



Analysis of the winter season 2010/2011 in Serbia

During winter season 2010/2011, mean air temperature in Serbia was around normal with the anomalies in the range of -1°C to 1°C (reference period 1971-2000). Maximum daily temperature was measured on 9 December 2010. in Belgrade (22.4°C) and the lowest temperature was measured in Sjenica (southwest part of Serbia) of -22.7°C on 2 February 2011.

According to terciles method (reference period 1971-2000) temperature was normal in most of Serbian territory. Temperature was below normal in the far east part of Serbia.

The SEECOF-IV outlook for temperature was relatively good. The prediction stated that there were only 25% chances for above normal temperature over Serbian territory.

There were only two stations in Serbia where temperatures were in category above normal for the reference period 1961-1990, and none station for the reference period 1971-2000.

In central and southeastern parts of Serbia, the number of frost days (daily minimum $TN < 0^{\circ}\text{C}$) was higher than normal and lower than normal in other parts of the country (deviations were up to 8 days).

The number of ice days (daily maximum $TX < 0^{\circ}\text{C}$) was above normal in northern and central parts of Serbia and below normal (deviations ranged from -10 to 12 days) in the southwest and far east.

Winter precipitation were within the range of normal values (75-125%), except in the far east where the quantities ranged up to 175% of the normal 1971-2000. Maximum daily precipitation amount of 37.0 mm was measured in Vranje (south of Serbia) on 4 December 2010.

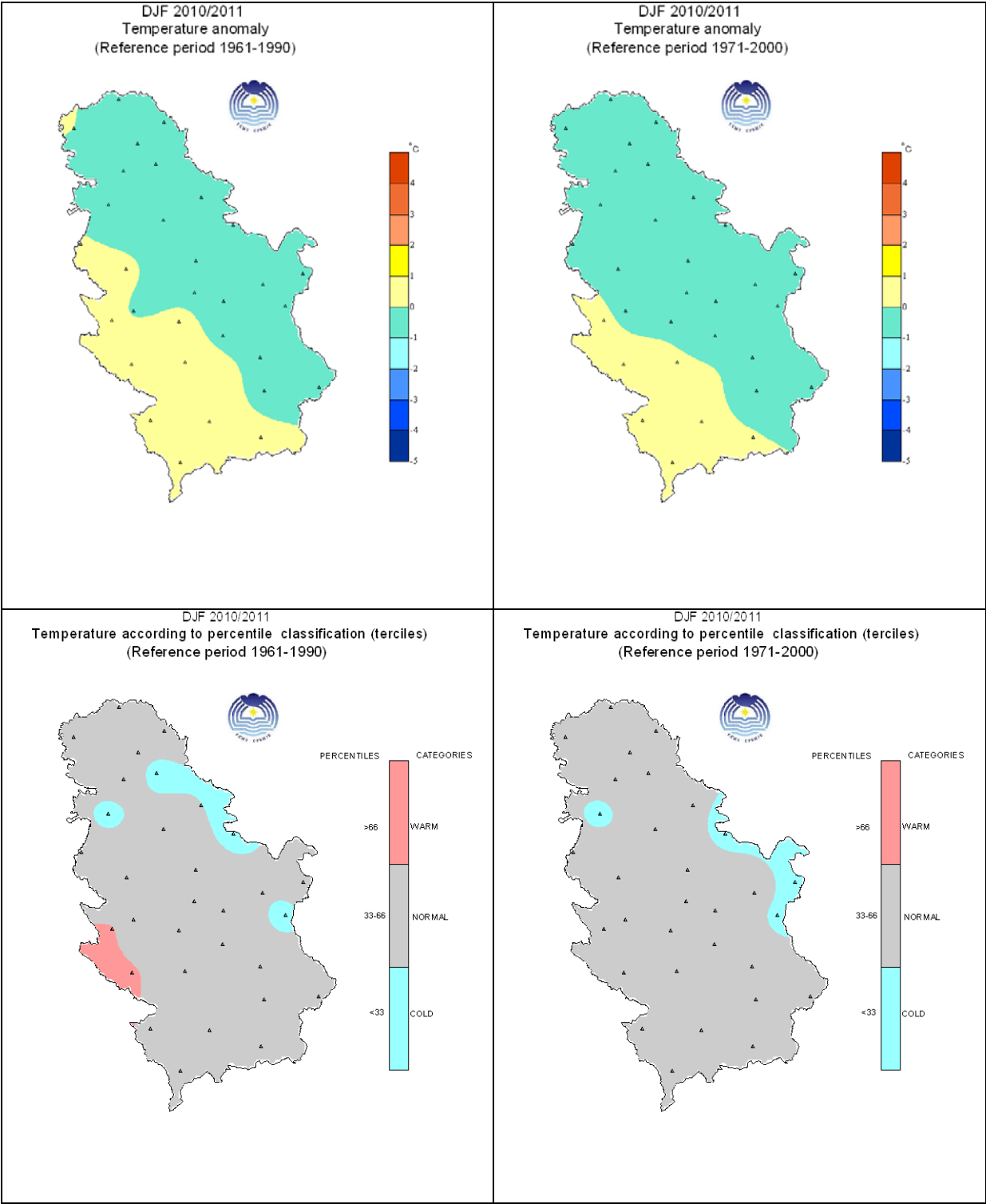
According to terciles method (reference period 1971-2000) precipitation were normal in most part of Serbia. Parts of east and southeast of Serbia were wet.

The SEECOF-IV outlook for precipitation were relatively good for southeastern areas of Serbia. The prediction stated that there are 35% chances for above normal and 35% chances for normal. In the other parts of Serbia precipitation were in category normal which was predicted with 30% chances, while it was expected wet with 45% chances.

