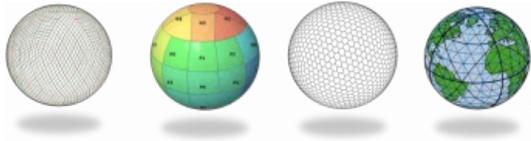


New Standard to Revolutionise Spatial Information Referencing



The membership of the Open Geospatial Consortium (OGC) has approved the Discrete Global Grid System (DGGS) as OGC Abstract Specification - Topic 21 [OGC 15-104r5]. The goal of DGGS is to enable rapid assembly of spatial data without the difficulties of working with projected coordinate reference systems. The OGC DGGS Abstract Specification standard defines the conceptual model and a set of rules for building highly efficient architectures for spatial data storage, integration and analytics.

DGGS will provide the capability to properly integrate global geospatial, social, and economic information. It also allows communities with data attributed to fundamentally different geographies to integrate this information in a single consistent framework, said Dr Stuart Minchin, chief, Environmental Geoscience Division at [Geoscience Australia](#).

Spatial information visualisation

DGGS will revolutionise the way we perceive, work with, and visualise spatial information, said Dr Matthew Purss, senior advisor at Geoscience Australia, co-chair of the OGC DGGS Standards and Domain Working Groups, and editor of the OGC DGGS Abstract Specification – Topic 21 [OGC 15-104r5]. DGGS are a technology that allow the harmonisation of raster, vector, and point cloud data in a common, globally consistent framework – enabling the spatial industry to overcome some key challenges presented by traditional GIS approaches; namely, the ‘raster-vector divide’, as well as the use of map projections.

DGGSs represent the Earth as hierarchical sequences of equal area tessellations on the surface of the Earth, each with global coverage and with progressively finer spatial resolution. Individual observations can be assigned to a cell corresponding to both the position and size of the phenomenon being observed. DGGS come with a standard set of functional algorithms that enable rapid data analysis of very large numbers of cells and, by their very nature, are well suited to parallel processing applications at multiple spatial resolutions.

Geo Big Data

It is timely for DGGS to become the de facto standard grid referencing system globally for geographic Big Data, said Dr Zoheir Sabour, science director at University of Southampton [IT Innovation Centre](#), United Kingdom, and co-chair of the OGC DGGS Standards and Domain Working Groups. DGGS will fit extremely well in the stack of big data necessary for intelligent processing levels that will enable fast and accurate exploration, mining, and visualisation of Big Data.

We have reached a tipping point in our ability to make effective use of Big Data to derive economic and societal value, added Dr Purss. DGGS represents the paradigm shift that will allow us to overcome some of the critical barriers preventing us from realising the true potential that Big Data promises to deliver.

There is explosive growth in both the variety and the volume of spatial data and processing resources, along with a growing understanding of the tremendous benefit that can be derived from enabling interoperability between them. On the other side of this deluge of spatial content is a growing demand by decision-makers for a participatory environment where content can be accessed directly from diverse contributors and used with other content without reliance on time-consuming and costly geographic transformation processes.

Data fusion

Decision-makers who require situational awareness exist across all sectors of the economy: public health, agriculture, natural resources, land development, emergency response, supply chains, transportation, outdoor recreation, etc,” said Perry Peterson co-chair of the OGC DGGS Standards Group and founder of [PYXIS](#). “Most of us in fact, from scientists to citizens, regularly seek answers to spatial questions. However, assembling the array of spatial data available in a way it can make sense is presently an expensive challenge requiring an expert. DGGS offers a solution.

One of the core contributions of a DGGS is geospatial data fusion on demand. In a multiple provider environment, fusion is only possible with an information system architecture based upon open standards. The OGC DGGS Abstract Specification provides a platform to enable interoperability within and between different DGGS implementations while promoting reusability, knowledge exchange, and choices in the design of individual DGGS implementations.

