

TEKON

INSTRUMENTYS

CASE STUDY

TEMPERATURE MONITORING IN ANTARCTICA



Dumont d'Urville Station by
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French Polar Institute

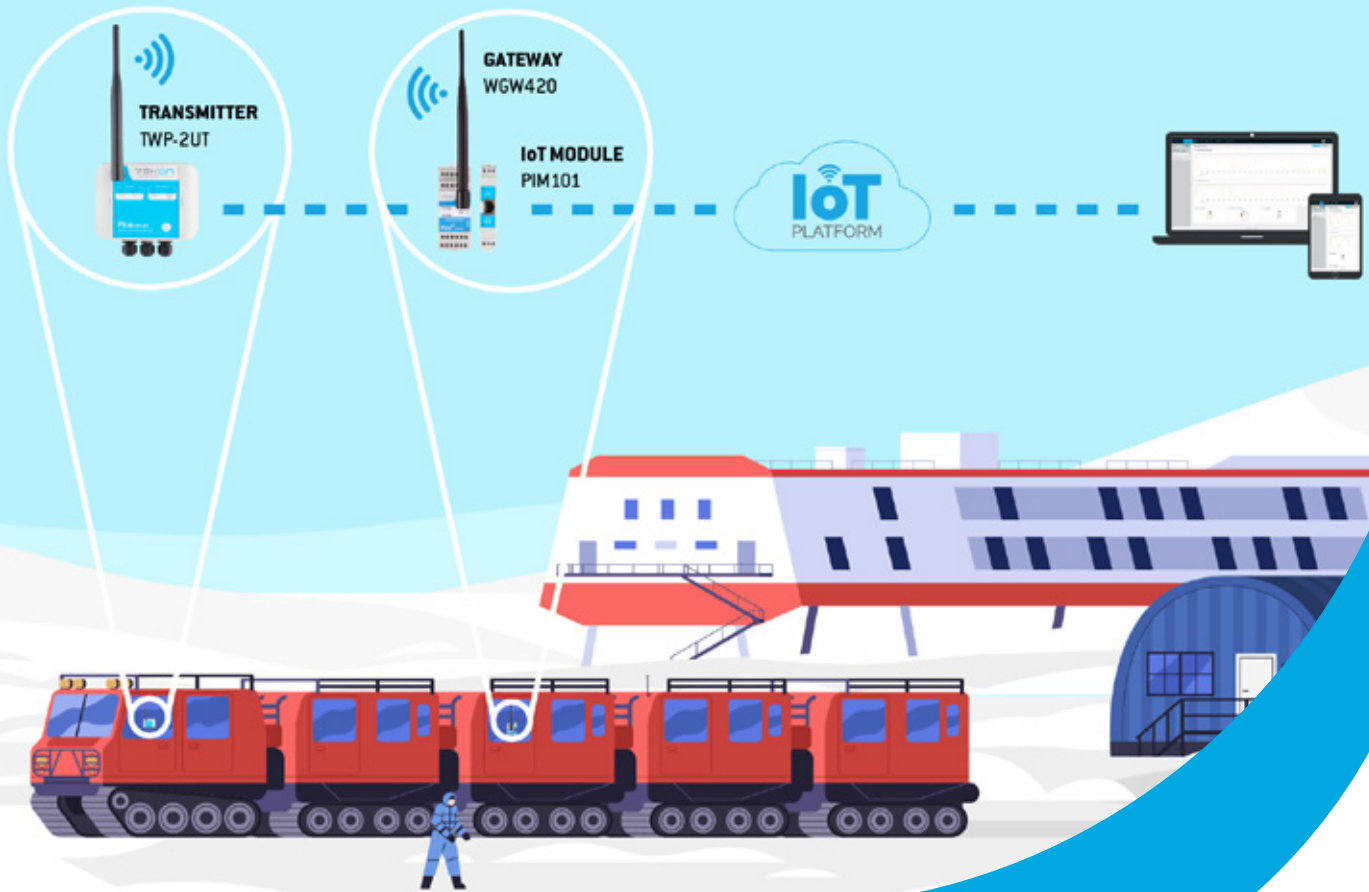
POLAR TRAVERSE

The French Polar Institute Paul-Émile Victor periodically organizes raids in Antarctica, between the Robert Guillard station and the Concordia station, for the supply of food, fuel, and equipment.

These raids take place 4 times during the austral summer (between December 21 and March 20), requiring a high level of preparation and care, thanks to the rigorous conditions experienced on the Antarctic continent.

One of the biggest challenges of each of these trips is keeping all the wagons at a controlled temperature. Therefore, it's crucial to measure and monitor the temperature of equipments and consumables inside the supply convoy.





SOLUTION APPLICATION

Solutions from Tekon Electronics were provided to the French Polar Institute, through the French partner **Instrumentys**, to obtain a wireless temperature measurement system composed of the following elements:

- PLUS TWP-2UT wireless transmitters
- WGW420 Gateway
- PIM101 IoT Module
- Tekon IoT Platform Software

The lack of internet communication during the raids was considered, leading to the installation of the Tekon IoT Platform software on a local computer, instead of being used in the cloud.

With a distance of 1100 km between the stations, the complete traverse takes 20 to 25 days to complete (round trip) and the average outside temperature is -30 °C. This type of operational requirements demanded the application of a highly reliable and robust system, so the installation of Tekon Electronics sensors inside were the ideal solution, operating autonomously up to -40 °C, without the need for cables and in combination with the Tekon IoT Platform software.

With no possibility of providing technical support during the raid, due to the harsh polar conditions, the solution needed to be robust and autonomous. Taking this into account, as well as the inability to communicate with the outside world, it was extremely important to prepare the entire Tekon Electronics system in advance, ensuring its perfect operation throughout the trip.



“The main advantage was the professionalism and the speed of response.”

Gauthier Lamotte
Navigation and Communication Systems Engineer
French Polar Institute Paul-Émile Victor

For the next traverse (2023/2024), it will be possible to use the new Universal Gateway from Tekon Electronics, thus replacing the IoT Platform, allowing data recording and visualization.

Thanks to the solutions from Tekon Electronics provided by Instrumentys, it was possible to monitor the temperature during the process of supplying provisions, equipment, and fuel to the Concordia station, which remains inaccessible the rest of the year.

Tekon was able to provide the best solutions to the French Polar Institute thanks to the great work of Instrumentys, the french partner of Tekon since 2020.

The information used for this case study was provided by the French Polar Institute.
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