

## **Language approaches to the study of meteorology**

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**Abstract:** Meteorology is an important science which has constantly evolved in the last centuries, as people became more and more aware of the importance of understanding meteorological conditions and predicting the weather, as well. An analysis of existing studies in meteorology reveals that this field received little or no attention from language or communication perspectives, although we believe it is essential for both specialists and different types of audience to send and understand messages easily and take action accordingly. The aim of this paper is to present a state-of-the-art analysis of different language and communication approaches to meteorology, and to come up with a series of recommendations on possible directions of research in the field.

**Keywords:** meteorology, weather forecasts, discourse analysis, pragmatic studies, terminology

### **1. Introduction**

To begin with, meteorology is one of the most important sciences that evolved over the centuries. It is no wonder that over the years, people understood the importance of knowing meteorological conditions that occurred and tried their best to perfect their ability to predict the weather. Nowadays, this particular field enjoys an increased accuracy of meteorological predictions due to the evolving technology. Because of that, people can plan their time, from everyday life occupations such as shopping or walking in the park to business-related activities, knowing in advance how the weather might, or might not, influence them.

As we all know, weather forecasts are presented to us through several different channels, which can be either written or spoken and can be introduced to the large public by not only a specialist in the field but also by a semi specialist or even

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by a non-specialist. Each and every discourse contains specific features and patterns. When it is addressed to a large audience, a conversion of the discourse is made, in order to make it more accessible. The used language must be kept simple, but at the same time, have a scientific background, nonetheless. Sometimes misunderstandings and confusion are created either due to the high scientific level of the discourse or because of the discourse structure and formulation.

The current state of research highlights that the meteorological domain has not received as much attention as other fields from a linguistic point of view, up until this point, even though one could establish that there are a series of different types of linguistic analysis of the meteorological language. Previous studies include analysis of the meteorological weather expressions, discourse analysis (such as pragmatic and terminological analysis) and studies about improving the communication in the domain. In both languages (English and Romanian) the accent falls on the terminology found in this domain and not on the whole meteorological discourse. Another issue constitutes the lack of studies in the Romanian language. As it can be seen, very little research has been made in this regard, and most of the research that has already been made is about specific words of weather phenomena. For this reason, it is important to have an overview of the current state of the research in order to acknowledge which are the identified problems until now, for what issues there is a solution and which difficulties need further research in order to make the discourse clear and unambiguous for everyone.

## **2. Language studies**

Human beings are able to communicate with each other. They express and exchange information, feelings, opinions, wishes, beliefs, etc. in order to learn about each other and understand one another. The main system of communication is the language. Language can be defined as “a system of communication which consists of a set of sounds and written symbols which are used by the people of a particular country or region for talking or writing” (Collins Dictionary). Every living being is communicating through different methods, but only human being can communicate through the use of language, so therefore, language is considered to be a human property

### **2.1 Pragmatic studies**

In regard to the meteorological field and more precisely the weather forecasts, there are very few studies containing an analysis of the meteorological pragmatic features. A well-documented study in English is A Pragmatic Study of Weather Forecasting Reports by Fareed Hameed Al-hindawi and Rana Naji (2017) which establishes some pragmatic aspects that characterize weather forecasting reports. In this study, they analysed the speech acts, presuppositions, scalar implicature, and hedging of three weather forecasts from different weather channels found of YouTube. They

highlighted how often specific pragmatic devices are appearing in weather forecasting reports and concluded that the most often used devices are: predicting, asserting, and warning. The occurred presuppositions were divided into presuppositions triggered by definite „descriptions” and „change of state”.

Paul Danon (2011) studied in *The language of weather forecasts* some abnormal structures in the weather forecasting. In addition to his work, another relevant study was carried out by John Collins (2020) which provided a full analysis of the syntax, semantics, and pragmatics of weather reports. His focus was on linguistic pragmatism, which means that what is said overcomes the linguistic properties. His claim is that the linguistic denotation does not represent the actual conditions. This affirmation comes from a syntactic thesis, which refers to what the language can dispense to the semantic interpretation. In his opinion, the language used by a speaker is limited by a literal message, which does not influence or encode what she/he might actually want to say. Collins (2020) considers weather reports such as “it is raining/snowing/sunny” as location-sensitive sentences. What this implies is that these utterances are accurate if the weather phenomenon is happening or not at a specific location. He enhanced that this type of constructions lacks the linguistic resources to support the common literal locative readings. Collins also analysed other phenomena such as the Saxon genitive, colour predication, quantifier domain restriction, and object deletion.

In the same category of language studies, one may also identify some studies on climate change discourse. Such an article was incorporated in *Environmental Science & Policy* (Natura 2000 and climate change Polarisation, uncertainty, and pragmatism in discourses on forest conservation and management in Europe) which analyses the effect of climate change discourses on forest conservation in Europe. It is showed that the understanding of those specific themes varies from one person to another. The types of discourses found can be divided into three categories: pragmatic discourse, dynamics discourse and threat discourse. Each and every discourse contains some similarities regarding the narrative plot.

