

Interview with Meteorologist Nelson Quispe Gutiérrez

Deputy Director of Weather Forecasting

SENAMHI (Peruvian National Service of Meteorology and Hydrology) - Lima, Perú

E-mail: nquispe@senamhi.gob.pe



1. What work does SENAMHI perform in Peru and how does it participate in the “Multisectoral Plan for Frost and Cold Attention”?

SENAMHI has different instruments for measuring climatic conditions throughout the country. Observations are made every day of the year at meteorological stations located at 1,000 points throughout Peru. The topography of the country is variable; therefore, several stations are needed in order to register different microclimates.

These are two main types of stations:

Conventional stations:

There are 700 conventional stations. Trained personnel are responsible for taking the corresponding meteorological measurements 3 times a day (in the morning, afternoon and in the evening). Thermometers, psychrometers and rain gauges are used, which are useful to determine the temperature, humidity and precipitation, respectively, of a given area. The meteorological observer enters this information into a SENAMHI application on his cell phone and it quickly reaches its headquarters.

Automatic stations:

In these stations, automated equipment or small microcomputers are used, which make the same measu-

rements previously mentioned, but 24 hours a day. The information collected is sent via the internet or satellite to the SENAMHI headquarters.

In addition, SENAMHI also uses meteorological satellites to detect different types of air masses. In times of frost, a dry and fairly strong air mass can be observed moving through the Pacific Ocean, along the continent. These observations allow us to have the forecast that a frost is about to occur, which is then corroborated with the data collected by the meteorological stations.

On the other hand, SENAMHI also applies numerical or meteorological models to give predictions regarding the occurrence of phenomena such as frosts; however, these predictions may vary.

Apart from collecting meteorological information, agronomic information is also collected (phenological status of the plants, their size, their leaf area, etc.) in certain stations where there are growing areas. With this representative information, forecasts are also made regarding the production of certain crops in specific regions.

Regarding the “Multisectoral Plan for Frost and Cold Attention”, SENAMHI is in charge of carrying out campaigns to transmit information to the population about what a meteorological warning is.



2. In what way have you evaluated that the actions you take positively help the population?

This is a complex issue to address, because if a good forecast is made about a phenomenon of great importance, such as frost, this information must reach the population. However, this does not always happen, since the first recipients of this information (civil defense headquarters, mayors, among other authorities) do not usually transmit it to the population.

On the other hand, in the last 3 years, SENAMHI has carried out informative workshops with communities of Cusco and Puno, in order to educate them on the meteorological warnings in those areas of Peru. Thanks to this, these communities receive meteorological warnings on their cell phones and share them with their acquaintances. Furthermore, the same populations share information with SENAMHI, establishing mutual work.

3. What improvements, whether technological or social, do you consider that should be implemented in the “Multisectoral Plan for Frost and Cold Attention”?

Communication with the communities must be improved, since some of them are quite remote and the meteorological information does not reach them. In addition, the dissemination of meteorological warnings should be extended to more departments in the country, so it is considered necessary to hold informative workshops in more regions and throughout the winter season.

4. How do farmers prepare for phenomena like frost (prevention)?

Preventive measures are different, depending on each farmer. Most farmers simply do not sow during frost season to avoid losing their crops. Other farmers cover their crops with

leaf litter or plastics, which keep a warm environment for their plants.

5. What temperature must be reached to say that we are in the frost season?

By definition, a meteorological frost occurs when the air temperature drops to 0°C or less; however, there is also an agrometeorological frost. The latter consists of a drop in air temperature to critical levels, which depend on each crop; therefore, these temperatures can be higher than 0°C

6. How is the affected population informed about the decrease in temperature? Is this form of dissemination effective?

Regarding the information collected about frosts, it is sent first to the National Institute of Civil Defense in Peru, which is in charge of disseminating the information to the rest of the population. However, on some occasions, this information does not reach the residents, especially if they are part of a remote community.

Due to this problem, we consider that the form of dissemination is not completely effective, but gradually the confidence of the population in SENAMHI’s predictions has increased. A reason for this might be the active participation we recently had with the population, which has generated more interest in knowing about meteorological predictions.

7. Does SENAMHI have any new proposals to help the population affected by frosts?

For 2021, we are planning to hold

workshops in the central regions of the country, on an ongoing basis. In this way, we will be able to teach them about the meteorological warnings of many phenomena, including frosts. In turn, we will also learn from their personal experiences regarding climate changes.

8. Where can we find the recent data generated by SENAMHI regarding the record of temperature, precipitation, location of the most affected areas, among others?

This information is freely accessible on the SENAMHI website, where you will find the hydrometeorological data of all the regions of the country: <https://www.senamhi.gob.pe/?p=estaciones>

