# NEWS RELEASE

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**Simultaneous Observation of Multiple Locations by Drones Implemented on September 13**
## Commenced Joint Research on Urban Weather with the University of Tsukuba for 2020
**Predicting the Wind on a Marathon Course in Tokyo in Practical Implementation of Urban Weather**

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**Weathernews, Inc. (Head Office: Mihama-ku Chiba-shi Chiba, Japan; CEO: Chihito Kusabiraki) announced that it commenced joint research on urban weather with Professor Hiroyuki Kusaka of the University of Tsukuba Center for Computational Sciences on September 1, with the aim of practical implementation of a high-accuracy urban weather forecasting model for ascertaining localized phenomena occurring in urban areas, and conducted observations to verify the precision of the weather forecasting model on September 13. On the day of the observations, a total of 11 devices including weather observation drones, weather balloons and ground-based observation equipment in four locations throughout Tsukuba City were used to obtain required weather data from the ground to the upper atmosphere for verifying the precision of the model. The company will continue to work with the University of Tsukuba on the development of the forecast model and verification using observation data, to create a next-generation model able to forecast weather in urban areas in units of tens of meters, with the aim of practical implementation in the summer of 2020. Furthermore, the company supports the Japanese team, and will forecast the winds to support marathon, triathlon and cycling events passing between buildings in Tokyo.**

### Drone-based weather observation implemented with the University of Tsukuba to verify the precision of urban weather model

In urban areas, localized phenomena particular to the city (urban weather) can occur, such as the urban heat island phenomenon, the wind tunnel effect, and urban torrential rainfall. In order to forecast such localized phenomena, it is necessary to conduct simulations with a resolution of around 1m to 100m able to represent the airflow around buildings. Professor Hiroyuki Kusaka's laboratory, the University of Tsukuba Center for Computational Sciences, is developing an urban weather model able to perform simulations at ultra-high resolution, and Weathernews began joint research with The University of Tsukuba on September 1 with the aim of practically implementing this model.
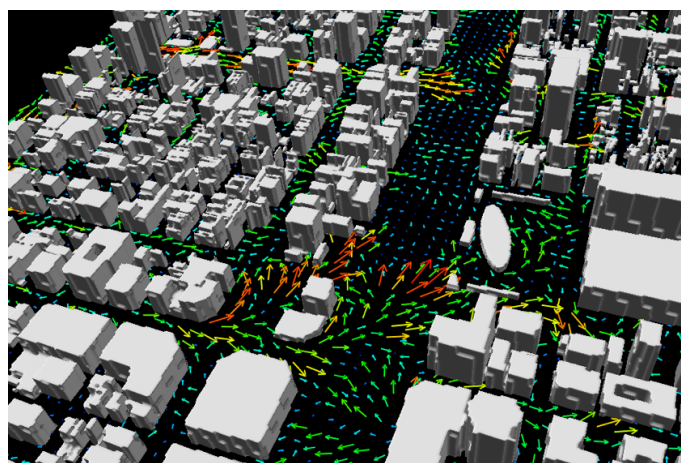


Wind simulation in Sakae, Naka-ku, Nagoya

In the joint research, observations will be conducted a total of four times to verify the precision of the urban weather forecasting model. The first time, observations were taken at four locations in Tsukuba, Ibaraki on September 13. Four drones equipped with observation sensors and one weather balloon were used to obtain data from the upper atmosphere, and six mobile observation devices were used to perform observations on the ground. Several proprietary weather observation drones equipped with observation sensors were simultaneously flown to measure wind direction and speed, temperature, humidity and air pressure. There are very few examples in Japan of multiple drones being used to conduct weather observation, and this made it possible to obtain the spatial weather data required for verifying the forecast model.



Weather observation by drones in Tsukuba at 9am on September 13
Left) Kohei Sakamoto, Technology Development Leader, Forecasting Center, Weathernews
Right) Professor Hiroyuki Kusaka, Center for Computational Sciences, the University of Tsukuba

Weathernews will continuously obtain observation data for verification, in order to create a new model able to forecast urban weather.