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High Dense Ground Observation Network "POTEKA" in Gunma, Japan

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Meisei developed compact weather sensor (POTEKA Sta.) and cloud data-transfer system (POTEKA Lab.) to achieve high dense observation network. "POTEKA" stands for "Point Tenki Kansoku". POTEKA project has been demonstrated the validity for the use of disaster prevention, health and medical care, teaching material, agriculture and energy management, and comfortable living environment in cooperation with local companies and education board since August 2013.

POTEKA Sta. measures wide range of meteorological and environmental variables such as temperature, relative humidity, pressure, sunlight, and rain detection with a one minute resolution. This low-cost weather sensor enables us to achieve finer-meshed or higher density weather observation system economically. Finer-meshed and more extensive data collected are easily accessible through ordinal Web sites (PC, Tablets, etc.) without any special software.

Spatio-temporal high dense observation network (total 55 stations, 1.5~4km-mesh) was installed in Isesaki city, Gunma, Japan. Observation with elementary/junior high school and convenience store (SAVE ON) are performed at 14 stations and 41 stations, respectively, which spatially captured local surface weather phenomenon (fig. 1).

This paper presents some examples including 1. local distribution of surface temperature around Isesaki, 2. preventing heat stroke at school, and 3. school education for class and research.

Keywords: dense, big data, instrument, network, observation