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# Industrial Weather Station

Behind a successful development of this or another industrial branch there is an abundance of factors which, without being in the foreground, still have a tremendous influence on the process flow. Weather conditions make one of these factors. Not all industries depend on it directly, but how the weather conditions change, may sometimes have a serious effect on the facilities and working process and cause huge damage and financial loss. Many enterprises prefer to avoid it by arranging sufficient monitoring of the conditions, which allows being able to find correct solutions to the emerging problems (in this case, connected with ambient conditions) and to take preventive measures timely.

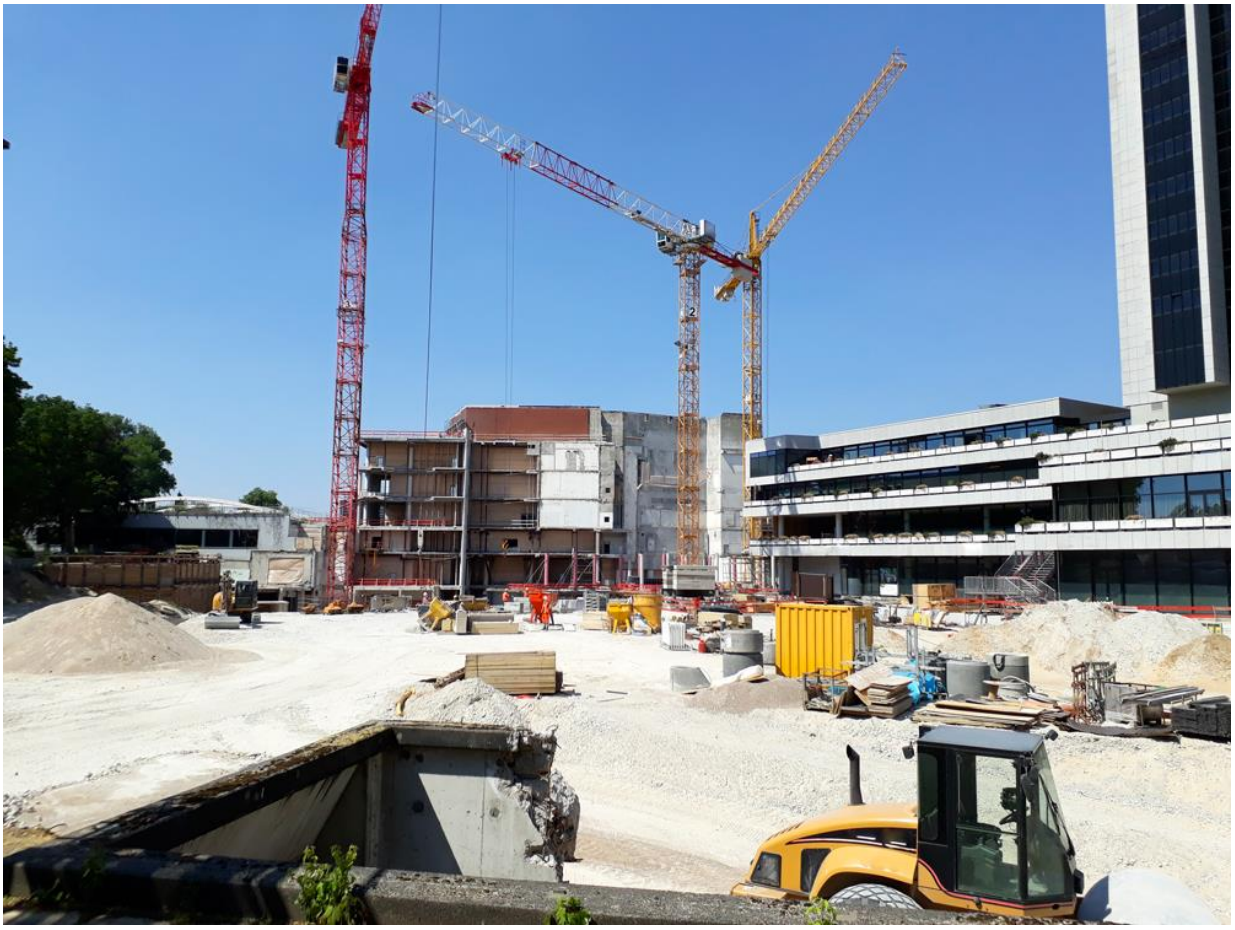
Looking at all the modern devices, equipment, industrial installations, factories and plants, it is sometimes hard to believe that they have been created by the person! From the other side, all this suddenly turns out to be very fragile and can be destroyed under the influence of such “simple-to-understand” things like moisture, heat, cold, wind and so on. And no technology has been created to fight against the nature. Nevertheless, even though nature is sometimes invincible, people managed to create the systems which at least help to prepare for the sudden devastating “mood changes” which nature from time to time demonstrates.

