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Standardization of geospatial analysis ready data via OGC and ISO

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Geospatial data are data with location information. Geospatial data are very diverse and widely used in various socioeconomic applications and decision makings. Typically, geospatial data obtained from data providers needs to go through a long chain of pre-processes and quality measures before the data can be analyzed for a specific application. For a specific type of geospatial data, many of the pre-processes and quality measures are common to different data users regardless the data applications. It is possible to pre-apply those common pre-processes and quality measures to the geospatial data so that the repetitive preprocesses can be avoided, the pre-process chain at user side can be significantly shorten, and the data is more ready for analysis. The geospatial data, which has been pre-applied with a set of pre-processes to meet certain quality specifications and be ready for analysis in applications, are called geospatial analysis ready data (ARD). In the satellite remote sensing domain, the Committee on Earth Observation Satellites (CEOS) has defined the CEOS Analysis Ready Data (CEOS-ARD) as satellite remote sensing data that have been processed to a minimum set of requirements and organized into a form that allows immediate analysis with a minimum of additional user effort and interoperability both through time and with other datasets. CEOS has set a number of ARD product family specifications (PFS) and encouraged its member space agencies to produce CEOS ARD PFS compliant products. However, CEOS ARD PFS are limited to satellite remote sensing data and are not the recognized international standards, which prevents them from being widely accepted and adopted by the broad geospatial community. Other geospatial communities, such as ARD.Zone, are also developing their ARD concepts. Formal ARD standardization through authoritative international standard bodies is necessary to achieve broad uptake, particularly by the commercial sector, promote widely acceptance of the standardized concept, and help avoid the divergence that can be caused by various groups working towards different interpretations of the concept. Therefore, a joint effort between ISO TC 211 and the Open Geospatial Committee (OGC) was officially formed in May 2023 to set international ARD standards through forming the broadest consensus within the geospatial community. ISO has designated the geospatial ARD standards as ISO 19176, and the first one to be developed is ISO 19176-1: Geographic information — Analysis Ready Data — Part 1: Framework and Fundamentals. In addition, OGC, through its testbed and pilot initiatives, has been evaluating the applicability, advantage, and gaps of using existing geospatial ARD products from various sources in different applications. The findings and

lessons learned from the evaluation are reinforcing the development of ISO 19176. This presentation will report the progress so far on the development of ISO 19176-1 and recapture the findings from ARD activities in OGC Testbed 19. It will discuss the joint ISO/OGC ARD standard development process, the ISO 19176-1 development timeline, the ARD framework and UML models defined in ISO 19176-1, the findings from OGC Testbed 19 on ARDs, and the future workplan.