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Toward a 3D crustal-scale, onshore and offshore, geological model of Britain and Ireland.

Graham Leslie (1), Mark R. Cooper (2), Brian McConnell (3), Sarah L.B. Arkley (4), Stephen J. Mathers (5), Benjamin Wood (5), and Holger Kessler (5)

(1) British Geological Survey, Murchison House, West Mains Road, Edinburgh, EH9 3LA, United Kingdom. (agle@bgs.ac.uk, +44 (0)131 668 1535)., (2) Geological Survey of Northern Ireland, Colby House, Stranmillis Court, Belfast, BT9 5BF., (3) Geological Survey of Ireland, Beggars Bush, Haddington Road, Dublin 4., (4) British Geological Survey, Murchison House, West Mains Road, Edinburgh, EH9 3LA., (5) British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham NG12 5GG.

Informed decision making and assessment of uncertainty and risk in a geological context requires a sound grasp of key stratigraphical and structural surfaces in 3D. This British Geological Survey (BGS)/Geological Survey of Northern Ireland (GSNI)/Geological Survey of Ireland (GSI) collaboration is constructing a regional-scale model of the fundamental architecture of the British and Irish upper crust at a nominal scale of 1:500 000 – offshore and onshore. The aim is to provide a model that can be used as a dynamic context for the widest possible range of larger-scale models relevant to geological survey, investigation, research and education. The model will also be a framework within which the geological community can communicate effectively with a broad spectrum of planners, designers, and construction engineers – realising our geological framework for society's benefit.

We are constructing this model, within the BGS GSI3D package but is interoperable with other modelling packages such as GOCAD® and GeoVisionary. The model is constructed around a framework of 15 km deep geological cross-sections that capture published geological mapping and 3D interpretation, integrated with the interpreted results of regional geophysical potential field and seismic survey. We aim ultimately to have a volume-attributed model which can host site/topic specific models at a variety of scales. Our 'Test Block' started with Northern Ireland (GSNI Tellus2 funded) and the northern half of the Republic of Ireland (GSI); continued development has seen the model expand across all of Scotland, and Northern England. The remainder of Britain (BGS GB-3D project) and Ireland will be incorporated in due course, and as the development continues we will seek input from academia and industry via a user portal. This short demonstration is intended to provide insight into the progress to date, and to encourage interested groups to contribute to the developing model.