MOUNTAIN WEATHER AND CLIMATE IN THE MEDIA

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Abstract: Information about mountain weather and climate is an essential part of a whole set of information for the end users the NMHS prepares regularly. We are trying to make the best use of all the available media taking into account their peculiarities, but how much interest show from NHMS independent media for mountain climate and weather? How to reach and approach public/users in the most efficient way? Are we able to provide enough and adequate information about peculiar and rapidly changing weather in the mountains to the end users? Is there a need for indices describing the impact of the atmosphere on human beings and not only values of single weather variables? Do we simplify too much? Information gets its real value only when being used, thus it has to be tailored up to the users needs and delivered when needed. Differences even at a very short distance could be significant, great variability and strong gradients require quite dense network. Do we pay enough attention to measurements in the mountains?

Keywords – *mountain weather, mountain climate, media, public information*

1. INTRODUCTION

Weather in mountains is more variable and often more severe as in the low land. Therefore special weather forecasts for the mountain region are required, taking into account variability in time and space, but also paying special attention to the possible severe weather events. To emphasize peculiarities of the mountain weather it is necessary to include some biometeorological relevant parameters (describing thermal comfort, increased solar radiation at high altitude, especially UV radiation) to complement the usual meteorological information. Because of severity of mountain weather end users should get the information about the complex impact of weather on human well being as well as the usually forecasted weather elements.

But not only weather forecasts, also descriptions of climate in mountains should pay adequate attention to the frequency of the extreme conditions, like very strong winds, or heavy precipitation, and climate analysis should include at least the most important biometeorological parameters. When calculating bioclimatological indices we should be careful, because even limited errors in the input data could lead to a much larger error of a derived variable.

Figure 1. Measuring site on Kredarica and Špik mountain group (Photo: Š. Arhar, J. Gartner, T. Cegnar)

Measuring meteorological parameters in the Alps is not an easy task, mainly because of severe climate, remoteness and relatively expensive measuring instruments and maintenance. It is difficult to get volunteers as observers. Measuring sites are not very dense in the high mountains, and the spatial

variability of meteorological variables in such a complex terrain is considerable. Many times the measured values are representative only for the quite limited area, giving no information about the conditions in the very narrow valleys or northern slopes. Synoptic and/or automatic weather stations in the mountains are only few and consequently also data in weather bulletins are limited to a small number of sites. How can we overcome this lack of information? Fortunately nowadays several techniques of remote sensing can help us to get more representative map presentations of meteorological variables in space, but these complex information many times do not reach the end users or they are not able to use these data because they are not equipped for such purpose or they are lacking the necessary interpretation skills.

2. DATA AND FORECASTS IN THE MEDIA

2.1. Television and radio

Radio and TV being among traditional and in to society well-integrated media remain important and efficient in spite of several limitations. Of course, if there is significant difference between weather in the mountains and elsewhere this is mentioned also within the regular daily weather forecast, however not in too many details. Here we concentrate only on the special forecasts and warnings for the mountain area. On TV Slovenija weather forecast for mountains is issued twice per day: in the main evening forecast, and in the last daily forecast. During the last years we provide a mountain forecast for all three major mountain groups in Slovenia. Temperature at two altitudes (2500 m and 1500 m) and significant weather with wind in the morning and afternoon are represented on the graphics. Snow conditions are mentioned each time when there is a significant amount of fresh snow. Snow avalanches are mentioned systematically if danger rate reaches degree IV or V, many times it is mentioned also when it is still degree III, but conditions are changing rapidly or many visitors are expected in the mountains. When there is a cold advection with strong winds also the combined effect of low temperature and wind is mentioned. From April until mid September also UV index value for mountains is given.

On the radio special forecast for the mountains is being read daily as part of the special forecasts for tourists and recreation. Also UV index information is provided specially for lowland and mountains. Actual data for all synoptic and automatic weather stations are provided several times per day, mostly each hour.

