Data access specification "Moving Features Access" promoting speedy and advanced cross-sector utilization of location data adopted as an OGC international standard
Contribution to the support of victims in large-scale disasters
and improving the convenience of civic life

Tokyo, March 13, 2017 – Hitachi, Ltd. (TSE: 6501; "Hitachi"), the University of Tokyo ("the University"), and National Institute of Advanced Industrial Science and Technology ("AIST") today announced that location data access specification "Moving Features Access[*1]" which they had jointly proposed has been adopted as an official Open Geospatial Consortium ("OGC")[*2] standard. Moving Features Access specifies operations to swiftly and cross-sectorally access, process, and analyze location big data of moving objects such as people and vehicles.

While ISO[*3] has already standardized a specification to access location data of moving objects by specifying times, OGC Moving Features Access standardizes a specification to access data by specifying places as well as times. For example, OGC Moving Features Access makes it possible to retrieve location data of moving objects that passed through a certain area at a certain time after a disaster happened; therefore, location-based applications can cross-sectorally collect the location data on density and flow of people and vehicles fast and more efficiently through unified interfaces. As the result, the speed and accuracy of planning evacuation guidance and goods transportation can be improved to take into account the level of damage. In addition, OGC Moving Feature Access will allow urban planning to mitigate traffic congestion and improve the convenience and quality of civic life.

Currently, it is difficult to immediately analyze the people and vehicle location data owned by telecommunications carriers and vehicle manufacturers since these companies provide their own interfaces which are not always interoperable or accessible to others who may wish to use the location data. Hitachi, the University, and AIST recognized the importance of this problem during their long and active engagement in attempts to standardize geospatial information. As a result of Hitachi's proposal to solve the problem, OGC formed the Moving Features Specification Working Group in March 2013. In this working group, Hitachi, the University and AIST called for use cases for analyzing location data of moving objects. After many discussions, "Moving Features Access" which defines a location-data access specification, was proposed and then adopted as an official OGC standard.

Features of OGC Moving Features Access are as follows.
1. **Regulation of data access specifications to encourage speedy and advanced cross-sector utilization of location data**
   OGC Moving Features Access standardizes specifications which access location data by specifying certain times and certain places. The current ISO standard of moving objects specifies only operations to extract location and velocity of moving object by specifying certain times. OGC Moving Features Access regulates the definition of the unified function name set, the accessible data types, and the role

of operations. More specifically, the data access to retrieve moving objects passing through a certain area at a certain time, or moving objects coming close to another moving object at a certain time, which are necessary for obtaining the density and staying duration of persons and vehicles.

In order to promote cross-sector utilization, OGC Moving Features Access also unifies the function name set and the accessible data types to access location data by specifying certain times, regarding existing specifications and interfaces.

2. Compliance with OGC Moving Features Encoding[*4], the international standard for location data recording formats

The newly established data access specification is prescribed in accordance with the OGC Moving Features Encoding, the standard data formats for recording and sharing location data of moving objects already adopted by OGC. It supports the interoperability and portability of location data possessed by different sectors.
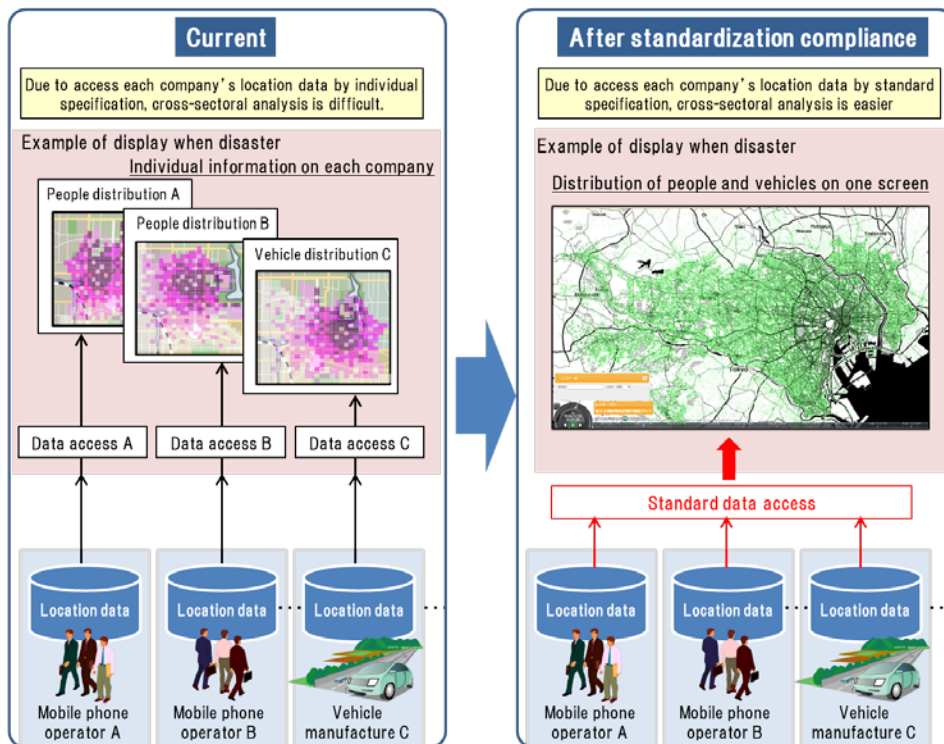

