centuries, climate conditions of earlier periods are reconstructed using palaeontological, sedimentological, geochemical and isotopic data obtained from natural archives such as lake, marine and cave deposits, ice cores, fossil pollen and spores, microfossils and palaeosols. These data help to determine the natural variability of the climate system, its threshold values and its effects, and provide a fundamental reference for evaluating present-day climate change in a long-term context and for testing future climate scenarios. In line with the main theme of the congress, "Earth Sciences in Solving Global Problems: Earth-Society-Future", this session aims to transfer knowledge of past climates to climate change adaptation strategies, to water resources and ecosystem management, and to the assessment of natural hazard risks. For this reason, palaeoclimate studies go beyond explaining Earth's climate history and represent one of the most important contributions of the Earth sciences to building the scientific basis needed to solve a global problem such as the climate crisis.

The session will include studies on the evolution of climate throughout geological time, from the Precambrian to the Cenozoic. The main topics of interest are large-scale climate transitions defined by the formation and disappearance of polar ice sheets, climate events related to mass extinctions, oceanic anoxic events, sudden disruptions of the carbon cycle, and the warming and cooling phases of the Cenozoic. Within this framework, we invite contributions presenting palaeoclimate interpretations based on palaeontological, palynological, sedimentological, geochemical and isotopic approaches. We also welcome studies that examine the interactions between palaeogeography, tectonics and climate, that aim to reconstruct palaeoclimate parameters quantitatively, and that compare proxy data with climate models.

The Quaternary, marked by strong climate fluctuations resulting from the alternation of glacial and interglacial periods, and the time during which humans evolved and spread across the Earth, is of particular importance for understanding present and near-future climate conditions. Accordingly, the session will cover the stratigraphy and dating of Quaternary deposits, as well as climate-driven lake-level and sea-level changes, the climate-controlled evolution of coastal and tidal environments, Holocene climate events, drought periods and abrupt climate changes. In addition, the session aims to include research on the effects of climate fluctuations on vegetation history, human–environment interactions shaped by climate change, geoarchaeology, and the relationship between climate and the establishment, development and abandonment of ancient settlements. Influenced by different climate zones and rich in lake, coastal and cave archives, Türkiye and its surroundings form a unique natural laboratory for this research.

We look forward to your contributions presenting original data and interpretations on palaeoclimate and Quaternary studies, and we will be pleased to welcome you at the congress.