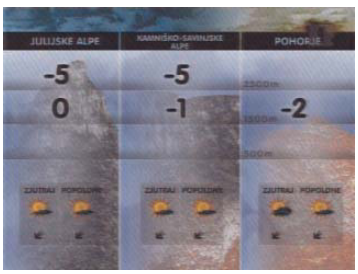


Figure 2. Mountain weather is integral part of weather forecasts on TV Slovenija

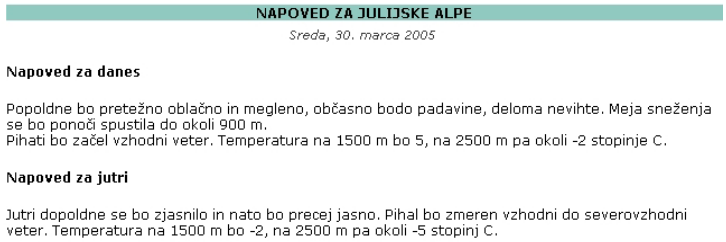
2.2. Internet

During the last few years the Environmental Agency is giving the highest priority to the web. It has several advantages, like it is easy to be kept up to date and suitable for publishing on line data. We are not satisfied with the present graphical and technical solutions on our web page. There is a need to improve the whole graphical image of our internet page, to incorporate new technical solution which will allow us to include more graphics and to simplify the navigation and search for specific information for end users.

There are several weather and climate information regarding mountains available on our web page. One can find weather data on mountain stations, description of snow conditions in the mountains including snow avalanches warnings and weather forecast for Julian Alps (Figure 3). Beside present weather and forecast there is a variety of climatological data. There are tables with average values during

different periods, maps of spatial distribution of single climatological variables. Also UV index is on the web. But there is a lack of other biometeorological relevant data, for example perceived temperature.

It has to be noticed that there is no special mountain weather forecast in newspapers in Slovenia. The most detailed information about weather in the mountains could be obtained by calling the forecasted on duty, there is a special phone number for such purpose.



NAPOVED ZA JULIJSKE ALPE

Sreda, 30. marca 2005

Napoved za danes

Popoldne bo pretežno oblačno in megleno, občasno bodo padavine, deloma nevihte. Meja sneženja se bo ponoči spustila do okoli 900 m.
Pihati bo začel vzhodni veter. Temperatura na 1500 m bo 5, na 2500 m pa okoli -2 stopinje C.

Napoved za jutri

Jutri dopoldne se bo zjasnilo in nato bo precej jasno. Pihal bo zmeren vzhodni do severovzhodni veter. Temperatura na 1500 m bo -2, na 2500 m pa okoli -5 stopinj C.

Figure 3. Mountain weather forecast for Julian Alps on the ARSO intrenet

2.3. Publications

There are also several printed publications, among them the most important are: Monthly bulletin, Meteorological Annals, Climatograph of Slovenia and some ad hoc issued publications.

