

## **A02-O01**

### **THE DYNAMIC ARCTIC**

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Research over the last decade have yielded a growing stream of data that highlight the dynamic nature of Arctic cryosphere and climate change over a range of time scales. As a consequence, rather than seeing the Arctic as a near static environment in which large scale changes occur slowly, we now view the Arctic as a system that is typified by frequent, large and abrupt changes. The traditional focus on end members in the system - glacial versus interglacial periods - has been replaced by a new interest in understanding the patterns and causes of such dynamic change. Instead of interpreting changes almost exclusively as near linear responses to external forcing (e.g. orbitally-forced climate change), research is now concentrated on the importance of strong feedback mechanisms that in our palaeo-archives often border on chaotic behaviour. The last decade of research has revealed the importance of on-off switching of ice streams, strong feedbacks between sea level and ice sheets, spatial and temporal changes in ice shelves and perennial sea ice, as well as alterations in ice sheet dynamics caused by shifting centres of mass in multi-dome ice sheets. Recent advances in dating techniques and modelling have improved our understanding of leads and lags that exist in different Arctic systems, on their interactions and the driving mechanisms of change. Future Arctic research challenges include further emphases on rapid transitions and untangling the feedback mechanisms as well as the time scales they operate on.