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Ice2sea – tackling uncertainty in projections of sea-level rise

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The future security and prosperity of our growing coastal cities and survival of many unique coastal habitats requires scientists to deliver reliable sea-level projections, which will form the basis of protection and adaptation planning for vulnerable coastal regions. Most contributions to sea-level rise can now be predicted with some confidence; the greatest remaining uncertainty lies in the contribution of ice-loss from Antarctica and Greenland. An EU Framework-7 programme, ice2sea, is working to inform the IPCC Fifth Assessment, and provide policy-makers with reliable sea-level projections, taking account of the long response-times of ice sheets and the complex atmospheric and oceanic changes that impact them. The collective efforts of 24 partners in Europe and overseas to the ice2sea have produced projections of the contribution of global glaciers and ice sheets to sea-level rise, using process-based models tied to specific emissions scenarios. These projections are synthesised here, with identification of geographical areas and processes where uncertainty is significantly reduced, and others where potential for future reduction remain urgently required.