The Arctic is showing some of the earliest and largest changes in response to global warming, and the Arctic is predicted to continue to change quickly in the future. Over the last decades, our understanding of both the northern and the southern Polar Regions has increased dramatically, and we have come to realize how important they are for the rest of the world. At the same time, however, we have also realized how little we understand many of the important processes in the Polar Regions. To better anticipate future changes in the Arctic and Antarctica (for example, the transition of the Arctic Ocean from a perennial to a seasonally ice-covered ocean and the sea-level rise due to melting ice sheets in the Antarctic and Arctic), we need to enhance our efforts to study the polar regions in the coming decades, using both observational campaigns and modelling. Much of this research will be carried out by early career scientists who were trained during the recent International Polar Year (IPY 2007-2009). The task of tackling the important unresolved questions in the Polar Regions will be a great opportunity for early career scientists to make important contributions in their fields. In order to succeed, collaborations across disciplines and the support by IUGG and its associations will be crucial.