Kobyakova and Filatova (2019) wrote about the communicative and pragmatic features of the Spanish weather forecasts. They describe the weather forecast as being a “small scale text of the newspaper and publicist style of the information genre and it is characterized by such basic genre parameters as informative value, reliability and promptness. These texts represent scientifically grounded assumptions about weather development during a certain period”. (Kobyakova A., Filatova N. 2019: 1126) Although they made an analysis of the Spanish forecasts, some general characteristics can also be found in other Romanic languages. They pointed out that visual elements are crucial in presenting the weather because they improve the understanding and perception of the meteorological discourse. Through introducing visual elements, a necessary summarization of the forecast is being made without omitting important information.

When decoding a message, it is of utmost importance to understand the sender’s true intention. Although weather forecasts should be addressed directly in

order to deliver precise information, they consist of several implicatures. These implicatures may or may not be received and understood by the target audience. In the case where they are not clear enough, the weather forecast will most probably fail to accomplish its purpose and in doing so, the large audience fails to behave accordingly. Such a failure can be catastrophic if we are talking of regions with severe/hazardous weather events. Looking at it from a linguistic point of view it is necessary to study and understand what lies behind the words. Unfortunately, as it can be seen, the number of studies made in this domain are below few. None of the before mentioned studies are in the Romanian language, and for the English language the analysed corpus was rather small. A pragmatic analysis as such is needed in order to be able to understand not only what the perception of the public regarding this unique communication is but to also understand what is expected from the public or what the message behind the words is.

## 2.2 Terminological studies

A specialized language is a vector of specialized knowledge that it is used in a specific domain. At the base of every specialized language lays terminology, which is considered to be the central element of specialized communication and the basis for the organization and transfer of knowledge. That is the reason why specialists in the field of technical communication, translation (Dejica 2008, Dejica 2010) and standardization have been dealing with terminology for so many years. Especially today, in the era of globalization, information and communication technology, more and more companies are coming to realize that terminology is an essential part of corporate communication and can thus influence economic success. Terminological studies focus on identifying specific terms, analysing their formation and provenance, organize them into specific categories and establish through which strategy they entered the language. Such a study provides a better comprehension of a specialized field and of the development of the language. For this particular reason, every specialized language should benefit from a complex analysis of the used terms, their meaning, formation, provenience and behaviour in the language.

When it comes to the terminology in the field of meteorology, as far as I have researched, there have not been so many studies in Romanian as in English. In the last years, more and more Romanian linguists are taking interest in this field and some analysis has been made. In Romanian, one such study was published in 1981 by Ioan Stăncescu and Sergiu Ballif. The aim of that study was to make meteorology accessible to all those interested in this field. Another relevant study is a PhD thesis made by Grigore (2016), which focuses on analysing the meteorological bulletins in mass media. She analysed terms designating weather phenomena such as *mist*, *fog*, *snow* or *rain*, common terms which are easy spotted and understand by non-specialists. Another study in the domain is authored by Cristina Florescu in 2015. This study analyses the origin and the semantic evolution of the word precipitations and the lexical field of the word. She analysed scientific words of weather phenomena

and compare them to the regionalism and archaism. Such a study is not only interesting for the specialists, but also for the large audience, who can observe the more common terms for some specific weather conditions.

On the other hand, in English, one paper which focuses on forecast terminology and the understanding of such terminology in the context of short-range public weather forecasts is *Forecast Terminology: Composition and Interpretation of Public Weather Forecasts* authored by Allan H. Murphy and Barbara G. Brown (1983). In this paper, they pointed out that generic terms such as “sunny”, “thunderstorm” or “shower” are understood properly while terms such as “cloudy” and “fair” are often misinterpreted. Expressions made of a term and a modifier such as “partly cloudy” are also being misinterpreted. Pifer and Mogil (1978) discussed about hazardous weather terminology with the focus on the interpretation of the words “watch” and “warning”. Approximately 70 and 90% of the general public understood properly those two terms. However, Leik et al. (1981) affirmed that hazardous warnings are not properly formulated in order to make the general audience to take action accordantly.

Abrams (1971) discussed about the terminology of precipitation. He highlighted that the large audience often misinterpreted this type of terminology and that a standardization of terms between different regions should be in place. In addition to this, he considers that the large public should be educated in means of meteorology and more precisely weather terms and their meaning. Yacowar (1979) acknowledged the same issue and mentioned that this type of differences may occur because of the weather variations in different regions. What for one may be a “sunny” day for another may be a “cloudy” day. In order to maintain a clear pattern, the terminology used for the local weather forecasts should be the same used for the regional weather forecasts. To resolve the problem of weather variation and their perception in different regions, Oddie (1964) proposed that briefly a report of the country should be made and direct after a detailed regional report should be presented with the location’s particularities. In doing so, the large audience can have an overview of the countries weather prognosis and then focus on the local prognosis. The given information should match to their perception of “sunny” or “cold”.

