

November 14, 2019

Nippon Koei Co., Ltd.
SKY Perfect JSAT Corporation

Nippon Koei and SKY Perfect JSAT **Enter Business Partnership**

Using satellite data to determine the risk of accidents **due to aging infrastructure!**

Service for making disaster prevention and reduction work **more efficient starting in 2020**

Nippon Koei Co., Ltd. (Head office in Chiyoda-ku, Tokyo; Representative Director and President Ryuichi Arimoto; "Nippon Koei") and SKY Perfect JSAT Corporation (Head Office: Minato-ku, Tokyo; Representative Director, President & Chief Executive Officer: Eiichi Yonekura; "SKY Perfect JSAT") are launching a new business partnership that aims to drastically improve the efficiency of infrastructure maintenance management. Employing a jointly developed service that uses satellite data for land surveys in the construction industry, the partners aim to start providing the service in 2020.

NIPPON KOEI



■Background of Business Partnership

The risk of severe accidents due to the deterioration of infrastructure such as river embankments, airport/harbor facilities, roads, railway tracks, and steel towers in Japan and overseas has recently become an important social issue. In addition rising maintenance management costs, and increased risk of large-scale disasters such as typhoons are also concerns. To solve such issues, the practical application of infrastructure shape change detection technology*¹ utilizing the data of satellite synthetic aperture radar (satellite SAR)*² is being promoted as a method, now that it is becoming possible to analyze wide ranges at high precision. The technology and expertise of both companies have been brought together to create a practical application and this has led to a business partnership to build such a service.

■Overview of Business Partnership

The business relationship utilizes the data retrieved by SKY Perfect JSAT from satellite SAR in Japan and overseas and applies it to implement information services that perform shape change analysis on civil engineering and man-made structures such as roads and bridges. By combining these information services with the consulting services and disaster prevention/infrastructure maintenance management methods cultivated by Nippon Koei over many years, it has become possible to build a service that can provide centralized consultation on everything from risk determination to error detection in the monitoring of

facilities and infrastructure owned by customers. The partnership aims to start providing the service in 2020.

The provided service will enable wide areas where shape change inspections were conventionally conducted on an individual on-site basis to be covered with satellite data captured from the sky. This will achieve labor-savings, lower costs, and shorten construction schedules. Subtle variation and change in regions that are difficult to observe from the ground, such as areas with access restrictions, will become detectable at a scale of several centimeters. This will enable improved safety by monitoring change over time without being hindered by on-ground restrictions.

In the future, the system will be improved to automatically detect errors in measurement and shape change detection, in order to aim at reducing the risk of unforeseen accidents in any region of the world. It will also address problems such as labor shortages and rising maintenance management costs. A lack of telecommunication service and local ground data in areas such as developing countries hinders the construction of large-scale infrastructure and promotion of urban development. We hope to also actively work on tackling these issues.

Both companies will promote disaster prevention measures and the advancement of maintenance management via the utilization of ICT, in order to enhance regional disaster prevention capability in Japan and overseas and contribute to the safe and secure lifestyles of more people.

*1 Practical application of shape change detection technology: The practical application of technology that enables the amount of shape change to be monitored and screening with higher density in the spatial and time axes when checking the shape change of facilities via visual checks and measurements conducted on infrastructure once every several years (the frequency differs according to the structure, scale, and importance of the facility).

*2 Satellite synthetic aperture radar (satellite SAR): A type of satellite observation technology. Enables observation on cloudy days and at night by emitting radio waves from a satellite in outer space and analyzing the radio waves that are reflected off the target object. Radio waves are repeatedly sent and received while moving and then synthesized in order to generate a large virtual aperture (radar diameter) to enable wide-range and high-precision observation.

■ Nippon Koei Co., Ltd.

Representative: Ryuichi Arimoto (Representative Director and President)

Established: June 7, 1946

Head office address: 1-14-6 Kudankita, Chiyoda-ku, Tokyo 102-8539, Japan

Areas of business: The Nippon Koei Group is the number one civil engineering consultants in Japan, which supports the safety and security of people all over the world. Since being established in 1946, Nippon Koei has been involved in solving social issues via business in the field of social infrastructure maintenance, as the leading company of civil engineering

consultants in Japan. The company now provides sustainable business related to the basis of building nations and human resources in over 160 countries and regions around the world.

The Nippon Koei Group implements reforms according to the changing needs of the times, while achieving improved profitability and sustained business expansion.

Website: <https://www.n-koei.co.jp/english/>

■ SKY Perfect JSAT Corporation

Representative: Eiichi Yonekura (Representative Director, President & CEO)

Established: November 10, 1994

Head office address: 1-8-1 Akasaka, Minato-ku, Tokyo 107-0052, Japan

Areas of Businesses: SKY Perfect JSAT Corporation is a leader in the converging fields of broadcasting and communications. It is Asia's largest satellite operator with a fleet of 17 geosatellites, and Japan's only provider of both multi-channel pay TV broadcasting and satellite communications services. SKY Perfect JSAT delivers a broad range of entertainment through the SKY PerfectTV! platform, the most extensive in Japan with a total of 3 million subscribers. In addition, SKY Perfect JSAT's satellite communications services, which cover Japan and the rest of Asia, as well as Oceania, Russia, Middle East, Hawaii and North America, play a vital role in supporting safety, security and convenience for society as a whole.

SKY Perfect JSAT Group Website <https://www.skyperfectjsat.space/en/>

SKY Perfect JSAT Group mission: <https://www.skyperfectjsat.space/en/company/mission/>

(End)

(Attachment)

Scope of the partnership

