

REANALYSIS

LOOKING BACK
TO PREDICT THE FUTURE



REANALYSIS

Knowledge of historical weather data is becoming increasingly important. This information is highly relevant, in particular for the insurance industry and in location planning. This applies, for example, in determining the probability of hail storms in a certain region or in identifying the most suitable locations for sun or wind energy plants under climatic aspects.

HOW DOES REANALYSIS WORK?

In order to find out what the weather conditions were like at any given coordinate at any given time, at locations without meteorological observations, the UBIMET research team developed a special analytical method. This enables the interpolation of measured values taking into consideration topography, land cover as well as radar and satellite data to a grid with a horizontal resolution of down to 100m.

Depending on the measuring frequency of the weather data, it is possible to generate the analysis for parameters such as temperature, precipitation or wind with a temporal resolution of down to ten minutes. The actual resolution that can be achieved depends on the local data availability; information available upon request. In addition to original reanalysis, it is also possible, upon individual request, to generate statistical evaluations such as mean values, extreme values or the frequency of exceeded threshold values. Reanalysis and the deduced values calculated on their basis can be provided in the form of a grid (Geotiff, Gribfile) or, for selected coordinates, in the form of time series in Excel or Text files.

Our portfolio comprises the following meteorological parameters:

- Temperature (dry temperature, temperature, perceived temperature)
- Humidity (dew point, relative humidity, specific humidity)
- Air pressure (reduced to sea level or at ground level)
- Wind speed
- Wind gusts
- Wind direction
- Total precipitation
- Precipitation type
- Fresh snow depth
- Total snow depth
- Cloud cover
- Duration of sunshine
- Solar radiation
- Lightning density
- Likelihood of hail with a grain diameter of at least 0.5, 1, 2, 3 and 4 cm

INFRASTRUCTURE & TRANSPORTATION



UBIMET's reanalysis package, based on historical weather data, assists with the process of defining areas where construction of new infrastructure would not be recommended, or where special risk management measures should be carried out. Reanalysis is highly relevant for planning new roads, railways or determining the ideal location for new infrastructure. With reanalysis it is possible to identify areas of high weather activity (e.g. snowfall) and to integrate solutions into infrastructure design to mitigate impact (e.g. snow fences / snow etc.).

INSURANCE



To manage risk exposure within the insurance industry, it is important to know the existing risk probability as precisely as possible, and to calculate premiums based on this. With UBIMET's historical reanalysis package it is possible to analyze damage-related parameters such as hail, storm or lightning, and identify regions of increased risk.

REANALYSIS

RETAIL



Reanalysis is also relevant in the retail sector. The connection between weather and the products sold is often not immediately apparent. UBIMET analyses sales figures and historical weather data and develops correlations between weather events and a wide range of products. With correlations, predictions for future sales figures are possible; inventory stock can be ordered and advertising optimized accordingly.

ENERGY



In the renewable energy sector (wind farms, hydropower dams and solar power plants) the perfect placement of assets is essential. UBIMET's reanalysis package assists in finding suitable locations during the planning phase, thus optimizing energy yield and operational efficiency.

SELECTED REFERENCES

BUGESERA INTERNATIONAL AIRPORT

UBIMET has analyzed the weather conditions for Rwanda's brand new airport. Bugesera International Airport will be located 25 km south east of Rwanda's capital Kigali. The Rwanda Meteorological Agency provided historical weather data that were taken into consideration in the UBIMET analysis. This is the first cooperation in the partnership with Airport Consulting Vienna, the Austrian consultancy company in charge of the Bugesera Airport Master Plan.

DETECTOR

The Research & Development project Detector is the next step in managing roads in changing climates, taking historical exposure of road infrastructure into consideration to determine the risk of hotspots related to extreme weather events. The results and further research will then be used in reanalysis and in future climate projections to re-define safety design and procurement planning for our road infrastructure.

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ABOUT UBIMET

UBIMET is the leading weather service provider, and the one-stop shop when it comes to weather. The founder-led company with offices on three continents stands for reliable, highly precise weather information and digital information services for weather-dependent companies. As global innovation leader, top insurers and energy providers, infrastructure operators, media and sports to champions of the companies to champions of the new economy place their trust in us. UBIMET offers high quality meteorological data, forecasts and warnings which enable weather dependent industries globally to increase safety and efficiency.

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