Sherrod and Neuberger (1958) and Oddie (1964) suggested that a simplified terminology should be used in communicating the weather. Landsberg (1940) affirmed that "terms should be unmistakable". In such complex field it is important to reduce the synonymy of terms. This creates confusion among the weather forecast listener and can lead to misinterpretation of the forecast. Another study was made by the Canadian Meteorological Service in 1970 in which several people were interviewed in order to find out if they notice any changes regarding the used weather format. They concluded that over 80% of the interviewees have not observed any difference.

An outstanding problem seems to be among the interpretation of the probability terms. It is understandable that this type of terms can create confusion not only because of their form, but because of what they intend to mean. They are presenting

uncertainty, uncertainty which creates confusion among the large audience. Rogell (1971) made a survey through which he found out that terms such “partly sunny” or “wind chill” are often misinterpreted.

In *Communicating Weather Information to the Public: People's Reactions and Understandings of Weather Information and Terminology*, Scott Powell and H. Dan O'hair (2008) highlighted relevant characteristics for understanding and reacting to weather information. They highlighted that “In order to improve “environmental literacy” within the general public, one must first decide how to disseminate weather information optimally so that the large audience, ideally everyone affected, may make correct decisions” (Powell S., O'hair D. 2008: 1).

Another paper which focuses on the weather terminology and the relation between the forecast terms and the large audience was written by C. R. de Freitas and K. M. Wells (1982) and focuses on the terminology found in Auckland's weather reports. The results of their questionnaire provide information regarding three themes: “the perceived importance of items in the forecast”, the understanding of terminology” and “the perceived interest in the value, of forecasts” (Freitas C.R., Wells K.M.:1982:17). They suggest that some specific terms such as “cloudy”, “fine” or “partly cloudy” should be avoided from the forecasts. The language should not contain connotation and it should be addressed directly, for example the word “clear” should be replaced with “good visibility” or “clear sky” with “minimal sky cover”.

C.R Freitas and K. M. Wells (1982) cited the senior vice president of Sunday Sun (March 29, 1981) who said: “Let's say you were walking down the street and you were looking up at the sky, you wouldn't say there was ‘variable cloudiness with shifting winds’, you'd talk like a human being. We try to make the weather come alive for the public by talking about it in the way they'd talk about it” (Freitas C.R., Wells K. M.: 17)

The main goal of every before mentioned study is to acknowledge the issues that are occurring in terminology used in weather forecasts, to find some solutions for them and provide usable recommendation for creating a much better version of the forecasts. Although the interest in the weather forecasts is very high among the large audience, the effort done by the weather specialists regarding the reconstruction of the forecasts is not sufficient. Needless to say, a better communication between linguists and weather forecasters is essential in order to change the occurring misinterpretation. Such a partnership will not only benefit the large audience, who is reading/listening the weather forecast every day and who wants to know which would be the wanted/desirable behaviour, but also the specialist/forecaster, who transmits the message, message which would be better comprehended, and which would make the public to take action accordingly.

The terminology used in such a complex field is not easy to understand. Even though the specialists are reducing the number of terms used in a weather forecast, simply the decrease of the used terms is not enough to make this type of text clearer. It is necessary to understand why some terms are misinterpreted and find synonyms or more approachable variants for the concepts which are problematic. Through

comparing all the above-mentioned studies, one of them could find out which terms were investigated up until and conclude that none of the existing studies focused their attention on the formation and provenience of the terms. For both languages, the highlight was put on few specific terms and their behaviour. Looking at the macrostructure, the issues which were discussed until now in both languages were the precipitation terms and their interpretations. It is also important to focus our attention on common and specialised vocabulary and understand which terms belong to which type of vocabulary.

### 3. Conclusion

Weather forecasts are broadcasted every day in every country. They are read or listened by billions of people daily and influence their behaviour on a regular basis. Even though they are created for the large audience, the discourse is not adequate to fit the understanding of the regular reader/listener (large audience). In order to improve the quality of the discourse and enhance the general understanding, one needed to investigate which was the issues debated until now and which problems needs to be further researched.

Although, lately linguists have taken interest in analysing this field, there are no sufficient studies in order to be able to come with recommendation which could improve the meteorological discourse. As mentioned before, a study regarding the implicature would point out what the sender wants from the receiver and how does the specialists want the message to be interpreted. Another important aspect is the used terminology. There is no study for the language pair English-Romanian in which terms of weather forecasts are analysed. Moreover, a clear overview of which terms are belonging to the specialized vocabulary and which ones are belonging to the common one is needed in order to understand if the meteorological discourse is accessible or not for the large audience.

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