Image of cross-sector use of location data by standardization

In the future, Hitachi, the University, and AIST will promote open innovation to improve the convenience and quality of citizens' daily lives by utilizing OGC Moving Features Access and OGC Moving Features Encoding, for example by determining traffic demand to relieve congestion in large cities in addition to supporting people in disaster areas.

Notes:

*1   Moving Features Access: This work is partly based on results obtained from "consignment research and the development of techniques about use and application of real-time information in the G-space platform" from the Ministry of Internal Affairs and Communications, Japan and "Future AI and Robot Technology Development Project" commissioned by the New Energy and Industrial Technology Development Organization (NEDO).

*2   OGC (Open Geospatial Consortium): International standardization organization of geospatial information. To enhance interoperability between systems, OGC has formulated standards such as the data formats of geospatial data and interfaces for exchanging data. Hitachi, the University, and AIST have been participating in OGC activities as a technical member, a university member, and an associate member since 1997, 2000, and 2007, respectively.

*3   ISO (International Organization for Standardization): The standard for location data of moving objects is defined in ISO 19141: 2008.

*4   Moving Features Encoding: Data recording format that expresses the location data of moving objects. It was jointly proposed by Hitachi, the University, and AIST and adopted as an OGC standard specification in February 2015.

OGC Moving Features website

http://www.opengeospatial.org/standards/movingfeatures

About Hitachi, Ltd.

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, delivers innovations that answer society's challenges. The company's consolidated revenues for fiscal 2015 (ended March 31, 2016) totaled 10,034.3 billion yen ($88.8 billion). The Hitachi Group is a global leader in the Social Innovation Business, and it has approximately 335,000 employees worldwide. Through collaborative creation, Hitachi is providing solutions to customers in a broad range of sectors, including Power / Energy, Industry / Distribution / Water, Urban Development, and Finance / Government & Public / Healthcare. For more information on Hitachi, please visit the company's website at http://www.hitachi.com.

About the University of Tokyo

The University of Tokyo was established in 1877 as the first national university in Japan. As a leading research university, the University offers courses in essentially all academic disciplines at both undergraduate and graduate levels and conducts research across the full spectrum of academic activity. The University has approximately 6,000 academic staff and 27,000 students. The University aims to provide its students with a rich and varied academic environment that ensures opportunities for both intellectual development and the acquisition of professional knowledge and skills. To learn more about the University of Tokyo, please visit the university website at http://www.u-tokyo.ac.jp/en/index.html.

About the National Institute of Advanced Industrial Science and Technology

The National Institute of Advanced Industrial Science and Technology (AIST), one of the largest public research institutes in Japan, focuses on the creation and practical realization of technologies useful to Japanese industry and society, and on "bridging" the gap between innovative technological seeds and commercialization.
For this, AIST is organized into 7 domains that bring together core technologies to exert its comprehensive strength. For more details, please visit the AIST website at http://www.aist.go.jp/index_en.html

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