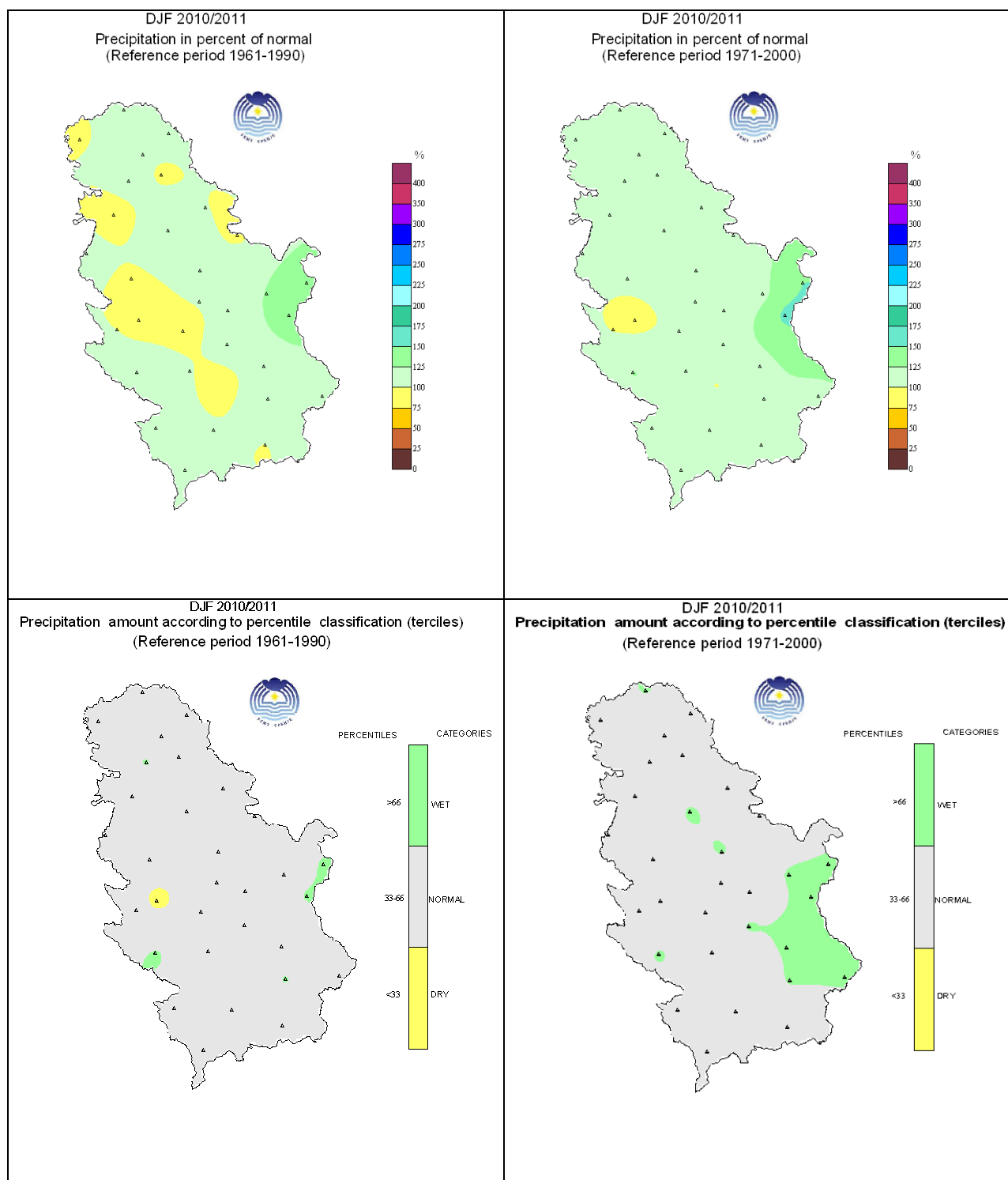
Maximum snow depth on mountains were from 34 up to 51 cm and in the plains up to 31cm, both in February 2011. The number of days with snow cover was lower than average on the mountains and higher than average in the plains, according to referent period 1961-1990.

By the beginning of December, heavy precipitation in the southeastern Europe, and especially in Montenegro and Bosnia and Herzegovina (from 100 mm to 200 mm in 3 days), caused great rise of the water level on all the rivers in the Drina basin. Flood wave formed on the Lim and the Drina ranged in the domain of very high values and lasted during the first decade of December 2010. The water levels on the whole basin of the Drina river exceeded the points on which the emergency flood defense is announced. Emergency measures were applied because of the flooding from the Drina river bed on some sections. Despite significant protection measures, great material damage occurred in the whole course of the Lim and in the lower and middle course of the Drina. A new absolute maximum water level was recorded on the Drina river at the hydro-power station Radalj, $H=659$ cm, 3 December 2010. During December 2010, the water level of the Sava river was rising and ranged in the domain of high values for this period. The limits of regular and emergency flood defense were exceeded on the whole course of the Sava river through Serbia territory. By the end of December 2010 and during the first decade of January 2011, coastal ice and moving ice of 10% to 30% formed on the river Tisa. On the water courses of Banat region (north of Serbia), the Tamis, the Begej, the Moravica and the Brzava, full ice block was formed on three occasions during the winter of 2010/2011: in the second decade of December, from 14 to 20 December, then from 28 December to 10 January and from 29 January to 9 February.

Anomalies of temperature and precipitation in Serbia in relation to the reference periods 1961-1990 and 1971-2000 are shown in the following maps.



Assessment of mean winter season 2010-2011 temperatures and precipitation in Serbia by the tercile method



Anomaly of the number of frost and ice days in Serbia in relation to the average 1961-1990

