Cold surge advisory signal

Taiwan is located in the subtropical zone. The weather in summer is affected by the southwest monsoon; in winter, it is affected by the mid-latitude weather system, and the northeast monsoon prevails. Temperature in winter may drop drastically when the cold air in the north moves southward or due to the radiation cooling effect affects the temperature decrease significantly. In addition, while global warming causes the average temperature to rise, it also causes greater short-term temperature amplitude. Therefore, even when the winter is warm, extreme cold surges may still occur, resulting in great impact on people's health and public hygiene, and even agricultural and aquacultural losses.

When cold air moves south, it directly affects the northern and northeastern regions of Taiwan. Meanwhile, radiation cooling effect tends to occur in open areas and near mountains. Therefore, the areas where low temperature often occurs are: Taoyuan, Hsinchu, Miaoli, the north coast of Keelung, the northeast corner of Taiwan, as well as parts of Taipei, Nantou and Chiayi which are close to mountains, and Hualien-Taitung Valley.

Since late 2018, the Central Weather Bureau (CWB, Due to organizational transformation, Central Weather Bureau has become Central Weather Administration (CWA) since 2023) has invited the relevant government agencies to collect information and reach a consensus on their needs regarding low-temperature related issues on the basis of Taiwan's geographical characteristics, in order to established a new standardized guideline for issuing low-temperature advisory. The new version puts more emphasis on the influence level and duration, and will be implemented on November 1, 2019, in the hope to raise public awareness and reduce possible damage.

In cold surge advisory, "cold" is defined as when the minimum temperature (of one day) is lower than 10°C in an area less than 200 meters in altitude, and is divided into "yellow signal", "orange signal" and "red signal" according to its level and duration as defined below:

- Yellow signal: The minimum temperature is lower than 10°C.

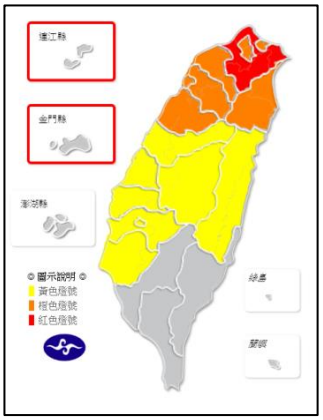
- Orange signal:
    1. The minimum temperature is lower than 6°C, OR
    2. The minimum temperature is lower than 10°C and the temperature has

remained below 12˚C for 24hrs.

- Red signal: The temperature has remained below 6˚C for 24hrs.

Signal	Criteria	Reminders
Yellow	Minimum ground-level temperature is below 12°C	Very cold in early morning and evening, with a chance of minimum temperature dropping below 10 °C and significant day night temperature difference Remember to: 1. Keep warm 2. Pay attention to indoor ventilation and electricity safety when using gas water heater and electric heater 3. Watch out for respiratory and cardiovascular diseases induced by low temperature 4. Care for the elderly, the homeless, and other people vulnerable to cold exposure 5. Take precaution to prevent damage to crops and aquaculture
Orange	Minimum ground-level temperature is below 6°C Or Minimum ground-level temperature is below 10°C and temperature remains below 12°C for 24 hours	Very cold , with a chance of temperature remaining around 10°C or minimum temperature dropping below 6°C Remember to: 1. Take extra care to keep warm 2. Pay attention to indoor ventilation and electricity safety when using gas water heater and electric heater 3. Avoid prolonged stay in a cold environment, and watch out for respiratory and cardiovascular diseases induced by low temperature 4. Make sure children have protection to keep their head, neck, hands and feet warm, and care for the elderly, the homeless, and other people vulnerable to cold exposure 5. Pay attention to hand hygiene and cough etiquette as winter is usually flu season, and stay home and rest if you are ill 6. Take precaution to prevent damage to crops and aquaculture
Red	Temperature remains below 6°C in for hours	Extremely cold, with a chance of temperature remaining under 6°C Remember to: 1. Take special care to keep warm 2. Pay attention to indoor ventilation and electricity safety when using gas water heater and electric heater 3. Avoid prolonged stay in a cold environment, and watch out for respiratory and cardiovascular diseases induced by low temperature 4. Be sure to keep you head, neck, hands and feet warm, and take special care of the elderly, the homeless, and other people vulnerable to cold exposure 5. Pay attention to hand hygiene and cough etiquette as winter is usually flu season, and stay home and rest if you are ill 6. Take necessary measures to reduce damage to crops and aquaculture

Note 1: Considering its geographical and climate conditions, the criteria for Lianjiang County is 4 degrees lower than the above
Note 2: Ground level refers to altitude lower than 200 meters



Definition and example of cold serge advisory signal

Considering its geographical and climate conditions, the criteria for Lienchiang County is 4 degrees lower than the other areas.

Cold surge advisory signal Q&A

1. What constitutes a “cold ” in cold surge advisory?
   When the minimum temperature (of one day) is lower than 10˚C in an area under 200m in altitude, it is regarded as cold surge.

2. How are the cold surge advisory signals defined?
   The signals are yellow, orange, and red according to the cold surge level and duration, and the advisory will be issued on a county/city basis. The definition is as follows:

- Yellow signal: The minimum temperature is below 10˚C.

- Orange signal:
  1. The minimum temperature is less than 6˚C, OR
  2. The minimum temperature is less than 10˚C and the temperature has remained below 12˚C for 24hrs

- Red signal: The temperature has remained below 6˚C for 24hrs.

3. Where is cold surge advisory issued?
   It is issued on a county/city basis when observation or forecast indicates the temperature will reach the level of “cold surge”, with a description of the expected influence and duration.
4. Where does cold surge often occur in Taiwan?
   When cold air moves south, it directly affects the northern and northeastern regions of Taiwan. Meanwhile, radiation cooling effect tends to occur in open areas and near mountains. Therefore, the areas where low temperature often occurs are: Taoyuan, Hsinchu, Miaoli, the north coast of Keelung, the northeast corner of Taiwan, as well as parts of Taipei, Nantou and Chiayi which are close to mountains, and Hualien-Taitung Valley.

5. How can I get the information about cold surge advisory?
   When a cold surge advisory is issued, you can see it on the CWA website

(https://www.cwa.gov.tw), mobile APP, and Facebook fan page. News broadcast will also be made to inform and remind you, while disaster prevention agencies and local governments will also get fax and text messages.

6. When will CWA issue or renew the cold surge advisory?
   In the morning, the CWA will issue advisory for cold surge on the same evening to the next morning, and update it according to the latest forecast and observation data.

7. Where do I get cold surge-related observation data?
   You can go to the CWA website to see the lowest temperature of each county/city, and where and when the lowest temperature on ground level is observed. There is also information about the “100 lowest temperatures” anywhere or below the altitude of 200 meters.