

The British Geological Survey has been conducting a pilot project into the use of Linked Data. Linked Data is a best practice for using the web to expose, share and connect pieces of data, information and knowledge. It facilitates connections between previously unrelated data, and lowers the barriers to linking data currently linked using other methods. In essence, linked data involves publishing snippets of information as independent 'triples', made up of a subject, a predicate and an object. A subject is referenced by a URI and can represent any resource: a person, organisation, concept, dataset, model, application etc. A predicate is a property or relationship assigned to the subject, and is also referenced as a URI. An object is the value of the property or object of the relationship; this may be a resource referenced as a URI or a literal value such as a number or text string. Data linkages come about because anyone can publish a statement about anyone else's resources, and resource URIs for subjects and objects can be matched up. Data linkages are also enhanced because anyone can (and should where possible) re-use anyone else's predicates, thereby using a common language to describe information. BGS's pilot project is about to publish three of our major vocabularies (Lexicon of Named Rock Units, Geochronological timescale, Rock Classification Scheme) and our 625k 2D geological map in linked data form. We have added links between our resources and those defined in external linked data sources where possible, including DBpedia (a linked data version of Wikipedia), the Ordnance Survey and the BBC Wildlife Finder website. Further work is necessary to improve the links to parallel vocabulary schemes defined by international organisations. The benefit of linked data is that rather than an end-user having to do investigative work to uncover the syntax and semantics of disparate datasets in order to integrate them, data published according to the Linked Data recommendations provides this information up front in an unambiguous and instantly available form. The user will have all the information at hand to integrate the data in a logical and scientifically valid way. This presentation will speculate as to how this approach may be applied to enable models to communicate and exchange information at run-time, for example using an interoperable vocabulary for physical properties, spatial and temporal dimensions and methodologies. Linked data can also be used to describe a common vocabulary for model parameters and the relationships and dependencies between them, thereby exposing feedback mechanisms between separate models or algorithms.