

Osaka Gas and Obayashi Started development of “AI weather forecast service for construction work”
to Support Safe and Efficient Construction Management at Construction Sites
- Demonstration experiment at Yumeshima, the site of the 2025 Osaka Kansai Business Support Expo -

May 17, 2023
Osaka Gas Co., Ltd.
Obayashi Corporation

Osaka Gas Co., Ltd. (Representative Director and President: Masataka Fujiwara, hereinafter referred to as “Osaka Gas”) and Obayashi Corporation (Representative Director and President: Kenji Hasuwa, hereinafter referred to as “Obayashi”) have jointly started the development of an “AI weather forecast service for construction work” that supports safe and efficient construction management by utilizing highly accurate weather forecast information that uses AI technology at construction sites. The demonstration will be conducted at Yumeshima, the site of the 2025 Osaka Kansai Business Support Expo.

This initiative takes advantage of a revision of examination standards about a certified weather forecaster in December 2022.

In construction work, it is necessary to ensure the quality and safety of construction work by adjusting the process according to weather conditions, such as postponing outdoor concrete placing work in rainy weather to avoid quality deterioration or suspending unloading work by cranes in strong winds due to the fanning of suspended loads. It is also important to predict weather information with high accuracy in order to take measures that take into account the physical condition of construction workers, such as preventing heat stroke during extreme heat, and Obayashi has developed multiple weather information utilization systems^{*1}.

In addition, Osaka Gas has been developing and operating its own weather forecast technology^{*2} since 2008 and has been working to apply it to its own energy business, which is highly affected by weather conditions, and to improve the technology’s accuracy through the use of AI^{*3}.

Therefore, in May 2022, the two companies jointly launched a study on the impact of weather on construction work and the need for weather forecasts at construction sites and have been evaluating the accuracy of the forecasts using weather observation data for the Yumeshima area. As a result, we confirmed the specifications of weather information required at construction sites and the possibility of increasing the accuracy of forecasts by improving AI models using weather information in the Yomeshima area.

Furthermore, in December 2022, the Meteorological Service Act was revised, and if certain conditions are met, it is now possible to provide weather forecast information automatically generated by computers.

As a result, Osaka Gas is now able to provide forecast information more frequently than before.

The specific initiatives of the “AI weather forecast service for construction work” that the two companies have started developing are as follows.

① **Development of highly accurate and timely AI weather forecast service**

We provide highly accurate pinpoint weather forecast information by combining Osaka Gas’s own weather forecasts and AI that has learned local weather observation data quickly.

② **Development of weather service for construction work**

We provide the necessary weather information in an easy-to-use and processed manner with appropriate lead times for various types of work at construction sites. For example, the safety regulations for cranes based on the provisions of the Industrial Safety and Health Act stipulate the wind speed conditions under which crane operations must be stopped. By providing information on the average wind speed forecast at regular intervals a few days in advance as the “crane operation index,” it is easier to judge process changes in advance.

③ Examination of effective means of communication

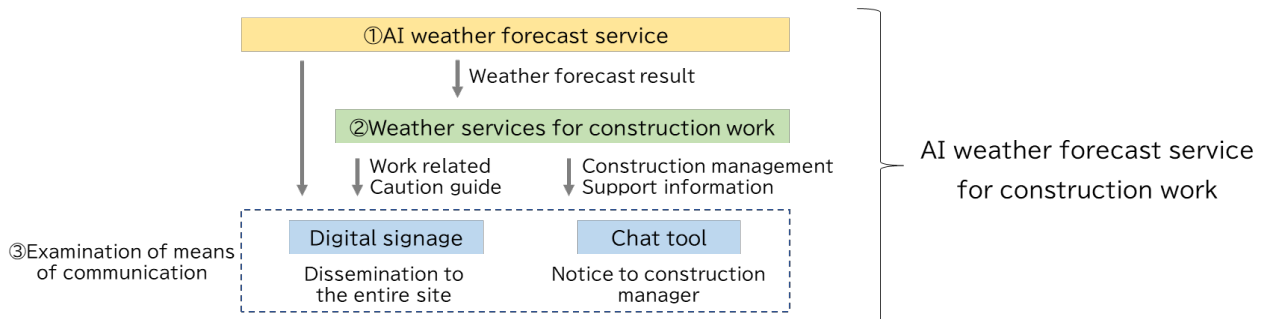
We consider how to provide information (1) and (2) to those who need it by effective means. For example, support information for construction management is notified to the chat tool used by construction managers, and work-related caution guidance is communicated to workers via digital signage in the morning meeting square. We consider the means of communication that meet their purposes, and their effects.