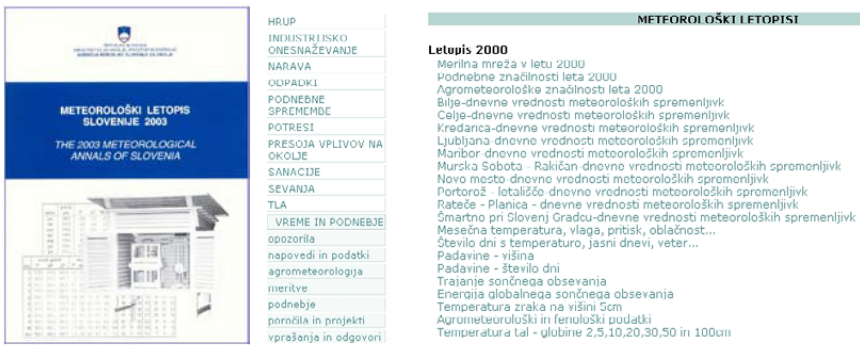


Figure 4. Meteorological annals, booklet and on the web

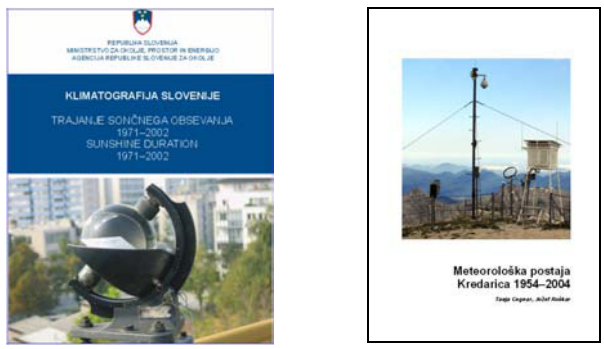


Figure 5. Climatograph of Slovenia – Sunshine duration and booklet issued in occasion of the 50th anniversary of Meteorological station on Kredarica

Meteorological Annals of Slovenia have been issued since 1991. A single issue is divided into two parts; in the first, climatic characteristics and meteorological data are processed, and in the second, vegetation characteristics and agrometeorological data for the year in question. Data from all stations in the mountains are included in the same way as data from other regions. There is no special emphasis to the mountain region, in comparison to the lowland mountain region is underestimated, because of less dense network in the mountains. Meteorological annals of Slovenia is published in printed version and on the internet.

We systematically process all measured and observed meteorological variables recorded at meteorological stations throughout Slovenia. They are published in the publication **Klimatografija Slovenije** (Climatograph of Slovenia) in volumes in which are collected monthly data on individual meteorological variables from meteorological stations where measuring has taken place since 1961. In individual volumes are described the measuring protocol for the processed variables, spatial and time analysis of the variable in Slovenia is included. A map of Slovenia is shown with average values of variables and monthly and annual values of variables in tables. In introduction a peculiarity of the mountain area is pointed out.

Monthly bulletin is published once a month; in it meteorological, agrometeorological, hydrological data, data on air pollution, quality of surface waters and earthquakes in the past month are collected. Beside data one can find also evaluations of events compared to the normals. It is issued in printed version, on compact disk and on the web, but there is also an automatic distribution list by e-mail. Description of climatic conditions always pays due attention to the mountains.

Figure 6. Monthly bulletin is a source of quite comprehensive description of monthly data and climate in lowland and in Julian Alps

3. CONCLUSION

Each year we notice that in spice timely issued snow avalanche warnings, correct and timely forecasted severe weather events some mountain visitors disregard such information. Many times they underestimate the force of nature, many times they overestimate their capabilities, and some of them are just challenging nature in search for high adrenalin experiences. Not always, but sometimes such a behaviour can lead to events with tragic consequences. That is a very strong reason to pay special attention to mountain weather data and forecasts, with special emphasis to warnings.

For preserving the vulnerable mountain ecosystem comprehensive information about climate is necessary. No major planning and environmental change should take place before an analysis of the potential impacts on the environment has been done. A comprehensive, towards customer oriented information about climate could be very helpful to decision makers. Not only tourists and sportsmen are interested in weather and climate information in the alpine region; also many permanent inhabitants in the Alps, some of the industries are developing there, the most prosperous of all of them is certainly the tourism. They all could take advantage of use of this kind of information.

The large year to year fluctuations of the primary climatic elements often make it difficult to discern slowly varying climate signals such as long term trends. The topographic factors influence the nature of the mountain climate response to global change and indeed suggest that the potential for complex and significant climate variations is enhanced in mountain area. Interdisciplinary approach add value compared to a single disciplinary oriented assessment, it provides useful information to decision makers.

It is obvious that in many of the media there is a lack of information about mountain weather and climate, but also in those media where such information is included, could be done more to tailor the information to the end users needs. Especially the absence of some biometeorological relevant information is evident. Our future efforts should contribute to widely introduce biometeorological relevant information in our media and enhance use of such information among the end users.