The Weather Data contain 2 types of data: Observed Weather Data and Grid Weather Data.

Observed weather data is measured by instruments, such as thermometers (for temperature) and anemometer (for wind speed). Although the observed weather data is the first-hand record of atmospheric conditions, as human errors or equipment faults occur from time to time, a quality control process is required to identify and correct those errors.This process takes station observations, satellite image and other meteorology and atmosphere data, conducts complicated calculation and returns a continuous data distribution over earth surface (that is grid weather data), while observed data can be measured only at the place of a weather station.

The Weather Data contains the following fields:

**temperature** is measured with a thermometer in a weather station. The temperature data of Beijing is in centigrade scale (°C).

**pressure**, or **atmospheric pressure**, is the force per unit area exerted by the weight of the air. The unit is hectopascal or hPa (1 hPa = 100 Pa).

**humidity** is the measure of the amount of water vapor present in the air. The unit of humidity is the percentage (%).

**Wind\_speed**, or **speed of the wind**, is measured by anemometers in weather stations instrument. The unit of wind speed is meter per second (m/s) or kilometer per hour (km/h).

**Wind\_direction**, or **wind direction**, is the direction from which it originates. For example, a northerly wind blows from the north to the south. Wind direction is measured in degrees clockwise from due north and so a wind coming from the south has a wind direction of 180 degrees; one from the east is 90 degrees, etc. If the wind speed is less than 0.5m/s (nearly no wind), the value of the wind\_direction is 999017.