In the future, the two companies plan to conduct a step-by-step demonstration test of “AI weather forecast service for construction work” at a construction site in the Yumeshima area and evaluate its usefulness by comparing with actual field observation data and by interviewing users. In addition, we will widely deploy and utilize the results in other construction work, contributing to the improvement of construction productivity and safety.

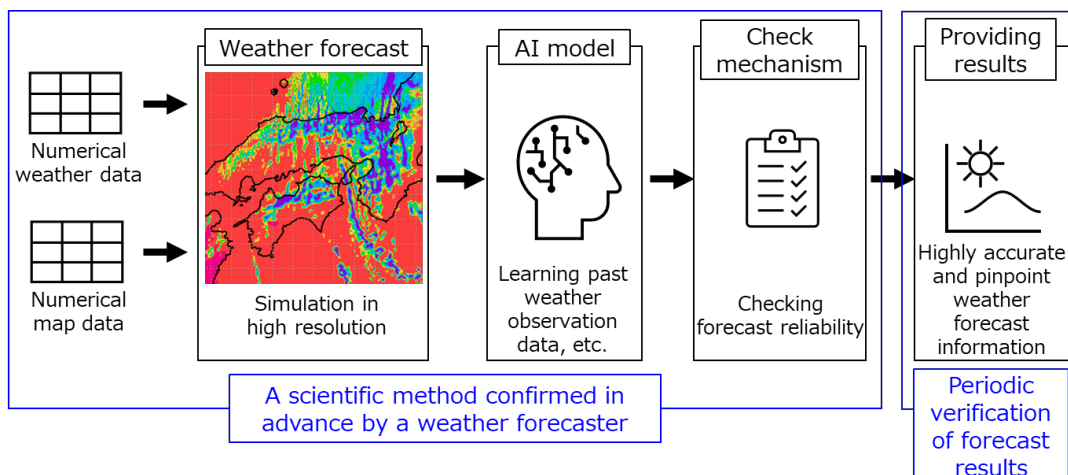
We will also consider the use of weather forecasts for “Yumeshima Construction,” which is part of the “Osaka Prefecture / Osaka City Super City concept,” and the “Yumeshima Platform”^{*4}, which aims to link various data during and after the Expo.

- *1: “[Thunder watcher[®]](#)” a lightning warning system that determines and notifies the danger of lightning strikes at the site, and “[SisMil](#),” an environmental monitoring cloud that measures and visualizes WBGT (heat index) at multiple locations at the site.
- *2: This technology enables detailed forecasting that takes topographical effects into consideration by dividing the forecast area into small high-resolution meshes and performing data analysis. Machine learning based on observation data is combined for even higher accuracy.
- *3: In 2018, we obtained a weather forecasting business license and established a system to provide weather forecast services outside the company.
- *4: “Construction of the Yumeshima Platform” was adopted by the Cabinet Office as a research project on the development and construction of cutting-edge services in super cities and digital rural health special zones. Osaka Gas and Obayashi are considering AI weather forecasting as members of the Yumeshima Platform Review Council, which has been entrusted with the project.

■ Overview of this initiative



■ Reference image of high-precision weather forecast using AI automatically provided by computer



Company Profile

[Osaka Gas]

Company name	Osaka Gas Co., Ltd.
Establishment	April 1897
Representative	Masataka Fujiwara, President and Representative Director
Location	4-1-2 Hiranomachi, Chuo-ku, Osaka, Japan
Main business	Production and sale of gas; generation and sale of electricity, etc.

[Obayashi Corporation]

Company name	Obayashi Corporation
Establishment	December 1936
Representative	Kenji Hasuwa, Representative Director and President
Location	2-15-2 Konan, Minato-ku, Tokyo
Main business	Domestic and overseas construction work, regional development, urban development, and other construction-related businesses, as well as commissioned engineering, management, and consulting services related to these, real estate business, etc.