Weather stations for industrial applications find their fairly deserved place at many enterprises and industrial sites. These systems are more sophisticated than humble stations for household application, and, as a rule, show absolutely accurate and very precise results. Temperature, pressure, humidity, amount of UV and precipitation, wind characteristics – monitoring of these parameters determines the organization of the working process and influences the choice of materials, equipment and way of working in many industrial fields. Since not all industries are located inside, working conditions turn out to depend a lot on the environment. Then, it goes as well about comfort and safety of people. The latter is of pivotal importance and this is one more of those reasons why monitoring of the weather conditions is obligatory.

The possible range of weather station applications is wide: energy and power industry, timber industry, mining, water industry, construction, transport and HVAC, off-shore industrial constructions.

Modern stations for industrial application not only measure the relevant current parameters, they may be used as forecast stations with notifications. Due to the communication protocols, these stations are able to transmit the data, if necessary, the information collection may even be arranged from multiple devices within a network. The data is updated regularly, at very short time intervals, allowing very precise monitoring. It is especially important for process control, and if there are any warning signs and alert notifications coming from the station, there is a possibility to stop the process and operation of the equipment. The weather station is able to record the data and thus give the material for statistical analysis of the area (based on the measurement from the previous time periods). Enterprises may be located within the cities, as well as outside, in the mountainous regions, in the fields, in the open areas, within the proximity to the water bodies etc.

Monitoring the weather conditions particularly there where the industrial process is taking place provides a high accuracy level, since it gives the most precise information about the weather relevant to the particular location. An operator and workers do not have to carry out their personal observations trying to predict the possible changes in weather. It is enough to attentively analyse what the display shows and what it warns about.



It applies in particular to wind gulps. During the construction, a lot of heavy equipment operating at big heights is used, for example cranes. Not only the jib of the crane moves, it often lifts up and down heavy loads and that is why especial care and attention are required not to let the crane overturn or the load to be delivered to the wrong spot. In case of deteriorating weather conditions (hurricane, thunderstorm, precipitation), the crane operation should be stopped and crane should be brought to a safe standstill condition. Similarly, the problem may be solved for the installations situated off-shore, in the sea. First, weather station and processing of the data collected over a certain period of time help to assess the appropriateness of the area for the installation of a certain type of the industrial equipment. The choice of equipment (its specifications) then also depends on the weather parameters, like wind strength, amount of precipitation, humidity levels etc. Finally, forecasting properties of the stations help to prevent the possible damage, which may occur in case of incorrect operation of the equipment under too tough conditions.

Observation of the ambient conditions helps a lot to arrange correct functioning of the HVAC systems, so that it was effective and did not lead to overuse and waste of energy for unnecessary conditioning and heating. Analysis of the conditions typical for the area helps to carry out reasonable planning and evaluate the necessity of installing of HVAC systems in accordance with the typical ambient conditions.


Many industrial enterprises (for example, chemical / pharmaceutical industry) deal with a variety of chemicals, gases, dangerous and harmful substances, pollutants etc. monitoring of the conditions around the plant helps to keep under control the spreading of the released waste-products into the atmosphere and further transportation of them with the wind. Since many systems are usually involved into complicated chemical processes, accidents and breakages are possible. As a result, unexpected and unplanned releases of the substances may occur, in additions, in much bigger than permissible amounts. Timely weather monitoring of the current conditions helps to evaluate the situation and take measures of precautions, depending on the weather station information: wind strength, direction, temperature of the air, humidity. Depending on the model, the station may be mobile and the sensors may be reinstalled easily, depending on the requirements and needs of the particular enterprise.

Unpreparedness for the weather conditions may result in tremendous damage, financial losses, health harm, long downtime periods. Weather monitoring stations and systems help to be provided with the best up-to-date information, be prepared for the future and have useful information about the situation in the past.